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Jakarta, 25 - 26 July 2026

Seventh International Research Conference
on Management and Business

E-PROCEEDINGS

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***“Enhancing Institutional Capacity for
Sustainable and Resilient Business”***



Hybrid Conference
In-Person & Virtual/Hybrid



Asyana Hotel, Rawamangun, Jakarta
25 - 26 July 2026

HOSTS

ifma



Proceedings

The Seventh International Research Conference on Management and Business (7th IRCMB)

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WELCOMING SPEECH

Warm greetings to everyone,

It is an honor for me to give the opening remark at the Seventh International Research Conference on Management and Business (7th IRCMB). On behalf of Indonesian Financial Management Association (IFMA), I warmly welcome all distinguished speakers, presenters, and participants from around the world to this expressive academic gathering.

This year's theme, “Enhancing Institutional Capacity for Sustainable and Resilient Business” is especially relevant in today’s fast-changing and interconnected world. As we strive to build resilient institutions, economies, and societies, the synergy between sustainability and digital innovation becomes a vital direction for future growth.

Participants of this year’s conference include Sweden, Turkiye, Morocco, Nigeria, Mexico, South Korea, Malaysia, the Philippines, Indonesia, Pakistan, India, Papua New Guinea, and Taiwan. We are proud to host outstanding speakers from leading universities:

- Associate Professor Nelson Lajuni, from FBEA Universiti Malaysia Sabah
- Prof. Omer Faruk Rencber, from FEAS Gaziantep University, Turki
- Prof. Ari Warokka, from BIC Tongmyong University, South Korea

Your insights and perspectives are key to shaping the knowledge and discussions we hope to cultivate throughout this conference.

I would also like to take this opportunity to express my gratitude to FBEA Universiti Malaysia Sabah, FEB Universitas Pakuan, Sekolah Tinggi Ilmu Agama Budha Jinarakkhita, FEB Universitas Pelita Bangsa, Institut Shanti Bhuana, FB Institut Bisnis dan Informatika Kesatuan, FEB Universitas Cenderawasih, FEB Universitas Trunojoyo Madura, FEB Universitas Islam Malang, FEB Universitas Dehasen Bengkulu and STIE YKPN in successfully coordinating this international conference. Our efforts in bringing together institutions and scholars across borders have been instrumental in making this event a reality.

Furthermore, I would like to thank the conference committee and every individual working behind the scenes for their relentless efforts in ensuring the success of this event.

To all participants—students and academics alike—I encourage you to make the most of this platform: share your ideas, explore new perspectives, and build lasting connections.

May this conference be fruitful, insightful, and a step forward in our shared journey toward sustainability and innovation.

Thank you.

Suherman

Chairman of IFMA

Conference chair, 7th IRCMB 2026

CONFERENCE COMMITTEE

Keynote Speakers:

Assoc. Prof. Nelson Lajuni (Faculty of Business, Economics and Accountancy Universiti Malaysia Sabah)
Prof. Omer Faruk Rencber (Faculty of Economics and Administrative Sciences Gaziantep University, Turkiye)
Prof. Ari Warokka (Busan International College, Tongmyong University, South Korea)

Hosts:

Indonesian Financial Management Association
FBEA Universiti Malaysia Sabah, Malaysia
FEB Universitas Pakuan, Bogor, Jawa Barat
STIAB Jinarakkhita, Lampung
FEB Universitas Pelita Bangsa, Bekasi, Jawa Barat
FEB Universitas Cenderawasih, Papua
FEB Universitas Islam Malang, Malang, Jawa Timur
FEB Universitas Trunojoyo Madura, Jawa Timur
FB Institut Bisnis dan Informatika Kesatuan, Bogor, Jawa Barat
STIE YKPN, Yogyakarta
FEB Universitas Dehasen Bengkulu
Institut Shanti Bhuana, Bengkayang, Kalimantan Barat

Conference Chair:

Prof. Suherman (Universitas Negeri Jakarta)

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Prof. Bo Becker, Stockholm School of Economics, Sweden
Prof. Mohd. Hizam Hanafiah, Universiti Kebangsaan Malaysia
Prof. Agung Buchdadi, State University of Jakarta, Indonesia
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Prof. Chotibak Jotikasthira, Southern Methodist University, USA
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Associate Prof. Rosle Mohidin, Universiti Malaysia Sabah
Associate Prof. Nelson Lajuni, Universiti Malaysia Sabah
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Dr. Agustinus Numberi, Universitas Cenderawasih, Indonesia
Dr. Aloysius Hari Kristianto, Institut Shanti Bhuana, Indonesia
Dr. E. Ahmad Soleh, Universitas Dehasen Bengkulu, Indonesia
Afifudin SE, MSA, Ak, Universitas Islam Malang, Indonesia

CONFERENCE PROGRAM

July 25, 2026 [Jakarta Time]

07.15-08.20: Registration

08.20-08.25: National anthem [online]

08.25-08.30: Welcoming and opening speeches [online]

08.30-09.00: Keynote speech “Enhancing institutional capacity for sustainable and resilient business” by Prof. Nelson Lajuni (FBEA Universiti Malaysia Sabah) [online]

09.00-09.30: Keynote speech “AI and improvement research skills” by Prof. Omer Faruk Rencber (Faculty of Economics and Administrative Sciences Gaziantep University, Turkiye) [online]

09.30-10.00: Keynote speech “Artificial intelligence and innovation for building sustainable and resilient institutions” by Prof. Ari Warokka (Busan International College, Tongmyong University, South Korea) [online]

10.00-13.00: Concurrent session [in person and online]

July 26, 2026

Half day tour (Indonesia in Miniature Park)

PRESENTATION SCHEDULE

(In Person)

10.00 AM – 12.00 PM, 25 JULY 2026 (Jakarta Time)

Room: Jasmine, Asyana Hotel, Rawamangun, Jakarta Timur	
No	Moderator: Titis Fatarina (Universitas Negeri Jakarta)
1	APPLYING INTELLIGENT LANGUAGE MODELS FOR FINANCIAL SENTIMENT AND EVENT ANALYSIS Shian-Chang Huang (National Changhua University of Education, Taiwan)
2	THE HIDDEN COST OF EXCESSIVE WORKLOAD IN THE TOURISM SECTOR: AN ASSESSMENT OF ECONOMIC OUTCOMES THROUGH JOB SATISFACTION AND EMPLOYEE LOYALTY H. Mustafa Paksoy (Gaziantep University, Turkiye)
3	FAITH (RELIGIOUS) TOURISM IN THE WORLD AND TÜRKİYE Sadettin Paksoy (Gaziantep University, Turkiye)
4	THE IMPACT OF TECHNOLOGICAL DEVELOPMENTS ON COMPETITION IN INDUSTRIAL ECONOMICS AND THE AUTOMOTIVE SECTOR Orhan Coban (Gaziantep University)
5	INTELLECTUAL CAPITAL IN HIGHLY REGULATED ENVIRONMENTS: EVIDENCE FROM INDONESIAN CUSTOMS AND EXCISE Claudia Desty Alfiani (Universitas Negeri Malang), Yuli Soesetio (Universitas Negeri Malang)
6	ESG DISCLOSURE AND COST OF CAPITAL: THE CONTINGENT EFFECT OF BOARD GENDER DIVERSITY IN INDONESIA, MALAYSIA, AND SINGAPORE Suherman (Universitas Negeri Jakarta), Mohd Hizam Hanafiah (Universiti Kebangsaan Malaysia), Titis Fatarina (Universitas Negeri Jakarta), Monica Dewi (Universitas Negeri Jakarta)
7	FINANCIAL FREEDOM AND FINANCIAL OPENNESS IN THE POST-PANDEMIC PERIOD: EVIDENCE FROM TÜRKİYE AND ASIAN COUNTRIES Ömer Faruk Rençber (Gaziantep University), Eda Zorkirişçi (Gaziantep University), Titis Fatarina Mahfirah (Universitas Negeri Jakarta)

10.00 AM – 1 PM, 25 JULY 2026 (Jakarta Time)

Room: 1 (Online)	
No	Moderator: Ananda Kayla Rizqalina (Universitas Negeri Jakarta)
1	MASSTIGE MARKETING: MAKING PRESTIGE AFFORDABLE FOR MASS CONSUMERS Dr. Garima Jaiswal Chandra (S.B.S. Government P.G. College, India), Deepa Samant (Soban Singh Jeena University, India)
2	THE IMPORTANCE OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT FROM A SECTORAL PERSPECTIVE: THE HEALTHCARE SECTOR EXAMPLE Merve Tatar (Gaziantep University), Orhan Çoban (Gaziantep University)
3	FROM SYSTEM QUALITY TO CONSUMER TRUST: EVALUATING BLOCKCHAIN-BASED FOOD TRACEABILITY SYSTEMS Rimsha Zahid (Universitas Muhammadiyah Yogyakarta), Munjiati Munawaroh (Universitas Muhammadiyah Yogyakarta)
4	THE INFLUENCE OF MINDFUL LEADERSHIP ON LECTURERS' PERFORMANCE WITH JOB COMMITMENT AS MEDIATING VARIABLE AT A BUDDHIST COLLEGE IN INDONESIA Hendri Ardianto (STIAB Jinarakkhita Lampung), Fendi Dharma (STIAB Jinarakkhita Lampung), Juni Suryanadi (STIAB Jinarakkhita Lampung), Nanda Aditiya (STIAB Jinarakkhita Lampung)
5	BUILDING GENERATION Z WORK COMMITMENT THROUGH A SOCIAL CAPITAL APPROACH AND WORK CULTURE INNOVATION AT PT.PROFESIONAL TELEKOMUNIKASI INDONESIA Selvinus Yeri (Institut Shanti Bhuana)
6	THE INFLUENCE OF THE MARKETING MIX (7P) ON CONSUMER REPURCHASE INTENTION AT THE MR. BENGKAYANG DIY STORE Elvi Gui My Lin (Institut Shanti Bhuana)
7	DIGITAL MARKETING STRATEGY FOR PROCIO SHOES MSME IN BOGOR REGENCY Putri Nurhalisa (Universitas Pakuan Bogor), Eka Patra (Universitas Pakuan Bogor), Abel Ghandy (Universitas Pakuan Bogor), Muhamad Fahmi Hafidz Fadillah (Universitas Pakuan Bogor)
8	THE GAP ANALYSIS OF THE INTEGRATED FRAMEWORK OF TECHNOLOGICAL DISRUPTION, LEADERSHIP ADAPTABILITY, AND ENTREPRENEURIAL ORIENTATION THROUGH THE LENS OF DYNAMIC CAPABILITIES Ramadhonni Utama (President University), Arifin (President University), Stephanus R.W. (President University)
9	DETERMINANTS FEAR OF MISSING OUT (FOMO) AND DIGITAL LIFESTYLE ON SPORTSWEAR PRODUCT PURCHASE DECISIONS AMONG STRAVA USERS IN BOGOR CITY Esmi Fia Hilmia (Universitas Pakuan Bogor), Fredi Andria (Universitas Pakuan Bogor), Eka Patra (Universitas Pakuan Bogor)
10	DETEKSI GREENWASHING DALAM LAPORAN KEBERLANJUTAN DAN REAKSI PASAR MODAL DENGAN ESG RISK SCORE DAN FIRM SIZE SEBAGAI VARIABEL MODERASI: PENDEKATAN EVENT STUDY Beby Ayu Wardhani (STIE YKPN), Nurofik (STIE YKPN)

Room: 2 (Online)	
No	Moderator: Wisnu (Universitas Negeri Jakarta)
1	BEYOND THE MARGINS: ARTIST EMPOWERMENT IN SOUTH ASIA: BARRIERS, PATHWAYS, AND A MULTILEVEL CONCEPTUAL MODEL Rafia Arshad (National College Business Administration and Economics, Pakistan)
2	CONFIDENCE OVER CONCERNS: HOW SELF-EFFICACY DRIVES HEALTHCARE TECHNOLOGY ADOPTION Suci Utami Apsari (Petra University), Devie (Petra University), Josua Tarigan (Petra University)
3	WORKPLACE SPIRITUALITY AND TURNOVER INTENTION: THE MEDIATING ROLE OF JOB SATISFACTION AMONG HOSPITAL EMPLOYEES IN BANDAR LAMPUNG CITY Mega Afrilia Gautami (STIAB Jinarakkhita Lampung), Frandysken Javier Darien (STIAB Jinarakkhita Lampung), Hendri Ardianto (STIAB Jinarakkhita Lampung), Juni Suryanadi (STIAB Jinarakkhita Lampung)
4	INTEGRATING INTERNET OF THINGS AND GREEN MANUFACTURING FOR SUSTAINABLE SME PERFORMANCE: EVIDENCE FROM INDONESIA'S LOCAL CRAFT INDUSTRY Manggar Wulan Kusuma (STIE YKPN Yogyakarta)
5	THE INFLUENCE OF ADVERTISING DISPLAY DESIGN AND BRAND IMAGE ON CONSUMER PURCHASE INTENTION TOWARD EIGER PRODUCTS IN BENGKAYANG REGENCY Agustinus Agi (Institut Shanti Bhuana)
6	STRATEGIC HUMAN RESOURCE MANAGEMENT AND INNOVATIVE WORK BEHAVIOR: THE MEDIATING ROLE OF ORGANIZATIONAL COMMITMENT AMONG EMPLOYEES IN THE BANKING INDUSTRY IN INDONESIA Gunawan Gusnadi (STIAB Jinarakkhita Lampung), Hendri Ardianto (STIAB Jinarakkhita Lampung), Puspita Sari (STIAB Jinarakkhita Lampung), Juni Suryanadi (STIAB Jinarakkhita Lampung)
7	PEOPLE'S CREDIT INVENTION AND ITS IMPACT ON SMALL SCALE MANUFACTURING FIRMS: EVIDENCE FROM INDONESIA Dewi Wulansari (Universitas Trunojoyo Madura), Ismawati (Universitas Trunojoyo Madura), Ulfa Aulia (Universitas Trunojoyo Madura)
8	MARKETING STRATEGY ANALYSIS IN ENHANCING THE COMPETITIVENESS OF AIR CONDITIONER SERVICE BUSINESSES AT CV. MAC HOME AC Malfa Thiara Sanjaya (Universitas Pakuan Bogor)
9	THE INFLUENCE OF SOCIAL MEDIA MARKETING, BRAND AWARENESS, AND INFLUENCER REVIEWS ON PURCHASE SATISFACTION OF DEPOT MENTARI MALANG ON INSTAGRAM Ahmad Reyhan Arsyali (Universitas Islam Malang), Jeni Susyanti (Universitas Islam Malang), Alfian B Primanto (Universitas Islam Malang)
10	CORPORATE GOVERNANCE MECHANISMS AND CARBON DISCLOSURE: THE ROLE OF THE ESG COMMITTEE AND THE AUDIT COMMITTEE WITH THE MODERATING EFFECT OF GENDER DIVERSITY Gatot Nazir Ahmad (Universitas Negeri Jakarta), Umi Widyastuti (Universitas Negeri Jakarta), Suherman (Universitas Negeri Jakarta), Monica Dewi (Universitas Negeri Jakarta)

Room: 3 (Online)	
No	Moderator: Andy (Universitas Negeri Jakarta)
1	POST-IPO FINANCIAL PERFORMANCE OF FIRMS IN INDIA: AN EMPIRICAL ANALYSIS OF NSE-LISTED COMPANIES Aaron Shi (India)
2	ESG CONTRACTING AND ESG OUTCOMES: A CONCEPTUAL FRAMEWORK ON THE MODERATING ROLE OF BOARD GENDER DIVERSITY AND COMPENSATION COMMITTEE IN GCC BANKS Mugahed Mahyoub (Universiti Kebangsaan Malaysia), Roslan Ja'afar (Universiti Kebangsaan Malaysia), Abdullah Alharbi (Universiti Kebangsaan Malaysia)
3	HUMAN RESOURCE MANAGEMENT: THE ROLE OF MINDFULNESS AND BUDDHIST ETHICAL LEADERSHIP IN ENHANCING EMPLOYEE PERFORMANCE THROUGH WORK ENGAGEMENT IN BUDDHIST EDUCATIONAL ORGANISATIONS IN INDONESIA Su Dyana Ram (STIAB Jinarakkhita Lampung), Hendri Ardianto (STIAB Jinarakkhita Lampung), Juni Suryanadi (STIAB Jinarakkhita Lampung), Kartika (STIAB Jinarakkhita Lampung)
4	THE INFLUENCE OF WORK MOTIVATION AND ORGANISATIONAL CULTURE ON EMPLOYEE PERFORMANCE THROUGH JOB SATISFACTION AMONG EMPLOYEES OF REGIONAL GOVERNMENT AGENCIES IN LAMPUNG PROVINCE Meta Amelia Putri (STIAB Jinarakkhita Lampung), Hendri Ardianto (STIAB Jinarakkhita Lampung), Varen Febriantoro (STIAB Jinarakkhita Lampung), Juni Suryanadi (STIAB Jinarakkhita Lampung)
5	THE EFFECT OF JOB SATISFACTION AND WORK MOTIVATION ON ORGANIZATIONAL CITIZENSHIP BEHAVIOR IN SOCIAL SERVICE, WOMEN'S EMPOWERMENT, AND CHILD PROTECTION EMPLOYEES IN BENGKAYANG REGENCY Winda Selfiana (Institut Shanti Bhuana)
6	ANALYSIS OF WORK MOTIVATION ON EMPLOYEE DISCIPLINE AND WORK PRODUCTIVITY AT PT. X Arista Astarina Pio (Institut Shanti Bhuana)
7	TOURISM RECOVERY AND MACROECONOMIC RESILIENCE IN INDONESIA AND MALAYSIA: A COMPARATIVE DESCRIPTIVE ANALYSIS OF TOURIST MOBILITY, HOTEL OCCUPANCY, AND ECONOMIC CONTRIBUTION Ahmad Soleh (Universitas Dehasen Bengkulu), Made Setini (Universitas Warmadewa Bali), Hamrila Abdul Latif (Univesiti Malaysia Sarawak)
8	SERVICE QUALITY ANALYSIS AT PT PESAT LAND PROPERTY Dwika Dzikro Afifah (Universitas Pakuan Bogor), Abel Ghandhy (Universitas Pakuan Bogor), Delta Hadi (Universitas Pakuan Bogor), Naziha Afsi (Universitas Pakuan Bogor)
9	THE EFFECT OF CUSTOMER EXPERIENCE, SATISFACTION, AND TRUST ON GOPAY USER LOYALTY (STUDY ON GENERATION Z IN LOWOKWARU DISTRICT, MALANG CITY) Danadya Putri Kamaludin (Universitas Islam Malang), Rois Arifin (Universitas Islam Malang), Rachmawati (Universitas Islam Malang)
10	ARTIFICIAL INTELLIGENCE AND THE SUSTAINABLE DEVELOPMENT GOALS: MAPPING RESEARCH TRENDS THROUGH A SYSTEMATIC LITERATURE REVIEW Nazmi Ayyash Muffadha (Universitas Pakuan Bogor), Anwar Sulaiman (Universitas Pakuan Bogor)

Room: 4 (Online)	
No	Moderator: Ika Miftahul Janah (Universitas Negeri Jakarta)
1	THE TRANSFORMATION OF IT AUDIT THROUGH ARTIFICIAL INTELLIGENCE IN MOROCCO: A QUALITATIVE STUDY OF INTERNAL AND EXTERNAL AUDITORS' PERCEPTIONS AND PRACTICES Doha HARRAG (Chouaïb Doukkali University Morocco), El Madani HOSNI ALAOUI (Chouaïb Doukkali University Morocco), Issam EL FILALI (Chouaïb Doukkali University Morocco), Hassan SASSI (Chouaïb Doukkali University Morocco)
2	USABLE DIGITALIZATION: EVIDENCE FROM THE INTRAS OPEN DATA SYSTEM FOR INFRASTRUCTURE ACCOUNTABILITY IN WEST LOMBOK REGENCY, INDONESIA Lalu Sahabuddin Abdurrahman (University of Mataram), Mukmin Suryatni (University of Mataram), Thatok Asmony (University of Mataram), Akhmad Saufi (University of Mataram), Sumirah (University of Mataram)
3	SERVANT LEADERSHIP AND EMPLOYEE PERFORMANCE: THE MEDIATING ROLE OF ORGANIZATIONAL CITIZENSHIP BEHAVIOR AMONG UNIVERSITY EMPLOYEES IN LAMPUNG PROVINCE, INDONESIA Dewi Maya (STIAB Jinarakkhita Lampung), Davin Nanda Karuna (STIAB Jinarakkhita Lampung), Juni Suryanadi (STIAB Jinarakkhita Lampung), Hendri Ardianto (STIAB Jinarakkhita Lampung)
4	THE EFFECTS OF SOCIAL MEDIA MARKETING ON PURCHASE INTENTION: THE MEDIATING ROLE OF BRAND TRUST AMONG INSTAGRAM USERS IN BANDAR LAMPUNG Luwih (STIAB Jinarakkhita Lampung), Derianto (STIAB Jinarakkhita Lampung), Frandysken Javier Darien (STIAB Jinarakkhita Lampung), Henny Meyliana (STIAB Jinarakkhita Lampung)
5	THE ROLE OF VILLAGE HEAD LEADERSHIP ON COMMUNITY PARTICIPATION IN THE DEVELOPMENT OF TAPEN VILLAGE Habel (Institut Shanti Bhuana)
6	THE EFFECT OF HUMAN CAPITAL READINESS ON KITCHEN WORKER'S PERFORMANCE THROUGH WORK ENGAGEMENT AND JOB SATISFACTION WITH PERCEIVED ORGANIZATIONAL SUPPORT AS A MODERATING VARIABLE IN THE FREE NUTRITIOUS MEAL PROGRAM Aeni Fauziyah Wulandari (Universitas Padjajaran), Bambang Hermanto (Universitas Padjajaran), Herwan Abdul Muhyi (Universitas Padjajaran), Iwan Sukoco (Universitas Padjajaran)
7	READINESS OF THE CULTURAL TOURISM ECOSYSTEM TO ADOPT DIGITAL TECHNOLOGY FOR SUPPORTING SUSTAINABLE TOURISM PROMOTION IN BENGKULU CITY Ida Ayu Made Er Meytha Gayatri (Universitas Dehasen Bengkulu), Andy Mulyana (Universitas Terbuka), Ongi Jaya Saputra (Universitas Dehasen Bengkulu)
8	BRIDGING THE GENDER INVESTMENT GAP AMONG YOUNG WOMEN IN PAPUA THROUGH DIGITAL FINANCIAL LITERACY AND FINANCIAL SELF-EFFICACY? Sheilla Putri Agustin (Cenderawasih University), Rizka Cintya Edwar (Cenderawasih University), Agustinus Numberi (Cenderawasih University)
9	THE EFFECT OF WORKLOAD AND WORK FLEXIBILITY ON EMPLOYEE PERFORMANCE WITH WORK-LIFE BALANCE AS A MEDIATING VARIABLE (STUDY ON THE DIGITAL CREATIVE INDUSTRY IN MALANG CITY) Taqiyuddin Robbani Maulana (Universitas Islam Malang), M. Ridwan Basalamah (Universitas Islam Malang), M Sirojuddin Amin (Universitas Islam Malang)
10	FEMALE BOARD REPRESENTATION, ESG PERFORMANCE, CARBON DISCLOSURE, AND THE COST OF CAPITAL: EVIDENCE FROM INDONESIA AND MALAYSIA Suherman (Universitas Negeri Jakarta), Titis Fatarina Mahfirah (Universitas Negeri Jakarta), Wahyu Wastuti (Universitas Negeri Jakarta), Monica Dewi (Universitas Negeri Jakarta), Rossazana Ab Rahim (Universiti Malaysia Sarawak), Berto Usman (Universitas Bengkulu)

Room: 5 (Online)	
No	Moderator: Aji (Universitas Negeri Jakarta)
1	DIGITAL BANKING AND FINANCIAL INCLUSION IN PAPUA NEW GUINEA: EMPIRICAL EVIDENCE FROM USER ADOPTION, INFRASTRUCTURE CONSTRAINTS, AND BEHAVIORAL DRIVERS Anandbabu Rajendiran (International Training Institute, Papua New Guinea)
2	THE IMPACT OF DIGITAL MARKETING CAPABILITIES ON CUSTOMER LOYALTY: THE MEDIATING ROLE OF CUSTOMER SATISFACTION AMONG CUSTOMERS OF CULINARY MSMES IN LAMPUNG PROVINCE Viola (STIAB Jinarakkhita Lampung), Luwiha (STIAB Jinarakkhita Lampung), Albert Betrand Giovanni Setiawan (STIAB Jinarakkhita Lampung), Henny Meyliana (STIAB Jinarakkhita Lampung)
3	THE INFLUENCE OF BRAND IMAGE AND PRODUCT QUALITY ON PURCHASE INTENTION FOR SKINTIFIC SKINCARE IN BENGKAYANG REGENCY Susi Suliawati (Institut Shanti Bhuana)
4	ADOPTION OF ARTIFICIAL INTELLIGENCE (AI) IN SMES IN PAPUA NEW GUINEA: FACTORS, BARRIERS, AND IMPLICATIONS Anandbabu Rajendiran (International Training Institute, Papua New Guinea)
5	DIGITAL MARKETING COMMUNICATIONS, CULTURAL BRAND IDENTITY, AND CONSUMER PURCHASE DECISIONS: A QUALITATIVE CASE STUDY OF BATIK BESUREK CONSUMERS IN INDONESIA Siti Hanila (Universitas Dehasen Bengkulu), Wan Farha (Universitas Malaysia Kelantan), Karona Cahya Susena (Universitas Dehasen Bengkulu)
6	THE INFLUENCE OF OCCUPATIONAL SAFETY AND HEALTH (K3) AND TEAMWORK ON THE PERFORMANCE OF FIRE AND RESCUE DEPARTMENT EMPLOYEES IN BENGKULU CITY Rupita Rachmayati Ulandari (Universitas Dehasen Bengkulu)
7	OPTIMIZING INSTAGRAM SOCIAL MEDIA PROMOTION TO INFLUENCE CONSUMERS' PURCHASE DECISIONS FOR ERIGO PRODUCTS Antoni Reynara (Universitas Pakuan Bogor), Anwar Sulaiman (Universitas Pakuan Bogor)
8	E-COMMERCE ADOPTION AMONG SMALL BUSINESSES IN PAPUA NEW GUINEA Anandbabu Rajendiran (International Training Institute, Papua New Guinea)
9	THE EFFECT OF KEY OPINION CONSUMERS ON PURCHASE INTENTION TOWARD LOCAL SKINCARE PRODUCTS THROUGH THE TRUST INDEX: A STUDY OF GENERATION Z TIKTOK USERS IN BOGOR CITY Sabian Toriq Al Fathan (Universitas Pakuan Bogor), Ferdisar Adrian (Universitas Pakuan Bogor), Anwar Sulaiman (Universitas Pakuan Bogor)
10	THE ROLES OF DIGITAL CAPABILITY, EMPLOYEE ENGAGEMENT, AND ORGANIZATIONAL AGILITY IN TRANSLATING DIGITAL HRM INTO MSME BUSINESS PERFORMANCE A CONVERGENT DUAL-PATHWAY MODERATED-MEDIATION MODEL Tutus Rully (Universitas Pakuan Bogor), Herman (Universitas Pakuan Bogor), Karina Apriyani (Universitas Pakuan Bogor)

Room: 6 (Online)	
No	Moderator: Puji Yuniarti (Universitas Negeri Jakarta)
1	THE INTEGRATION OF FINTECH IN ISLAMIC FINANCE: OPPORTUNITIES, CHALLENGES AND SHARIA COMPLIANCE FRAMEWORK Anas Yushau Ango (Bayero University, Kano, Nigeria)
2	RELATIONSHIP MARKETING AND CUSTOMER RETENTION: THE MEDIATING ROLE OF CUSTOMER ENGAGEMENT AMONG HOTEL CUSTOMERS IN BANDAR LAMPUNG, INDONESIA Vina Pujayanti (STIAB Jinarakkhita Lampung), Pandu Mutara Cita (STIAB Jinarakkhita Lampung), Luwiha (STIAB Jinarakkhita Lampung)
3	THE INFLUENCE OF PRODUCT QUALITY AND PRICE ON CONSUMER SATISFACTION OF HANASUI PRODUCTS IN BENGKAYANG REGENCY Astri Evarista Nadila (Institut Shanti Bhuna), Aloysius Hari Kristianto (Institut Shanti Bhuna)
4	COMPANY INTERACTION WITH TAX STAFF AND ITS IMPACT ON TAX COMPLIANCE: AN EMPIRICAL STUDY IN INDONESIA M. Eka Firjatulloh Ihsan (Universitas Trunojoyo Madura), Wisnu Ardi Nugroho (Universitas Trunojoyo Madura), Athoullah Mondir (Universitas Trunojoyo Madura)
5	THE IMPACT OF TECHNOLOGICAL DISRUPTION, LEADERSHIP ADAPTABILITY, AND ENTREPRENEURIAL ORIENTATION ON FIRM PERFORMANCE Maradel Sijabat (President University), Aria Muhammad Arlan (President University), Liu Hongli (President University), Stephanus Remond Waworuntu (President University)
6	THE ROLE OF TALENT MANAGEMENT IN THE INTEGRITY ZONE PILOT PROJECT AT THE REGIONAL OFFICE OF THE MINISTRY OF RELIGIOUS AFFAIRS, BENGKULU PROVINCE Triyanto (Universitas Dehasen Bengkulu), Wagini (Universitas Dehasen Bengkulu)
7	THE EFFECT OF INFLATION, MUSYARAKAH FINANCING, AND FINANCIAL PERFORMANCE ON THE PROFITABILITY OF ISLAMIC COMMERCIAL BANKS DURING THE 2020–2024 PERIOD Ajeng Lefiana (Universitas Islam Malang), Afifudin (Universitas Islam Malang), Mohamad Bastomi (Universitas Islam Malang)
8	DIGITAL MARKETING STRATEGY FOR TAHU CRISPY PAKUAN MSME TO ENHANCE MARKET REACH Burda Agustina Saputri (Universitas Pakuan Bogor), Abel Gandhi (Universitas Pakuan Bogor), Hasbi Rizki Suardi (Universitas Pakuan Bogor)
9	THE INFLUENCE OF AUTHENTIC LEADERSHIP AND ORGANIZATIONAL COMMUNICATION ON THE AFFECTIVE COMMITMENT OF MANAGEMENT STUDY PROGRAM STUDENT ASSOCIATION (HIMAPRODI) OFFICERS WITH INTRINSIC MOTIVATION AS A MEDIATING VARIABLE Dhea Wahyu Nur Sejati (Universitas Islam Malang), Khalikussabir (Universitas Islam Malang), Sulton Sholehuddin (Universitas Islam Malang)
10	THE EFFECT OF AUDITOR COMPETENCE AND INDEPENDENCE ON AUDIT QUALITY Maria Florensiana Efrida Ida (Universitas Pakuan Bogor), Rochman Marota (Universitas Pakuan Bogor), Heru Satria Rukmana (Universitas Pakuan Bogor)

Room: 7 (Online)	
No	Moderator: Destria Kurnianti (Universitas Negeri Jakarta)
1	TATTOOS AMONG STUDENTS IN THE HIGHER EDUCATION INSTITUTIONS: PERSPECTIVE OF PARENTS AND TEACHERS Mikylla J. Ponce (Polytechnic University of the Philippines), Abiegail F. Cabrera (Polytechnic University of the Philippines), Pia Shamel A. Perales (Polytechnic University of the Philippines), Alexandra B. Rellores (Polytechnic University of the Philippines), Angeline T. Villegas (Polytechnic University of the Philippines), Assoc. Prof. Jessie I. Quierrez (Polytechnic University of the Philippines)
2	SERVICE QUALITY AND BRAND IMAGE AND THEIR IMPACT ON CUSTOMER LOYALTY THROUGH CUSTOMER SATISFACTION AMONG RESTAURANT CUSTOMERS IN BANDAR LAMPUNG Dimas Gata Pratama (STIAB Jinarakkhita Lampung), Luwiha (STIAB Jinarakkhita Lampung), Adelia Mahayani Putri (STIAB Jinarakkhita Lampung), Henny Meyliana (STIAB Jinarakkhita Lampung)
3	CUSTOMER LOYALTY DETERMINATION: ASPECTS OF SERVICE QUALITY AND USER SATISFACTION OF SHOPEE IN BENGKAYANG REGENCY Hesti Lestari (Institut Shanti Bhuana)
4	CASE STUDY ON CORRUPTION IN THE MANAGEMENT OF GOVERNMENT GOODS/SERVICES PROCUREMENT IN INDONESIA FOR THE 2024-2025 PERIOD Dodi Hardinata (Universitas Dehasen Bengkulu)
5	ANALYSIS OF DIGITAL MARKETING STRATEGY IN INCREASING SALES OF FLOWER ARRANGEMENTS Musrifah (Universitas Trunojoyo Madura), Setiawan Budi (Universitas Trunojoyo Madura), Hoirun Nisa (Universitas Trunojoyo Madura), Abdul Manap (Universitas Trunojoyo Madura), Yudhanta Sambharakreshna (Universitas Trunojoyo Madura), Fauzan Yuha Yahdiyah (Universitas Trunojoyo Madura)
6	THE SOCIAL VIBE: UNVEILING THE IMPACT OF LIFESTYLE AND CAFE AMBIENCE ON CONSUMER PATRONAGE AT CAFE SEDJENAK Favien Riza Zahesya (Universitas Dehasen Bengkulu), M Rahman Febliansa (Universitas Dehasen Bengkulu), Sri Handayani (Universitas Dehasen Bengkulu)
7	DOES PROFITABILITY CHANGE THE MARKET VALUE OF ENVIRONMENTAL DISCLOSURE AND BOARD GOVERNANCE? EVIDENCE FROM INDONESIAN MINING COMPANIES Wahyu Rama Dani (Universitas Islam Malang), Nur Diana (Universitas Islam Malang), Nuril Badria (Universitas Islam Malang)
8	DO ESG PERFORMANCE AND CARBON INTENSITY MATTER FOR STOCK PRICES? THE MEDIATING ROLE OF CORPORATE CARBON TRANSITION AND THE MODERATING EFFECT OF REGULATORY PRESSURE Husni Mubarak (Universitas Sumatera Utara), Ramli (Universitas Sumatera Utara), Albar Tanjung (Sekolah Tinggi Ilmu Manajemen Sukma), Syech Suhaimi (Universitas Sumatera Utara)
9	ENTREPRENEURIAL SELF-EFFICACY, DIGITAL INNOVATION, AND SME SUSTAINABILITY IN EMERGING ECONOMIES Alya Apriliyani (Universitas Pakuan Bogor), Anwar Sulaiman (Universitas Pakuan Bogor)
10	DYNAMICS OF AUDITORS' ETHICAL CONFLICT IN WHISTLEBLOWING PRACTICE: A QUALITATIVE ANALYSIS OF AUDITOR REPRESENTATION IN THE DRAMA THE AUDITORS Mesya Febyani Hormen (Universitas Pakuan Bogor)

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No	Moderator: Andrian Haro (Universitas Negeri Jakarta)
1	UNDERSTANDING MSME BUSINESS PROCESS EFFICIENCY THROUGH POINT-OF-SALE DATA UTILIZATION: A TECHNOLOGY-ORGANIZATION-ENVIRONMENT FRAMEWORK APPROACH Kaffin Uwais Ahmad (Sepuluh Nopember Institute of Technology), Mahendrawathi ER (Sepuluh Nopember Institute of Technology)
2	INTEGRATED MARKETING COMMUNICATION AND BRAND EQUITY: THE MEDIATING ROLE OF BRAND AWARENESS AMONG CONSUMERS OF COSMETIC PRODUCTS IN INDONESIA Mega Julianti (STIAB Jinarakkhita Lampung), Adya Putri Kusumaningrum (STIAB Jinarakkhita Lampung), Luwiha (STIAB Jinarakkhita Lampung), Munjiatul Ngailia (STIAB Jinarakkhita Lampung)
3	KETIKA KOPERASI TIDAK DIAJAK BICARA: EKSKLUSI STAKEHOLDER, FRAUD, DAN KERAPUHAN TATA KELOLA KOPERASI DESA MERAH PUTIH Tri Oktaf Kurniawati (Universitas Trunojoyo Madura), Tarjo, Nizarul Alim (Universitas Trunojoyo Madura), Achdiar Redy Setiawan (Universitas Trunojoyo Madura), Prasetyo Nugroho (Universitas Trunojoyo Madura), Faisal (Universitas Trunojoyo Madura)
4	FSN-BASED WAREHOUSE LAYOUT OPTIMIZATION IN A LARGE-SCALE 3PL FMCG ENVIRONMENT: A DUAL-CRITERIA FREQUENCY AND TURNOVER RATIO APPROACH Agus Widodo (Universitas Pelita Bangsa), Hamdan Amaruddin (Universitas Pelita Bangsa)
5	DIFFERENTIATING TRADITIONAL SHOPPING FROM ONLINE SHOPPING: PREFERENCES OF STUDENTS IN THE HIGHER EDUCATION INSTITUTIONS William S. Balangue Jr (Polytechnic University of the Philippines), Stephanie D. Alano (Polytechnic University of the Philippines), Altea Joy M. Alarcon (Polytechnic University of the Philippines), Angeline M. Aniceto (Polytechnic University of the Philippines), Christian Loyd Bajande (Polytechnic University of the Philippines), Assoc. Prof. Jessie I. Quierrez (Polytechnic University of the Philippines)
6	DO TAX KNOWLEDGE STRENGTHEN THE EFFECTS OF CORE TAX ADMINISTRATION SYSTEM AND TAX SERVICE QUALITY ON TAXPAYER COMPLIANCE? EVIDENCE FROM INDONESIA Muhammad Ubaidillah (Universitas Islam Malang), Nur Diana (Universitas Islam Malang), Umi Nandhiroh (Universitas Islam Malang), Maslichah (Universitas Islam Malang)
7	ACCELERATING DISRUPTIVE INNOVATION THROUGH GENERATIVE AND AGENTIC ARTIFICIAL INTELLIGENCE: A SYSTEMATIC LITERATURE REVIEW Sayed Musaddiq (President University), Ricardo Situmorang (President University), Stephanus Remond Waworuntu (President University)
8	ANALISIS PENGARUH SERVQUAL TERHADAP KEPUASAN NASABAH PADA BANK BRI UNIT LEDO DI KABUPATEN BENGKAYANG Oktavianus Gimán (Institut Shanti Bhuana)
9	ARTIFICIAL INTELLIGENCE CAPABILITY AND SUSTAINABLE COMPETITIVE ADVANTAGE: EVIDENCE FROM INDONESIAN SMES Nadhira Anggita Fitri (Universitas Pakuan Bogor), Anwar Sulaiman (Universitas Pakuan Bogor)
10	THE EFFECT OF AUDIT FEES, TENURE AUDITS, AND AUDIT ROTATION ON AUDIT QUALITY IN FOOD AND BEVERAGE SUB-SECTOR COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE (IDX) FOR THE 2020-2024 PERIOD Annisa Eka Maharani (Universitas Pakuan Bogor), Heru Satria Rukmana (Universitas Pakuan Bogor), May Mulyaningsih (Universitas Pakuan Bogor)

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No	Moderator: Audia Zikra (Universitas Negeri Jakarta)
1	APPLICATION OF THE BALANCED SCORECARD IN A SNACK BAR SERVING UNIVERSITY STUDENTS Betsy Aidee Hernandez Godinez (Mexico)
2	DIGITAL CUSTOMER EXPERIENCE AND REPURCHASE INTENTION: THE MEDIATING ROLE OF CUSTOMER SATISFACTION AMONG E-COMMERCE APP USERS IN INDONESIA Ditha Kurniawan (STIAB Jinarakkhita Lampung), Mega Julianti (STIAB Jinarakkhita Lampung), Linda (STIAB Jinarakkhita Lampung), Karsinah (STIAB Jinarakkhita Lampung)
3	HEGEMONY OF MODERN ACCOUNTING STANDARDS IN SAVINGS AND LOAN COOPERATIVES/CREDIT UNIONS: A CRITICAL EXAMINATION OF THE IMPLEMENTATION OF EXPECTED CREDIT LOSS (ECL) UNDER SAK EP THROUGH THE GRAMSCIAN PERSPECTIVE Audito Aji Anugrah (Universitas Trunojoyo Madura), Tarjo (Universitas Trunojoyo Madura), Bambang Haryadi (Universitas Trunojoyo Madura), Nizarul Alim (Universitas Trunojoyo Madura), Prasetyono (Universitas Trunojoyo Madura), Fatimatul Fatmariyah (Universitas Trunojoyo Madura)
4	THE INFLUENCE OF INFLUENCER MARKETING AND PRICE ON PURCHASE DECISIONS IN TIKTOK SHOP Melynda (Institut Shanti Bhuana), Dedy (Institut Shanti Bhuana)
5	THE INFLUENCE OF GREEN PRACTICES ON PRO – ENVIRONMENTAL BEHAVIOR : THE MEDIATING ROLE OF GREEN LEADERSHIP G. Aris Wulantoro (Jakarta State University), Tuty Wulansari (Jakarta State University), Hania Aminah (Jakarta State University)
6	THE INFLUENCE OF DIGITAL FINANCIAL LITERACY, ACCOUNTING INFORMATION, AND WORK MOTIVATION ON THE MANAGERIAL PERFORMANCE OF MSMES IN MALANG CITY Febi Febriani (Universitas Islam Malang), Dwiyani Sudaryanti (Universitas Islam Malang), Naimatul Hasanah (Universitas Islam Malang)
7	DIGITAL MARKETING STRATEGIES FOR THE DEVELOPMENT OF PAPER WASTE CRAFT MSMES Rizka Azzahra (Universitas Pakuan Bogor), Yuliyanti (Universitas Pakuan Bogor)
8	PERAN MEDIASI SELF EFFICACY PADA PENGARUH GOAL ORIENTATION, MOTIF INDIVIDUAL, DAN HARAPAN KEBERHASILAN TERHADAP MOTIVASI BERPRESTASI KARYAWAN BRI KANTOR WILAYAH BANDAR LAMPUNG lydia Gustina Putri (Universitas Dehasen Bengkulu)
9	THE INFLUENCE OF MARKET ORIENTATION, DYNAMIC CAPABILITIES, AND FINANCIAL MANAGEMENT ON BUSINESS PERFORMANCE (CASE STUDY OF MSME CULINARY ACTORS AT SENJA BUNGATAN) Lyna Hidayatul Amanah (Universitas Islam Malang), Ronny Malavia Mardani (Universitas Islam Malang), Mohamad Bastomi (Universitas Islam Malang)
10	THE EFFECT OF AUDIT ROTATION, AUDIT TENURE, AND PUBLIC ACCOUNTING FIRM SIZE ON AUDIT QUALITY IN INDUSTRIAL GOODS SUB-SECTOR MANUFACTURING COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE, 2022–2024 Rheifan Junansa Ardana (Universitas Pakuan Bogor), Heru Satria Rukmana (Universitas Pakuan Bogor), Delta Hadi Purnama (Universitas Pakuan Bogor)

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1	AI ADOPTION IN SMES: ORGANIZATIONAL RESISTANCE AND RESILIENCE IN ENTREPRENEURIAL FIRMS Nasim Amiri Arshad (Halmstad University, Sweden)
2	STRENGTHENING FINANCIAL RESILIENCE THROUGH DIGITAL HUMAN CAPITAL: THE MEDIATING EFFECT OF FINANCIAL SELF-EFFICACY AMONG GENERATION Z IN EASTERN INDONESIA Rizka Cintya Edwar (Cenderawasih University), Lisa Gresti Sella Damanik (Cenderawasih University), Xenia Irene Sandy Landjang (Cenderawasih University), Yuni Riskita Mangopo (Cenderawasih University)
3	ADVERTISING CREATIVITY AND CONSUMER PURCHASE INTENTION: THE MEDIATING ROLE OF BRAND ATTITUDE AMONG SOCIAL MEDIA USERS IN INDONESIA Guna Dharma (STIAB Jinarakkhita Lampung), Wisnu Reva Pramudya (STIAB Jinarakkhita Lampung), Mega Julianti (STIAB Jinarakkhita Lampung), Luwiha (STIAB Jinarakkhita Lampung)
4	RIDING THE WAVE OF DISRUPTION: A LITERATURE-BASED FRAMEWORK FOR RESILIENCE-LED PERFORMANCE Anggraini Dyah Ayu Sekarlangit (President University), Fitriana Fatma Indah (President University), Stephanus R.W. (President University)
5	QUALITY-DRIVEN PRODUCT DEVELOPMENT: APPLYING QUALITY FUNCTION DEPLOYMENT (QFD) TO AUTOMOTIVE BRACKET ROOM LAMPS Moh. Husel Khadavi (Universitas Pelita Bangsa), Hamdan Amaruddin (Universitas Pelita Bangsa)
6	ANALYSIS OF THE IMPLEMENTATION OF KNOWLEDGE SHARING IN BUILDING BONDING IN THE DORMITORY LIFE OF STUDENTS AT INSTITUT SHANTI BHUANA Sofiana (Institut Shanti Bhuana), Rohan Ria Kudu (Institut Shanti Bhuana), Maria Tipana Biyan (Institut Shanti Bhuana)
7	THE INFLUENCE OF PRODUCT KNOWLEDGE, REPUTATION, AND TRUST ON SHARIA BANK PREFERENCE MEDIATED BY PERCEPTIONS OF FAIRNESS AMONG NON-MUSLIM CUSTOMERS AT THE SUMENEP SUB BRANCH OFFICE Zaimatul Ummah Hamdan (Universitas Islam Malang), Afifudin (Universitas Islam Malang), Galih Ramadhan Febrianto (Universitas Islam Malang)
8	DIGITAL MARKETING STRATEGY FOR THE DEVELOPMENT OF BASRENG LOCAL SNACK MSME NEAR PAKUAN UNIVERSITY Danar Riadi Pratama (Universitas Pakuan Bogor), M Zidan Arrafi E P (Universitas Pakuan Bogor), Wulan Permatasari (Universitas Pakuan Bogor)
9	DIGITAL MARKETING INNOVATION AS A DRIVER OF BUSINESS RESILIENCE AMONG INDONESIAN SMES Ikhfa Aulia Aska (Universitas Pakuan Bogor), Anwar Sulaiman (Universitas Pakuan Bogor)
10	TRANSFORMATIONAL LEADERSHIP AND ORGANIZATIONAL PERFORMANCE: THE MEDIATING ROLE OF ORGANIZATIONAL CULTURE IN PRIVATE COMPANIES IN BANDAR LAMPUNG Juni Suryanadi (STIAB Jinarakkhita Lampung), Ferdi Saputra (STIAB Jinarakkhita Lampung), Marga Karuna (STIAB Jinarakkhita Lampung), Hendri Ardianto (STIAB Jinarakkhita Lampung)

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No	Moderator: Nofriska Krissanya (Universitas Negeri Jakarta)
1	AUDIT QUALITY, ESG RATING DIVERGENCE, AND COST OF CAPITAL OF MALAYSIAN LISTED FIRMS: A CONCEPTUAL FRAMEWORK Roslan Ja'afar (Universiti Kebangsaan Malaysia), Mugahed Mahyoub (Universiti Kebangsaan Malaysia)
2	HOW E-SERVICE QUALITY INFLUENCES PURCHASE INTENTION: THE MEDIATING ROLE OF CUSTOMER TRUST AMONG E-COMMERCE PLATFORM USERS IN INDONESIA Munjiatul Ngailia (STIAB Jinarakkhita Lampung), Mega Julianti (STIAB Jinarakkhita Lampung), Dikas Setiawan (STIAB Jinarakkhita Lampung), Henny Meyliana (STIAB Jinarakkhita Lampung)
3	ARTIFICIAL INTELLIGENCE ENHANCING SUSTAINABLE PROFITABILITY IN ISLAMIC DIGITAL BANKING Mohammad Hatta Fahamsyah (Universitas Pelita Bangsa), Dian Sulistyorini Wulandari (Universitas Pelita Bangsa), Muhammad Najamuddin Dwi Miharja (Universitas Pelita Bangsa), Listian Indriyani Achmad (Universitas Pelita Bangsa), Nizar Febriana (Universitas Pelita Bangsa), Rifki Saputra (Universitas Pelita Bangsa)
4	ATTITUDE TOWARDS USING METAVERSE TECHNOLOGY AND STUDENTS' ADOPTION INTENTION: EXAMINING THE MODERATING ROLE OF PRIVACY CONCERNS Pramataty Resindra Widya (Institut Shanti Bhuana), Winnie Wong Poh Ming (Institut Shanti Bhuana)
5	THE EFFECT OF WORK ENVIRONMENT AND COMPENSATION ON EMPLOYEE JOB SATISFACTION AT PT BANK RAKYAT INDONESIA (PERSERO) IN BENGKAYANG DISTRICT Resty (Institut Shanti Bhuana), Aloysius Hari Kristianto (Institut Shanti Bhuana)
6	THE EFFECT OF PRODUCT QUALITY AND PERCEIVED VALUE ON CUSTOMER LOYALTY OF MICRO SMALL AND MEDIUM ENTERPRISES AT ALUN-ALUN SEKAYOK DAMAI RAYA IN BENGKAYANG CITY Jonatus Titus (Institut Shanti Bhuana), Dedy (Institut Shanti Bhuana), Aloysius Hari Kristianto (Institut Shanti Bhuana), Usman (Institut Shanti Bhuana)
7	RISK ANALYSIS OF LQ45 STOCK PORTFOLIO USING THE SMART BETA METHOD IN THE POST-COVID-19 PERIOD (2022–2025) Agista Artika Sari (Universitas Pembangunan Nasional "Veteran" Jawa Timur)
8	ANALYSIS OF PRODUCT QUALITY ON CUSTOMER SATISFACTION OF MORINAGA CHILL GO GROW UP MILK PRODUCTS IN BOGOR CITY Yusi Yusela Febriany (Universitas Pakuan Bogor), Eka Patra (Universitas Pakuan Bogor), Abel Ghandy (Universitas Pakuan Bogor), Hana Nafisah (Universitas Pakuan Bogor)
9	THE EFFECT OF FLASH SALES & FREE SHIPPING ON IMPULSIVE BUYING (A STUDY OF SHOPEE APP USERS IN BOGOR) Fadia Fairuz Syafana (Universitas Pakuan Bogor), Sri Hartini (Universitas Pakuan Bogor), Doni Wihartika (Universitas Pakuan Bogor)

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No	Moderator: Nazwanda Junika Putri (Universitas Negeri Jakarta)
1	VIRTUAL INFLUENCERS AS DIGITAL ENTREPRENEURSHIP: REFRAMING AI-GENERATED PERSONAS, UNCANNY VALLEY REJECTION, AND PSYCHOLOGICAL RESISTANCE Iram Saba (National College Business Administration and Economics, Pakistan)
2	SERVICE QUALITY AND PROMOTION STRATEGIES ON CUSTOMER LOYALTY THROUGH CUSTOMER SATISFACTION AT MINIMARKETS IN BANDAR LAMPUNG Sulis Setiyawati (STIAB Jinarakkhita Lampung), Fendi Dharma (STIAB Jinarakkhita Lampung), Mega Julianti (STIAB Jinarakkhita Lampung), Henny Meyliana (STIAB Jinarakkhita Lampung)
3	UNDERSTANDING FINANCIAL FRAGILITY AMONG SINGLE MOTHERS: EXAMINING THE MEDIATING EFFECT OF FINANCIAL OPTIMISM BETWEEN FINANCIAL LITERACY AND LOCUS OF CONTROL Ai Wasyiah (Universitas Pelita Bangsa), Lisa Kustina (Universitas Pelita Bangsa)
4	ANALYSIS OF THE INFLUENCE OF CAFE ATMOSPHERE AND CUSTOMER EXPERIENCE ON CONSUMER PURCHASE DECISIONS AT THE CW COFFE BENGKAYANG BRANCH Dea Christy (Institut Shanti Bhuana)
5	ARTIFICIAL INTELLIGENCE-DRIVEN LEADERSHIP IN THE GENERATION Z WORKFORCE: A SYSTEMATIC LITERATURE REVIEW AND FUTURE RESEARCH AGENDA Ayunda Pradini (Universitas Trunojoyo Madura), Suto (Universitas Trunojoyo Madura), Qanita Rafeyfa Nayla Yahya (Universitas Trunojoyo Madura), Elmy Abbas (Universitas Trunojoyo Madura), Fariyana Kusumawati (Universitas Trunojoyo Madura), Melisa Rosanti (Universitas Trunojoyo Madura)
6	TRANSFORMING MESSAGES AND LOCAL IDENTIFY IN DIGITAL BANKING MARKETING COMMUNICATIONS: A CASE STUDY OF FOUR REGIONAL DEVELOPMENT BANKS IN SUMATRA Silke Sachanovrissa (Universitas Dehasen Bengkulu), Kresnawati (Universitas Dehasen Bengkulu)
7	THE INFLUENCE OF CUSTOMER RELATIONSHIP MANAGEMENT (CRM) AND CUSTOMER SATISFACTION ON BUILDING MEMBER LOYALTY AT MEET ON COURT (MOC) TENNIS CLUB IN BOGOR CITY Prayoga Prasetyo (Universitas Pakuan Bogor), Arie Wibowo Irawan (Universitas Pakuan Bogor), Bayu Dwi Prasetyo (Universitas Pakuan Bogor)
8	PENGARUH JUMLAH WISATAWAN DAN PENANAMAN MODAL DALAM NEGERI (PMDN) TERHADAP PRODUK DOMESTIK REGIONAL BRUTO (PDRB) PROVINSI DAERAH ISTIMEWA YOGYAKARTA PERIODE 2015 – 2025 Riska Aprilia (Universitas Merdeka Malang), Flavia Kineisha Herfansha (Universitas Merdeka Malang), Fakhri Haidar Hammam (Universitas Merdeka Malang), Reyvaldo Aliviano Putra (Universitas Merdeka Malang)
9	ANALYSIS OF CUSTOMER RELATIONSHIP MANAGEMENT (CRM) IMPLEMENTATION FOR ASACLEAN CUSTOMER RETENTION AT PT. ELEMATEC INDONESIA Praznandia Mahreinza (Universitas Pakuan Bogor), Anwar Sulaiman (Universitas Pakuan Bogor), Eka Patra (Universitas Pakuan Bogor)

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THE IMPORTANCE OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT FROM A SECTORAL PERSPECTIVE: THE HEALTHCARE SECTOR EXAMPLE

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Abstract

In the literature, healthcare logistics is considered not only as the management of material and drug flow, but also as a strategic area that has an impact on the financial sustainability of healthcare systems. Early studies examined healthcare logistics within the framework of operational efficiency and cost control; emphasizing that inventory management, stock optimization, and improvement of distribution processes could reduce healthcare costs. Rising global healthcare expenditures have made the economic efficiency of logistics processes even more critical.

Over time, the literature has revealed that the effects of healthcare logistics extend beyond the institutional level, leading to macroeconomic consequences. Supply chain disruptions can cause resource waste, price fluctuations, and pressure on the public budget. Therefore, healthcare logistics is directly related to public finance, cost-effectiveness analyses, and resource allocation policies. Especially in public healthcare systems, logistics inefficiencies can increase the operational dimension of total healthcare expenditure.

With the evolution of healthcare logistics into healthcare supply chain management, the economic dimension has become more prominent. Integrated approaches aim to achieve system-wide efficiency through cost reduction, price transparency, and monitoring of supplier performance. The use of digital technologies increases inventory turnover speed, thereby reducing capital ty-up costs.

Pandemics and crisis periods have shown that logistical disruptions can create supply shocks and budget deficits. In this context, healthcare logistics plays a critical role in terms of financial sustainability and economic stability.

Key Words: *Healthcare Sector, Health Logistics, Supply Chain.*

1. Introductions

The healthcare sector is considered a critical service area with extremely low error tolerance compared to other sectors, due to its direct impact on human life. Therefore, ensuring the uninterrupted, reliable, and complete continuation of services provided in healthcare institutions is of paramount importance. This continuity of service depends on the existence of effectively planned and functioning logistics systems (Tengilimoğlu & Yiğit, 2017). In this context, healthcare logistics is defined as a multifaceted management process encompassing the procurement, proper storage, and delivery of vital products such as pharmaceuticals, medical equipment, and consumables to the right location in the right quantity at the right time (Taşkın & Akçadağ, 2020).

The observed increase in global healthcare expenditure makes the economic efficiency of logistics processes even more crucial. Disruptions in the supply chain can affect not only internal operations but also macroeconomic balances through resource losses, price volatility, and pressure on the public budget (Ergüneş & Gültekin, 2022). In this context, healthcare logistics has gained the status of a strategic area directly linked to public finance, cost-effectiveness assessments, and resource allocation policies. The fact that expenses arising from supply and inventory management in hospitals can reach 30% to 40% of total costs clearly demonstrates the importance of logistics management for corporate sustainability (Aytekin, 2009).

On the other hand, global crises such as the COVID-19 pandemic have brought the vital importance of healthcare logistics and supply chain management back to the forefront. During this process, it became clear that logistics disruptions can lead to supply shocks, financial pressures, and budget deficits; conversely, supply chain integration and effective communication mechanisms play a decisive role in crisis management (Kusnadi et al., 2024). Thus, healthcare logistics has ceased to be merely a part of operational processes; it has transformed into a management area with strategic priority in terms of financial sustainability, service continuity, and economic stability.

2. Healthcare Logistics

Logistics is among the fundamental elements reflecting an organization's operational effectiveness and efficiency. In this context, a logistics system's capacity to deliver goods and services on time and its ability to manage costs effectively are the main factors determining the success of these processes (Orhan & Çoban, 2025).

The healthcare sector is considered one of the most critical sectors because it directly concerns human life. Ensuring the continuity and quality of services provided in healthcare institutions depends on the availability of all necessary materials and resources at the right time, in the appropriate quantity, under the required conditions, and in the right place. Meeting these requirements necessitates the existence of an efficient and well-structured logistics system (Ergüneş & Gültekin, 2022).

Logistics activities in healthcare facilities encompass the procurement of pharmaceuticals, medical devices, and equipment, their storage under appropriate conditions, and their timely delivery to required locations in specified quantities. Three key elements stand out in the effective execution of these processes: ensuring the correct

quantity of products, delivering them at the appropriate time, and procuring them at the lowest possible cost (Demir Uslu & Arlı, 2025).

Healthcare institutions require a variety of critical resources, often difficult to obtain, to maintain their delivery service. The continuous availability of these resources is crucial for the uninterrupted and complete delivery of healthcare services. In this context, it is essential that the necessary products are accessible at the right cost, at the right time, in the right place, in the appropriate quantity, and at the desired quality level. Therefore, logistics management plays a vital role in healthcare organizations (Tengilimoğlu & Yiğit, 2017).

The timely and complete supply of medicines, medical supplies, and other critical resources used in hospitals is a fundamental requirement for the sustainability of healthcare services. In this context, the storage of medical supplies in accordance with established standards and their readiness for use when needed is one of the main factors directly affecting the efficiency of service delivery. Furthermore, the disposal of biomedical waste using appropriate methods that do not harm the environment and public health is critically important for healthcare organizations to fulfill their social responsibilities. Within this framework, RFID and barcode systems, along with artificial intelligence-supported logistics planning applications, contribute to the more effective and efficient execution of healthcare logistics processes, thereby increasing operational performance (Ömürgönülşen & Selvi Sarıgül, 2021).

Healthcare logistics, unlike other logistics areas, is a critical sector with extremely low error tolerance. Many products within this scope are vital, and their inability to obtain or used can lead to serious health risks and life-threatening consequences. This characteristic is considered the most distinctive feature that sets healthcare logistics apart from other types of logistics (Taşkın & Akçadağ, 2020).

In the healthcare sector, supply chain management aims to maximize the quality of patient care while simultaneously minimizing costs. To achieve this strategic goal, specific practices need to be implemented. These include (Tanyaş, 2017):

- shortening supply times and reducing costs,
- expanding the care areas offered to patients,
- optimizing and reducing the size of storage areas,
- reducing idle assets and the amount of inventory held.

One of the fundamental functions of healthcare logistics is to improve service quality and contribute to operational efficiency. Çavmak and Aksoylu (2024) state that logistics

activities are critically important in healthcare delivery and that effective logistics management contributes to improving patient outcomes by enhancing service quality. Indeed, integrating logistics into the healthcare system reduces service delays, enables timely access to resources, and thus increases patient satisfaction. Similarly, Reis et al. (2021) emphasize that increasing operational efficiency in logistics processes is important for preventing material shortages, reducing waste, and improving healthcare services provided to the community

The healthcare sector is one of the largest sectors globally and has a very broad scope. The healthcare supply chain includes critical product groups such as medical devices, medical supplies, and pharmaceuticals, and the movement of these products within the supply chain has unique characteristics compared to other sectors (Atasever, 2018). These characteristics can be summarized as follows:

- Since the quality of products in the healthcare supply chain directly affects individual and public health, the products and services offered must meet high quality standards.
- The procurement of a significant portion of these products necessitates the fulfillment of specific conditions.
- A large portion of these products must be stored in special storage areas with specific standards; vaccines, some pharmaceuticals, and chemical substances are examples of this group.
- Since the inability to obtain some products in the supply chain can directly endanger human health, ensuring the continuity of these products is of critical importance.

Emergencies, particularly during global crises like the COVID-19 pandemic, highlight the need for robust and efficient logistics processes. Kusnadi et al. (2024) emphasize the necessity of logistical and financial support for community health workers (CHWs) to maintain essential services in the face of healthcare disruptions during the pandemic. In this context, effective logistics practices play a crucial role in ensuring the continuity of care services during crises. A study by Snowden and Saunders (2022) using the Nova Scotia example also demonstrates how supply chain integration strengthened the process in combating the pandemic. Furthermore, these studies show that clear communication and the definition of roles and responsibilities in logistics processes are critically important in public health crises.

3. Supply Chain Management and Healthcare Sector

The supply chain is defined as the holistic structure encompassing all stakeholders, including suppliers, manufacturers, distributors, wholesalers, retailers, and customers, from the procurement of raw materials to the delivery of the final product to the customer, as well as the flow of products, services, and information between these actors. Within this context, businesses prioritize supply chain management to achieve strategic goals such as increasing customer satisfaction by meeting customer demands in a timely and efficient manner; improving delivery performance; optimizing inventory levels; and minimizing costs (Açıkgöz & Çağıl, 2019). In this context, logistics and supply chain management are critically important not only in the manufacturing and trade sectors, but also in the healthcare sector.

The primary goal of organizations operating in the healthcare sector is to provide high-quality services to patients. However, the high cost of supplying necessary products and intense competition in the sector are leading healthcare organizations to develop new approaches that can provide services at lower costs without compromising patient care standards. Nevertheless, healthcare organizations face significant challenges such as increasingly complex business processes, efficient and effective use of resources, and improving service quality. In this context, the application of supply chain management principles in the healthcare sector is considered a crucial necessity for managing these challenges and addressing organizational processes from a holistic perspective (Demirdöğen & Polater, 2016).

Hospital administrations operate under a multifaceted environment characterized by high patient volume, low error tolerance within the sector, legal and regulatory obligations, patient safety requirements, increasing cost pressures, price competition, the complexity of insurance processes, and rapid technological change. This makes the implementation of supply chain management in healthcare institutions a more complex and challenging process. Furthermore, supply chain-related costs constitute the second largest share of hospital expenses after personnel costs (Özkan et al., 2015).

The healthcare sector is among the top ten largest sectors globally and differs from other sectors in many ways. These differences lead to a unique supply chain structure specific to the healthcare sector. Healthcare delivery requires a high level of expertise not only in medical activities but also in various functions such as purchasing, inventory management, human resources, accounting, staff nutrition services, and security. This

results in healthcare businesses having a highly complex organizational structure. Effectively managing this complexity increases the importance of supply chain management. The healthcare supply chain encompasses critical products such as pharmaceuticals, medical devices, and various medical supplies. The movement of these products within the supply chain is of higher importance compared to other sectors due to its direct relationship with human health (Zengin & Tanyaş, 2025).

The healthcare supply chain is a multi-dimensional structure consisting of different actors such as producers, buyers, service providers, and patients. This structure clearly reveals the interdependence and interaction among stakeholders involved in the delivery of healthcare services. Producers, one of the fundamental elements of the supply chain, are responsible for the procurement of critical healthcare products such as pharmaceuticals, medical devices, and consumables. The efficiency of these actors is of great importance in preventing supply disruptions that could negatively affect the quality of patient care and in sustainably maintaining sufficient stock levels (Korhasani et al., 2020). On the other hand, healthcare institutions and organizations, as buyers, ensure the continuity of the supply chain by managing the procurement process of these products in accordance with the principles of cost-effectiveness and operational efficiency (Karim et al., 2023).

Service providers such as hospitals and clinics need effective logistics and inventory management to ensure uninterrupted patient care and the continuous accessibility of necessary medical supplies (Milulo et al., 2024). Coordination among these stakeholders plays a critical role in both reducing costs and improving service quality. Patients, who form the final link in the chain, are directly affected by the efficiency of the supply chain, and this is closely linked to health outcomes (Kim and Lee, 2021).

On the other hand, the integration of advanced technologies such as blockchain into the healthcare supply chain increases traceability, strengthens data security, and makes information flow more efficient among stakeholders (Sawyer and Harrison, 2022). In this context, the interconnected roles of all actors are decisive in determining the overall performance of healthcare delivery.

4. Economic and Financial Aspects of Healthcare Logistics and Supply Chain Management

Healthcare logistics and supply chain management encompass numerous cost elements in terms of their economic and financial dimensions. In this context, the cost structure of healthcare logistics is multifaceted, including storage, transportation, and

inventory costs, as well as costs arising from cold chain requirements, technological infrastructure investments, personnel expenses, inventory management costs, and costs related to returned products.

When examining cost factors in healthcare logistics, storage and transportation costs are the most significant items. Within storage activities, providing the necessary climate control and ventilation systems to preserve products under appropriate conditions increases these costs. Similarly, the use of specially equipped vehicles in the transportation process also increases transportation costs. Although cold chain logistics can be considered a part of storage and transportation activities, the literature emphasizes that this process is treated as an independent cost element. Equipment used in cold chain transportation, such as polystyrene boxes, ice packs, data loggers, coolers, and specially designed cold rooms, leads to higher costs compared to traditional storage and transportation processes (Ergüneş & Gültekin, 2022).



Fig. 1. Logistics Cost Components

Healthcare services in Türkiye are provided by the public, university, and private sectors, and as of 2024, a total of 1,562 hospitals is actively operating. Of these hospitals, 941 are public hospitals, 69 are university hospitals, and 552 are private hospitals (Ministry of Health, 2024). In healthcare institutions operating in our country, supply chain management is of strategic importance, especially due to its decisive impact on costs. Indeed, it is stated that in hospitals, which are one of the main actors in the healthcare supply chain, approximately 30% to 40% of total costs originate from procurement and inventory activities (Aytekin, 2009).

In Türkiye, the healthcare sector supply chain exhibits a complex, multi-actor structure shaped by public policies, when evaluated from an economic and financial perspective. In this system, where public hospital unions are central, drug and medical device procurements are carried out under the Public Procurement Law to ensure cost control. However, the limited share of domestic producers and the dominance of foreign firms in the sector increase the cost structure and external dependence, highlighting exchange rate risks. Furthermore, while inventory management remains a significant cost element, digital applications such as the Pharmaceutical Tracking System (PTS) provide transparency and cost-effectiveness in the supply chain (Acar & Bük, 2017).

5. Conclusion

This study aims to evaluate the existing knowledge in the field of healthcare logistics and supply chain management from a systematic perspective. In this context, the conceptual foundations of healthcare logistics are first addressed, followed by an examination of the supply chain structure specific to the healthcare sector, and finally, the economic and financial implications of these processes are analyzed.

In this research, healthcare logistics and supply chain management issues were comprehensively evaluated within the framework of a systematic literature review method. The findings show that healthcare logistics is not only a factor that increases operational efficiency at the corporate level; it also plays a decisive role in financial sustainability, efficient resource utilization, and public health outcomes. The principle of obtaining the right product, at the right time, in the right place, and at the most optimal cost should be seen not only as a corporate performance target but also as a fundamental requirement for maintaining quality and accessibility throughout the healthcare system (Çavmak & Aksoylu, 2024).

The studies examined reveal that digital technologies have created transformative effects in healthcare supply chain processes. RFID and barcode applications, artificial intelligence-based logistics planning systems, and blockchain technologies; It not only improves stock and inventory management, but also makes data flow between stakeholders more transparent, traceable, and reliable. The integration of these technologies into systems increases inventory turnover speed and reduces capital ty-up costs, contributing to both the operational efficiency and financial performance of organizations (Milulu et al., 2024). In

Türkiye, the Pharmaceutical Tracking System stands out as a concrete example of this transformation.

The supply shocks and budget pressures experienced during the COVID-19 pandemic have once again highlighted the importance of resilient and flexible supply chain structures. For healthcare systems to become more resilient to future crises, strengthening supply chain integration, developing coordination mechanisms among stakeholders, and integrating crisis management protocols into institutional structures are deemed essential (Snowdon & Saunders, 2022). Accordingly, in healthcare logistics policies, not only meeting current demands but also building future resilience capacity should be adopted as a strategic priority.

In conclusion, healthcare logistics and supply chain management need to be addressed within a more holistic framework, encompassing both theoretical and practical dimensions. In countries with complex healthcare systems like Türkiye, issues such as public procurement policies, exchange rate risks, and the development of domestic production capacity offer significant areas for future research. Studies in this field are expected to produce concrete findings that will guide both policymakers and healthcare administrators.

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MASSTIGE MARKETING: MAKING PRESTIGE AFFORDABLE FOR MASS CONSUMERS

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Abstract

Masstige marketing has emerged as an important branding approach in which companies attempt to balance prestige with mass-market reach. Rather than positioning products as exclusive and expensive like traditional luxury brands, masstige brands aim to deliver an aspirational image while keeping prices within the reach of a larger consumer segment. This strategy allows consumers to experience a sense of status and premium value without the financial burden usually associated with luxury products. This conceptual paper seeks to examine the meaning and evolution of masstige marketing and to understand why it has become increasingly relevant in today's competitive marketplace. The study focuses on key elements such as perceived prestige, affordability, brand symbolism, and emotional connection, which collectively shape consumer perceptions of masstige brands. By drawing insights from existing literature and real-world industry examples, the paper explains how masstige marketing influences consumer attitudes and buying behavior. In addition, the study discusses managerial implications by highlighting how marketers can effectively use masstige strategies to strengthen brand positioning and consumer engagement. Overall, this paper contributes to marketing literature by offering a clear and simplified understanding of masstige marketing and its growing strategic importance, particularly in emerging economies.

Keywords: *Masstige Marketing, Brand Image, Consumer Behaviour, Affordable Luxury, Emerging Markets.*

**THE INTEGRATION OF FINTECH IN ISLAMIC FINANCE: OPPORTUNITIES,
CHALLENGES AND SHARIA COMPLIANCE FRAMEWORK**

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Abstract

This conceptual paper examines the integration of financial technology (fintech) within Islamic finance, analyzing opportunities, challenges, and proposing a comprehensive Sharia compliance framework for digital financial services. The study addresses the critical gap in standardized Sharia based digital frameworks that currently hinders the effective convergence of Islamic finance principles with technological innovation. Through systematic analysis of existing literature and emerging applications, the paper identifies significant opportunities in blockchain-based sukuk issuance, Islamic crowdfunding platforms, halal robo-advisors, and integrated charitable giving systems. However, substantial challenges persist, including difficulties in applying classical fiqh to rapidly evolving technologies, complex issues surrounding gharar, riba, and ownership in digital assets, and regulatory fragmentation across OIC countries. The paper develops a theoretical framework anchored in Maqasid al-Shariah principles, Transaction Cost Theory, and Shariah governance requirements to guide Islamic fintech evaluation.

**THE HIDDEN COST OF EXCESSIVE WORKLOAD IN THE TOURISM SECTOR:
AN ASSESSMENT OF ECONOMIC OUTCOMES THROUGH JOB SATISFACTION
AND EMPLOYEE LOYALTY**

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Abstract

The tourism sector is one of the sectors where intensive and long working conditions are common for employees due to its labour-intensive structure, the continuity of service provision and seasonal fluctuations. The excessive workload faced by those working in the tourism sector has significant consequences for individual attitudes and organisational outputs. In this context, this study aims to examine the effects of perceived excessive workload on job satisfaction and employee loyalty, as well as to assess the potential economic consequences arising from these attitudes. The study utilised a sample of 246 employees working in five-star hotels in the Antalya region. Data were collected using a survey instrument with a five-point Likert scale. Statistical analyses were conducted using IBM SPSS and IBM AMOS software to test the research model. The findings indicate that excessive workload negatively affects job satisfaction. Furthermore, the findings indicate that excessive workload also negatively affects employee loyalty. The findings suggest that challenging working conditions are associated with lower job satisfaction and reduced employee loyalty among tourism employees. These findings suggest that excessive workloads in tourism businesses may be associated with adverse economic outcomes, including staff turnover, reduced productivity, and declining service quality, through their negative effects on employees' job satisfaction and loyalty. Accordingly, this study offers both theoretical and practical contributions by underscoring the role of human resource practices in supporting economic sustainability in the tourism sector.

Key Words: *Excessive Workload, Job Satisfaction, Employee Loyalty.*

FAITH (RELIGIOUS) TOURISM IN THE WORLD AND TÜRKİYE

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Abstract

Tourism is generally defined as trips made for purposes such as resting, having fun, seeing and getting to know others, and all the economic, cultural and technical measures and studies taken to attract travelers (tourists) to a country or a region. The most preferred tourism types by people are winter tourism, cultural tourism, plateau tourism, faith tourism, congress and fair tourism, sports tourism and health tourism.

In this lesson, we will talk about religious tourism in the world and in Türkiye. First of all, we will start our lesson by defining religious tourism. Faith Tourism is defined as the evaluation of touristic trips made by people outside the places where they live, work and meet their usual needs, in order to realize their religious beliefs and see faith attraction centers, within the phenomenon of tourism.

There are many faith-based attractions (faith tourism products) in Türkiye and around the world. In fact, we could even say that these faith centers are the primary reason for the emergence of tourism. Some of the most well-known religious centers in the world are listed below. These are: The Kaaba in Mecca in Islam; St. Peter's Basilica in the Vatican in Christianity; the Wailing Wall in Jerusalem in Judaism; the Ganges River in Varanasi in Hinduism; and the place where Buddha was enlightened in Bodh Gaya in Buddhism.

In this course, we'll provide detailed information about faith tourism and faith centers to visit around the world and in Türkiye. The lectures will also be supported by visuals and videos.

Keywords: *Tourism, Faith tourism, Faith tourism in the world, Faith tourism in Türkiye.*

1. Introduction

The tourism sector is one of the most important elements of global economic growth, job creation, and cultural interaction. Within this sector, religious tourism stands out as one of the oldest types of tourism with deep historical roots. For centuries, people have undertaken long and arduous journeys to reach places they consider sacred, to worship, and to find spiritual fulfillment (Timothy & Olsen, 2006).

Today, religious tourism is not limited solely to religious purposes but is also supported by cultural and historical exploration motivations. In this context, religious tourism has become a multi-dimensional tourism activity intertwined with cultural tourism (UNWTO, 2019). Türkiye, thanks to its multi-layered religious and cultural heritage, is a significant religious tourism destination worldwide.

The aim of this study is to analyze the development of religious tourism in the world and in Türkiye, its main centers, and its economic impacts, and to reveal Turkey's potential in this field.

2. The Concept and Scope of Religious Tourism

Religious tourism refers to travel undertaken by individuals to visit sacred places in accordance with their religious beliefs (Rinschede, 1992). These visits include pilgrimages, visits to shrines and temples, religious festivals, and journeys on holy days. The basic elements of religious tourism can be listed as follows:

- Sacred places
- Religious rituals
- Spiritual satisfaction
- Cultural heritage
- Social interaction

In this respect, religious tourism is not only an individual religious activity but also a multifaceted type of tourism with socio-cultural and economic dimensions (Sharpley, 2009).

3. Religious Tourism Centers in the World

There are centers around the world considered sacred by many religions. These centers host millions of visitors every year and have a significant share in the tourism revenues of countries. This section will provide information about religious centers considered important for Islam, Christianity, Judaism, Hinduism, and Buddhism.

3.1. Religious Tourism in the Islamic World

In Islam, the Hajj pilgrimage has made the cities of Mecca and Medina the most heavily visited religious centers on a global scale. Saudi Arabia hosts approximately 20 million pilgrims and Umrah visitors every year (Saudi Ministry of Hajj and Umrah, 2023).

Main centers:

- Mecca (Kaaba)
- Medina (Masjid al-Nabawi)
- Jerusalem

Mecca: Located in the ancient Hejaz region on the western side of the Arabian Peninsula, east of the Red Sea, it is the birthplace of Prophet Muhammad. The Quran, the holy book of Islam, began to be revealed here (in the Hira cave). The Kaaba, also known as the House of God, is located in this city. It is referred to in the Quran as the "mother of cities."



Photo 1. Al-Haram Mosque (Mecca)

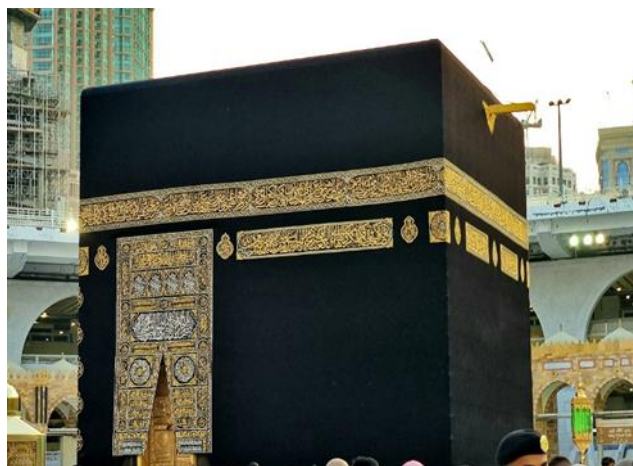


Photo 2. Kaaba (Mecca)

Medina (Masjid al-Nabawi): Officially known as Medina al-Munawwara, it is located in the Hejaz region of western Saudi Arabia. It is the capital and administrative center of the Medina region. It is one of the oldest and most important places in Islamic history. It is the second holiest city in Islam. Medina is generally considered the "cradle

of Islamic culture and civilization." In Islamic tradition, it is one of the three holy cities, ranking second after Mecca. Masjid al-Nabawi was built by the Prophet Muhammad in 622, the first year of the Hijra, and holds special significance in Islam because it houses his tomb. Muslims, during Hajj or Umrah, visit the Prophet's tomb and the Rawda (the Prophet's tomb) as part of a practice known as Ziyarat, although it is not obligatory.



Photo 3. Masjid al-Nabawi (Medina)

The Hijra is the migration of the Prophet Muhammad and the Muslims from Mecca to Medina in 622 to escape persecution. Beginning on September 10, 622, this migration is a turning point that laid the foundations of the Islamic state and marks the beginning of the Hijri calendar (1 Muharram).

Jerusalem: An ancient city located on a plateau in the Judean Mountains between the Mediterranean Sea and the Dead Sea in the Canaan region of the Middle East. It is considered holy by Judaism, Christianity, and Islam. Today, Israel and Palestine recognize Jerusalem as their capital, but this is not recognized internationally.

Jerusalem is considered the third holiest city in Islam after Mecca and Medina. Although not directly mentioned in the Quran, it houses the Al-Aqsa Mosque, which, along with its surroundings, is considered "blessed." Until the 16th month after the Hijra, it served as the first qibla (direction of prayer) for Muslims and was the scene of the Isra and Mi'raj miracles of Prophet Muhammad. It has also been a center for the preaching of many prophets.



Photo 4. Al-Aqsa Mosque with Dome of the Rock (center) and Al-Aqsa Mosque (left).

Karbala and Najaf (Iraq): The Iraqi cities of Najaf and Karbala are the holiest pilgrimage sites for Shia Muslims, housing the tombs of Imam Ali and Imam Hussein. Especially during the Arba'een ceremonies held on the 40th day after Ashura, millions of people walk approximately 80 km from Najaf to Karbala in mourning. These regions are religiously significant, touristically important, and historically significant sites.



Photo 5. Karbala and Najaf (Iraq)

3.2. Faith Tourism in Christianity

Centers such as Rome, Vatican City, Jerusalem, Lourdes, and Santiago de Compostela hold great importance in the Christian world. Vatican City, as the spiritual center of the Catholic world, attracts millions of visitors every year (Timothy & Olsen, 2006).

Main centers:

- Vatican City (Rome)
- Jerusalem
- Lourdes (France)
- Santiago de Compostela (Spain)

Vatican City (Rome): Officially known as the Vatican City State, it is a landlocked country (city-state, microstate, and enclave) surrounded by the city of Rome in Italy.

Having gained its independence from Italy in 1929 with the Lateran Treaty, it is an independent territory under the exclusive sovereignty and jurisdiction of the Holy See.

Vatican City, considered the center of the Catholic religion and sharing a history almost as long as Italy's, covers an area of 0.44 square kilometers. The Pontifical Council is governed by the clergy. The head of state is the Pope. In 1929, the Lateran Treaty was signed between the Italian State and the Church. This treaty declared Catholicism as the official religion of the country and Rome as a holy city.



Photo 6. St. Peter's Square (Vatican)

Jerusalem: In Christianity, it is the holiest city, a pilgrimage center where Jesus Christ is believed to have been crucified, buried, and resurrected. The Church of the Holy Sepulchre (Church of the Resurrection) and the Mount of Olives in the Old City, in particular, are considered the source of Christian hope, as they represent the end of Jesus' earthly life and the belief in his resurrection.



Photo 7. Church of the Holy Sepulchre (Jerusalem)

Lourdes (France): Gained fame in France and abroad in 1858 with the appearance of the Virgin Mary to Bernadette Soubirous, a peasant girl (later canonized by the

Catholic Church for her virtuous life). Soon after, the city and the Sanctuary of Our Lady of Lourdes became one of the world's most important pilgrimage and religious tourism centers.



Photo 8. Sanctuary of Our Lady of Lourdes (France)

Santiago de Compostela (Spain): The capital of the Galicia region in northwestern Spain and the final destination of the famous Camino de Santiago pilgrimage route. It is believed that the tomb of Saint James is located here. The city, with its historic center and magnificent cathedral, a UNESCO World Heritage site, has been an important Christian pilgrimage center since the 9th century.



Photo 9. Santiago Cathedral (Spain)

3.3. Faith Tourism in Judaism

For Jews, the Western Wall (Wailing Wall) in Jerusalem is one of the holiest places. Israel earns a significant portion of its tourism revenue through faith tourism (Collins-Kreiner, 2010).

Western Wall (Wailing Wall): A historical wall made of limestone, located in the Old City of Jerusalem. It is also called the Western Wall because it is located on the west side of the temple. In the Islamic and Arab world, it is more commonly known as the Buraq Wall. The wall was built as a result of the work initiated by Herod the Great

to expand the Second Jewish Temple. It is located at the top of a natural and steep hill known as the Temple Mount by Jews and Christians. It is a massive rectangular structure covering a flat platform.



Photo 10. Wailing Wall - Western Wall (Jerusalem)

3.4. Hinduism and Buddhism

Varanasi in India, Lumbini in Nepal, and Kandy Temple in Sri Lanka are among Asia's most important religious tourism centers (UNWTO, 2019).

Varanasi (or Benares): Located on the banks of the Ganges River in the Uttar Pradesh state of India, it is a spiritual center, one of the seven holiest cities of Hinduism and one of the oldest continuously inhabited places in the world. Considered the city of Shiva, the god of destruction, Varanasi is a pilgrimage center for Hindus, known as the "capital of death" and the "City of Light" (Kashi).



Photo 11. The City of Death, Varanasi (India)

Lumbini is a Buddhist pilgrimage site in the Rupandehi region of Nepal, near the Indian border. Queen Mayadevi is believed to have given birth to Siddhartha Gautama, who would later be known as Buddha, here. Along with Kushinagar, Bodh Gaya, and

Sarnath, Lumbini is considered one of the four places that hold significant importance in the life of Buddha.



Photo 12. Lumbini (Nepal)

Kandy is a major city in central Sri Lanka. It was the last capital during the era of Sri Lanka's ancient kings. The city is situated amidst the hills of the Kandy Plateau, which is traversed by tropical plantations, primarily tea plantations. Kandy is both an administrative and religious city and the capital of the Central Province. The Temple of the Tooth Relic (Sri Dalada Maligawa), one of the holiest places of worship in the Buddhist world, is located in Kandy. It was declared a UNESCO World Heritage site in 1988.



Photo 13. Lac de Kandy (Sri Lanka)

4. Religious Tourism in Turkey

With its historical past of hosting three Abrahamic religions and many ancient beliefs, Turkey has a unique potential for religious tourism in the world.

4.1. Islamic Religious Centers

Mevlana Mausoleum (Konya): Located in Konya, it is a museum that has been operating since 1926 in the building complex that was formerly Mevlana's dervish lodge. It is also known as the "Mevlana Mausoleum".



Photo 14. Mevlana Mausoleum

Eyüp Sultan Mosque (Istanbul): The Eyüp Sultan Mausoleum is located in the outer courtyard of the Eyüp Sultan Mosque in the Eyüpsultan district of Istanbul and houses the tomb of Abu Ayyub al-Ansari.



Photo 15. Eyüp Sultan Mosque

Hacı Bektaş-ı Veli Tomb (Nevşehir): Hacı Bektâş-ı Velî (1209 - 1271) was an Islamic scholar, mystic, saint, سید (descendant of the Prophet Muhammad), and philosopher from Khorasan. He is one of the leading figures and thinkers of Alevi-Bektashism and is also known as the "sultan of hearts" and the "dervish of dervishes".



Photo 16-17. Hacı Bektaş-ı Veli and his Tomb

Balıkgöl (Ayn-i Zeliha and Halil-ür Rahman Lakes) in Şanlıurfa: Located in the city center of Şanlıurfa, these two lakes, where it is believed that the Prophet Abraham was thrown into the fire, are among the most visited historical sites in Şanlıurfa due to their fish, which are considered sacred by the Islamic world, and the historical artifacts surrounding them.



Photo 18-19. Balıklıgöl (Ayn-i Zeliha and Halil-ür Rahman Lakes)

Göbeklitepe (Şanlıurfa): Located 18 km northeast of Şanlıurfa province in Türkiye, near the village of Örencik, Göbeklitepe is a Neolithic archaeological site. Dated to around 9600–9500 BC, Göbeklitepe is the oldest known historical structure in the world. It is also referred to as "the zero point of history" in some popular sources.



Photo 20-21. Göbeklitepe

4.2. Christian Faith Centers

Antioch St. Pierre Church: Located west of Mount Stauris, it consists of a cave carved into the rocks, 13 meters deep, 9.5 meters wide, and 7 meters high. According to Christian tradition, this cave, used by the first Christians in Antioch for their secret meetings, is considered one of the oldest churches of Christianity.



Photo 22-23. Antioch St. Pierre Church

House of the Virgin Mary in Ephesus: The House of the Virgin Mary is a Catholic shrine located in Ephesus, 7 km from Selçuk. The house was discovered following dreams of the 19th-century Catholic nun Anne Catherine Emmerich (1774-1824).



Photo 24-25. House of the Virgin Mary in Ephesus

Tarsus St. Paul Church: The Church of St. Paul is located in the Tarsus district of Mersin province. The church's construction date is estimated to be 1102. It has undergone repairs, maintenance, restoration, and additions at various times since then.



Photo 26. Tarsus St. Paul Church

Cappadocia Rock Churches: The rock churches in Cappadocia are carved into natural rock formations and were used as places of worship and retreat in the early days of Christianity.

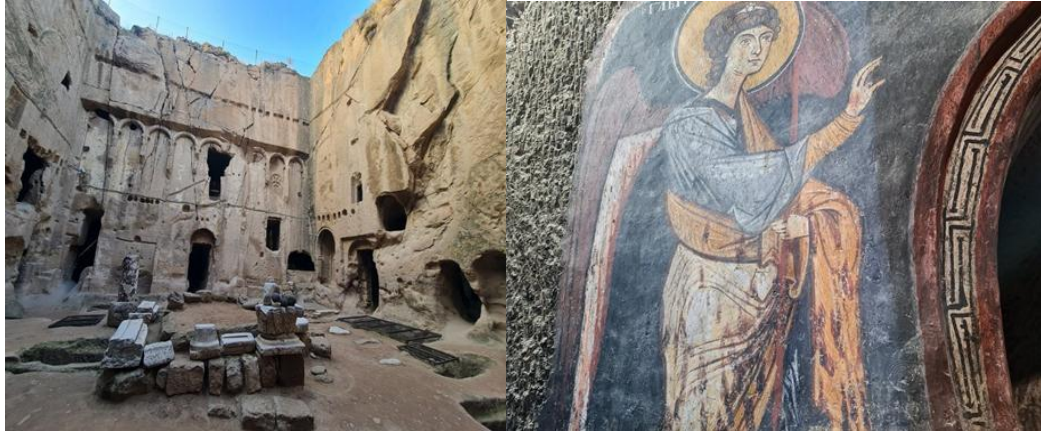


Photo 27-28. Cappadocia Rock Churches

4.3. Jewish Faith Centers

Neve Shalom Synagogue (Istanbul): The Neve Shalom Synagogue is located in the Karaköy district of Istanbul. It was opened on March 25, 1951, with the participation of the then Chief Rabbi of Turkey, Rav. Rafael David Saban.



Photo 29-30. Neve Shalom Synagogue

Sardes Ancient Synagogue (Manisa): The Sardes Synagogue is an important religious and social structure dating back to the Late Roman Period, 3rd–6th centuries AD, and is considered one of the largest and best-preserved synagogues in the ancient world.



Photo 31-32. Sardes Ancient Synagogue

This richness of Turkey creates great potential for both domestic tourism and international visitors (Ministry of Culture and Tourism, 2023).

5. Economic and Socio-Cultural of Religious Tourism

Religious tourism directly affects many sectors such as accommodation, transportation, food and beverage, souvenirs, and guiding services. It is estimated that the annual economic volume of religious tourism worldwide exceeds \$300 billion (UNWTO, 2019).

Main impacts:

- Support for regional development
- Increased employment
- Preservation of cultural heritage
- Intercultural interaction

However, excessive visitor flow also brings with it the risks of environmental degradation and cultural degradation. Therefore, the development of sustainable tourism policies is of great importance (Sharpley, 2009).

6. Conclusion and Evaluation

Religious tourism, with its historical, cultural, and economic dimensions, holds a strategic position within the global tourism sector. Türkiye, thanks to its unique religious and cultural heritage, has the potential to become a significant destination worldwide in this field. However, for this potential to be utilized sustainably, infrastructure investments, promotional activities, and conservation policies need to be addressed holistically.

Table 1. Faith (Religion) Tourism Centers in the World and Türkiye		
Religion	World	Türkiye
	• Mecca (Kaaba),	• Eyüp Sultan Mosque (Istanbul),

Islam	• Medina (Masjid an-Nabawi), • Jerusalem (Masjid al-Aqsa, Dome of the Rock), • Karbala (Tomb of Hazrat Husayn, Iraq), • Najaf (Tomb of Hazrat Ali, Iraq)	• Mevlana Mausoleum (Konya), • Hacı Bektaş-ı Veli Mausoleum (Nevşehir), • Balıklıgöl (Şanlıurfa), • The Shrine of Prophet Ayyüp (Şanlıurfa)
Christianity	• Vatican City (St. Peter's Basilica, Rome), • Jerusalem (Church of the Holy Sepulchre), • Lourdes (France), Santiago de Compostela (Spain),	• Bethlehem (Birthplace of Jesus) House of the Virgin Mary (İzmir/Selçuk), • Sumela Monastery (Trabzon), • Akdamar Church (Van), • Saint Nicholas Church (Antalya/Demre), • Antakya Orthodox Church (Hatay)
Judaism	• Jerusalem (Wailing Wall), • Safed (Israel), • Hebron (Palestine – the shrine of Abraham)	• Neve Shalom Synagogue (İstanbul), • Ahrida Synagogue (İstanbul), • Bergama Synagogue (İzmir)
Hinduism	• Varanasi (Ganges River, India), • Puri (Jagannath Temple, India), • Rishikesh and Haridwar (India)	
Buddhism	• Bodh Gaya (Buddha's enlightenment site, India), • Lumbini (Buddha's birthplace, Nepal), • Lhasa (Potala Palace, Tibet) • Kandy (Temple of the Tooth, Sri Lanka)	
Other Beliefs/History	• Angkor Wat (Cambodia–Hindu/Buddhist temple), • Shinto Temples (Japan – Ise Jingu, Itsukushima) • Göbekli Tepe (Şanlıurfa – the oldest temple), • Mount Nemrut (Adıyaman – Commagene sacred site)	

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**THE IMPACT OF TECHNOLOGICAL DEVELOPMENTS ON COMPETITION IN
INDUSTRIAL ECONOMICS AND THE AUTOMOTIVE SECTOR**

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Abstract

The purpose of this seminar is to introduce participants to the theoretical foundation of industrial economics and, from there, to provide information on the impact of technological developments on competition in the automotive sector as an applied field of industrial economics. Participants are expected to include undergraduate students, graduate students, and faculty members, individuals interested in technology and analytical thinking, as well as industry representatives. The target audience is expected to have a basic understanding of economics and an interest in sectoral competition.

The seminar may provide training on economics and industrial economics, or alternatively, the seminar may focus solely on the importance of the topic and examples. This decision may be determined based on the preferences and guidance of the host university.

**TRANSFORMING MESSAGES AND LOCAL IDENTITY IN DIGITAL BANKING
MARKETING COMMUNICATIONS: A CASE STUDY OF FOUR REGIONAL
DEVELOPMENT BANKS IN SUMATRA**

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Abstract

Background: *The era of rapid digitalization compels Regional Development Banks (BPD) in Sumatra to transform their business models and marketing strategies to retain local customers amidst the aggressive expansion of national digital banks. Geographical barriers and diverse levels of regional digital literacy necessitate an adaptive and culturally resonant marketing communication approach.* **Objective:** *This study aims to analyze the transformation of digital messaging and the integration of local identity within the marketing communications of digital banking products across four regional banks in Sumatra: Bank Jambi, Bank Lampung, Bank Sumsel Babel, and Bank Bengkulu.* **Method:** *This study adopted a qualitative approach with a comparative descriptive case study design. Due to time constraints, data were gathered through digital documentation techniques (netnography), featuring content analysis of official social media platforms, annual reports, and recent digital press releases from the four banks. Data analysis was executed using data reduction, comparative matrix presentation, and descriptive conclusion drawing.* **Result:** *The findings indicate distinctive variations in digital marketing message transformations across the four banks. Bank Jambi dominantly emphasizes cybersecurity narratives and mobile banking education; Bank Lampung prioritizes its merchant ecosystem application (Lampung Smart); Bank Sumsel Babel aggressively promotes digital social services and online account opening features (Customer On Boarding); while Bank Bengkulu focuses on campaigning for inclusive transaction digitalization for local MSMEs through mass QRIS adoption and competitive minimum balance policies. Notably, all four banks consistently weave local wisdom into their digital content visuals to maintain emotional proximity with regional communities.* **Conclusion:** *Regional banking marketing communication in the digital era is highly effective when it seamlessly blends technological feature modernization with messages resonant with local culture. The sustainability of BPD heavily relies on leveraging inclusive digital media while retaining its unique regional characteristics.*

Keywords: *Marketing Communication, Regional Banking, Digitalization, Local Identity, Bank Bengkulu, Sumatra.*

APPLYING INTELLIGENT LANGUAGE MODELS FOR FINANCIAL SENTIMENT AND EVENT ANALYSIS

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Abstract

The prediction of equity market indices remains a formidable challenge in financial econometrics. The Efficient Market Hypothesis (EMH) in its semi-strong form suggests that all publicly available information is instantaneously reflected in asset prices. However, behavioral finance and empirical studies document persistent market anomalies and underreactions to complex news events, creating a window for predictive modeling.

For financial forecasting, empirical evidence suggests that news and investor sentiment play a significant role in driving price movements. The Taiwanese stock market, a crucial Asian financial hub, is highly sensitive to local economic news, geopolitical events related to cross-strait relations, global supply chain updates (especially in semiconductors), and international monetary policies. Traditional prediction models often fail to capture the nuance and immediacy of such events. Recent breakthroughs in Large Language Models (LLMs) offer unprecedented capabilities in understanding context, irony, and complex relationships within text. This research posits that applying these models to the domain of Taiwanese financial news can unlock alpha-generating signals. The study will address the gap in literature concerning the application of cutting-edge NLP specifically to the Taiwanese market context, which has its unique linguistic and economic characteristics.

Keywords: *Financial Forecasting, Large Language Models, Artificial Intelligence, Deep Learning, Machine Learning.*

CONFIDENCE OVER CONCERNS: HOW SELF-EFFICACY DRIVES HEALTHCARE TECHNOLOGY ADOPTION

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Abstract

Healthcare organizations continue to invest in digital technologies, yet the determinants of successful adoption and performance improvement remain unclear. This study examines how self-efficacy, perceived job insecurity, and technology adoption intention influence physician performance and innovation outcomes. Drawing on Innovation Diffusion Theory, self-efficacy theory, and organizational behavior literature, data from 108 healthcare professionals were analyzed using Partial Least Squares Structural Equation Modeling. Results show that self-efficacy strongly predicts technology adoption intention and positively affects innovation process performance and overall physician performance. Technology adoption intention significantly enhances innovation process performance, which in turn improves overall performance, confirming its mediating role. Perceived job insecurity does not significantly affect adoption intention but negatively influences physician performance. These findings suggest that confidence in one's abilities and perceived benefits of technology are more important drivers of adoption than job security concerns, underscoring the key role of self-efficacy in successful digital transformation within healthcare organizations.

Keywords: *self-efficacy, technology adoption, physician performance, job insecurity, healthcare innovation, innovation process performance.*

1. INTRODUCTION

Healthcare systems worldwide face increasing pressure to improve patient outcomes while controlling rising costs driven by aging populations, technological advances, and more empowered patients. Digital transformation has become a key strategy to address these challenges by integrating advanced analytics, artificial intelligence, machine learning, and Internet of Things technologies into healthcare delivery. These innovations enable evidence based clinical decision making and real time patient monitoring, shifting care from intermittent encounters to more continuous models (Gopal et al., 2019). However, successful implementation depends on healthcare professionals' acceptance and adoption

of these technologies (Cresswell & Sheikh, 2013). As digital tools reshape coordination and work processes (Claggett & Karahanna, 2018), understanding the determinants of technology adoption and performance outcomes is essential.

The Technology Acceptance Model identifies perceived usefulness and perceived ease of use as key determinants of adoption intention (Davis, 1986), while Innovation Diffusion Theory explains how beliefs about innovation characteristics shape adoption decisions (Rogers, et al. 2019). Self-efficacy has been linked to goal setting, commitment, and overall performance (Milam et al., 2019). At the same time, increasing automation and artificial intelligence may generate job displacement concerns that influence willingness to adopt new technologies (Veinot et al., 2018). In addition, patient centered care and effective communication remain central to quality healthcare delivery and treatment outcomes (Constand et al., 2014; Zhou et al., 2021).

Previous studies have examined motivation, attitudes, social support, and organizational factors affecting physician performance (Leonard et al., 2008; Todres et al., 2012; Sun et al., 2020). However, limited research integrates technology acceptance, self-efficacy, and job insecurity within a comprehensive framework. This study proposes an integrated model examining how perceived job insecurity mediates the relationship between technology adoption intention, innovation process performance, and overall job performance, while also investigating the role of self-efficacy in shaping these outcomes.

2. LITERATURE REVIEW

2.1. Technology Acceptance Model (TAM)

The Technology Acceptance Model is a widely used framework for explaining acceptance of information technologies, including artificial intelligence, machine learning, advanced analytics, and IoT in healthcare. Derived from the Theory of Reasoned Action, TAM proposes that perceived usefulness and perceived ease of use determine technology adoption (Y. Lee et al., 2003). These factors shape willingness to use tools such as AI diagnostics and remote monitoring systems (Kelly et al., 2023). Understanding these determinants helps organizations design strategies to support successful implementation (Chau, 1996).

2.2. Doctor Performance

Employees are a vital resource for organizational success because performance reflects the quantity and quality of work completed according to assigned responsibilities (Kompaso & Sridevi, 2010; Hermina & Yosepha, 2019). High performance enhances productivity and stability, while low performance reduces quality, increases turnover, and lowers profitability. In healthcare, doctor performance is central to patient care quality and health outcomes. It is influenced by innovation process performance, intention to use technology, and perceived job insecurity. Effective innovation processes, such as successful electronic health record implementation, improve workflows and clinical decision making (Omachonu & Einspruch, 2010; Campanella et al., 2016). Doctors' intention to adopt technology, shaped by perceived usefulness and ease of use, also enhances efficiency and diagnostic accuracy (Pan et al., 2018; Hsiao & Chen, 2016). Meanwhile, job insecurity can either motivate greater effort or reduce performance through stress and anxiety (De Witte, 2005; Sverke & Hellgren, 2002).

H1: Innovation Process Performance positively influences Performance

H2: Intention to Use Technology positively influences Performance

H4: Perceived Job Insecurity positively influences Performance.

H5: Perceived Job Insecurity negatively influences Performance.

2.3. Innovation Diffusion Theory

Innovation Diffusion Theory explains that individuals decide to adopt or reject innovations through five stages: knowledge, persuasion, decision, implementation, and confirmation, and that adoption is shaped by perceived characteristics such as relative advantage, compatibility, complexity, trialability, and observability (Lou & Li, 2017; Rogers et al., 2019). Innovations perceived as more beneficial, compatible with existing values, simple to use, testable, and visibly effective are adopted more rapidly (Rogers et al., 2019; Tran & Cheng, 2017). In healthcare, doctors' intention to use technology can improve innovation process performance by streamlining workflows, strengthening clinical decision making, and enhancing care quality (Omachonu & Einspruch, 2010). The adoption of electronic health records supports better information exchange and reduces medical errors, while telemedicine expands access and enables timely intervention (Campanella et al., 2016). In addition, perceived job insecurity may

encourage doctors to adopt technology to demonstrate adaptability, improve efficiency, and secure their professional value (Jiang & Lavaysse, 2018; Marler et al., 2009).

H3: Intention to Use Technology positively influences Innovation Process Performance.

H6: Perceived Job Insecurity positively influences Intention to Use Technology.

2.4. The Concept of Self-Efficacy

Self-efficacy is defined as an individual's belief in their ability to achieve specific goals and manage tasks, emotions, and situations effectively (Maddux, 1995). It differs from self-esteem, locus of control, and outcome expectations because it focuses specifically on confidence in performing actions rather than general self-worth or expected results. Self-efficacy influences activity choice, effort, persistence in the face of setbacks, and interpretations of success or failure (Barbaranelli et al., 2019). In healthcare, professionals with high self-efficacy are more likely to adopt new technologies because they believe in their capacity to learn and use them effectively to improve patient care (Bandura, 1977; Rahman et al., 2016). Perceived job insecurity, defined as concerns about employment stability (Sverke & Hellgren, 2002), may motivate technology adoption to demonstrate value and adaptability (Jiang & Lavaysse, 2018), yet excessive insecurity can create stress that hinders adoption (Cheung et al., 2019).

H7: Self-efficacy positively influences Intention to Use Technology

H8: Self-efficacy and Perceived Job Insecurity positively influences Intention to Use Technology.

2.5. Conceptual Framework

The model proposes that doctors' intention to use technology is influenced by self-efficacy and perceived job insecurity, which in turn affects innovation process performance and directly impacts doctor performance. Additionally, perceived job insecurity has both direct and indirect effects on doctor performance through its influence on intention to use technology and innovation process performance (See Figure 1).

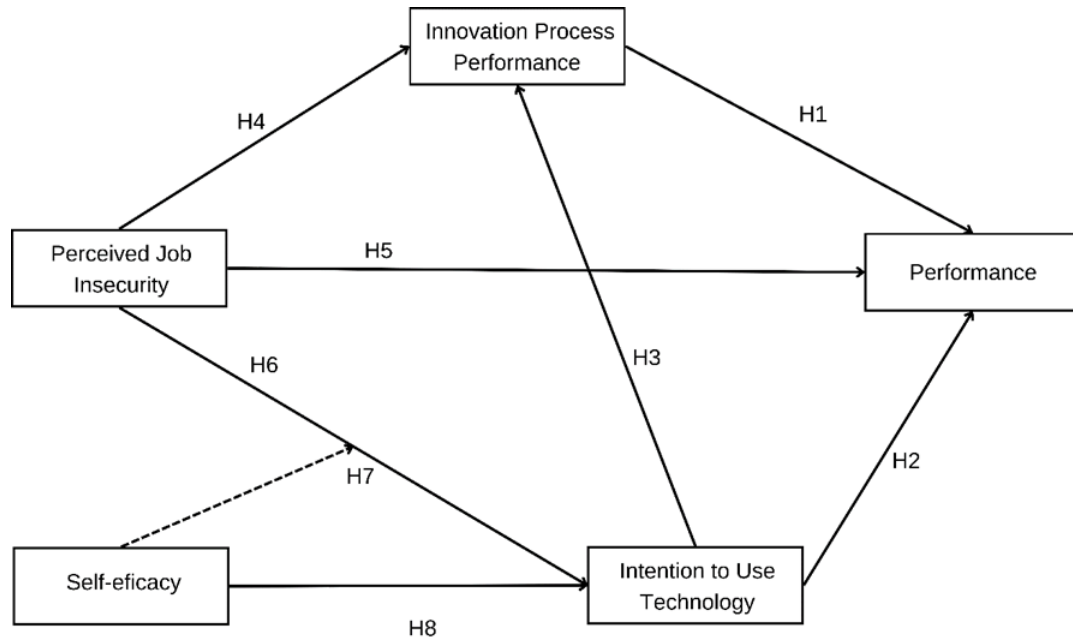


Figure 1. Hypothetical framework

3. METHODOLOGY

3.1. Data Collection

Data were collected through a structured electronic questionnaire distributed to healthcare professionals, including doctors, nurses, and administrative staff who regularly use technology in their work. The minimum sample size was set at approximately 200 participants to ensure adequate statistical power for multivariate analyses. The survey used a five-point Likert scale and remained open for four weeks, with reminders sent to increase response rates. A pilot test involving 30 participants was conducted to refine clarity and relevance. Ethical standards were maintained through institutional approval, informed consent, anonymity, and secure data storage. The instrument measured constructs from Innovation Diffusion Theory, self-efficacy, job insecurity, technology use intention, and worker patient relationships, and was validated using confirmatory factor analysis (Cohen, 1992; Fink et al., 2024; Krosnick, 2011) (See Table 1).

Table 1. Measurement instrument

Construct	Code	Questions	Reference
Intention to Use Technology	IUT1	I intend to use the technology regularly in my practice	(Ibrahim, 2019)
	IUT2	I plan to use the technology in the future	(Dwivedi et al., 2019)
	IUT3	I predict I will use the technology frequently.	(Teo & Beng Lee, 2010)

Construct	Code	Questions	Reference
(Independent)	IUT4	I am willing to use the technology as part of my daily routine.	(Choi et al., 2004)
	IUT5	I am enthusiastic about using the technology.	(Chao, 2019)
Self-efficacy (Moderator)	SE1	I am confident in my ability to use new technologies.	(Davis, 1989)
	SE2	I believe I can successfully overcome challenges in using new technologies.	(Bandura, 1977)
	SE3	I feel capable of integrating technology into my daily practice.	(Teo & Beng Lee, 2010)
	SE4	I am confident in my ability to manage tasks using technology.	(Getenet et al., 2024)
	SE5	I believe I can handle any problems that may arise while using technology.	(Bandura et al., 1999)
Innovation Process Performance (Independent)	IPP1	The technology helps streamline my work processes.	(Zheng et al., 2020)
	IPP2	I find the technology aids in improving innovation within my practice.	(Bhavnani et al., 2017)
	IPP3	The technology enables better management of patient information.	(Middleton et al., 2013)
	IPP4	The use of technology enhances the efficiency of my work.	(Yeow & Goh, 2015)
	IPP5	The technology helps me implement new ideas effectively.	(Perla et al., 2018)
Perceived Job Insecurity (Independent)	PJI1	I worry about losing my job due to changes in technology.	(Heaney et al., 1994)
	PJI2	I feel insecure about my job because of technological advancements.	(Ghani et al., 2022)
	PJI3	I believe that technology might replace some aspects of my job.	(West, 2018)
	PJI4	I am concerned that my job stability is affected by technological changes.	(Jetha et al., 2021)
	PJI5	I feel that my job is threatened by new technological developments	(Bailey, 2022)
Performance (Dependent)	P1	I am able to meet my job responsibilities effectively.	(Yaqoob Mohammed Al Jabri et al., 2021)
	P2	I consistently perform my duties to the best of my ability.	(Kak et al., 2001)
	P3	My work quality is high.	(Rowe et al., 2005)
	P4	I am productive in my role.	(Muthuri et al., 2020)
	P5	I feel my performance is positively impacted by the use of technology.	(Cook et al., 2011)

3.2. Data Analysis Techniques

To analyze the collected data, this study employs Partial Least Squares Structural Equation Modeling (PLS SEM), which is suitable for examining complex models with multiple latent variables and relationships. Unlike covariance-based SEM, PLS SEM does not require multivariate normality, making it robust for real world data. It is also effective with small to medium sample sizes, making it appropriate when data collection is limited. As a variance-based approach, PLS SEM focuses on maximizing the explained variance of endogenous variables and supports the analysis of direct, indirect, mediating, and moderating effects. This makes it particularly useful for predictive research and theory development.

4. RESULTS

4.1. Demographic of the respondents

Based on Table 2, the sample of 108 respondents is dominated by female healthcare professionals aged 35 to 44, reflecting a relatively mature and professionally established workforce. Most participants are doctors, supported by a smaller proportion of nurses, with the majority holding at least a bachelor's or master's degree, indicating a well-educated sample. In terms of experience, respondents are largely concentrated in the 6-to-15-year range, suggesting substantial practical exposure to clinical work and technology use. Most work in clinics and hospitals, providing a relevant context for examining technology adoption and performance within frontline healthcare service settings.

Table 2. Demographic characteristics of the respondents

Demographic Variable	Category	Frequency (N)	Percentage (%)
Gender	Male	28	26%
	Female	80	74%
Age	<25 years	2	2%
	25 - 34 years	31	29%
	35 - 44 years	70	65%
	45 - 54 years	5	5%
Profession	Doctor	93	86%
	Nurse	15	14%
Education Level	Diploma	9	8%
	Bachelor's Degree	60	56%
	Master's Degree	28	26%
	General Practitioner	5	5%
	Resident	2	2%

Demographic Variable	Category	Frequency (N)	Percentage (%)
Years of Experience	Doctor Specialist	3	3%
	Midwifery Diploma	1	1%
	<1 year	1	1%
	1-5 years	29	27%
	6-10 years	32	30%
	11-15 years	36	33%
Workplace	>15 years	109	101%
	Hospital	39	36%
	Clinic	63	58%
	Public Health Center (Puskesmas)	5	5%
	Independent Practice	1	1%

4.2. Refined Model Testing

1. Descriptive Statistic Results

Descriptive results show generally positive perceptions across constructs, with most mean scores above 3.9. Intention to use technology, self-efficacy, innovation process performance, and doctor performance all demonstrate high and consistent ratings, indicating favorable attitudes and confidence. In contrast, perceived job insecurity records lower and more varied mean scores, suggesting mixed feelings and highlighting it as a potential area requiring deeper investigation.

2. Consistency Reliability and Convergent Validity

Most indicators demonstrated strong outer loadings above 0.85, confirming substantial contributions to their constructs. However, several items showed high VIF values, indicating multicollinearity, and PJI3 had a low loading of 0.403, leading to its removal in the second iteration. Adjustments reduced collinearity while preserving key indicators. The final model achieved strong reliability and validity, with Cronbach's Alpha and Composite Reliability exceeding 0.8 and AVE values above 0.5, indicating satisfactory internal consistency and convergent validity (See Table 3).

Table 3. Final Model Consistency Reliability and Convergent Validity Results

	CA	CR	AVE
IPP	0.923	0.942	0.765

IUT	0.931	0.947	0.783
P	0.928	0.946	0.777
PJI	0.955	0.978	0.957
SE	0.875	0.923	0.8

3. Discriminant Validity: HTMT Analysis

The table above presents the Heterotrait-Monotrait (HTMT) ratio of correlations for the refined model, which is used to assess discriminant validity. HTMT values should ideally be below 0.85 to confirm that constructs are distinct from each other (See Table 4).

Table 4. Heterotrait-Monotrait (HTMT) ratio of correlations in final test

	IPP	IUT	P	PJI	SE
IPP					
IUT	0.796				
P	0.603	0.588			
PJI	0.091	0.075	0.214		
SE	0.744	0.764	0.698	0.178	

Most HTMT values fall within acceptable thresholds, confirming adequate discriminant validity across constructs. Although IUT and IPP show a relatively high correlation of 0.796, they remain conceptually distinct. Doctor performance also demonstrates acceptable differentiation from IPP and IUT. PJI exhibits low correlations with other variables, reinforcing its distinctiveness. Self efficacy shows moderately higher correlations but still within acceptable limits, supporting overall model validity.

4. R-square Analysis

The R-squared and adjusted R-squared values provide insight into the explanatory power of the model for each endogenous construct. For Innovation Process Performance (IPP), the model explains 56.4% of the variance, as indicated by an R-squared value of 0.564. After accounting for the number of predictors, the adjusted R-squared value slightly decreases to 0.555, indicating that the model has good explanatory power for IPP, with a small portion of the variance left unexplained (See Table 5).

Table 5. Pilot R-square analysis

	R-square	R-square adjusted
IPP	0.564	0.555
IUT	0.487	0.471
P	0.396	0.377

The model explains 48.7% of the variance in Intention to Use Technology, with an adjusted R squared of 0.471, indicating moderate explanatory power. For Performance, the R squared value of 0.396 and adjusted R squared of 0.377 suggest a reasonable but more limited level of explanation. Overall, the model demonstrates stronger predictive capability for IUT than for Performance, highlighting opportunities to incorporate additional factors in future refinements.

5. Final Path Model Analysis

The final model shows that innovation process performance positively affects performance, as H1 is supported with a significant coefficient of 0.348 and p value of 0.004. Intention to use technology also has a positive effect on performance, supporting H2 with a coefficient of 0.291 and p value of 0.037. In addition, H3 confirms a strong relationship between intention to use technology and innovation process performance, with a coefficient of 0.747 and a highly significant p value. Self-efficacy strongly influences intention to use technology, supporting H8 with a coefficient of 0.707, highlighting its central role in technology adoption (See Table 6).

Table 6. Final Pilot Path Analysis Results

Hypothesis	Path	Path Coef	T Statistics	P values	Decision
H1	IPP -> P	0.348	2.901	0.004	Accepted
H2	IUT -> P	0.291	2.087	0.037	Accepted
H3	IUT -> IPP	0.747	12.261	0	Accepted
H4	PJI -> IPP	-0.05	0.725	0.469	Rejected
H5	PJI -> P	-0.155	2.121	0.034	Accepted
H6	PJI -> IUT	0.064	0.874	0.382	Rejected
H7	SE x PJI -> IUT	0.014	0.136	0.892	Rejected
H8	SE -> IUT	0.707	9.421	0	Accepted

In contrast, perceived job insecurity does not significantly affect innovation process performance or intention to use technology, leading to the rejection of H4 and H6. However, it negatively affects performance, as shown in H5 with a coefficient of

minus 0.155. The moderating effect of self-efficacy on the relationship between job insecurity and intention to use technology was not supported. Overall, five of eight hypotheses were accepted, suggesting strong support for relationships related to self-efficacy and technology adoption, while the role of job insecurity requires further refinement (See Figure 2).

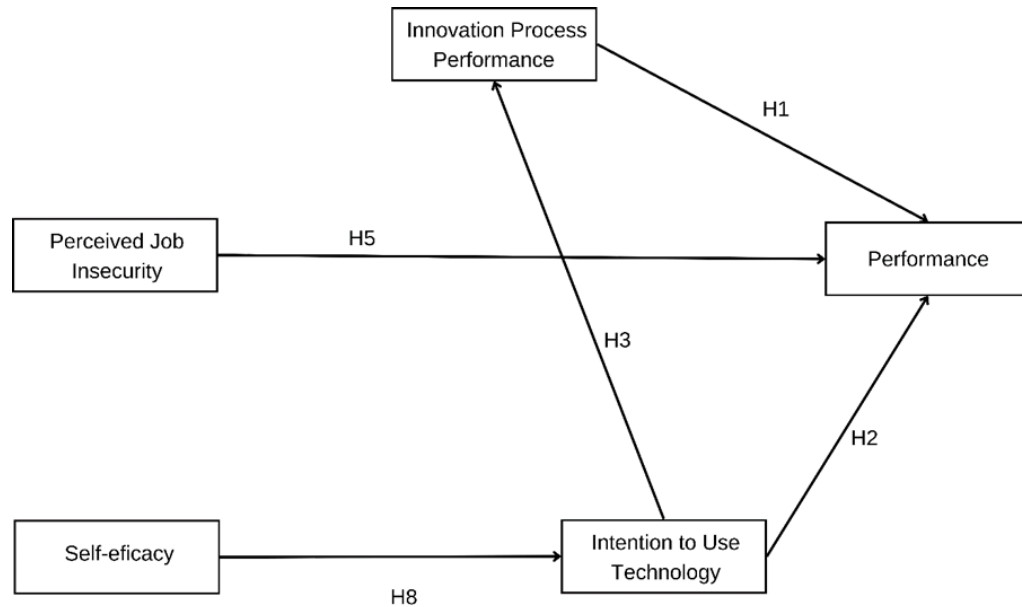


Figure 2. Hypothesis Results

5. DISCUSSION

This study deepens understanding of physician performance by integrating TAM, IDT, self-efficacy, and perceived job insecurity into a unified framework. The discussion highlights that technology adoption in healthcare is driven more by perceived clinical value and professional confidence than by employment related concerns. Consistent with prior research, perceived usefulness remains a central determinant of adoption intention, reinforcing arguments that clinicians prioritize improvements in patient outcomes and workflow efficiency over technical simplicity (Ducey & Coover, 2016; Roberts et al., 2017). The relatively weaker role of perceived ease of use suggests that physicians are willing to tolerate complexity when technologies demonstrably enhance clinical effectiveness.

Self-efficacy emerges as a foundational capability that shapes not only technology adoption but also innovation processes and overall performance. This aligns with earlier findings that professionals who feel competent with digital tools demonstrate stronger engagement and better outcomes (Getenet et al., 2024). From a managerial perspective, this

implies that investment in continuous training, mentoring, and technical support may yield broader performance gains than focusing solely on system features. Building confidence through hands on practice and peer learning can strengthen both adoption readiness and service quality.

Interestingly, perceived job insecurity appears less influential than often assumed in digital transformation debates. In healthcare, strong labor demand and professional identity may buffer fears of technological displacement. For managers, this suggests that emphasizing clinical benefits and empowering physicians may be more effective than concentrating primarily on job security assurances. Future research should explore contextual moderators such as leadership support and organizational culture to refine implementation strategies further.

6. CONCLUSION

This study concludes that physician performance in digital healthcare transformation is driven primarily by self efficacy, intention to use technology, and effective innovation processes. Confidence in one's ability to use technology emerges as a central catalyst that strengthens adoption intention and indirectly enhances overall performance through improved innovation process performance. While perceived job insecurity negatively affects performance, it does not significantly shape technology adoption decisions, indicating that physicians prioritize perceived clinical value and professional competence over employment concerns. These findings emphasize that successful digital transformation in healthcare depends more on building confidence and demonstrating tangible benefits than on addressing displacement fears.

However, this study has several limitations. The cross sectional design limits causal interpretation, and reliance on self reported data may introduce response bias. The specific healthcare context and sample size also restrict generalizability across different institutions and specialties. Future research should employ longitudinal designs to examine causal dynamics over time and incorporate additional variables such as leadership support, organizational culture, and digital infrastructure readiness. Exploring these contextual moderators would provide deeper insight into how technology adoption and physician performance evolve in diverse healthcare environments.

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**USABLE DIGITALIZATION: EVIDENCE FROM THE INTRAS OPEN DATA
SYSTEM FOR INFRASTRUCTURE ACCOUNTABILITY IN WEST LOMBOK
REGENCY, INDONESIA**

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Abstract

An open data environment will help reduce corruption if disclosure is complete throughout the cycle of infrastructure projects and the output is useful for oversight. Based on recent evaluation of transparency in the West Lombok INTRAS platform in relation to priority OC4IDS fields, the study evaluates how transparency reduces the temptation for corruption through perceived detection probability (PDP), reputational–moral cost (RMC), and reduced opportunity structure (ROS). Employing a critical realist–pragmatic mixed-methods design, it audited 2,594 projects exported on 1 September 2025 and surveyed 303 users. OC4IDS completeness was evaluated on a 0–4 scale while indirect effects were estimated with PLS-SEM applied with bootstrapping. The results reveal very high disclosure across main project identifiers (title and purpose), but very low for sector and project completion, so limit thematic analysis and end-result verification. According to the structural model, transparency indirectly reduces temptation to corruption through PDP ($\beta = -0.132$; $p = 0.004$), RMC ($\beta = -0.109$; $p = 0.010$), and most strongly through ROS ($\beta = -0.144$; $p = 0.002$), accounting for a considerable part of the variance in temptation ($R^2 = 0.62$; $Q^2 = 0.479$). These findings indicate that opportunity-constraining design features—traceability, standardized evidence, and routinized follow-up—are the principal path by which digital transparency inhibits corrupt behavior. Enhancing mandatory fields, such as sector and completion, validation and codelists or publication-to-verification processes is thus paramount to overall full-cycle accountability.

Keywords: *Open data; infrastructure transparency; OC4IDS; PLS-SEM; corruption temptation.*

1. Introduction

Budget leakage, collusion, and scope creep are well-known risks for infrastructure as it constitutes a high-risk area for corruption and governance failure. Managers in this sector

also have immediate concerns for public trust in this sector, due to the impact on basic services and citizens' mobility in it (Transparency International, 2025).

In terms of public accountability, the public generally depend only on a minimal amount of vital information in this field. They are there to find out what is being built, where, who is constructing it, how much it costs, how it is proceeding and if it has been completed. When these elementary questions go unanswered or go unquestioned, rumors abound, informal negotiations are more likely and uncertainty grows. Accountability is therefore diluted (Ali Seiam & Salman, 2024).

In order to share infrastructure project data, West Lombok Regency has created the INTRAS application. INTRAS publishes information in OC4IDS format, so that the data is readable and accessible by the public. The released data are meant to facilitate tracking as needed at all stages of the project cycle, including project completion. West Lombok took part in applying the OC4IDS standard to enhance the connections between project information and contract information from the beginning to the end. This decision is illustrative of an institution's commitment to full-cycle accountability (Open Contracting Partnership & CoST—The Infrastructure Transparency Initiative, 2025). But open digital information does not automatically mean it must be effective accountability. Its impact hinges on data quality—especially completeness, consistency and interconnectivity—and a user ecosystem made up of government actors, auditors, media/CSOs and citizens who can turn information into follow-up actions.

Thus, this article investigates: (1) the quality of INTRAS data disclosure based on OC4IDS fields; and (2) the behavioral mechanisms through which transparency reduces corruption temptation through PDP, RMC and ROS (Corrado et al., 2025).

2. Literature Review

2.1. Data Openness and the Risk of “Ritual Transparency”

While publication of data may signal a willingness to promote transparency. The question, however, is whether such disclosure represents substantive transparency or merely ritual transparency. The answer depends on the quality of the disclosure: whether the dataset is incomplete, unstandardized, difficult to use, or disconnected from verification and follow-up processes. User-friendliness, traceability, and actionability are three interrelated dimensions related to the effectiveness of data openness in this context (Ali Seiam & Salman, 2024).

2.2. The PDP-RMC-ROS Mechanism

This study adopts a mechanism-based lens to explain behavioral change:

- **Perceived Detection Probability (PDP):** Individuals behave differently when they believe that misconduct is visible and traceable.
- **Reputational–Moral Cost (RMC):** Public exposure may strengthen moral restraint and increase reputational risk, particularly when local media and community monitoring are active.
- **Reduced Opportunity Structure (ROS):** This is the most structural pathway. Transparency narrows the space for manipulation because actions leave digital traces, evidence is standardized, and irregularities can be detected more quickly.

Thus, PDP measures the perceived likelihood of detection, RMC captures reputational cost and moral burden, and ROS represents the extent to which the room for manipulation is reduced through codified procedures and evidentiary documentation. In sum, together these mechanisms help explain how transparency can reduce deviant behavior in contexts where corruption opportunities exist (Corrado et al., 2025).

2.3. OC4IDS and Full-Cycle Accountability

OC4IDS links project data throughout the infrastructure lifecycle, from procurement and contracting through to project completion. When completion data are missing or only partially disclosed, accountability remains confined to a narrative of “progress” rather than verifiable outcomes. Under such conditions, the verification of end results becomes difficult, and the promise of full accountability remains unfulfilled (Open Contracting Partnership & CoST—The Infrastructure Transparency Initiative, 2025).

3. Methodology

3.1. Research Design

This study uses a critical realist–pragmatic mixed-methods design. The quantitative component identifies latent relationships, as reflected by PLS-SEM, whereas the qualitative component explains how socio-technical contexts operate and where there are practical limitations to them as indicated (Hair et al., 2024).

3.2. Data Openness Audit (Supply Side)

For the INTRAS projects, the researchers conducted an audit of data extracted from the INTRAS application platform administered by the West Lombok local government. The dataset was collected in OC4IDS format (JSON converted to Excel) which contains 2,594 project records as of 1 September 2025. The researchers then checked the completeness in key fields by calculating the percentage of projects complete for each field. A completeness score between 0 and 4 was applied: a score of 0 for a 0% completeness rate and a score of 4 for a 75% or more completeness rate. This scoring system is a practical limit on what the public can be sure of from existing data (Open Contracting Partnership & CoST—The Infrastructure Transparency Initiative, 2025).

3.3. Survey and PLS-SEM (Demand Side)

The survey involved 303 respondents from government agencies, providers/consultants, citizens, as well as CSO/media actors. The constructs Transparency, PDP, RMC, ROS, and Temptation were measured using five-point Likert scales. The PLS-SEM evaluation included measures for reliability (α /CR), convergent validity (AVE), discriminant validity (HTMT), path estimates (β , t , p), and mediation effects. Bootstrapping was conducted to assess specific indirect effects (Hair et al., 2024; Sarstedt & Liu, 2024).

4. Results

4.1. OC4IDS Audit

The audit obtained high rates of completion in its primary project identification factors. Key identifiers such as project title and project purpose were completed most often. Meanwhile, two essential components for full accountability—sector classification and project completion—remained poorly populated. As a result, the public can identify the projects at a basic level but have a problem performing thematic analysis and validating the final outcomes of the projects whose data are disclosed (Open Contracting Partnership & CoST—The Infrastructure Transparency Initiative, 2025).

Table 1. Completion of Priority OC4IDS Fields in the INTRAS Dataset

OC4IDS Field (Project Level)	Projects Completed (%)	Completeness Score (0–4)	Accountability Implication
Title	100.00	4	Strong project identification (“what” the project is)

OC4IDS Field (Project Level)	Projects Completed (%)	Completeness Score (0–4)	Accountability Implication
Purpose	83.58	4	Project rationale is relatively available
Description	70.66	3	Project detail is adequate, though not yet complete
Sector	1.31	1	Weak thematic analysis and weak assessment of allocation equity
Completion	1.04	1	Final-result and handover verification are constrained

Note. Completeness score: 0 = 0%; 1 = 1–25%; 2 = 26–50%; 3 = 51–74%; 4 = ≥75%.

4.2. Indirect Effects (Mediation): Transparency → Temptation

The mediation analysis reveals that transparency reduces corruption temptation through PDP, RMC, and ROS. All indirect effects were negative and statistically significant at the 5% level ($p < 0.05$). The largest contribution came from ROS (Corrado et al., 2025).

Table 2. Specific Indirect Effects of Transparency on Temptation Through PDP, RMC, and ROS (Bootstrapping; N = 303)

Mediation Path	β	t	p
Transparency → PDP → Temptation	−0.132	2.842	0.004
Transparency → RMC → Temptation	−0.109	2.578	0.010
Transparency → ROS → Temptation	−0.144	3.024	0.002

Note. β = specific indirect effect coefficient; t = bootstrapped t-statistic; p = significance value. A p-value below 0.05 indicates a significant mediation effect.

5. Discussion

This study finds that digital transparency operates through three mechanisms: deterrence through perceived detection (PDP), social and moral sanctioning (RMC), and structural constraints that reduce opportunities for manipulation (ROS). Among these, ROS emerges as the dominant pathway. This finding suggests that transparency is most powerful when it is embedded in everyday administrative routines, such as evidence uploading, verification, dashboard display, and systematic follow-up. In other words, a commitment to openness is not merely a matter of publishing information; it is a matter of institutionalizing transparency in operational practice (Corrado et al., 2025).

The OC4IDS audit also shows that the sector field is largely unfilled and that completion-related data remain very limited. Both weaknesses reduce the practical value of transparency. Without sector data, thematic analysis and the assessment of allocation patterns become difficult. Without completion data, the verification of final outcomes is obstructed. Strengthening these two fields is therefore an absolute precondition if INTRAS is to move from basic disclosure to full-cycle accountability (Open Contracting Partnership & CoST—The Infrastructure Transparency Initiative, 2025).

6. Theoretical and Policy Implications

6.1. Theoretical Implications

The INTRAS–OC4IDS results indicate that transparency should not be treated exclusively as a mere disclosure behavior, but rather as a causal phenomenon whereby corruption temptation is attenuated by the mediating pathways of perceived detection probability (PDP), reputational–moral cost (RMC), and particularly through reduced opportunity structure (ROS). Theoretically, the academic tradition of anti-corruption should treat digital transparency thus as a socio-technical design that institutionalizes auditability by design: with standardized fields, cross-phase traceability and evidentiary trails which close off opportunistic space structurally (ROS) and thus shape perceptions of risk (PDP) and norms of social–moral cost (RMC) (Corrado et al., 2025).

As indicated by the OC4IDS audit, important deficiencies in critical domains — particularly in sector and completion— hamper the shift from mere disclosure to full-cycle accountability. Data quality and completeness so act as boundary conditions of the effectiveness of transparency (Open Contracting Partnership & CoST, 2026).

These findings also support the generalization of the transparency construct to a more comprehensive framework of “available–usable–traceable–actionable.” Partial openness is also understood to represent organizational resistance to open government data innovation (Molodtsov & Nikiforova, 2024; Nikiforova et al., 2024), as described by recent PLS-SEM literature that emphasizes testing of mechanisms through mediation and indirect effects (Hair et al., 2024).

6.2. Policy Implications

Table 1 points to an urgent policy need to strengthen data quality governance, particularly for sector and project completion fields. Thematic monitoring and end-

result verification cannot occur unless sector classification is consistently recorded and project completion is properly documented. Such reforms require making selected fields mandatory within the upload workflow, especially for sector-specific project information, and implementing codelist-based validation and completeness checks before publication.

Table 2 reinforces this argument by showing that improved data quality and connectivity—although often treated as administrative concerns—can materially strengthen transparency through ROS, the most powerful mediation pathway. This occurs because evidentiary trails, consistency, completeness, and record integrity reduce the space for manipulation. A policy package combining data quality commitments, verification procedures, and dashboard-based follow-up could therefore serve as a foundational framework for positioning INTRAS not only as an anti-corruption instrument, but also as an evidence-based accountability tool within a broader governance policy toolkit.

7. Conclusion

The results show that INTRAS is a strategic step in strengthening infrastructure transparency in island and coastal governance. However, its efficacy is highly contingent on the quality and completeness of information required to carry out all the activities from project initiation to finalization. The OC4IDS audit highlights very high completeness in some of those basic identifying fields, such as title and purpose, but two core areas essential for full-cycle control, sector and especially completion, also seem weak. While this enables the public to spot projects on a broad level, it precludes substantive thematic analysis, expenditure-priority comparisons, and the validation of end results or handover.

PLS-SEM findings also support that transparency constrains corruption temptation through PDP, RMC, and ROS mediation. The dominance of ROS indicates that transparency works not only because information is readily available, but also because it works as a structural constraint. Digital traces, standardized evidence, and cross-stage traceability also provide less opportunity for manipulation.

Collectively, these results highlight the causal influence of digital transparency as formed by socio-technical design – auditability by design – and boundary conditions in the completeness of important areas. Central to this contribution is a theoretical shift from “levels of openness” to “mechanism of opportunity closure” (ROS) as the most relevant

route and to data quality—specifically in the sector and completion fields—as a condition for enabling transformation from mere disclosure to full-cycle accountability. Therefore, stronger mandatory field requirements, codelist-based validation, and publication–verification–follow-up routines embedded inside dashboards, should be regarded as fundamental policy instruments if INTRAS is to be a platform through which evidence-based oversight and corruption prevention is facilitated.

Statement of the Use of AI

Through the use of artificial intelligence (AI)-based tools, the authors assisted in the preparation of the first draft of the manuscript, including language refinement, summarization, and structural organization; data processing/checking as well as preparing analytical outputs. The authors alone will take all scholarly decisions—from research design, through choice of methods, how to interpret findings, and the formulating of an argument or the writing and drafting of the final manuscript—as their own. The authors affirm the accuracy, originality, and integrity of the manuscript and comply with relevant publication policies concerning the use of AI.

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**DETECTION OF GREENWASHING IN SUSTAINABILITY REPORTS AND
CAPITAL MARKET REACTIONS WITH ESG RISK SCORE AND FIRM SIZE AS
MODERATING VARIABLES: AN EVENT STUDY APPROACH**

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Abstract

This study analyzes market reactions to greenwashing practices in sustainability reports using two main indicators, namely Cumulative Abnormal Return (CAR) and Trading Volume Activity (TVA). In addition, the study examines the moderating role of ESG Risk Score and firm size. The sample consists of 40 listed companies over the 2022–2024 period, resulting in 120 observations. The research employs an event study approach and panel data regression, using a fixed effect model to test CAR and a random effect model to test TVA. The findings indicate that greenwashing does not have a significant effect on CAR or TVA. However, the effect is conditional, as firm size is proven to moderate the relationship between greenwashing and both CAR and TVA. In contrast, ESG Risk Score does not significantly moderate the effect of greenwashing on CAR, although it moderates its influence on TVA. These results suggest that market reactions to greenwashing in the Indonesian capital market are contextual and influenced by firm characteristics and investors' ESG literacy. Symbolic sustainability information has not been fully responded to critically by investors in the stock price formation process, particularly in the short term. Therefore, this study highlights the importance of improving the quality and credibility of ESG reporting, as well as strengthening the role of regulators and market participants in enhancing transparency and market discipline to minimize greenwashing practices.

Keywords: *Greenwashing, Market Reaction, Cumulative Abnormal Return (CAR) dan Trading Volume Activity (TVA).*

POST-IPO FINANCIAL PERFORMANCE OF FIRMS IN INDIA: AN EMPIRICAL ANALYSIS OF NSE-LISTED COMPANIES

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Abstract

The study examines the impact of IPOs on the financial performance of firms listed on NSE. The study selected a sample of fifteen companies going public during the 2020 – 2021 period. Based on ROA, ROE, EPS and Debt-equity ratio at year end, the financial performance of the companies have been evaluated. The results of the analysis of almost all the companies showed strong positive listing gain showing better demand of investors for the best IPOs and under pricing of IPOs. Profits have seen a moderate improvement which proves to be inconclusive due to some firms gaining while the others losing. Firms are reported to be using their net IPO proceedings for debt reduction and capital restructuring which shows a clear reduction in leverage. It can be concluded that IPOs have a positive impact on market valuation and leverage but not on operational performance at least in the short run.

Keywords: *Initial Public Offerings (IPOs), Financial Performance, Post-IPO Performance, Return on Assets (ROA), Return on Equity (ROE), Earnings Per Share (EPS), Debt-to-Equity Ratio, Listing Gains, IPO Underpricing, NSE India, Capital Structure.*

1. Introduction

The Indian IPO Market has grown significantly in recent years. However, the evidence that firms improve financially after the listing is inconclusive. The IPO is arguably the most important moment in the life of a company. It is like the birth of a new firm. More precisely, it is the metamorphosis of a private company into a public company. This transformation actually allows companies to access more public funding through the usage of public markets. To put it differently, it gives firms a fresh set of capital and the ability to use this new capital for growth investments, debt payoffs, or any other financial activity. The relation of IPOs to the financial world is largely through the economic changes that happen affecting the structure of the company, perception of the market and investor confidence. (Deloitte, 2025).

The stock exchange in India is growing. There have been enough IPOs in the past couple of years. Still, there's no agreement among the scholars and the experts regarding

the post-IPO performance. To be more specific, some firms come forward to proclaim the rise in the profit and the market cap while others are in competition for post-IPO profit (IIM Bangalore, 2018). Nonetheless, the scope of this study will be limited till the assessment of impact of IPOs on any Indian firm with reference to financial performance parameters like return on equity (ROE), earnings per share (EPS), debt equity ratio and market capitalization.

Understanding the post-IPO financial state of a firm is vital information for investors, policymakers, and C-Suite executives who will make decisions based on appropriate facts. They will be able to gain additional information into how efficient this financing has been for the firm growth and sustainability based on extensive data evaluation for multiple years pre-IPO and post-IPO.

2. Literature Review

The reasons and financial effects of going public have been extensively analyzed in the IPO literature. Firms may seek public listing for a variety of reasons. According to (Ramp, 2025), They may seek to raise capital, increase liquidity and visibility in financial markets. Firms use IPOs to send positive information regarding their future prospects. It is probable that the firm will display manipulated earning in order to attract potential investors. Such actions will further affect the IPO price as well as its initial performance (IIM Bangalore, 2018). Studies show that often operating performance declines subsequent to an IPO such as ROA and ROE. The reason for the fall has been earnings management before the IPO and higher agency costs (Investopedia, 2025). According to the Indian content, significant listing day gains have been recorded in several studies, while the long-term performance has been mixed, showing disparity between the market performance and operational performance (Talentia Software, 2024). In short, this study fulfills the gap of very little studied short-term and long-term market performance of Indian firms on various financial measures.

3. Methodology

The study analyzes a sample of **15** firms listed on the NSE between 2020 and 2021 across multiple industries.

Firms:

1. Zomato

2. Nykaa
3. Paytm
4. Route Mobile
5. Happiest Minds Technologies
6. Burger King India
7. IRCTC
8. Indigo Paints
9. Chemcon Speciality Chemicals
10. Rossari Biotech
11. Gland Pharma
12. Dr Lal PathLabs
13. Laurus Labs
14. Kalyan Jewellers
15. Easy Trip Planners

Variables:

$ROA = \text{Net Income} / \text{Total Assets}$

$ROE = \text{Net Income} / \text{Shareholder Equity}$

$EPS = \text{Net Income} / \text{Number of Shares}$

$\text{Debt-to-Equity} = \text{Total Debt} / \text{Total Equity}$

Hypotheses:

- H1: ROA declines after IPO
- H2: IPOs exhibit positive listing-day returns
- H3: Debt-to-equity ratio decreases post IPO

4. Data Collection and Sample Selection

The study uses secondary data collected from reliable financial databases such as the (National Stock Exchange of India, 2025) and (Moneycontrol, 2025). These sources provide standardized and audited financial information, ensuring data consistency and reliability.

The sample consists of 15 firms that completed their Initial Public Offerings (IPOs) between 2020 and 2021 and are listed on the NSE. Financial and market data, including stock prices and listing-day returns, were collected from (National Stock Exchange of India, 2025) and

(Yahoo Finance, 2025), while firm-level financial indicators such as ROA, ROE, EPS, and leverage ratios were sourced from (Moneycontrol, 2025).

Statistical analyses like descriptive and regressive scanning were used to identify the relationship between the IPO characteristics and future financial outcomes (Kristu Jayanti Journal of Management Sciences, 2024) and (IJF, 2025).

IPO-specific details, including offer price and issue size, were obtained from (Securities and Exchange Board of India, 2025).

5. Results

Table 1: Financial Performance of Firms Before and After IPO

Firm Name	IPO Year	ROA Pre	ROA Post	Δ ROA	ROE Pre	ROE Post	Δ ROE	EPS Pre	EPS Post	Δ EPS	D/E Pre	D/E Post	Δ D/E	Issue Price	Listing Price	Listing Gain %
Zomato	2021	-12.50%	-8.00%	4.50%	-25.00%	-15.00%	10.00%	-1.2	-0.8	0.4	0.1	0.05	-0.05	76	116	52.63%
Nykaa	2021	6.00%	5.20%	-0.80%	12.00%	10.50%	-1.50%	3.2	2.8	-0.4	0.3	0.1	-0.2	1125	2001	77.87%
Paytm	2021	-10.50%	-15.00%	-4.50%	-18.00%	-25.00%	-7.00%	-12.5	-18	-5.5	0.05	0.02	-0.03	2150	1950	-9.30%
Route Mobile	2020	12.00%	14.50%	2.50%	18.00%	22.00%	4.00%	6.5	8.1	1.6	0.15	0.05	-0.1	350	651	86.00%
Happiest Minds Technologies	2020	18.00%	20.50%	2.50%	32.00%	35.00%	3.00%	5.5	7.2	1.7	0.2	0.05	-0.15	166	351	111.45%
Burger King India	2020	-5.00%	-3.00%	2.00%	-12.00%	-8.00%	4.00%	-2.5	-1.8	0.7	1.2	0.8	-0.4	60	115	91.67%
IRCTC	2019	25.00%	28.00%	3.00%	35.00%	40.00%	5.00%	8.5	10.2	1.7	0.02	0.01	-0.01	320	644	101.25%
Indigo Paints	2021	10.00%	11.80%	1.80%	20.00%	23.00%	3.00%	7	8.4	1.4	0.25	0.08	-0.17	1490	2607	74.97%
Rossari Biotech	2020	14.00%	16.00%	2.00%	22.00%	26.00%	4.00%	8.2	9.8	1.6	0.2	0.06	-0.14	425	670	57.65%
Gland Pharma	2020	18.00%	20.00%	2.00%	24.00%	27.00%	3.00%	12.5	14.8	2.3	0.05	0.01	-0.04	1500	1701	13.40%
Dr Lal PathLabs	2020	16.00%	18.50%	2.50%	26.00%	30.00%	4.00%	10	12.2	2.2	0.08	0.03	-0.05	550	650	18.18%

Laurus Labs	2020	12.00%	15.00%	3.00%	18.00%	24.00%	6.00%	5.5	7.8	2.3	0.4	0.2	-0.2	428	521	21.73%
Kalyan Jewellers	2021	8.00%	7.00%	-1.00%	15.00%	13.00%	-2.00%	4.5	3.8	-0.7	1.8	1.2	-0.6	87	75	-13.79%
Easy Trip Planners	2021	20.00%	22.50%	2.50%	30.00%	34.00%	4.00%	6.8	8.9	2.1	0.05	0.01	-0.04	187	212	13.37%

The empirical analysis of 15 NSE-listed firms reveals clear patterns in post-IPO financial performance across profitability, leverage, and market-based indicators.

Descriptive Statistics

The sample average of Δ ROA is **+1.63%**, while the average of Δ ROE equals **+2.90%**. Earnings per share (EPS) has a gain of **+0.93** on average.

The public offering enhances a firm's operations to a small extent, as the evidence shows. Moreover, however, there is still variation at the firm level, with some firms experiencing declines, notably among recent technology IPOs.

Capital Structure Changes

A strong and consistent trend is seen in leverage. The average change in debt-to-equity ratio ($\Delta D/E$) is **-0.15**, proving that most firms reduced their reliance on debt after the IPO.

This supports the hypothesis that IPO proceeds are frequently used for deleveraging and balance sheet strengthening, rather than aggressively expanding right after IPO.

Listing Day Performance

The average listing gain across the sample is **54.14%**, reflecting a significant amount of investor demand and significant underpricing in the Indian IPO market.

The majority of firms recorded positive listing gains, with several companies such as IRCTC and Chemcon Speciality Chemicals showing exceptionally high initial returns. However, a few firms, including Paytm and Kalyan Jewellers, experienced negative listing performance, showing variability in investor sentiment.

Overall Trends

As per the findings, IPOs in Indian markets are effective in creating temporary investment or short term investor interest and improving the capital structure. However, the enhancement in ROA, ROE, as well as EPS is at a moderate level.

Overall It can be determined from the examination of findings that IPOs generated more impact on the market value and capital structure but less impact on operating performance.

6. Conclusion

The research paper investigates Initial Public Offering IPO effects on the financial performance of companies listed in NSE during 2020-2021. According to the findings, IPOs play a significant role in enhancing the financial structure of companies and provide an attraction/interest to investors, However they have a lesser impact during operation performances in the short-run.

In terms of profitabilities measured by ROA, ROE measures and also for EPS measures show that overall means are slightly improving but not significantly in all firms. Furthermore, a declining trend in debt to equity would suggest that they are using the IPO proceeds to reduce leverage and improve their balance sheets.

The rise in market value of most firms indicates an increase in demand and investor interest, which suggests the presence of IPO underpricing in India. The performance of IPOs is affected similarly by firm-specific factors such as efficiency of managers, use of funds, expectations from the investors, etc. Therefore, the success of an IPO is determined by many firm-specific factors.

In conclusion, an IPO is a powerful device for financial restructuring and market valuation and less a tool for immediate post IPO operations. The results of these performances over time may help a firm be more strategic in implementing various strategies and further aid decision making.

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FROM SYSTEM QUALITY TO CONSUMER TRUST: EVALUATING BLOCKCHAIN-BASED FOOD TRACEABILITY SYSTEMS

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Abstract

Blockchain technology has emerged as a promising solution for enhancing trans-parency and reliability in food supply chains through traceability systems. How-ever, its effectiveness depends not only on technological capabilities but also on consumer trust and perceived usefulness. Drawing on the Information Systems Success Model, this study examines how information quality, system quality, and service quality influence consumer trust and how trust affects perceived useful-ness. Data were collected from 264 consumers and analyzed using partial least squares structural equation modeling. The results show that all three quality dimensions significantly influence trust, while trust has a strong positive effect on perceived usefulness. These findings highlight the importance of system-related quality factors in shaping consumer trust and enhancing the perceived value of blockchain-based traceability platforms. This study contributes to the literature by explaining the trust formation mechanism in digital traceability systems and pro-vides practical insights for improving transparency and consumer confidence in food supply chains.

Keywords: *Blockchain traceability, Consumer trust, Information systems success model, Food supply chain transparency.*

1. Introduction

Ensuring food safety and authenticity has become a critical issue in modern food supply chains. Consumers increasingly demand transparency regarding the origin, quality, and handling of food products. However, recurring incidents of food contamination, fraudulent labeling, and information asymmetry have raised concerns about the reliability of traditional traceability systems. These systems often rely on fragmented centralized databases that are vulnerable to data manipulation, limiting transparency and reducing consumer confidence [1, 2].

Blockchain technology has emerged as a promising solution to enhance transparency and accountability in food supply chains. Blockchain is an immutable, decentralized digital ledger that records transactions between dispersed nodes. Each transaction is time-stamped and cryptographically secured. These features enable blockchain-based traceability systems to provide tamper-resistant records, allowing stakeholders and consumers to track food products throughout the supply chain [3].

Despite these benefits, consumer trust is just as important to the success of blockchain-based traceability systems as technical prowess. Consumers typically lack direct knowledge of blockchain processes and must rely on system-provided information to evaluate product authenticity and safety. In such environments, trust becomes a key factor influencing users' willingness to rely on technological systems [4, 5]. When consumers trust the system and perceive the information as reliable, they are more likely to consider it useful for decision-making.

Trust development in digital systems is closely related to information system quality. The Information Systems Success Model (ISSM) identifies three key dimensions, information quality, system quality, and service quality, that shape users' perceptions of digital systems [6]. These dimensions influence how users evaluate technologies and play a central role in building trust [7]. Prior studies also highlight that information transparency and service performance enhance trust and collaboration in supply chains [8, 9].

Although blockchain applications in food supply chains have been widely studied, prior re-search has primarily focused on technological implementation and organizational adoption rather than consumer perceptions. Empirical evidence on how information system quality influences consumer trust and perceived usefulness in blockchain-based traceability systems remains limited, particularly in emerging economies such as Indonesia.

To address this gap, this study examines the effects of information quality, system quality, and service quality on consumer trust and the subsequent impact of trust on perceived usefulness in blockchain-based food traceability systems.

This study contributes in two ways. First, it extends the Information Systems Success Model to the context of blockchain-based food traceability systems by explaining how system quality dimensions influence consumer trust. Second, it provides empirical evidence on how trust shapes perceived usefulness from the perspective of consumers in an emerging economy. The findings offer practical insights for designing traceability systems that enhance transparency and consumer confidence in food supply chains.

2. Literature Review

Food traceability systems are essential for ensuring transparency and safety in modern food supply chains. However, traditional systems rely on fragmented centralized databases that are vulnerable to data manipulation and limited interoperability, reducing transparency and hindering verification of product authenticity [1, 2].

Blockchain technology has emerged as a promising solution to enhance traceability by providing a decentralized and immutable ledger that ensures data integrity and transparency [1, 10]. In food supply chains, blockchain enables secure information sharing and end-to-end product tracking, reducing fraud risks and strengthening consumer confidence [2, 11]. Consumers can access verified product information through digital interfaces, such as QR codes, to support informed purchasing decisions [12].

Despite these advantages, the effectiveness of blockchain-based traceability systems depends on consumer perceptions, particularly trust. Since consumers cannot directly observe supply chain processes, they rely on system-provided information, making information credibility a key determinant of trust.

Information quality, system quality, and service quality are identified by the Information Systems Success Model (ISSM) as important factors influencing users' opinions of digital systems [5]. Information quality refers to the accuracy and relevance of system outputs, system quality reflects system reliability and usability, and service quality represents user support [6, 7]. These dimensions play a central role in influencing trust in digital platforms [5, 6, 13].

Trust reduces uncertainty in digital environments and encourages users to rely on technological systems [1, 8]. Prior studies show that trust significantly influences users' evaluations of system usefulness and their willingness to adopt digital services [9, 14].

Perceived usefulness, derived from the Technology Acceptance Model (TAM), refers to the extent to which a system enhances users' performance or decision-making [15]. It is a key predictor of technology acceptance [16]. In food traceability systems, perceived usefulness reflects consumers' ability to verify product authenticity and make informed decisions. When users trust the system, they are more likely to perceive it as beneficial [5, 11, 17].

2.1. Information Quality and Trust

Information quality significantly influences user trust in digital systems. Accurate, complete, and timely information enhances users' confidence in system reliability. In blockchain-based traceability systems, credible and transparent information enables consumers to verify product authenticity and strengthens trust in the platform [7, 13].

H1: Information quality positively influences trust in blockchain-based food traceability systems.

2.2. System Quality and Trust

System quality reflects the reliability, usability, and performance of a digital platform. Efficient and user-friendly systems reduce perceived risk and increase user confidence. In traceability systems, stable performance and ease of access to information signal technological competence and strengthen trust [6, 18].

H2: System quality positively influences trust in blockchain-based food traceability systems.

2.3. Service Quality and Trust

Service quality represents the support provided to users when interacting with digital systems. Responsive assistance and clear guidance improve user experience and help resolve issues, thereby strengthening trust. Prior studies show that effective service support enhances trust in digital environments [9].

H3: Service quality positively influences trust in blockchain-based food traceability systems.

2.4. Trust and Perceived Usefulness

Trust plays a central role in shaping perceived usefulness. When users trust a system, they are more likely to believe that it provides reliable and valuable information. In blockchain-based traceability systems, trust increases consumers' perception of the system's usefulness for evaluating product authenticity and safety [5, 14, 17].

H4: Trust positively influences perceived usefulness of blockchain-based food traceability systems.

3. Methodology

3.1. Sampling Procedure

This study adopts a quantitative research design to investigate the determinants of consumer trust and perceived usefulness in blockchain-based food traceability systems. A survey-based approach was employed to collect empirical data from consumers in Indonesia. Survey methods are widely used in information systems research to examine users' perceptions and behavioral responses toward emerging digital technologies. A convenience sampling technique was used to recruit respondents who are familiar with food purchasing activities and digital product information. Respondents were made informed about the study's objectives before filling out the questionnaire, and participation in the survey was completely optional. Customers in Indonesia were given an online survey to complete in order to collect data. A total of 264 valid responses were obtained and used for subsequent analysis.

3.2. Data Collection Instrument

This study adopts a quantitative research design to examine the determinants of consumer trust and perceived usefulness in blockchain-based food traceability systems. Data were collected through an online survey of consumers in Indonesia using a convenience sampling approach. Respondents were selected based on their familiarity with food purchasing and digital product information. Participation was voluntary, and a total of 264 valid responses were obtained for analysis.

The research instrument consisted of a structured questionnaire with two sections. The first section captured respondents' demographic characteristics and purchasing behavior, while the second measured the constructs in the proposed model: information quality, system quality, service quality, trust, and perceived usefulness. All items were assessed using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Measurement items were adapted from Zhou [19] and adjusted to fit the context of blockchain-based food traceability systems.

For Partial Least Squares Structural Equation Modelling (PLS-SEM), which is appropriate for analyzing complicated models with latent constructs and does not require huge samples, a sample size of 264 is considered sufficient [20]. Confidentiality and anonymity of respondents were ensured throughout the study.

4. Result and Discussion

4.1. Profile Respondents

Data were collected from 264 respondents. The demographic characteristics are presented in Table 1.

Table 1. Respondent Characteristics

Variable	Category	Frequency	Percentage
Gender	Female	147	55.68
	Male	117	44.32
Education	Bachelor's Final	133	50.38
	Article Blockchain-based degree		
	High school or below	103	39.02
	Master's degree	24	9.09
	Diploma	2	0.76
	Doctoral degree	2	0.76
Preferred Market Type*	Minimarket	161	61
	Supermarket	149	56
	Hypermarket	37	14
	Specialty / organic store	37	14
Food Expenditure (IDR)	< 2,500,000	196	74
	2,500,001 – 5,000,000	58	22
	5,000,001 – 7,500,000	4	2
	7,500,001 – 9,500,000	3	1
	> 9,500,000	3	1

*Multiple responses allowed.

The sample consisted of 55.68% female and 44.32% male respondents. Most respondents held a bachelor's degree (50.38%), followed by high school or below (39.02%) and master's degree (9.09%).

In terms of purchasing behavior, respondents primarily bought food from minimarkets (61%) and supermarkets (56%), while hypermarkets and specialty stores were less common (14% each). Most respondents reported monthly food expenditure below IDR 2,500,000 (74%), followed by IDR 2,500,001–5,000,000 (22%).

These characteristics indicate that the sample represents typical urban consumers relevant to evaluating blockchain-based food traceability systems.

4.2. Evaluation of Measurement Model

The measuring model was assessed using convergent validity, discriminant validity, indicator reliability, and internal consistency reliability. All indicator loadings exceed the recommended threshold of 0.70 (Fig. 1), confirming adequate indicator reliability.

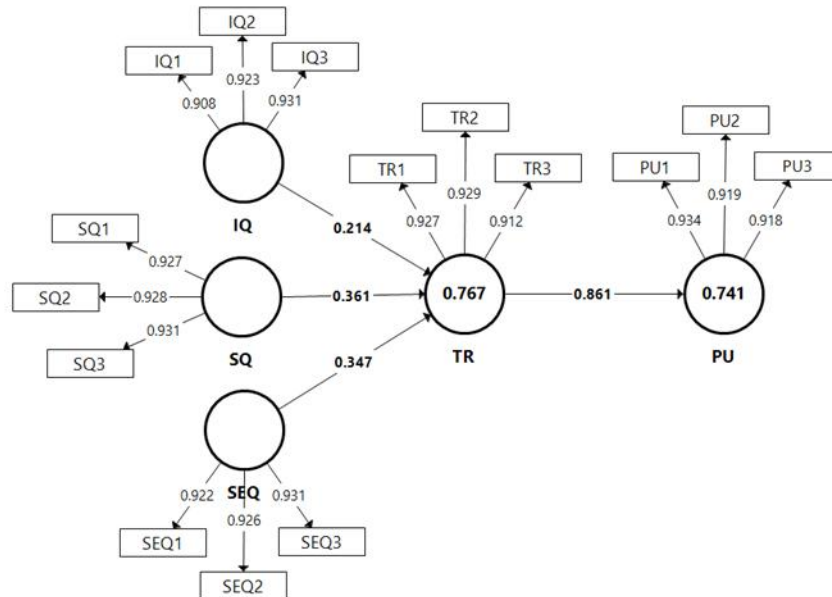


Fig. 1. Structural Model

Cronbach's alpha, composite reliability (CR), and Average Variance Extracted (AVE) were used to evaluate internal consistency and convergent validity (Table 2). All values exceed recommended thresholds (α and CR > 0.70; AVE > 0.50), indicating satisfactory reliability and convergent validity [20].

Table 2. Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE	R ²
Information Quality	0.911	0.944	0.848	
System Quality	0.920	0.950	0.863	
Service Quality	0.917	0.948	0.858	
Trust	0.913	0.945	0.851	0.767
Perceived Usefulness	0.914	0.946	0.853	0.741

The Fornell-Larcker criterion was used to evaluate discriminant validity (Table 3). Each construct's square root of AVE is greater than its correlations with other constructs, indicating sufficient discriminant validity.

Table 3. Discriminant Validity (Fornell–Larcker Criterion)

Construct	IQ	PU	SEQ	SQ	TR
IQ	0.921				
PU	0.788	0.924			
SEQ	0.783	0.863	0.926		
SQ	0.821	0.829	0.905	0.929	
TR	0.782	0.861	0.841	0.851	0.923

4.3. Structural Model Result

The structural model was evaluated using bootstrapping to estimate path coefficients, t-values, and p-values, see Table 4 below.

Table 4. Structural Model Result

Hypothesis	Relationship	β	t-value	p-value	Result
H1	Information Quality $\rightarrow$ Trust	0.214	2.754	0.006	Supported
H2	System Quality $\rightarrow$ Trust	0.361	3.278	0.001	Supported
H3	Service Quality $\rightarrow$ Trust	0.347	3.271	0.001	Supported
H4	Trust $\rightarrow$ Perceived Usefulness	0.861	34.622	<0.001	Supported

The results show that information quality ($\beta = 0.214$, $p = 0.006$), system quality ($\beta = 0.361$, $p = 0.001$), and service quality ($\beta = 0.347$, $p = 0.001$) significantly influence trust, supporting H1–H3. Among these, system quality has the strongest effect on trust.

Trust significantly influences perceived usefulness ($\beta = 0.861$, $p < 0.001$), supporting H4.

The model demonstrates strong explanatory power, with information quality, system quality, and service quality explaining 76.7% of the variance in trust, while trust explains 74.1% of the variance in perceived usefulness.

5. Discussion

This study examines how information system quality influences consumer trust and perceived usefulness in blockchain-based food traceability systems. Drawing on the Information Systems Success Model (ISSM), the findings confirm that information quality, system quality, and service quality are key drivers of consumer trust, which in turn significantly enhances perceived usefulness.

Among the three dimensions, system quality demonstrates the strongest influence on trust, highlighting the importance of reliable, user-friendly, and responsive platforms. This suggests that consumers place greater emphasis on system performance when evaluating the credibility of traceability systems. Information quality and service quality also play significant roles, indicating that accurate, transparent information and responsive support further strengthen consumer confidence in the system [5, 6, 9].

The results also show that trust has a strong positive effect on perceived usefulness ($\beta = 0.861$), emphasizing its central role in shaping consumers' evaluation of blockchain-based traceability systems. When consumers trust the system, they are more likely to perceive it as beneficial for verifying product authenticity and supporting informed purchasing decisions. This finding reinforces the role of trust as a key mechanism linking system quality attributes to perceived technological value [4, 14].

The model demonstrates strong explanatory power, indicating that information system quality provides a robust explanation of how consumer trust and perceived usefulness are formed in blockchain-based traceability systems. Overall, these findings suggest that enhancing system performance, information transparency, and service support is essential for strengthening consumer trust and maximizing the perceived value of blockchain-enabled solutions in food supply chains.

6. Conclusion

This study examined how information system quality influences consumer trust and perceived usefulness in blockchain-based food traceability systems. Drawing on the Information Systems Success Model (ISSM), the findings show that information quality, system quality, and service quality significantly influence consumer trust, which in turn strongly affects perceived usefulness.

Among these factors, system quality has the strongest impact on trust, followed by service quality and information quality. The results also confirm that trust plays a central role in shaping consumers' evaluation of traceability systems, as higher trust leads to greater perceived usefulness.

From a theoretical perspective, this study extends the Information Systems Success Model to blockchain-based traceability systems by highlighting the role of trust as a key mechanism linking system quality to perceived usefulness.

From a practical perspective, the findings suggest that improving system performance, in-formation transparency, and service support is essential for enhancing consumer trust and maximizing the value of blockchain-based traceability solutions in food supply chains.

This study has several limitations. The data were collected from consumers in Indonesia, which may limit generalizability. In addition, the study focuses on perceived usefulness with-out considering other behavioral outcomes such as adoption intention or actual usage.

Future research could incorporate additional behavioral variables or conduct cross-country comparisons to examine how contextual factors influence trust in blockchain-based traceability systems.

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**TATTOOS AMONG STUDENTS IN THE HIGHER EDUCATION INSTITUTIONS:
PERSPECTIVE OF PARENTS AND TEACHERS**

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Abstract

This study examines how parents and teachers perceive tattooed students in the Higher Education Institutions (HEIs) in the City of Manila, foregrounding the often-overlooked stakeholder perspectives that shape institutional norms and student experiences. Employing a descriptive quantitative design, the study surveyed 350 purposively selected respondents (175 parents and 175 teachers) using a validated questionnaire. Perceptions were analyzed across biological, cultural, and social dimensions. It also examined its relationship to key demographics such as age, sex, religion, occupation, marital status, and educational attainment. Findings reveal pervasive concern across all dimensions, with significant demographic stratifications. Biological perceptions, particularly those related to health and risk, were significantly influenced by age, sex, occupation, and marital status. Cultural acceptance of tattoos increased when associated with religious or indigenous meanings, varying by age, occupation, and educational attainment. Socially, respondents recognized persistent stigma and the likelihood of differential treatment toward tattooed students, with perceptions differing significantly by age and sex. On the other hand, religion exerted no significant influence, while occupation consistently emerged as the strongest predictor across all dimensions. These findings underscore that attitudes toward tattooed students are not merely aesthetic judgments but are embedded in broader socio-demographic structures. The study calls on HEIs to critically reexamine appearance-based norms, dismantle implicit biases in policy and practice, and advance evidence-informed, inclusive frameworks that reconcile personal expression with academic and professional expectations.

Keywords: tattoos, parents, teachers, perception.

**DIFFERENTIATING TRADITIONAL SHOPPING FROM ONLINE SHOPPING:
PREFERENCES OF STUDENTS IN THE HIGHER EDUCATION INSTITUTIONS**

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Abstract

The co-existence of traditional and online shopping continues to shape consumer behavior, particularly among students in higher education institutions. This study examined the factors influencing students' preferences between traditional and online shopping, focusing on convenience, price perception, quality of service, and perceived risk. Grounded in Expectation-Confirmation Theory, the study adopted a descriptive-comparative research design. Data were collected through a structured survey administered to 400 college students from selected higher education institutions in Metro Manila. Findings revealed that students hold favorable perceptions toward both shopping modes, albeit for different reasons. Traditional shopping was highly valued for its low perceived risk, assurance of product authenticity, opportunity for physical inspection, immediate product acquisition, and reliable customer service. In contrast, online shopping was perceived as more convenient and cost-efficient due to its accessibility, flexibility, and competitive pricing. However, concerns related to scams, product discrepancies, and data security remained significant deterrents. Overall, students demonstrated a balanced and moderate preference for both traditional and online shopping, indicating the emergence of hybrid consumer behavior. Inferential analysis using the Mann–Whitney U test and Kruskal–Wallis H test showed that most perceptions and preferences did not significantly differ across demographic variables but with only minimal differences noted in specific aspects of online shopping convenience. The findings suggest that students' shopping choices are primarily shaped by situational demands and post-consumption evaluations rather than demographic characteristics. This study provides practical insights for traditional retailers, online sellers, and e-commerce platforms in developing adaptive strategies that effectively address students' expectations, perceived risks, and demand for convenience.

Keywords: *consumer preference, hybrid shopping behavior, online shopping, traditional shopping.*

INTELLECTUAL CAPITAL IN HIGHLY REGULATED ENVIRONMENTS: EVIDENCE FROM INDONESIAN CUSTOMS AND EXCISE

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Abstract

This study empirically investigates the impact of intellectual capital components, human capital (HC), structural capital (SC), and relational capital (RC) on the financial performance of public sector organizations, specifically the Customs and Excise Offices (KPPBC TMC) in Indonesia. Utilizing a quantitative approach, primary data were collected through questionnaires using a purposive sampling technique. The sample consists of 84 strategic decision-makers across three KPPBC TMC offices (Malang, Kediri, and Kudus). The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS. The empirical results reveal that structural capital demonstrates a positive and significant effect on financial performance. Conversely, human capital exhibits a negative and insignificant effect, while relational capital shows a positive but insignificant impact. These findings indicate that in heavily regulated, hierarchical bureaucratic environments with high job security, institutionalized systems and centralized policies (SC) overshadow individual competencies (HC) and external networking (RC) in driving financial outcomes. This study provides critical managerial implications for public policymakers to sustain investments in structural digital transformations while reforming performance-based human resource management.

Keywords: *human capital, structural capital, relational capital, financial performance*

1. Introduction

The dynamic changes in the organizational environment have compelled organizations to develop new ways of operating in order to survive amidst increasing challenges. The growing demands of the market require business actors to continuously adapt to environmental changes to sustain organizational continuity and competitiveness. In this context, organizations have increasingly recognized that business success is not solely derived from tangible assets, but also from intangible assets that play a crucial role in supporting organizational performance and long-term sustainability. According to Masa'deh et al. (2016), many organizations have acknowledged the strategic importance of human resources and knowledge compared to conventional tangible resources. In addition to human capital, structural capital and relational capital are also essential organizational resources that are expected to enhance financial performance. These components collectively form intellectual capital, which has become a critical determinant of organizational competitiveness in the knowledge-based economy. Therefore, analyzing organizational financial performance is important to evaluate the extent to which an organization operates effectively and efficiently in conducting its operational activities.

Human resources are widely regarded as the primary assets contributing to organizational performance improvement (Ali et al., 2021). According to the Organisation for Economic Co-operation and Development (OECD), human capital encompasses the competencies, skills, knowledge, and other attributes possessed by individuals who participate in economic activities (Syarifah et al., 2020). Furthermore, the emergence of the knowledge-based economy originates from human capabilities, as individuals possess the knowledge and understanding necessary to

identify and respond to customer needs. By integrating employees' capabilities, innovation, and skills in carrying out their responsibilities, organizations are able to create value that supports the achievement of organizational objectives. Therefore, human resources constitute a fundamental element in the creation of a nation's intellectual capital (Hendrawan et al., 2012).

However, without structural capital, intellectual capital would merely consist of human capital alone (Bontis, 1998). Structural capital refers to the organizational structures, systems, and mechanisms that support employees in improving overall business performance (Supeno, 2018). Moreover, structural capital, which is closely associated with organizational culture, productivity, and the capacity to generate innovation and progress, represents an investment in organizational systems, instruments, and performance philosophies that influence knowledge processes within the organization (Zahedi & Khanachah, 2020). Another important component of intellectual capital is relational capital, which refers to the human ability and capability to establish relationships that generate economic value (Suwan et al., 2022). In this context, relational capital reflects the accumulation of resources associated with mutual respect, trust, and understanding within and outside the organization (Ansari et al., 2016). Furthermore, relational capital works synergistically with human capital to understand how the external environment affects organizational activities and to address challenges necessary for business success. Consequently, managers are expected to strengthen stakeholder relationships and deliver superior customer services to enhance organizational competitiveness (Aureli et al., 2018; Cabrilo & Dahms, 2020).

Previous studies examining the effects of human capital, structural capital, and relational capital on financial performance have produced mixed and inconclusive findings. For instance, the study conducted by Soetanto & Liem (2019) revealed that human capital (HC) has a negative and significant relationship with firm performance. In contrast, studies by Asiaei et al. (2019); Bujang & Mohammad (2019); Haris et al. (2019); Olarewaju & Msomi (2021); Ousama et al. (2020) found that human capital positively and significantly influences financial performance. These inconsistent findings indicate that the effectiveness of human capital may vary depending on organizational and contextual factors. Similarly, studies investigating the effect of structural capital (SC) on financial performance have also reported divergent results. Research conducted by Weqar et al. (2020); Xu et al. (2019) demonstrated that structural capital has a positive and significant effect on corporate financial performance. These findings are consistent with the results reported by Bujang & Mohammad (2019). However, contradictory evidence was presented by Costa et al. (2020); Liu et al. (2022); Ubaidillah & Asutay (2023), who found that structural capital does not necessarily improve financial performance. Furthermore, prior research examining the influence of relational capital (RC) on corporate financial performance has likewise yielded inconsistent outcomes. Studies by Liu et al. (2022); Ubaidillah & Asutay (2023); Weqar et al. (2020); Xu et al. (2019) reported a negative and significant relationship between relational capital and financial performance. Conversely, research conducted by Asiaei et al. (2019); Tran et al. (2022); Xu & Wang (2019) identified a positive association between relational capital and corporate financial performance. These conflicting findings suggest that the role of intellectual capital components in enhancing firm performance remains an important area for further empirical investigation.

The findings of previous studies remain inconsistent, indicating the need for further empirical investigation. Therefore, this study aims to examine the extent to which human capital, structural capital, and relational capital influence organizational financial performance within Medium Customs Excise and Supervision Service Offices in Indonesia, an institutional context that has received limited scholarly attention despite its strategic contribution to state revenue generation. This study is expected to provide both theoretical and practical contributions to the related institutions by offering empirical insights into the role of the three

main components of intellectual capital, such as human capital, structural capital, and relational capital as fundamental drivers for improving organizational financial performance.

2. Literature review

2.1. Resource-based view theory

The Resource-Based View (RBV) theory posits that superior organizational resources are capable of generating competitive advantage (Barney, 1991). Wernerfelt (1984) defines resources as anything that may constitute either a strength or a weakness of a firm or organization. Furthermore, Barney (1991) describes resources as assets encompassing organizational processes, capabilities, knowledge, characteristics, information, and other organizational attributes that enable firms to formulate and implement strategies aimed at enhancing productivity and efficiency.

2.2. Social exchange theory

Social Exchange Theory (SET) is one of the most influential theoretical frameworks in the social sciences, particularly in sociology, social psychology, and management studies. The theory is rooted in the foundational works of Emerson (1976); Homans (1958). SET is built upon the assumption that human relationships are formed through exchanges involving both sacrifices (negative elements) and rewards (positive elements). Negative aspects within a relationship may include pressure and tension that potentially lead to conflict, whereas positive aspects may involve satisfaction, happiness, loyalty, and mutual understanding (Nurdin, 2020). Within the exchange process, interpersonal closeness may influence an individual's ability to establish and maintain relationships. Furthermore, the theory is grounded in the assumption that humans are rational beings who evaluate the potential benefits and rewards obtainable from social interactions while simultaneously attempting to minimize costs and sacrifices. Consequently, social relationships are maintained when the perceived rewards outweigh the associated costs.

2.3. Human capital

Economic development largely depends on human capital (HC), which plays a critical role in fostering social stability and equality (Li et al., 2024). Furthermore, the successful implementation of organizational strategies is strongly influenced by improvements in the quality of human resource systems. This perspective is grounded in the understanding that investments in individuals such as education, training, and health enhance individual productivity (Goldin, 2016). Investments in human resources contribute to improving firm performance, increasing employees' marginal productivity, and stimulating organizational labor demand (Ling et al., 2024). For example, employees who are educated, experienced, well-trained, creative, and highly motivated possess greater capacity to work efficiently in generating value and organizational assets (Chahal & Bakshi, 2016).

Human capital is therefore considered essential for organizations seeking to improve financial performance. Human capital encompasses employees' expertise, skills, competencies, and ability to establish effective relationships with customers and stakeholders (Rini & Boedi, 2016). Organizational performance may vary across firms because each organization is led and managed by individuals with different capabilities and characteristics (Syarifah et al., 2020). Consequently, organizations that possess reliable human resources with strong commitment and motivation toward achieving organizational goals are more likely to achieve superior performance. Human capital originates from individuals and is inherently unique, making it difficult to imitate or transfer across organizations (Tarigan & Septiani, 2017). Prior studies conducted by Asiaei et al. (2019); Bujang & Mohammad (2019); Haris et al. (2019); Olarewaju

& Msomi (2021); Ousama et al. (2020) found a positive and significant relationship between human capital and financial performance.

2.4. Structural capital

A strong structural capital foundation enables firms and organizations to operate systematically and efficiently (Gupta et al., 2020). Even when individuals possess high levels of intelligence and expertise, intellectual capabilities cannot be fully optimized if organizational systems and procedures are inadequate in supporting and monitoring individual activities (Bontis, 1998). Strong structural capital fosters an organizational culture that encourages continuous learning, including learning from failures and organizational setbacks. Moreover, structural capital remains embedded within the organization even when employees or organizational actors change, as it represents organizational property and serves as supporting infrastructure for human capital (Ahangar, 2020; Tandon et al., 2016).

Structural capital is particularly important because it functions as a bridge between human capital and organizational capital in creating value added (Hidayat & Dana, 2019). Well-maintained organizational culture and effective management practices can generate competitive advantages that contribute to improved financial performance (Tarigan & Septiani, 2017). Corporate financial value is derived from the integration of structural capital components such as databases, information systems, organizational image, operational processes, copyrights, buildings, software, and hardware with human resources (Habibah, 2016). Previous studies conducted by Weqar et al. (2020); Xu et al. (2019); Xu & Li (2019); Xu & Wang (2019) found a positive and significant relationship between structural capital and financial performance.

2.5. Relational capital

Organizations need to interact with various external stakeholders, such as suppliers, customers, competitors, and trade and industry associations, in order to develop relational capital (Alqershi et al., 2020). Strong relationships provide diverse benefits for organizations, including enhanced customer loyalty and trust toward the services provided. The higher the level of customer loyalty and trust, the stronger the relationship established between the organization and its customers (Chahal & Bakshi, 2016). In addition, relational capital enables organizations to develop databases containing external information that can be utilized to predict environmental changes and formulate future organizational strategies (Saeed et al., 2016).

Relational capital constitutes one of the primary components of intellectual capital. It reflects an organization's ability to create value through relationships with external stakeholders, including customers (Bujang & Mohammad, 2019). Relationships among individuals are formed through exchanges involving both sacrifices and rewards (Nurdin, 2020). During the interaction process, individuals may negotiate exchange conditions to reduce uncertainty and establish agreements that support long-term relationships. However, negotiation outcomes may also generate negative consequences for organizations that provide goods or services. Empirical studies conducted by Liu et al. (2022); Ubaidillah & Asutay (2023); Weqar et al. (2020); Xu et al. (2019) found that relational capital has a negative and significant effect on financial performance.

3. Methodology

This quantitative study employs primary data collected through questionnaires using a 10-point Likert scale, resulting in numerical data suitable for statistical analysis. The population of this study consists of all employees working at the Medium Customs Excise and Supervision Service Offices (KPPBC TMC) in Malang, Kediri, and Kudus, totaling 289 employees. This

study applies a non-probability sampling technique using purposive sampling, in which respondents are selected based on specific criteria (Sugiyono, 2012). The sample selection criteria include: (1) employees of KPPBC TMC Malang, Kediri, and Kudus, and (2) employees who serve as decision-makers within these institutions. Based on these criteria, a total of 84 employees were selected as respondents to complete the questionnaire.

Furthermore, this study utilizes SmartPLS 4 as the analytical tool to process the collected data and generate outputs used to formulate the research findings and conclusions, as well as to address the proposed research questions and hypotheses. Structural Equation Modeling (SEM) was employed to conduct path analysis involving latent variables, thereby facilitating the integration of theoretical constructs with empirical data (Ghozali & Kusumadewi, 2016). The endogenous variable in this study is financial performance, which reflects the extent to which an organization effectively utilizes its assets to achieve favorable financial outcomes. Meanwhile, the exogenous variables consist of human capital, structural capital, and relational capital. The measurement items used for each variable are described in detail in Table 1 below.

Table 1. Variable Operationalization

Variables	Definition	Measurement Items	Source(s)
Human Capital	Capital originating from within individuals, encompassing knowledge, skills, and abilities that serve as organizational assets to achieve profitable performance and goals.	The quality of human resources in our office is considered an organizational strength. (HC1) Our employees are capable of effectively handling operational problems. (HC2) The employees in our office are well-trained. Our employees possess high motivation in completing their tasks. (HC3) Our employees continuously learn from one another. (HC4) Our employees frequently contribute innovative ideas. (HC5)	(Farzaneh et al., 2022; Kucharska, 2022; Truong & Nguyen, 2023)
Structural Capital	The organization's capacity to execute daily operational processes and maintain structural integrity to achieve organizational goals and optimal intellectual performance.	Our office establishes and adheres to a comprehensive set of rules and procedures in its workflows. (SC1) Our office integrates expertise and business information into its structures, methods, and operations. (SC2) There is distinct and effective coordination and integration across different sections/departments within our office. (SC3) The policies and procedures in our office foster the development of innovation. (SC4) Our organizational structure and processes facilitate easy access to information. (SC5) Existing documents and solutions are easily accessible. (SC6)	(Farzaneh et al., 2022; Ozgun et al., 2022; Truong & Nguyen, 2023)
Relational Capital	Represents the organization's ability to foster, maintain, and sustain positive and mutually beneficial relationships with both internal and external stakeholders.	A significant portion of employees' personal knowledge is institutionalized in the form of processes, manuals, and databases. (SC7) Our office facilitates seamless information exchange with customs and excise service users. (RC1) Our office strives to build long-term relationships with customs and excise service users. (RC2) Feedback from customs and excise service users is highly valued by our organization as a means to improve service quality. (RC3) Our employees frequently collaborate to solve problems. (RC4)	(Farzaneh et al., 2022; Kucharska, 2022; Truong & Nguyen, 2023)

Financial Performance	A measure of an organization's success in generating revenue/profitability and evaluating its growth potential by assessing current resources and performance to forecast future prospects.	Internal collaboration within our office runs smoothly. (RC5)	(Rahman & Akhter, 2021)
		External collaboration with outside parties runs smoothly. (RC6)	
		How would you evaluate the achievement of excise revenue over the past 3 years? (FP1)	
		How would you evaluate the achievement of import duty revenue over the past 3 years? (FP2)	
		How would you evaluate the achievement of revenue generated from operational activities over the past 3 years? (FP3)	
		How would you evaluate the achievement of revenue generated from all organizational activities over the past 3 years? (FP4)	
		How would you evaluate the growth dynamics in the number of excisable goods companies (perusahaan barang kena cukai) within the office's supervisory jurisdiction over the past 3 years? (FP5)	

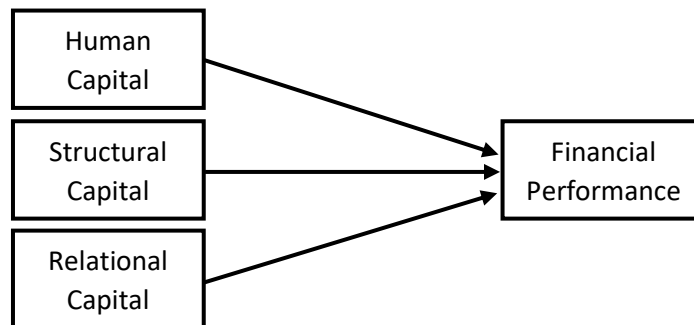


Figure 1. Research framework

4. Results and discussions

4.1. Respondent characteristics

Based on the distribution of questionnaires to 84 employees across the selected Medium Customs Excise and Supervision Service Offices (KPPBC TMC) in Indonesia, respondent characteristics were identified according to institutional affiliation, position, educational background, educational entry pathway, gender, age, and length of employment. A total of 34.1% of respondents were from KPPBC TMC Malang, 25.9% from KPPBC TMC Kediri, and 40.0% from KPPBC TMC Kudus. In terms of occupational position, 68.2% of respondents were functional officers, 18.8% were heads of offices, and 13.0% were section heads. Based on the respondents' highest educational attainment, 18.8% held a master's degree (S2), 67.1% held a bachelor's degree or equivalent diploma (DIV/S1), 12.9% held a diploma degree (DIII), and 1.2% held a DI qualification. The respondents were predominantly graduates of official government service academies, accounting for 76.5% of the sample, while the remaining 23.5% had non-service educational backgrounds. Regarding age distribution, 2.4% of respondents were aged 26-30 years, 4.8% were aged 31-35 years, 23.7% were aged 36-40 years, 20.4% were aged 41-45 years, 26.2% were aged 46-50 years, 20.1% were aged 51-55 years, and 2.4% were aged 56-60 years. In terms of tenure, 1.2% of respondents had worked for 1-5 years, 3.5% for 5-10 years, 8.2% for 10-15 years, 24.7% for 15-20 years, 24.7% for 20-25 years, 18.8% for 25-30 years, 16.5% for 30-35 years, and 2.4% for more than 35 years.

4.2. Validity and reliability test

Referring to the results of the validity and reliability tests in table 2, one questionnaire item (RC1) could not be retained for further analysis because it had a factor loading value below 0.50. Table 2 presents the results of the validity and reliability assessment obtained using SmartPLS version 4 after excluding item X3.1 from the measurement model. The results indicate that all remaining variables and measurement items achieved factor loading values greater than 0.50, Cronbach's alpha values above 0.70, composite reliability (CR) values above 0.70, and average variance extracted (AVE) values exceeding 0.50. Therefore, all constructs satisfied the required validity and reliability criteria and were considered appropriate for subsequent analyses.

Table 2. Validity and Reliability Test

Variabel	Indikator	Factor Loading	Cronbach's Alpha	CR	AVE
<i>Human Capital</i> (HC)	HC1	0,710	0,881	0,890	0,627
	HC2	0,838			
	HC3	0,737			
	HC4	0,837			
	HC5	0,815			
	HC6	0,805			
<i>Structural Capital</i> (SC)	SC1	0,657	0,852	0,876	0,539
	SC2	0,797			
	SC3	0,538			
	SC4	0,884			
	SC5	0,823			
	SC6	0,736			
	SC7	0,648			
<i>Relational Capital</i> (RC)	RC1	0,448	0,841	0,844	0,613
	RC2	0,848			
	RC3	0,768			
	RC4	0,711			
	RC5	0,781			
	RC6	0,799			
<i>Financial Performance</i> (FP)	FP1	0,714	0,789	0,824	0,545
	FP2	0,658			
	FP3	0,847			
	FP4	0,819			
	FP5	0,628			

4.3. Path coefficients

The path coefficient results presented in Table 5 indicate that the original sample value for the relationship between human capital and financial performance is negative, while the p-value is below 0.05. These findings suggest that the effect is statistically significant but in the opposite direction of the proposed hypothesis; therefore, H1 is rejected. Furthermore, the original sample

value for the relationship between structural capital and financial performance is positive, with a p-value of 0.008, indicating a statistically significant effect. Accordingly, H2 is accepted. In contrast, the original sample value for the relationship between relational capital and financial performance is positive; however, the associated p-value exceeds 0.05, indicating that the effect is not statistically significant. Consequently, H3 is rejected.

Table 3. Path Coefficients

Variabel	Original Sample (O)	T-Statistics	P Values
HC > FP	-0,272	1,460	0,144
SC > FP	0,563	2,645	0,008
RC > FP	0,284	1,337	0,181

4.4. Effect of human capital on financial performance

This study finds that human capital has a negative and insignificant effect on the financial performance of Customs Offices. These findings indicate that the three Medium Customs Excise and Supervision Service Offices (KPPBC TMC) in Indonesia have not yet fully emphasized the strategic importance of human capital in improving organizational financial performance (Rehman et al., 2023). One possible explanation is that the human capital within these institutions is dominated by employees who possess relatively similar educational backgrounds, knowledge, and professional experiences in carrying out organizational operational activities. This condition differs from many private-sector organizations, where employees tend to have more diverse knowledge, expertise, and experiences that may create competitive advantages and enhance productivity and efficiency (Barney, 1991).

Furthermore, the negative and insignificant relationship between human capital and financial performance may also be attributed to the distinct work culture within Indonesia's public sector institutions, particularly among civil servants (ASN), which differs substantially from that of the private sector. Civil servants generally enjoy relatively high job security and face a lower risk of employment termination compared to private-sector employees, whose working environments are typically more competitive and performance-oriented. Such conditions may reduce individual incentives to improve productivity and workplace innovation because the pressure to achieve superior performance is not as intense as in private organizations. In addition, bureaucratic structures and hierarchical systems within public sector institutions often result in slower decision-making processes, reduced flexibility, and lower adaptability to environmental changes. These conditions may hinder innovation, operational efficiency, and the optimal utilization of human resources, thereby limiting the contribution of human capital to organizational financial performance. Consequently, although civil servants may possess adequate human resource quality, the bureaucratic characteristics of public organizations may prevent human capital from exerting a significant positive influence on financial performance.

4.5. Effect of structural capital on financial performance

The path coefficient results indicate that higher structural capital is associated with improved financial performance. This finding can be explained by the fact that the Medium Customs Excise and Supervision Service Offices (KPPBC TMC) in Indonesia operate under the Directorate General of Customs and Excise, resulting in relatively standardized structural aspects across institutions, including organizational culture, databases, systems, information technology, procedures, and centralized policies. Such standardization enables operational activities to be conducted in a more systematic and coordinated manner. Effective information

and risk management practices, including data collection, data storage, and information security, provide an important foundation for future decision-making processes while simultaneously maintaining data integrity and public trust regarding personal information. Furthermore, these offices utilize organizational experience as a basis for formulating new policies and strategies aimed at improving operational effectiveness and strengthening information technology systems to support favorable financial performance outcomes. Accordingly, intellectual capabilities can be optimized when organizations possess well-developed systems and procedures (Bontis, 1998).

The findings of this study support the research conducted by Weqar et al. (2020), which demonstrated that public sector banks in India efficiently utilized their internal intangible assets to enhance profitability and productivity. In line with the Resource-Based View perspective, resources that are managed optimally enable organizations to formulate and implement strategies that improve productivity and efficiency (Barney, 1991). This result is also consistent with the study by Xu & Li (2019), which examined manufacturing firms in eastern China. Their study emphasized that managers should continuously develop structural capital components, including organizational strategies, information systems, and organizational culture. Moreover, policymakers are expected to formulate policies that encourage organizations to invest in innovative activities in order to enhance the efficiency and effectiveness of structural capital.

4.6. Effect of relational capital on financial performance

The hypothesis testing examining the effect of relational capital on the financial performance of Customs Offices revealed a positive but insignificant relationship. Relationships with both internal and external stakeholders provide these institutions with valuable experience that can serve as a basis for predicting environmental changes and developing future organizational strategies (Saeed et al., 2016). However, such relationships do not necessarily contribute directly to improvements in organizational financial performance. Moreover, the insignificant effect of relational capital on financial performance may be explained by the existence of a time lag in the value creation process. Organizational investments in building customer trust, supplier loyalty, and strategic networks represent long-term initiatives whose economic benefits are not always immediately reflected in current-period financial statements. As a result, relational capital may not directly enhance organizational profitability in the short term (Indah Naibaho et al., 2026; Nurseha et al., 2024).

In addition, the influence of relational capital on financial performance tends to be indirect and contingent upon industry characteristics. In highly competitive or commodity-based industries, relational advantages may be overshadowed by factors such as cost efficiency and market pricing, meaning that strong external relationships do not automatically translate into higher profitability. Consequently, relational capital often needs to be transformed into innovation, operational efficiency, or competitive advantage before it can generate a substantial contribution to corporate financial performance indicators (Agustia et al., 2021).

5. Conclusion

This study aims to investigate the influence of intellectual capital components, namely human capital, structural capital, and relational capital, on the financial performance of public sector organizations, specifically within the Medium Customs Excise and Supervision Service Offices (KPPBC TMC) in Indonesia. Empirically, the findings reveal that among the three dimensions of intellectual capital, only structural capital serves as a significant determinant and catalyst for enhancing financial performance. Strong structural aspects, including standardized procedures, integrated databases, information technology systems, and centralized organizational culture, enable KPPBC TMC institutions to operate systematically and efficiently. In contrast, human capital and relational capital were found to have no significant

effect on financial performance. These findings reflect the unique characteristics of public sector bureaucracy. The dominance of homogeneous educational backgrounds derived from government service academies, high levels of job security among civil servants (ASN), and rigid hierarchical structures may create a comfort zone that weakens competitiveness, reduces the urgency for proactive innovation, and limits organizational agility in managing strategic relationships with external stakeholders.

From a theoretical perspective, this study contributes to the literature on the Resource-Based View (RBV) and Social Exchange Theory (SET) by extending their application into the context of public sector institutions. The findings challenge the traditional RBV assumption that human capital consistently functions as a primary source of competitive advantage. Within highly regulated public organizations characterized by strong employment security, the value of human capital may not be optimally transformed into financial performance without the support of competitive performance-based compensation systems. Conversely, this study reinforces the proposition that, in public sector organizations, structural capital plays a substantially more critical role in sustaining operational stability and supporting state revenue generation than individual initiatives alone. From a managerial standpoint, these findings provide important implications for policymakers within the Directorate General of Customs and Excise. First, management should maintain and continuously strengthen investments in structural capital, particularly in relation to digital transformation initiatives and big data governance systems. Second, reforms in the management of human capital and relational capital are necessary. Public institutions are encouraged to reconstruct reward and punishment systems that are more strongly oriented toward meritocracy in order to reduce productivity stagnation among civil servants. Furthermore, reducing rigid bureaucratic barriers through debureaucratization initiatives is essential to provide employees with greater flexibility and motivation to establish mutually beneficial strategic relationships with customs and excise service users.

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SERVICE QUALITY ANALYSIS AT PT PESAT LAND PROPERTY

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Abstract

This study aims to analyze service quality and customer satisfaction at PT Pesat Land Property using the Importance Performance Analysis (IPA) method. The study was motivated by continuing customer complaints concerning the company's services and by the importance of service quality in increasing customer satisfaction and trust in the property industry. A quantitative descriptive approach was employed, with data collected from consumers through questionnaires. The analysis compared the importance and performance levels of each service attribute and mapped the results onto an IPA Cartesian diagram. The findings show that several attributes fall within Quadrant I (the main priority) and require immediate improvement, including mortgage processing speed, service facilities, and customer complaint handling. Meanwhile, the attributes in Quadrant II represent service aspects that are already performing well and should be maintained, such as communication, courtesy, and service consistency. The attributes in Quadrants III and IV indicate lower priorities and opportunities for more efficient resource allocation. Overall, service quality plays an important role in increasing customer satisfaction and supporting improved company sales performance. Therefore, the company is advised to prioritize improvements to the main-priority attributes while maintaining the service aspects that already perform well in order to strengthen competitiveness and customer trust.

Keywords: *Service Quality, Customer Satisfaction.*

1. Introduction

The fluctuations in the development of Indonesia's property sector have attracted considerable attention from investors. In the past, property businesses were generally regarded as consistently profitable; however, in recent years, growth in this sector has become highly vulnerable to several factors, including economic slowdowns. The property and real estate subsector remains attractive because it provides products that meet essential public needs, particularly housing and related requirements.

The National Residential Property Price Index (RPPI) for the period from the first quarter of 2022 to the fourth quarter of 2024 reflects changes in the market value of residential property influenced by macroeconomic conditions, fiscal and monetary policies,

and regional demand-and-supply factors. This introduction provides a brief analytical framework before the data visualization is examined by highlighting general trend patterns (increases, decreases, or stability), important turning points, and periods of volatility that require attention. The analysis considers factors driving changes in the RPPI, such as interest rates, inflation, financing availability, and housing policies, as well as their practical implications for developers, investors, and policymakers. Accordingly, readers are expected to gain an adequate preliminary understanding for interpreting the visualization and evaluating the relevant economic and policy implications.

Figure 1

National Residential Property Price Index (RPPI) (Q1/2022-Q4/2024)



Note. Source: Tech in Asia, 2025.

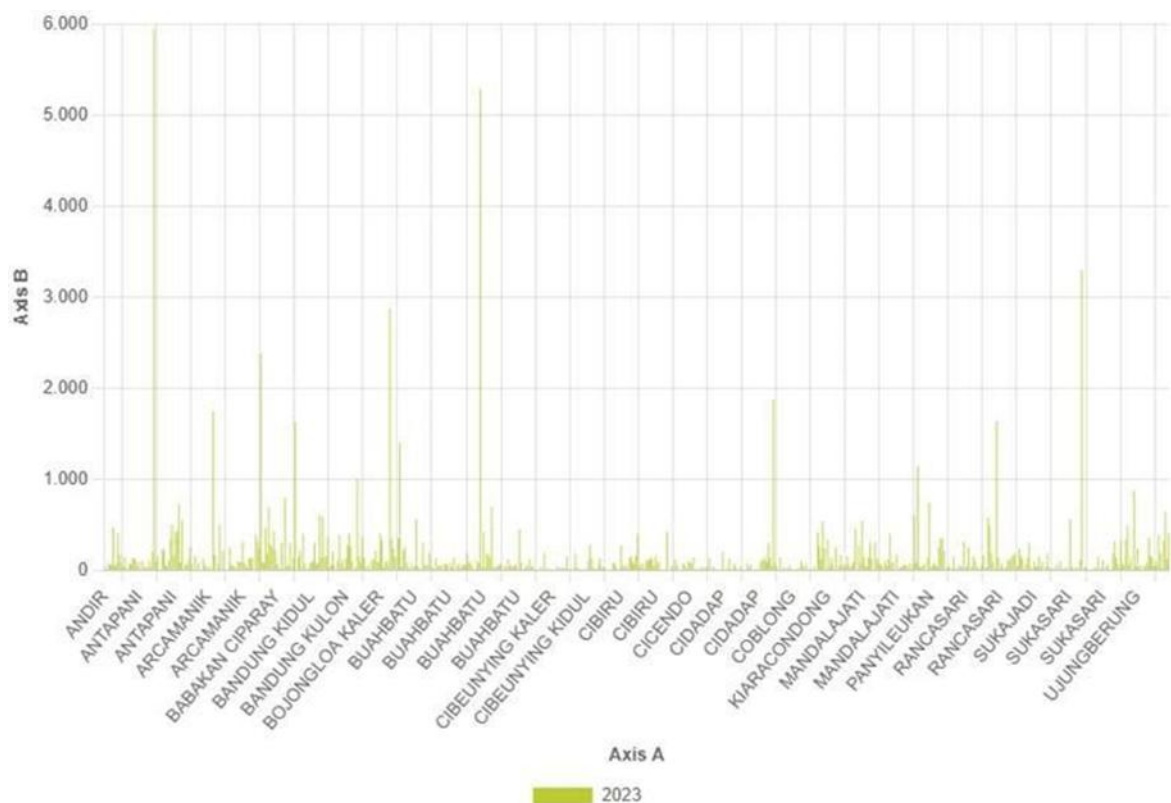
Based on Bank Indonesia's residential property price survey, house prices in Indonesia have increased consistently over the past three years. The National Residential Property Price Index (RPPI) for small, medium-sized, and large houses shows a stable growth pattern. The commercial property sales segment also demonstrates stable growth. The Commercial Property Price Index (CPPI) for sales increased from 102.88 in Q1/2022 to 103.95 in Q4/2024. By contrast, the commercial property rental segment experienced sharp fluctuations. Nevertheless, an upward trend occurred consistently throughout 2024, with the index reaching 103.54 in Q4/2024.

The development of Indonesia's property sector in recent years has shown significant growth in line with public demand for comfortable and affordable housing. Bandung has become one of the fastest-growing property markets in West Java due to rapid population

growth and strong public interest in residential property investment. This situation has encouraged many new companies to enter the market, including PT Pesat Land Property, which was established in 2023 and is committed to providing high-quality property services focused on customer satisfaction (Yapriyadi, S. B., & Erdiansyah, 2025). The current property market in Bandung shows a significant surge in demand, particularly in suburban areas such as Cimahi, Padalarang, and West Bandung Regency. However, strong market interest does not automatically guarantee the success of a new developer. Consumers' purchasing decisions are often influenced by emotional factors and their level of trust in the developer.

Figure 2

Development of Habitable Housing by Regency/City in the Bandung Area



Note. Source: West Java Open Data, 2025.

PT Pesat Land Property (Pesat Land Properti) is a property development company established in Bandung in 2023. As a newcomer to the property sector, the company faces major challenges in building trust amid the presence of many established developers. Intense competition in the Bandung area requires every company to deliver high-quality services, ranging from clear product information and convenient transaction processes to responsive after-sales service. In this context, the success of PT Pesat Land Property is

determined not only by construction quality standards but also by the company's ability to create a positive and memorable customer experience.

The year-to-year changes in these figures may be associated with service quality throughout the sales process. The nearly stagnant growth in 2024 may reflect service weaknesses, such as slow responses to prospective buyers, inconsistent follow-up, unclear product information, or an unsatisfactory site-visit experience, which prevented a significant increase in sales conversion. The substantial improvement in 2025 indicates that one or more service aspects may have improved—for example, faster response times, stronger sales staff capabilities, better marketing communication, or improved after-sales service—thereby increasing consumer trust and purchasing decisions. To establish a causal relationship, a customer satisfaction survey or service process analysis is recommended so that effective service interventions can be identified and replicated.

Service quality is an important factor affecting customer satisfaction in the property industry. Customers who receive good and professional service generally develop a high level of trust in the company. As a new developer in Bandung, PT Pesat Land Property can use high-quality service to strengthen its reputation and differentiate itself from competitors in the local market (Rianda, Muhammad, Novita Ayu Setyawati, 2025).

Service quality can be understood as the gap between the service actually delivered by a company and the service customers expect. In this context, service quality is evaluated by comparing customers' perceptions of the service they receive with their prior expectations. In other words, service quality becomes evident when customers perceive that the service they receive meets or exceeds their expectations (Nurrudin, 2021).

In contemporary marketing, consumer satisfaction serves not only as a benchmark of company success but also as a means of evaluating the effectiveness of implemented business strategies. Periodic customer satisfaction assessments make it easier for a company to identify market needs and adapt its service delivery. At PT Pesat Land Property, this approach can be implemented by collecting data through customer surveys or an integrated feedback system on digital platforms, allowing the findings to serve as a basis for continuous improvement.

From a practical perspective, the study will provide measurable recommendations for the management of PT Pesat Land Property, including prioritizing improvements to customer-response standard operating procedures, providing human-resource training to strengthen assurance and empathy, and optimizing mortgage administration and

documentation processes. Academically, this study addresses an empirical gap by testing the validity of the SERVQUAL model in the context of a newly established property developer in Bandung. The study is therefore expected to guide operational interventions that can improve customer satisfaction and loyalty and, ultimately, the company's sales performance.

Overall, research analyzing service quality and consumer satisfaction at PT Pesat Land Property is essential to ensure the company's future sustainability and growth. The results can provide a basis for improving service strategies, increasing customer satisfaction, and building long-term loyalty. Through high-quality service, the company may expand its operations to other regions of Indonesia while remaining competitive in Bandung's local market. PT Pesat Land Property will focus on humane, professional, and transparent service to achieve its vision of becoming a trusted and highly competitive property developer (Yapriyadi, S. B., & Erdiansyah, 2025).

In addition, case studies of residential property developers confirm that improvements in product and service quality positively affect customer value and satisfaction, which ultimately influence purchasing decisions (Harijanto & Herdinata, 2024). Based on these findings, the final internship report for PT Pesat Land Property should focus its recommendations on improving service reliability (fulfilling promises and conducting timely follow-up), increasing sales responsiveness, and improving the clarity and completeness of product information. According to the literature, these measures can increase customer satisfaction and strengthen the company's sales performance.

Based on the background described above, this final internship project is entitled "Internship at PT Pesat Land Property: Service Quality Analysis at PT Pesat Land Property."

2. Literature Review

Marketing

According to Indrasari (2019), marketing is a comprehensive, integrated, and planned activity undertaken by an organization or institution to accommodate market demand by creating marketable products, setting prices, communicating and delivering offerings, and exchanging value with consumers, clients, partners, and the general public.

Kotler et al. (2022) state that “Marketing is a societal process by which individuals and groups obtain what they need and want through creating, offering, and freely exchanging products and services of value with others.”

According to Aisyah (2020), marketing comprises a set of principles for selecting target markets, evaluating consumer needs, developing goods and services, satisfying consumer wants, delivering value to consumers, and generating profit for the company.

Marketing Management

According to Ariyanto (2023), marketing management concerns the management of products, both goods and services, so that they become more widely known to the public. Its objective is to enable a company to maximize profits by meeting or serving consumer needs through the provision of the goods and services consumers require and desire.

According to Reken et al. (2024), marketing management can be defined as the effort to plan and implement activities involving the organization, direction, supervision, or control of a company’s marketing activities in order to achieve corporate objectives efficiently and effectively.

Kotler et al. (2022) state that “Marketing management is the art and science of choosing target markets and getting, keeping, and growing customers through creating, delivering, and communicating superior customer value.”

Service Quality

“E-service quality is defined as a website’s ability to provide effective and efficient facilities for online shopping, online purchasing, and obtaining goods or services” (Alma, 2020). “Business operators can introduce and market products or services more broadly to internet users, while consumers can search for and view reviews of products or services they intend to purchase or use. Digital service applications offer several advantages, such as serving as promotional media that can be accessed at any time, providing valid information to customers, and reducing marketing costs” (Kusniati, 2020).

Customer Satisfaction

According to Kotler and Keller (2021), customer satisfaction is the feeling of pleasure or disappointment that arises after comparing a product’s perceived performance (outcome) with its expected performance. Consumers will be satisfied when a company fulfills their needs in the manner they expect.

According to Tjiptono and Diana (2022), customer satisfaction is an outcome arising from a specific consumption experience, including a cognitive state in which buyers feel

that they have received value equivalent to their sacrifices, an emotional response to an experience involving a particular product or service, and the psychological condition experienced before and after using that product or service.

According to Fatihudin and Firmansyah (2019), customer satisfaction is a measure or indicator of how satisfied customers or business users are with a company's products or services.

3. Methodology

- Field Observation.
- Interviews.
- Questionnaire Distribution.
- Data Analysis: Customer Satisfaction Index (CSI) and Importance Performance Analysis (IPA)

4. Results and Discussion

Problems Encountered During the Internship

During the internship in the Marketing Division of PT Pesat Land Property, the most prominent problem was the potential for delays and discrepancies between the implementation of activities and the established work plan. This condition repeatedly appeared in various activities, including training sessions, weekly meetings, promotional programs, and content management. The situation indicates that smooth marketing operations depend heavily on an orderly workflow, a clear division of responsibilities, and consistent coordination among team members. When minor delays are allowed to recur, they can disrupt the quality of promotional outputs and reduce the overall effectiveness of marketing programs.

Another major issue was the need to interact directly with prospective buyers and property owners in situations requiring strong communication skills. Activities such as accompanying prospective buyers to properties of interest, explaining property specifications, and assisting buyers during on-site inspections demonstrate that the Marketing Division is responsible not only for promoting products but also for maintaining customer trust and comfort. At this stage, obstacles may arise when visit schedules are not synchronized, the information provided is insufficiently clear, or customers require additional explanations that must be delivered persuasively and professionally. This

confirms that the success of property marketing is strongly influenced by interpersonal skills and readiness to provide customer service.

Finally, problems also arose in evaluation, planning, and internal learning through routine marketing-team meetings. During weekly meetings, discussions concerning sales progress, upcoming promotional strategies, target audiences, and task distribution showed that marketing processes are dynamic and require rapid adjustment. The principal challenge at this stage was ensuring that all team members shared the same understanding of work objectives, activity priorities, and previous evaluation results. When strategic communication is ineffective, the directions provided may not be implemented optimally in daily operations. Therefore, internal meetings function not only as coordination forums but also as important spaces for aligning perspectives and strengthening the overall effectiveness of the Marketing Division.

Solutions and Discussion

The solutions implemented by PT Pesat Land Property should focus on strengthening the responsiveness and reliability dimensions. The company needs to establish clear response-time standards, improve the monitoring of digital communication, and ensure that every customer inquiry is followed up quickly and accurately. Product information should also be standardized so that the entire marketing team provides consumers with consistent and accurate information.

On the other hand, the company must also maintain the assurance and empathy dimensions, which have already been implemented effectively. This can be achieved through continuous employee training in interpersonal communication and customer service, thereby maintaining and further improving the quality of interactions with consumers.

Overall, the analysis indicates that PT Pesat Land Property has established a reasonably strong foundation of service quality but still requires improvement in key aspects that directly affect customer satisfaction. If the company can implement targeted and consistent improvements, it will increase not only customer satisfaction but also trust, loyalty, and future sales performance.

Based on the Importance Performance Analysis (IPA), the service quality of PT Pesat Land Property can be mapped into four quadrants representing the importance and performance levels of each service attribute. Methodologically, IPA identifies attributes that consumers regard as important but that are not yet supported by adequate performance,

attributes that already perform well and should be maintained, and attributes that have low priority or may even receive excessive attention. Thus, the Cartesian diagram not only illustrates the position of each service attribute but also provides a basis for developing more focused improvement strategies aligned with consumer needs.

From the perspective of improvement strategy, the Cartesian diagram provides clear guidance for the company in developing more effective solutions. Attributes in Quadrant I should become the main focus of improvement through higher service operating standards, faster responses to consumers, and stronger coordination across organizational units. Attributes in Quadrant II should be maintained through consistent service behavior and the continuation of high-quality interactions. Meanwhile, attributes in Quadrants III and IV may be treated as secondary considerations so that the company can avoid wasting resources on aspects with limited impact on customer satisfaction. This approach will make service improvements more measurable, rational, and consistent with consumer needs.

5. Conclusion

The internship at PT Pesat Land Property provided a practical understanding of the application of marketing and customer service functions in the property industry, particularly within a division directly responsible for promotion, customer communication, and the documentation of marketing activities. During the internship, the student not only gained practical work experience but also connected theories of marketing management, service quality, and customer satisfaction with the company's actual operating conditions. This demonstrates that the internship objective of broadening knowledge and practical capabilities was successfully achieved.

In general, the sales performance of PT Pesat Land Property from 2023 to 2025 showed an overall upward tendency: sales totaled 22 units in 2023, decreased to 19 units in 2024, and then increased to 28 units in 2025. These changes indicate that improvements in service and marketing strategies are closely associated with the company's sales performance. Service quality therefore affects not only customer satisfaction but also serves as a major supporting factor in increasing customer trust and the company's sales results.

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DEVELOPING A DIGITAL MARKETING STRATEGY TO ENHANCE MARKET REACH: A CASE STUDY OF TAHU CRISPY PAKUAN MSME

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Abstract

Tahu Crispy Pakuan is a culinary Micro, Small, and Medium Enterprise (MSME) engaged in the production and sale of crispy tofu products in Bogor City, Indonesia. Amid increasing competition in the culinary industry and the growing reliance of consumers on digital platforms, the adoption of an effective digital marketing strategy has become essential for expanding market reach and enhancing business competitiveness. This study aims to assess the initial condition of the enterprise's digital marketing practices, formulate an appropriate digital marketing strategy, and implement practical marketing initiatives tailored to the business. A qualitative descriptive approach was employed, with data collected through observations, semi-structured interviews, and documentation. Data analysis was conducted using the Strengths, Weaknesses, Opportunities, and Threats (SWOT) framework, supported by the Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrices. The findings reveal an IFE score of 3.20, indicating strong internal capabilities, and an EFE score of 3.78, demonstrating the enterprise's ability to effectively capitalize on external opportunities. Furthermore, the business is positioned in Quadrant I of the Internal–External (IE) Matrix, suggesting that a Grow and Build strategy is the most appropriate strategic direction. The implementation of the proposed strategy resulted in more active and consistent social media management, the development of a professional visual identity through a business logo, and the establishment of a structured promotional content plan. Although registration on the ShopeeFood platform could not be completed within the project period due to operational constraints, the implemented initiatives have provided a solid foundation for strengthening the enterprise's digital presence and supporting future market expansion.

Keywords: Digital marketing; Micro, Small, and Medium Enterprises (MSMEs); Tahu Crispy Pakuan; SWOT analysis; Internal Factor Evaluation (IFE); External Factor Evaluation (EFE).

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in Indonesia's economy by creating employment opportunities, increasing household income, and contributing significantly to national economic growth. The rapid advancement of

information and communication technology has created substantial opportunities for MSMEs to expand their market reach and strengthen business competitiveness. Nevertheless, many MSMEs continue to face various challenges in business management, particularly in marketing, product development, and the effective utilization of digital technologies.

Bogor City is one of the regions with a significant number of MSMEs, recording approximately **68,000 business units** across various sectors based on the 2021 MSME census. The food and beverage sector accounts for the largest proportion, representing approximately **28%** of all formal business establishments in the city (Department of Cooperatives and MSMEs of Bogor City, 2021). This substantial concentration of culinary MSMEs reflects an increasingly competitive business environment, requiring entrepreneurs to implement effective marketing strategies in order to maintain business sustainability and achieve long-term growth.

One of the culinary MSMEs operating in Bogor is **Tahu Crispy Pakuan**, a business specializing in crispy tofu products. The enterprise offers distinctive flavors at affordable prices, providing considerable potential for growth amid the increasing demand for ready-to-eat snack products. However, despite its promising business prospects, Tahu Crispy Pakuan continues to encounter several challenges that may hinder its development. These include intensifying market competition, changing consumer preferences, and the need to enhance its marketing strategy to reach a broader customer base.

At the same time, rapid digital transformation has created significant opportunities for culinary businesses to improve sales performance and strengthen customer engagement. Indonesia recorded more than **100 million active Instagram users in 2025** (NapoleonCat, 2025), making Instagram one of the most effective visual marketing platforms for small culinary businesses. In addition, online food delivery services such as **ShopeeFood** have experienced remarkable growth, with gross merchandise value (GMV) increasing by **51% in 2025**, further strengthening the platform's competitive position within Indonesia's online food delivery industry (Momentum Works, 2025). By effectively leveraging these digital opportunities, Tahu Crispy Pakuan can enhance its competitiveness and significantly expand its market reach through digital channels.

To formulate an appropriate digital marketing strategy, a comprehensive analysis of both the internal and external business environment is required. One of the most widely adopted strategic management tools is the **Strengths, Weaknesses, Opportunities, and**

Threats (SWOT) analysis, which can be strengthened through the **Internal Factor Evaluation (IFE)** and **External Factor Evaluation (EFE)** matrices. These analytical frameworks enable business owners to identify their internal strengths and weaknesses while assessing external opportunities and threats, thereby facilitating the development of strategic recommendations that are both effective and aligned with the enterprise's actual business conditions.

Therefore, this study aims to analyze the current digital marketing practices of Tahu Crispy Pakuan, evaluate its strategic position using the SWOT, IFE, and EFE frameworks, and formulate practical digital marketing strategies that can enhance market reach and improve the enterprise's long-term competitiveness. The findings of this research are expected to provide valuable insights not only for Tahu Crispy Pakuan but also for other culinary MSMEs seeking to accelerate their digital transformation and achieve sustainable business growth.

2. Literature Review

2.1. Micro, Small, and Medium Enterprises (MSMEs)

Micro, Small, and Medium Enterprises (MSMEs) are productive business entities owned by individuals or business organizations that meet the criteria established under applicable national regulations. MSMEs play a fundamental role in Indonesia's economy by generating employment opportunities, increasing household income, and contributing significantly to both regional and national economic development. Moreover, MSMEs have demonstrated considerable resilience and adaptability in responding to changes in economic conditions and market demands.

The development and sustainability of MSMEs are influenced not only by external factors, such as market conditions and technological advancements, but also by the entrepreneurial competencies of business owners. Entrepreneurial characteristics including managerial capability, creativity, innovation, and risk-taking behavior are essential determinants of business performance and long-term sustainability (Sari et al., 2023).. In an increasingly competitive business environment, MSMEs are expected to continuously innovate by improving product quality, enhancing customer service, adopting digital technologies, and implementing appropriate business strategies to maintain their competitiveness.

2.2. Business Development Strategy

A business development strategy refers to a series of planned actions designed to improve organizational performance and strengthen competitive advantage over the long term. According to David (2017), strategy is a means of achieving organizational objectives through the effective and efficient utilization of available resources. A well-formulated strategy enables businesses to capitalize on market opportunities, respond to external threats, and strengthen their competitive position.

Within the culinary sector, business development strategies may include product quality improvement, product diversification, brand strengthening, digital technology adoption, and the expansion of marketing networks. Strategic decisions should be formulated based on a comprehensive evaluation of both internal capabilities and external environmental conditions to maximize business performance.

The ability of MSMEs to adapt to technological developments and dynamic market conditions has become an increasingly important determinant of long-term business sustainability (Nuria & Cahyo, 2025). Furthermore, business development strategies for micro-scale culinary enterprises are generally formulated based on operational realities, including the availability of raw materials, production capacity, and existing marketing networks (Nuria & Cahyo, 2025). These strategies should be supported by systematic marketing planning tailored to the characteristics of the business (Lubis, 2023). Previous studies have also demonstrated that product quality attributes and reasonable pricing significantly influence customer satisfaction, highlighting the importance of these factors in the development of small-scale culinary businesses (Hardini et al., 2022).

2.3. Digital Marketing for MSMEs

Digital marketing refers to marketing activities that utilize digital technologies and internet-based platforms to reach consumers more efficiently and effectively. Compared with conventional marketing methods, digital marketing offers broader market coverage, lower promotional costs, measurable performance indicators, and more interactive communication with customers.

Various digital platforms including social media, online marketplaces, business websites, and food delivery applications have become essential marketing channels for MSMEs seeking to increase sales and strengthen market presence. Kotler, Kartajaya,

and Setiawan (2022) argue that digital marketing enables businesses to better understand customer needs while establishing more effective and personalized communication.

For MSMEs, digital marketing contributes to greater product visibility, broader market reach, and stronger customer relationships. Previous studies have shown that implementing digital marketing strategies significantly enhances customer loyalty while improving business competitiveness in increasingly competitive markets (Manik & Simanjuntak, 2024). In addition to Instagram, short-video platforms such as TikTok have emerged as effective promotional tools, enabling culinary MSMEs to increase sales through creative content that reaches wider audiences (Hasan, 2022).

Digital marketing also represents a broader process of digital transformation in which businesses integrate various technological innovations, including digital payment systems and online sales platforms, to improve operational efficiency and competitiveness within the digital economy (Morisson & Fikri, 2025).. Consistent implementation of digital marketing strategies has been found to significantly improve MSME sales performance compared with conventional marketing approaches (Budiarti et al., 2024). Moreover, social media marketing enhances consumer brand awareness, which subsequently influences purchasing decisions (Januar et al., 2024).

2.4. Instagram as a Digital Marketing Platform

Instagram is one of the most widely utilized social media platforms for digital marketing due to its emphasis on visual communication through photographs and videos. Features such as photo posts, Stories, Reels, and interactive communication enable MSMEs to showcase products attractively while engaging directly with potential customers.

Consistent utilization of Instagram has been shown to improve brand visibility and expand market reach, particularly for culinary MSMEs (Widjaja et al., 2026). Regular content creation combined with effective product storytelling strengthens consumer trust and enhances brand image (Widjaja et al., 2026). In Bogor, Instagram has become an important marketing communication channel that enables culinary MSMEs to introduce products to broader markets while complementing conventional sales methods (Pratiwi Sakti et al., 2026).

Furthermore, training and mentoring programs related to Instagram account management have proven effective in helping digitally inactive MSMEs utilize the platform independently for promotional purposes (Ramadiansyah & Pratiwi, 2024).. Beyond promotional activities, Instagram also influences consumer purchase decisions through perceived value generated by visual content (Khofifah & Hasanah, 2023). The effectiveness of Instagram advertising depends largely on visual quality, content relevance, and audience targeting, emphasizing the importance of strategic content planning for MSMEs (Nur et al., 2025). Likewise, Instagram Ads have been found to increase consumer purchase intention when supported by high-quality promotional designs and compelling visual presentations (Yudha & Irawan, 2024). Therefore, Instagram represents a strategic digital marketing platform for micro and small culinary enterprises with limited promotional budgets.

2.5. SWOT Analysis

The Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis is one of the most widely applied strategic planning tools for evaluating an organization's internal and external environment. Internal factors consist of organizational strengths and weaknesses, whereas external factors include market opportunities and potential threats.

Through SWOT analysis, business owners can identify their strategic position and formulate development strategies that align with existing organizational conditions. The SWOT framework has been widely adopted in feasibility studies and business development research involving culinary MSMEs because it provides a practical yet comprehensive assessment of internal capabilities and external environmental conditions (Pangestu, 2026). Previous research also indicates that accurately identifying internal strengths and weaknesses serves as the foundation for more effective business development strategies (Erlangga & Suseno, 2024). Furthermore, SWOT analysis may be complemented by the Quantitative Strategic Planning Matrix (QSPM) to determine strategic priorities based on organizational conditions (Erlangga & Suseno, 2024).

2.6. Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) Matrices

The Internal Factor Evaluation (IFE) Matrix is used to assess organizational strengths and weaknesses that influence business performance. Each strategic factor is assigned a weight and rating to calculate a weighted score representing the enterprise's overall internal condition.

Similarly, the External Factor Evaluation (EFE) Matrix evaluates opportunities and threats arising from the external business environment. The resulting weighted score reflects the organization's ability to respond effectively to changes in market conditions and external environmental factors.

According to David (2017), the combined results of the IFE and EFE matrices provide an objective basis for determining an organization's strategic position and formulating appropriate business development strategies. Previous studies have also demonstrated that environmental analysis using the IFE and EFE matrices assists MSMEs in developing more systematic and measurable strategic planning (Veranita & Gunardi, 2023). The integration of SWOT, IFE, EFE, and the Internal-External (IE) Matrix has become a common strategic management approach for developing comprehensive and evidence-based marketing strategies (Arrafi et al., 2025).

2.7. Internal-External (IE) Matrix

The Internal–External (IE) Matrix is a strategic management tool that integrates the results of the IFE and EFE matrices to determine an organization's strategic position. The horizontal axis represents the IFE score, while the vertical axis represents the EFE score. The matrix is divided into nine cells that are categorized into three major strategic recommendations: **Grow and Build**, **Hold and Maintain**, and **Harvest or Divest**.

The IE Matrix assists organizations in selecting strategic directions that correspond to their internal capabilities and external environmental conditions. In culinary MSMEs, combining the IE Matrix with SWOT analysis has proven effective in supporting business growth planning, particularly for enterprises positioned in quadrants characterized by strong internal capabilities and favorable external opportunities (Wahad et al., 2026). The strategic position identified through the IE Matrix subsequently serves as the basis for formulating specific **SO (Strength-Opportunity)**, **WO (Weakness-Opportunity)**, **ST (Strength-Threat)**, and **WT (Weakness-Threat)** strategies that align with actual business conditions.

3. Methodology

This study was conducted at **Tahu Crispy Pakuan**, a culinary Micro, Small, and Medium Enterprise (MSME) located in Bogor City, Indonesia. A **descriptive qualitative** approach was employed to identify the current business conditions and formulate an appropriate digital marketing development strategy based on the internal and external factors influencing the enterprise.

The study involved both **internal and external informants**. The internal informant was the business owner, who provided comprehensive information regarding the operational activities and existing marketing practices of Tahu Crispy Pakuan. An external informant was also included to provide additional insights and professional perspectives regarding digital marketing strategies relevant to the business.

Data were collected using three primary techniques. First, **direct observation** was conducted to obtain information regarding business operations, marketing activities, product offerings, and customer service practices. Second, **semi-structured interviews** were carried out to explore the business history, operational challenges, and potential development opportunities. Third, **documentation** was collected in the form of business photographs, product documentation, and other supporting materials relevant to the research objectives.

The research was conducted in three sequential stages. The first stage involved identifying the business conditions through observations and interviews to determine the internal and external factors affecting the development of Tahu Crispy Pakuan. The second stage consisted of constructing the **Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE)** matrices based on the strategic factors identified during data collection. Each factor was assigned a weight and rating to generate weighted scores representing the enterprise's internal strengths and weaknesses as well as external opportunities and threats. The final stage involved developing a **SWOT analysis** to formulate strategic alternatives for digital marketing development by integrating the identified strengths, weaknesses, opportunities, and threats.

The internal informant in this study was **Gita**, the owner of Tahu Crispy Pakuan, who provided detailed information regarding the business history, existing marketing practices, and operational challenges encountered in daily business activities. The external informant was **Moch Garin Nugraha**, who contributed additional perspectives regarding the

opportunities and challenges associated with implementing digital marketing strategies for the enterprise. Information obtained from both informants was integrated to strengthen the validity of the strategic factors included in the IFE and EFE matrices.

The collected data were analyzed using the **SWOT framework**, supported by the **IFE** and **EFE** matrices. The weighted scores generated from these analyses were subsequently integrated into the **Internal–External (IE) Matrix** to determine the strategic position of the enterprise and formulate appropriate digital marketing strategies for Tahu Crispy Pakuan.

4. Results and Discussion

4.1. Initial Business Condition of Tahu Crispy Pakuan

Tahu Crispy Pakuan is a culinary MSME specializing in the production and sale of crispy tofu products in Bogor City. The business offers distinctive crispy tofu products at affordable prices, making them attractive to a wide range of consumers.

Prior to the implementation of the digital marketing assistance program, the enterprise's digital marketing activities were relatively limited. Although the business already owned social media accounts, they were not actively managed and promotional content was uploaded inconsistently. Consequently, the existing social media presence had little impact on sales performance or market expansion.

Furthermore, Tahu Crispy Pakuan had not yet registered with online food delivery platforms such as **ShopeeFood**, causing sales to rely entirely on direct, offline transactions. The business also lacked a professional visual identity, including a business logo, resulting in inconsistent brand representation and making the enterprise less recognizable than competitors that had already adopted digital branding strategies.

Despite these limitations, the enterprise had successfully maintained product quality and customer loyalty. However, several aspects required further improvement, particularly social media management, digital technology utilization, and market expansion strategies. Increasing competition within the culinary industry requires MSMEs to continuously adapt to technological developments and changing consumer behavior.

At the same time, the rapid growth of social media platforms, online food delivery services, and digital payment systems presents significant opportunities for Tahu Crispy Pakuan to improve its competitiveness and expand its market reach. Therefore,

the development and implementation of an effective digital marketing strategy are essential to fully capitalize on these emerging opportunities.

4.2. Implementation Plan

Based on the initial business assessment, a digital marketing assistance program was designed for Tahu Crispy Pakuan. The implementation plan focused on three practical initiatives that could be accomplished within the duration of the project.

The first initiative involved producing promotional content for the enterprise's Instagram account. The content included product photographs, food preparation processes, promotional campaigns, and menu variations with the objective of revitalizing previously inactive social media accounts and increasing online engagement.

The second initiative involved providing the business owner with content ideas and a structured content strategy. Considering the owner's limited experience in digital content management, the research team developed content concepts and a posting schedule that could serve as practical guidelines for maintaining consistent social media activities after the completion of the assistance program.

The third initiative focused on designing a professional business logo as the visual identity of Tahu Crispy Pakuan. The logo was intended to be consistently applied across digital platforms, social media content, and product packaging to strengthen brand recognition and establish a more professional business image.

The registration of Tahu Crispy Pakuan on the **ShopeeFood** platform could not be completed during the implementation period. The registration process required additional business documentation and platform verification procedures that exceeded the project's timeframe. Furthermore, the business owner needed additional operational preparation, including adjustments to production capacity and service hours, to ensure consistent fulfillment of online orders. Consequently, ShopeeFood registration has been identified as a future development initiative once the necessary administrative and operational requirements have been fulfilled.

4.3. Internal Factor Evaluation (IFE), External Factor Evaluation (EFE), and Internal-External (IE) Matrix Analysis

The enterprise's internal environment was evaluated using the **Internal Factor Evaluation (IFE) Matrix**, while external environmental factors were analyzed using the **External Factor Evaluation (EFE) Matrix**. These strategic management tools provided a systematic assessment of the enterprise's internal capabilities and external business environment, forming the basis for developing an appropriate digital marketing strategy.

The IFE analysis produced a total weighted score of 3.20, indicating that Tahu Crispy Pakuan possesses a **strong internal position**, as the score exceeds the average benchmark of **2.50**. The enterprise's primary strengths include the availability of social media accounts that can be optimized for digital promotion, the adoption of **QRIS digital payment systems**, and significant potential for strengthening product branding. Additionally, opportunities exist to establish partnerships with online food delivery platforms, thereby expanding market accessibility.

Despite these strengths, several internal weaknesses remain. Social media accounts have not been managed consistently, resulting in underutilization of digital promotional opportunities. The enterprise also lacks a digital product catalog, has not yet joined online food delivery platforms, and possesses relatively weak brand identity compared with competitors that have already implemented comprehensive digital marketing strategies.

The EFE analysis generated a weighted score of **3.78**, indicating that the enterprise demonstrates a strong capability to capitalize on external opportunities while responding effectively to potential market threats. Major opportunities include the growing use of social media across various consumer segments, the rapid expansion of online food delivery services, and the effectiveness of digital content in attracting new customers. Furthermore, the enterprise's relatively long operating hours provide additional opportunities to serve a larger customer base.

Nevertheless, several external threats should be considered. These include increasing competition from culinary businesses that have actively implemented digital marketing, more intensive promotional activities on social media, changing consumer preferences toward online ordering services, and attractive promotional campaigns offered by competing businesses.

Based on the combined IFE and EFE results, Tahu Crispy Pakuan is positioned within the **Grow and Build** category of the **Internal-External (IE) Matrix**. This

strategic position indicates that the enterprise possesses strong internal capabilities while operating within a favorable external environment. Accordingly, future business development should prioritize market expansion, stronger digital marketing implementation, and the establishment of a more consistent and recognizable brand identity.

Table 1. Summary of IFE, EFE, dan IE Position Matrix Scores

No.	Factor	IFE Weight×Rating	EFE Weight×Rating	IFE Score	EFE Score
-	Total Score Weighted			3,20	3,78
-	IE Matrix Position			Quadran I – Grow and Build	

Source: Data collected by the author, 2026

4.4. SWOT Matrix and Digital Marketing Strategy

Following the IFE, EFE, and IE analyses, the next stage involved developing the **SWOT Matrix** to formulate alternative digital marketing strategies for Tahu Crispy Pakuan. The SWOT Matrix integrates the internal and external strategic factors identified during the previous analyses to generate four categories of strategic alternatives: **Strength-Opportunity (SO)**, **Weakness -Opportunity (WO)**, **Strength-Threat (ST)**, and **Weakness-Threat (WT)** strategies.

Based on the enterprise's strategic position in **Quadrant I of the Internal–External (IE) Matrix**, which recommends a **Grow and Build** strategy, the SO strategy was identified as the primary strategic priority. This position indicates that Tahu Crispy Pakuan possesses strong internal capabilities while operating in an environment characterized by favorable external opportunities. Consequently, the business should leverage its existing strengths to capitalize on emerging digital marketing opportunities, thereby enhancing market reach, strengthening brand competitiveness, and supporting sustainable business growth.

The proposed digital marketing strategies are presented in the SWOT Matrix, which serves as the foundation for developing practical recommendations tailored to the enterprise's current business conditions.

Table 2. SWOT Matrix of MSMEs Know Crispy Pakuan

SWOT	Strength (S)	Weakness (W)	Description
Opportunities(O)	SO-1: Utilize the existing social media accounts to consistently publish creative content targeting university students around Universitas Pakuan. SO-2: Register the business on GoFood and ShopeeFood while integrating the QRIS digital payment system to expand market reach and improve customer convenience.	WO-1: Develop a distinctive brand identity and professional logo, followed by the creation of an attractive digital menu catalog to be promoted through Instagram. WO-2: Establish a weekly content schedule to capitalize on popular culinary trends and social media engagement among university students.	Strategy SO & WO
Threats (T)	ST-1: Produce promotional content that emphasizes the unique taste and visual appeal of Tahu Crispy Pakuan to differentiate the business from competitors with stronger digital marketing presence. ST-2: Leverage the QRIS payment system to implement customer loyalty promotions and repeat-purchase programs, helping maintain customer retention amid increasingly competitive promotional campaigns.	WT-1: Prioritize the development of a professional logo and consistent visual branding before competitors further strengthen their presence in the local digital culinary market. WT-2: Register the business on at least one online food delivery platform to retain customers who increasingly prefer digital food ordering services.	Strategy ST & WT

Source: Data processed by the author, 2026

The strategic alternatives generated from the SWOT Matrix are interpreted as follows.

SO-1 Strategy: Optimizing Existing Social Media Accounts through Creative Content Targeting University Students. This strategy aims to maximize the existing social media presence of Tahu Crispy Pakuan by consistently producing creative content targeting students around Universitas Pakuan. Although the business already possesses social media accounts, these platforms have not been utilized effectively. Considering

the large student population surrounding the business location and their active use of social media to discover culinary recommendations, Instagram represents a highly promising promotional channel. The implementation of this strategy involves producing attractive product photographs and short-form videos, adopting communication styles and content trends that appeal to university students, and maintaining a consistent posting schedule. Previous studies have demonstrated that consistent Instagram marketing significantly enhances brand visibility and expands the market reach of culinary MSMEs (Widjaja et al., 2026).

SO-2 Strategy: Registering the Business on Food Delivery Platforms and Integrating QRIS Digital Payment. The second SO strategy focuses on expanding market accessibility by registering Tahu Crispy Pakuan on online food delivery platforms such as **GoFood** and **ShopeeFood**, while optimizing the existing **QRIS** digital payment system. The rapid growth of online food delivery services provides significant opportunities for culinary MSMEs to reach a wider customer base without expanding their physical business locations. Implementation should be conducted gradually, beginning with operational readiness and the completion of required business documentation before official registration on food delivery platforms.

WO-1 Strategy: Developing Brand Identity and a Digital Product Catalog. This strategy addresses the enterprise's primary weakness, namely the absence of a consistent visual identity. A professional logo and attractive brand identity are expected to improve business recognition and strengthen competitiveness against similar culinary businesses. The strategy involves designing a simple yet distinctive logo that reflects the characteristics of the product and applying it consistently across digital menu catalogs, promotional materials, and social media platforms.

WO-2 Strategy: Developing a Weekly Content Schedule. The second WO strategy focuses on overcoming inconsistent social media management by establishing a structured weekly content calendar. This initiative aims to maximize opportunities arising from popular culinary content trends among university students. The content calendar includes themes, content formats, and scheduled posting times, providing practical guidance for the business owner to maintain long-term consistency in digital marketing activities.

ST-1 Strategy: Differentiating the Product through Unique Visual Content. This strategy seeks to strengthen competitive advantage by highlighting the unique taste and

visual characteristics of Tahu Crispy Pakuan. As competition among digitally active culinary businesses continues to intensify, differentiation becomes increasingly important. Implementation includes producing visual content that showcases food preparation processes, product texture, and distinctive flavor characteristics, enabling potential customers to recognize the uniqueness of the product compared to competing brands.

ST-2 Strategy: Utilizing QRIS to Support Customer Loyalty Programs. The second ST strategy aims to improve customer retention through promotional programs supported by the QRIS digital payment system. This strategy responds to increasing consumer tendencies to switch to competitors offering more attractive promotions. Practical implementation may include discounts or reward programs for customers making purchases via QRIS, thereby encouraging repeat purchases and strengthening customer loyalty.

WT-1 Strategy: Prioritizing Brand Identity Development. The first WT strategy emphasizes the importance of establishing a professional visual identity before competitors further dominate the local digital culinary market. Weak brand identity represents a significant internal limitation that may become increasingly detrimental under intensifying digital competition. Therefore, logo development and visual branding should become the initial priority before implementing broader digital marketing initiatives.

WT-2 Strategy: Joining an Online Food Delivery Platform. The final strategy focuses on minimizing the risk of losing customers who increasingly prefer digital food ordering services. Registration on at least one online food delivery platform is considered an important strategic step toward maintaining customer accessibility and market competitiveness. Implementation should be carried out gradually by first ensuring administrative completeness and operational readiness before completing the registration process.

4.5. Program Achievement Evaluation

The implementation of the digital marketing assistance program successfully achieved most of the strategic objectives formulated through the SWOT analysis.

The first achievement was the successful development and publication of promotional content on the official Instagram account of Tahu Crispy Pakuan. The business, which previously maintained inactive social media accounts, has now begun publishing promotional content on a regular basis.

The second achievement involved providing the business owner with content ideas, promotional concepts, and a structured posting schedule. These guidelines enable the

owner to continue managing digital marketing activities independently after the completion of the assistance program.

Another significant outcome was the successful development of a professional business logo as the enterprise's visual identity. The logo has subsequently been incorporated into promotional materials, contributing to stronger brand recognition and a more consistent visual image across digital platforms.

One planned activity that could not be completed during the program was the registration of Tahu Crispy Pakuan on the **ShopeeFood** platform. As previously discussed, the registration process requires additional business documentation and operational preparation beyond the duration of the assistance program. Consequently, platform registration has been designated as a future development initiative.

Despite the incomplete implementation of all planned activities, the program generated meaningful benefits for the enterprise. Tahu Crispy Pakuan has transitioned from maintaining an inactive social media presence to possessing a clearer digital marketing direction supported by a stronger visual identity. These achievements provide a solid foundation for the enterprise to continue expanding its digital marketing activities independently, including future integration with online food delivery platforms to further increase market reach.

5. Conclusion

This study successfully identified the initial digital marketing conditions of Tahu Crispy Pakuan and formulated as well as implemented appropriate digital marketing strategies for the enterprise. Based on the SWOT analysis supported by the **Internal Factor Evaluation (IFE) Matrix** with a score of **3.20** and the **External Factor Evaluation (EFE) Matrix** with a score of **3.78**, Tahu Crispy Pakuan is positioned in **Quadrant I of the Internal-External (IE) Matrix**, indicating that a **Grow and Build** strategy represents the most appropriate direction for future business development. Accordingly, business growth should focus on expanding market reach through more intensive digital marketing activities.

Prior to the implementation of the assistance program, the enterprise had social media accounts that were not actively managed, had not yet joined the **ShopeeFood** platform, and lacked a professional visual identity. Through the implementation of the proposed digital marketing strategies, the business successfully revitalized its social media presence through consistent content creation, received practical guidance regarding content planning and

promotional strategies, and developed a professional logo that has been consistently applied across digital platforms. Although registration on ShopeeFood could not be completed during the project period due to administrative and operational requirements, it has been established as a future development priority.

The four strategic alternatives generated through the SWOT Matrix, namely the **SO, WO, ST, and WT strategies**. Provide a comprehensive roadmap for the future digital marketing development of Tahu Crispy Pakuan. Among these alternatives, the **SO strategy** serves as the primary strategic priority because it aligns with the enterprise's favorable position in the **Grow and Build** quadrant. The remaining strategies complement this approach by strengthening brand identity, addressing internal weaknesses, and mitigating external competitive threats.

Overall, the findings demonstrate that digital marketing assistance programs designed using the integrated **SWOT, IFE, EFE, and IE** analytical frameworks can generate meaningful improvements for micro-scale culinary enterprises. The results of this study are expected to serve as practical guidance for Tahu Crispy Pakuan in determining future strategic decisions while also providing valuable references for similar culinary MSMEs in Bogor and other regions seeking to strengthen their digital marketing capabilities, improve competitiveness, and achieve sustainable business growth.

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**DIGITAL MARKETING STRATEGIES FOR THE DEVELOPMENT OF PAPER
WASTE CRAFT MSMES
(A CASE STUDY OF ATI SOUVENIR IN BENDUNGAN VILLAGE, BOGOR)**

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Abstract

Ati Souvenir, an MSME located in Bendungan Village, Bogor, produces handicrafts from paper waste but had not yet adopted digital marketing, leaving its market limited to the local area. This community engagement program aimed to design and implement digital marketing strategies to support business development and improve the owner's digital literacy. A qualitative descriptive method was employed. Data were collected through direct observation, in-depth interviews with the MSME owners, and activity documentation. A SWOT analysis was used to identify the business's strengths, weaknesses, opportunities, and threats, which then served as the basis for strategy formulation. The program was implemented in three main stages: preparation, mentoring implementation, and monitoring and evaluation. The results show that Ati Souvenir successfully established a digital presence through a TikTok account and a Shopee store. A business logo was developed and used consistently across all digital platforms. The owners' digital literacy improved, as demonstrated by their ability to operate social media and marketplace platforms independently. IFE and EFE scores of 3.24 and 3.40, respectively, indicate strong potential for business growth through external opportunities. SO, WO, ST, and WT strategies were formulated as a digitalization roadmap for Ati Souvenir.

Keywords: *digital marketing, MSMEs, paper waste, SWOT analysis, digitalization.*

1. Introduction

Micro, small, and medium enterprises (MSMEs) are the backbone of the Indonesian economy, with more than 65 million business units absorbing approximately 97 percent of the productive workforce and contributing more than half of the national gross domestic product (Kementerian Koperasi dan UKM, 2024). Nevertheless, many MSMEs, particularly those in rural areas, have not yet utilized digital technology for marketing activities. This condition results in limited market reach and low competitiveness amid increasingly rapid digital transformation.

Ati Souvenir is an MSME producing handicrafts from paper waste in Bendungan Village, Ciawi District, Bogor Regency. Established in 2016, the business transforms waste

paper such as used newspapers, magazines, and brochures into value-added products, including photo frames, wall decorations, tissue boxes, and souvenirs. These products offer distinctive designs and considerable environmental value; however, this potential had not been communicated effectively because all marketing activities were still conducted conventionally through local bazaars and word-of-mouth promotion.

The owners' limited digital literacy, the absence of a logo or brand identity, and the lack of social media accounts or an online store were the main obstacles to business growth. This condition is consistent with previous studies showing that Indonesian craft MSMEs generally continue to face a significant digital divide (Maghfiroh et al., 2022; Suadnya et al., 2021; Baharudin & Sodiah, 2022).

At the same time, digitalization presents substantial opportunities for MSMEs. Indonesia's internet penetration rate reached 80.66 percent in 2025, representing 229 million active users (Asosiasi Penyelenggara Jasa Internet Indonesia, 2025). Shopee accounted for 53.22 percent of Indonesia's e-commerce market, while Indonesia ranked second globally in TikTok users, with 157.56 million users in July 2024 (Databoks.kadatata, 2024). The growing trend toward environmentally responsible lifestyles also creates a tangible opportunity for recycled products such as those produced by Ati Souvenir.

Based on this background, the community engagement program was conducted with three objectives: (1) to examine the initial digital marketing condition of Ati Souvenir, (2) to identify the factors supporting and hindering the adoption of digital marketing, and (3) to formulate and implement appropriate digital marketing strategies to expand market reach and increase sales.

2. Literature Review

Digital Marketing for MSMEs

Digital marketing refers to the use of digital media, including social media, marketplaces, email, and digital advertising, to promote products or services. For MSMEs, digital marketing provides a more efficient and affordable method of reaching wider markets than conventional marketing (Erlisan, 2024). Kotler et al. (2022) emphasize that digital technology enables business owners to understand consumer behavior more deeply and deliver more personalized experiences.

Social Media and Marketplaces

Social media consists of web-based platforms that allow users to create and share content. As a short-video platform, TikTok has become one of the most effective digital marketing tools because its powerful content algorithm can reach broad audiences. Marketplaces such as Shopee serve as online distribution channels connecting sellers and buyers without geographical limitations, giving MSMEs access to national and even international markets (Haryanto & Azizah, 2021).

SWOT Analysis and the IE Matrix

SWOT analysis is a strategic analytical tool used to identify the strengths, weaknesses, opportunities, and threats of a business. The Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrices provide measurable assessments of internal and external factors. Their scores are subsequently combined in the Internal–External (IE) Matrix to determine a business’s strategic position and recommend an appropriate type of strategy (David, 2017).

3. Methodology

This community engagement program was conducted at Ati Souvenir in Bendungan Village, Ciawi District, Bogor Regency, from December 2025 to April 2026. A qualitative descriptive approach was used, supported by three primary data-collection techniques.

Direct observation was conducted to obtain an overview of the business condition, production methods, and existing marketing system. In-depth interviews were held with the MSME owners to explore the business background, the constraints encountered, and their needs and expectations for business development. Documentation complemented the observation and interview data and included activity photographs, screenshots of digital platforms, and images of the products.

The program was divided into three main stages. The first stage was preparation, including preliminary observation and the identification of the MSME’s needs. The second stage was implementation, which included creating TikTok and Shopee accounts, designing a logo and visual identity, documenting products, training the owners to use digital platforms, and preparing an independent promotion guide. The third stage was monitoring and evaluation, conducted through follow-up observation and reflective interviews to assess the owners’ level of understanding and digital independence.

The collected data were analyzed using SWOT analysis, supported by the Internal Factor Evaluation (IFE) Matrix, External Factor Evaluation (EFE) Matrix, and Internal–External (IE) Matrix, to formulate a structured digital marketing development strategy.

4. Results and Discussion

Initial Condition of Ati Souvenir

Before the mentoring program was implemented, Ati Souvenir’s marketing and digitalization conditions were highly limited. All marketing activities were conducted conventionally through local bazaars and word-of-mouth promotion, with no active digital channels. Market reach was restricted to Bendungan Village and occasional local events, resulting in unstable business income. The business had no logo, standardized packaging, or product catalog. The owners, a married couple aged 70 and 73, had never used digital platforms for business purposes and had not previously received support or training from any party.

The products included photo frames, wall decorations, tissue boxes, baskets, and souvenirs, all handmade from paper waste such as used newspapers, magazines, and brochures. The raw materials were obtained free of charge, significantly reducing production costs. The environmental value and handmade uniqueness of each product represented major advantages that had never been communicated effectively to a wider market. This situation created a clear gap between the products’ strong potential and the owners’ limited digital and managerial capacity.

Program Implementation Results

The mentoring program produced four tangible outputs that could be used directly by Ati Souvenir in its digital marketing activities.

First, the official TikTok account @ati.souvenir was established as a short-video marketing channel. The account included a business name, a profile picture featuring the company logo, and a biography explaining the product identity. TikTok was selected because Indonesia had 157.56 million users in July 2024, making it the country with the second-largest TikTok user base in the world (Databoks.kadatata, 2024). The owners were trained to create a business profile, upload content, and interact directly with prospective customers.

Second, a Shopee marketplace store was activated, and two featured products were uploaded with high-quality photographs, informative descriptions, and competitive prices.

Shopee was selected because it was the most frequently accessed e-commerce platform in Indonesia, accounting for 53.22 percent of Indonesian internet users (Rendanianti, 2025). Through Shopee, Ati Souvenir's products can now be accessed by prospective buyers throughout Indonesia, far beyond the previous local sales model.

Third, a visual identity was developed in the form of a business logo designed using Canva while considering environmental values and local wisdom. The logo was applied consistently across all digital platforms to build a professional and recognizable brand image. A logo and a consistent visual identity can strengthen public trust in a business (Batubara et al., 2023).

Fourth, an independent digital promotion guide was prepared in printed and PDF formats. The guide explains the steps for regularly managing TikTok and Shopee accounts, provides weekly content ideas, and offers tips for responding to prospective buyers on digital platforms. This guide is intended to help the owners continue digital marketing activities independently after the program ends.

IFE, EFE, and IE Matrix Analysis

To provide a more measurable assessment of the SWOT factors, Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrices were prepared. Data were collected using questionnaires distributed to four selected respondents: the two MSME owners and two consumers. Each factor's weight was calculated according to its proportion of the total score, while the rating represented the average assessment of the four respondents (David, 2017).

The IFE Matrix produced a weighted score of 3.24. This result is above the average value of 2.50 and indicates that Ati Souvenir has a strong internal condition. The most influential strengths were the availability of free raw materials, the owners' handicraft skills, and the products' potential for branding and digital promotion. Nevertheless, weaknesses in digital literacy and consistency in content management require further attention.

The EFE Matrix produced a weighted score of 3.40, which is also above the average value of 2.50. This score indicates that Ati Souvenir is relatively capable of responding to external opportunities. The largest opportunities arise from Indonesia's high internet penetration, the growth of environmentally friendly lifestyles, and the large number of TikTok users in Indonesia. However, the business must continue to anticipate threats from competitors that are more active digitally and from consumer preferences for visually attractive presentations.

Based on these scores, Ati Souvenir occupies Quadrant I of the IE Matrix, with an IFE coordinate of 3.24 (strong) and an EFE coordinate of 3.40 (high). This position recommends a Grow and Build strategy, including market penetration, market development, and product development. A summary of the matrix results is presented in Table 1.

Table 1
Summary of IFE and EFE Scores and IE Matrix Position

Indicator	IFE	EFE
Total Weighted Score	3.24	3.40
IE Matrix Position	Quadrant I – Grow and Build	Quadrant I – Grow and Build

Note. Source: Data processed by the authors, 2026.

SWOT Matrix and Digital Marketing Strategies

Following the IFE, EFE, and IE analyses, a SWOT Matrix was developed to generate strategic alternatives. The SWOT Matrix matches internal and external factors to produce four types of strategies: SO, WO, ST, and WT (David, 2017). Because the IE Matrix places the business in Quadrant I and recommends a Grow and Build approach, SO strategies are treated as the main priority. All strategic alternatives are presented in Table 2.

Table 2
SWOT Matrix for Ati Souvenir

SWOT	Strengths (S1–S5)	Weaknesses (W1–W6)	Strategy Group
Opportunities (O1–O6)	SO-1: Use TikTok to promote eco-friendly products. SO-2: Optimize the Shopee store to reach students and university students.	WO-1: Improve the consistency of TikTok and Shopee content management. WO-2: Use internet access to strengthen independent digital skills.	SO and WO Strategies
Threats (T1–T6)	ST-1: Emphasize eco-friendly value as differentiation from digital competitors. ST-2: Create appealing visual content for TikTok and Shopee.	WT-1: Improve product photography and visual presentation. WT-2: Participate in digital-content management training.	ST and WT Strategies

Note. Source: Data processed by the authors, 2026.

The interpretation of each strategy generated through the SWOT Matrix is described below.

SO-1 Strategy: Use TikTok to create appealing promotional content for environmentally friendly products. Indonesia's large TikTok user base provides a substantial opportunity for Ati Souvenir to reach a wider market. Recycled-paper products are environmentally friendly, distinctive, and visually appealing, making them highly suitable for creative TikTok content. This strategy can be implemented through behind-the-scenes videos of the production process, educational content on the environmental importance of paper recycling, and promotional content that consistently emphasizes eco-friendly value. Using social media such as TikTok as a digital promotion channel can help build consumer trust in the products offered (Prihatini et al., 2024).

SO-2 Strategy: Optimize the Shopee store to reach students and university students online. Indonesia's high internet penetration creates significant opportunities for MSMEs to sell products online without geographical limitations. The Shopee store can be optimized through high-quality product photographs, informative and persuasive descriptions, competitive pricing, and promotional features such as vouchers and free shipping. Marketplaces can help MSMEs reach consumers beyond their immediate geographical area (Muharam et al., 2024).

WO-1 Strategy: Improve the consistency of TikTok and Shopee content management. TikTok's promotional potential cannot be maximized when content is not managed consistently and according to a schedule. This strategy can be implemented by preparing a content-upload schedule, determining weekly content themes, and utilizing current trends to expand content reach. Consistently displayed promotional content can increase consumer interest and influence purchasing decisions (Agustina et al., 2025).

WO-2 Strategy: Use internet access to improve the owners' independent digital-content management skills. High internet penetration provides extensive access to digital learning resources that the owners can use to strengthen their digital literacy. They can utilize YouTube tutorials, educational TikTok content, and digital MSME communities to increase their knowledge. MSME competencies in digital marketing can be improved through structured learning and mentoring processes (Muharam et al., 2023).

ST-1 Strategy: Emphasize the products' eco-friendly value and uniqueness as differentiation from digital competitors. Amid intense competition on marketplaces and

social media, Ati Souvenir needs strong differentiation so that its products have distinctive characteristics. The environmental value and handmade uniqueness of recycled-paper products are the main advantages that can be developed into a product identity. Digital marketing strategies that highlight distinctive product characteristics can help strengthen differentiation and consumer loyalty (Marsono et al., 2025).

ST-2 Strategy: Create visually appealing TikTok and Shopee content to compete with online sellers. The large number of similar products marketed online requires business owners to present more attractive and creative promotional content. Ati Souvenir should improve visual-content quality through aesthetically pleasing product photographs, engaging promotional videos, and clear product information. Business owners need to understand factors that may reduce the quality of social-media marketing activities so that digital marketing remains effective (Putra et al., 2024).

WT-1 Strategy: Improve product photography and visual presentation on digital platforms. Limited digital-content management skills and simple product visuals may become weaknesses amid increasingly intense digital competition. Photography quality can be improved through proper lighting, neat backgrounds, and consistent visual concepts. Attractive content marketing can increase consumer interest in promoted products and contribute to higher sales (Patra et al., 2025).

WT-2 Strategy: Participate in digital-content management training to improve independent capabilities. Limited knowledge and skills in content management remain an obstacle for Ati Souvenir. The owners should participate in seminars, webinars, or business mentoring programs related to digital marketing. Human-resource training in understanding and managing digital marketing is an important strategic measure for improving the quality of digital marketing management (Gumilang et al., 2024).

Evaluation of Program Achievements

Of the five achievement indicators established before the program began, two were fully achieved and three were partially achieved. The fully achieved indicators were the activation of a TikTok account as the main promotional medium and the development of a visual identity in the form of a business logo applied consistently across digital platforms. The three partially achieved indicators included activating the Shopee store with two of the three targeted products, preparing an independent promotion guide, and providing digital-content creation training. The owners still require assistance with more complex features, including platform analytics and the consistent management of video content.

Although not all indicators were fully achieved, the program created a fundamental transformation for Ati Souvenir. The owners, who previously had never used digital platforms for business purposes, can now operate TikTok and Shopee independently. Products that previously reached only local buyers can now be accessed by consumers throughout Indonesia. The main obstacles identified during implementation were the owners' initially low digital literacy, limited time because they independently managed production, and their reliance on the mentors during the intensive guidance phase. Consequently, the transition toward full digital independence was not entirely completed within the program period.

5. Conclusion

This program successfully designed and implemented digital marketing strategies for Ati Souvenir in Bendungan Village, Bogor. Based on the SWOT analysis, supported by an IFE score of 3.24 and an EFE score of 3.40, Ati Souvenir is positioned in Quadrant I of the IE Matrix, which recommends a Grow and Build strategy.

The mentoring program established the MSME's digital presence through an active TikTok account and Shopee store, created a visual identity in the form of a consistently applied logo, and improved the owners' digital literacy, as demonstrated by their ability to operate digital platforms independently. The formulated SO, WO, ST, and WT strategies provide a roadmap for Ati Souvenir's future digital marketing development.

The success of this program indicates that participatory digital mentoring tailored to the actual conditions and needs of rural MSMEs can serve as an effective model for accelerating MSME digital transformation in Indonesia. Similar programs should include more structured follow-up mechanisms and digital-infrastructure support for partner businesses to ensure the sustainability of digital independence after the program ends.

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DIGITAL MARKETING STRATEGY FOR THE DEVELOPMENT OF BASRENG LOCAL SNACK MSME NEAR PAKUAN UNIVERSITY

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Abstract

MSMEs Basreng Si Bungsu is a local snack business made from fried meatballs that has been selling in front of the campus of Pakuan University, Bogor, since 2012, but has not taken advantage of digital marketing so that the market is still limited to the area around the campus. This study aims to design a digital marketing strategy to develop the business and encourage the initial digitization of owners. The study employed a mixed-method approach (qualitative and quantitative). Qualitative data collection was carried out through direct observation and interviews with internal parties (business owners) and external parties (consumers/students), while quantitative data was obtained through the deployment of Likert scale questionnaires to measure SWOT factors in a measurable manner. SWOT analysis is used to identify the strengths, weaknesses, opportunities, and threats of MSMEs, which is strengthened with the IFE and EFE Matrices as the basis for strategy formulation. The results of the activity show that Basreng Si Bungsu already has an Instagram account and a QRIS digital payment system as the first step in digital presence, although the filling of promotional content is still in the development stage. The IFE score of 3.94 and EFE of 3.80 indicate the business position in Quadrant I (Grow and Build) of the IE Matrix. The SO, WO, ST, and WT strategies are formulated as a roadmap for the digitization of Basreng Si Bungsu in the future.

Keywords: *digital marketing, MSMEs, Internal Matrix - External, SWOT analysis, digitalization.*

1. INTRODUCTION

MSMEs are the backbone of the Indonesian economy with a major contribution to labor absorption and national economic growth. The culinary sector, especially snacks or street food, is one of the most common MSME segments in campus environments and areas with high student activities. Digital marketing is considered to be able to increase the competitiveness of culinary MSMEs because it provides wider market access at a relatively affordable cost compared to conventional marketing (Lukiya & Lestari, 2024). Nevertheless, many business actors street food that still relies on conventional marketing

methods and has not made optimal use of digital technology, especially in businesses located in tourist areas and crowded centers such as campus areas (Susanti et al., 2024).

Basreng Si Bungsu is one of the local snack MSMEs made from fried meatballs (basreng) located in front of the campus of Pakuan University, Bogor. The business, which has been selling since 2012, is managed by two people, namely the owner and the owner's younger brother, who sell alternately from morning to evening. The products sold are in the form of bulk basreng at a price of IDR 5,000 for 4 pcs, equipped with a choice of seasonings such as original, balado, salty, spicy, and corn. The main target of this effort is students around campus, a segment that is known to actively use digital platforms in their daily consumption activities, including in supporting shopping habits through e-commerce (Arimi et al., 2024). Despite having a loyal customer base for more than a decade, the business has not actively utilized social media, digital payment systems, or online delivery services as part of its marketing strategy.

The limitations in the use of digital technology are in line with the findings of various previous studies that show that micro business actors, especially in the street food and traditional snack sectors, generally face digital literacy constraints and limitations of structured marketing strategies (Irawati & Musahidah, 2025); (Faturrahman, 2025). SWOT analysis has proven to be an effective tool to map the internal strengths and weaknesses of culinary MSMEs while identifying digital opportunities that can be leveraged (Siregar et al., 2025); (Susanti et al., 2024).

In fact, the digitalization opportunities for culinary MSMEs are very large. The use of Instagram as a marketing medium has helped MSMEs a lot in expanding the reach of product promotion to potential consumers (Saffitri & Widati, 2022). Interactive features such as Reels are also considered effective in improving MSME business marketing communication to a wider audience (Hawa & Harto, 2023). In addition, the integration of digital marketing with marketplaces and delivery services can be a solution to increase revenue for regional specialty food MSMEs (Kecil et al., 2023), as well as the use of marketplaces which have also been proven to increase sales to other culinary MSMEs (Pratama et al., 2023). The increasingly massive trend of using the QRIS digital payment system also opens up opportunities for small MSMEs to facilitate transactions while improving business financial performance (Utami, 2025).

Based on this background, this study was carried out with the following objectives: (1) to find out the initial marketing conditions of Basreng Si Bungsu MSMEs, (2) to identify

internal and external factors that support or hinder the implementation of digital marketing, and (3) to formulate appropriate digital marketing strategies to increase market reach and business competitiveness.

2. LITERATURE REVIEW

2.1. Digital Marketing for Culinary MSMEs

Digital marketing is the use of various digital media such as social media, marketplaces, and delivery services to market products or services more efficiently than conventional methods. The application of digital marketing in culinary MSMEs has been proven to increase business competitiveness in the midst of fierce market competition (Lukiya & Lestari, 2024). Studies on culinary MSMEs in tourist areas also show that the right digital strategy can help small businesses reach tourists and new consumers who were previously unreachable conventionally (Susanti et al., 2024). The price factor is also an important determinant in the marketing of culinary MSMEs, where product attributes and prices that are in accordance with consumer perception can significantly increase customer satisfaction (Hardini et al., 2022). In addition to price, the quality of service and promotion has also been proven to affect consumer purchasing decisions in small-scale retail and culinary businesses (Suryantoro et al., 2024).

2.2. SWOT Analysis on Culinary MSMEs

SWOT analysis is widely used in culinary MSME research to formulate marketing strategies that are in accordance with the internal and external conditions of the business. Research on traditional snack businesses shows that SWOT analysis is able to produce marketing strategies that are relevant to product characteristics and target markets (Siregar et al., 2025); (Irawati & Musahidah, 2025). The use of the SWOT method combined with marketing information technology strategies on social media has also proven to be effective in small-scale culinary SMEs (Susanti et al., 2024).

2.3. Social Media as a Means of Promoting MSMEs

Instagram has become one of the most widely used platforms for MSMEs as a marketing medium because of the ease of uploading product visual content (Saffitri & Widati, 2022). Consistently managed content marketing strategy on Instagram can increase the interest of potential consumers in MSME products (Pramudya et al., 2025). In addition to photo uploads, the Reels feature on Instagram is also considered effective

as a means of marketing communication that is more interactive and reaches a wider audience (Hawa & Harto, 2023). The use of paid advertising features such as Instagram Ads has also been proven to affect consumer buying interest, especially in products that require interesting visualizations to convince potential buyers (Yudha et al., 2022). More broadly, social media marketing activities have also been shown to influence consumer purchasing decisions, with brand awareness as one of the variables that strengthen this influence (Januar et al., 2024).

2.4. Marketplace, Delivery Services, and Digital Payments

The use of marketplaces can help culinary MSMEs increase sales without being limited by the physical location of the business (Pratama et al., 2023). The integration of digital marketing that combines social media and distribution platforms has proven to be a solution to increase income for MSMEs of regional specialties (Sugiyanta et al., 2023). On the transaction side, the adoption of the QRIS digital payment system for MSMEs is considered to have a positive impact on business financial performance because it simplifies the payment process for consumers (Utami, 2025).

2.5. Branding and Digital Literacy of MSMEs

The implementation of consistent branding and packaging is an important part of MSMEs' digital marketing strategy, as a good visual identity can increase consumer trust and interest in products (Agung et al., 2025). However, the success of the implementation of digital strategies is highly dependent on the level of digital literacy of business owners, which is one of the supporting factors for the sustainability of MSMEs in facing digital transformation (Setyasih et al., 2025).

2.6. IFE, EFE, and IE matrices

The IFE (Internal Factor Evaluation) and EFE (External Factor Evaluation) Matrix are used to provide a measurable assessment of the internal and external factors of the business, which are then combined in the IE Matrix to determine strategic positions and recommend the most appropriate type of strategy (David, 2017). This kind of strategic management approach has also been applied to various traditional culinary MSMEs to optimize business growth (Christian et al., 2025).

3. IMPLEMENTATION MENTHOD

This study was carried out at Basreng Si Bungsu MSMEs located in front of the Pakuan University campus, Bogor, West Java. The approach used is a mix method, which

is a combination of qualitative and quantitative methods, with several data collection techniques.

The qualitative approach is applied through direct observation to obtain an overview of the business conditions, sales locations, and sales systems implemented, as well as interviews with two parties, namely internal parties (business owners and younger owners) to explore information about business history, operations, and obstacles faced, and external parties (consumers/students) to explore perceptions of products, packaging, and potential acceptance of the digital presence of the business. A quantitative approach was applied through the distribution of questionnaires with a Likert scale (1–4) to both parties to measure the level of agreement with each SWOT factor in a more measurable manner, which subsequently became the basis for calculating weights and ratings in the IFE and EFE Matrices. The combination of these two approaches allows the data obtained to complement each other, considering that similar questionnaire approaches are also used in risk management research and other culinary MSME strategies to obtain more objective data (Faturrahman, 2025).

The data obtained was analyzed using SWOT Analysis which was strengthened with IFE (Internal Factor Evaluation) Matrix and EFE Matrix (External Factor Evaluation) to formulate a structured marketing development strategy.

4. RESULTS AND DISCUSSION

4.1. The Initial Condition of the Basreng Si Bungsu MSMEs

Before the strategy identification was carried out, the condition of Basreng Si Bungsu MSMEs in terms of marketing was still very conventional. All sales are done directly through carts in front of the campus, without a single active digital channel. The market reach only includes students and visitors who pass around the campus, so the potential of the wider market has not been exploited. This business does not have branded packaging, logos, or product catalogs of any kind, and all transactions are still carried out in cash.

The products sold are in the form of bulk basreng at a price of IDR 5,000 for 4 pcs, with a choice of original seasoning, balado, salty, spicy, and corn, as well as additional chili sauce as a complement. Raw materials are obtained from regular suppliers, who maintain supply consistency even though there have been no efforts to diversify products or special branding. More than a decade of experience selling in the same

location is a great source of customer trust, but it has not been effectively communicated to the wider market through digital channels.

4.2. Results of Implementation of Activities

The implementation of this study resulted in an initial output which is the first step in the digitization of Basreng Si Bungsu MSMEs.

First, the formation of an official Instagram account as the first digital presence channel for this business. This account has been created and ready to use, but the filling of promotional content, product photos, and interaction with potential buyers is still in the advanced development stage. The creation of this account is the initial foundation before the next stage, namely product documentation, promotional content preparation, and independent account management training by business owners, considering that consistent content management is the main key to marketing effectiveness through Instagram (Pramudya et al., 2025).

In addition to the Instagram account, Basreng Si Bungsu has also implemented the QRIS digital payment system on its sales cart, so that consumers can transact non-cash. The existence of QRIS is an internal force that is already running and can be further optimized as part of the digital marketing strategy in the future. The next steps that are still a development plan include filling out Instagram content regularly, registering for Google Maps, collaborating with delivery platforms such as GoFood and ShopeeFood, and modernizing packaging with a consistent visual identity. These stages are arranged as part of the SO, WO, ST, and WT strategies formulated in section 4.4.

4.3. IFE and EFE Matrix Analysis

To provide a more measurable assessment of SWOT factors, the preparation of the IFE Matrix and the EFE Matrix was carried out. Data was collected through a Likert scale questionnaire which was shared with two resource persons, namely internal parties (business owners) for strength and weakness factors, and external parties (consumers/students) for opportunity and threat factors. Weights are calculated based on the proportion of each factor's score to the total overall, while ratings use Likert scores directly from respondents (David, 2017).

The results of the IFE Matrix calculation resulted in a weighted score of 3.94. This score is above the average value of 2.50, which shows that the internal condition of Basreng Si Bungsu MSMEs is relatively strong, with the main strengths being

affordable prices, strategic locations, and products that have been widely known by students for more than a decade.

The results of the EFE Matrix calculation resulted in a weighted score of 3.80, which is also above the average value of 2.50. This score shows that Basreng Si Bungsu MSMEs have high potential in responding to external opportunities, especially from the trend of culinary content on social media and the availability of food delivery platforms.

Based on these two scores, the position of Basreng Si Bungsu MSMEs in the IE Matrix is in Quadrant I with coordinates IFE = 3.94 (Strong) and EFE = 3.80 (High), which recommends a Grow and Build strategy which includes Market Penetration, Market Development, and Product Development, in line with the strategic management approach that is also used in other traditional culinary MSMEs to optimize the direction of business growth (Christian et al., 2025).

Table 1. Summary of IFE, EFE, and IE Position Matrix Scores

Aspect	Results
IFE Score	3,94
EFE Score	3,80
IE Matrix Position	Quadrant I — Grow and Build

Source: Data processed by the author, 2026

4.4. SWOT Matrix and Digital Marketing Strategy

The next stage after the IFE and EFE analysis is to compile a SWOT Matrix to produce alternative SO, ST, WO, and WT strategies (David, 2017). All alternative strategies are presented in Table 2.

Table 2. The Matrix of the Youngest Swedes

SWOT	Strength (S)	Disadvantages (W)	Ket.
	Q1: QRIS digital payments Q2: Strategic location in front of the campus Q3: Relatively cheap price Q4: Products familiar and loved by many people		
	W1: No social media W2: Not yet partnered with GoFood/ShopeeFood W3: Plain packaging without visual identity W4: Dependency on a single location		

Opportunity (O) O1: Can be developed with flavor variations O2: Utilization of Google Maps & GoFood/ShopeeFood O3: Packaging Modernization O4: Create social media for promotional and branding content	SO-1: Relying on low prices and familiar products to attract new buyers through Google Maps and GoFood/ShopeeFood, so that market reach is not limited to students who pass in front of campus. (S1, S2, O2, O4) SO-2: Create new flavor variations of products that many people already like, by utilizing existing QRIS to keep transactions practical even though variants are increasing. (S3, S4, O1, O3)	WO-1: Create social media for promotion, as well as a means of introducing new flavors to potential buyers. (W1, W2, O2, O4) WO-2: Sign up for Google Maps and GoFood/ShopeeFood so that you don't just rely on one location, while improving the packaging so that it is more suitable for online sales. (W3, W4, O1, O3)	<i>SO & WO Strategy</i>
Threat (T) T1: Competitors who already have digital branding Q2: How easy it is for the product to be imitated by others Q3: Decrease in the number of consumers during the semester holidays Q4: Changes in student snack consumption trends	ST-1: Rely on low prices and flavors that many people already like as the main weapon against competitors who have digital branding, because those two things are hard to replicate. (S2, S4, T1, T4) ST-2: Utilize the front of the campus location as an advantage that cannot be rivaled by digital competitors, Reduce dependence on one sales location. (S1, S3, T2, T3)	WT-1: Create your own social media so that you don't lose competition to competitors who already have digital branding. (W1, W2, T1, T3) WT-2: Fix the packaging so that it has an identity and is not easy to imitate, while starting to explore cooperation with GoFood/ShopeeFood to anticipate the quiet during the semester holidays and changing snack trends. (W3, W4, T2, T4)	<i>ST & WT Strategy</i>

Source: Data processed by the author, 2026

The interpretation of each of the strategies generated by the SWOT Matrix is outlined as follows.

SO-1 Strategy: Utilizing low prices and familiar products to attract new buyers through Google Maps and delivery services (GoFood/ShopeeFood), so that market reach is not limited to students passing in front of campus. The use of marketplaces and digital distribution services has been proven to help culinary MSMEs reach consumers without being limited by the physical location of the business (Pratama et al., 2023).

SO-2 Strategy: Develop new flavor variations of products that are already liked by many people, by utilizing the QRIS digital payment system that is already running so that transactions remain practical even though flavor variants are increasing. The availability of digital payment systems for MSMEs is considered to be able to increase the convenience of transactions while having a positive impact on business financial performance (Utami, 2025).

WO-1 Strategy: Fill and manage Instagram accounts that have been created consistently as a means of promotion, while introducing new flavors to potential buyers. Content marketing strategies that are consistently managed on Instagram have been proven to increase potential consumers' interest in MSME products (Pramudya et al., 2025), and the use of the Reels feature in particular can expand the reach of marketing communication to new audiences (Hawa & Harto, 2023).

Strategy WO-2: Register your business with Google Maps and delivery platforms so that you don't rely on just one sales location, while improving the packaging to make it more digitally marketable. Consistent branding and packaging implementation is an important part of digital marketing strategies to build consumer trust and interest in MSME products (Agung et al., 2025).

ST-1 Strategy: Relying on low prices and flavors that many people already like as the main competitive advantage to compete with competitors who already have digital branding, because the advantages of price and authentic taste are relatively difficult to replicate instantly. SWOT analysis on various culinary MSMEs shows that authentic product advantages can be an effective differentiation strategy in the midst of digital competition (Siregar et al., 2025).

ST-2 Strategy: Utilizing a strategic location in front of campus as an advantage that cannot be rivaled by digital-based competitors alone, while exploring additional sales locations around campus to anticipate declining sales during semester breaks.

WT-1 Strategy: Fill in content and activate Instagram accounts regularly so as not to lag behind competitors who already have stronger digital branding, considering that the use of Instagram as a marketing medium has been proven to help MSMEs expand the reach of their product promotions (Saffitri & Widati, 2022).

WT-2 strategy: Improve packaging to have a distinctive visual identity that is not easily replicated by competitors, while also exploring cooperation with delivery platforms to anticipate quiet sales during semester holidays and changes in student snack trends. The level of digital literacy of business owners is a determining factor for the success of implementing this kind of strategy in a sustainable manner (Setyasih et al., 2025).

4.5. Evaluation of Activity Achievements

From the achievement indicators set, this study managed to achieve two initial achievements, namely the creation of an Instagram account as the foundation for the

digital presence of Basreng Si Bungsu MSMEs, and the availability of a QRIS digital payment system that has been running in the sales cart. Several other indicators such as filling promotional content, registration to Google Maps and delivery platforms, and packaging modernization are still in the advanced plan stage formulated through the SWOT Matrix.

The main obstacles found during the implementation of this study are the limited digital literacy of business owners, time constraints because production and sales activities are managed by two people alternately, and the lack of visual documentation of products that can be directly used as promotional content. This kind of digital literacy constraint is also found in various other micro MSMEs that are just starting their business digital transformation (Setyasih et al., 2025).

5. CONCLUSION

This study succeeded in identifying marketing conditions and formulating a digital marketing strategy for Basreng Si Bungsu MSMEs in front of the Pakuan University campus, Bogor. Based on the results of the SWOT analysis which was strengthened by the IFE Matrix (score 3.94) and EFE (score 3.80), Basreng Si Bungsu MSMEs are in Quadrant I of the IE Matrix which recommends the Grow and Build strategy.

This study resulted in the first step of MSMEs' digital presence through the creation of Instagram accounts and the availability of the QRIS digital payment system that has been running, while the SO, WO, ST, and WT strategies were formulated into a roadmap for Basreng Si Bungsu's digital marketing development in the future, including filling in social media content regularly, registering to delivery platforms, and modernizing product packaging.

The initial success of this study shows that digital assistance tailored to the real conditions of street food MSMEs can be an effective first step to encourage the digital transformation of micro businesses in the campus environment. Activities

It is recommended to focus on filling in content consistently and technical assistance in the use of digital platforms for business owners.

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ANALYSIS OF PRODUCT QUALITY ON CUSTOMER SATISFACTION OF MORINAGA CHILL GO GUM (GROW UP MILK) PRODUCTS IN BOGOR CITY

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Abstract

The Indonesian Grow Up Milk (GUM) market has become increasingly competitive, requiring manufacturers to continuously improve product quality to maintain customer satisfaction and market competitiveness. Morinaga Chill Go, one of the premium GUM products, has experienced a decline in sales during the 2020–2025 period, accompanied by consumer complaints regarding product taste, packaging, and perceived value. This study aims to evaluate the influence of product quality on customer satisfaction toward Morinaga Chill Go products in Bogor City using the Importance Performance Analysis (IPA) and Customer Satisfaction Index (CSI) methods. A quantitative descriptive approach was employed by distributing structured questionnaires to 235 consumers selected through purposive sampling. The collected data were analyzed using IPA to identify priority attributes requiring improvement and CSI to measure the overall level of customer satisfaction. The findings reveal that packaging flexibility, ease of opening and resealing, product safety until the expiration date, and packaging appearance are the primary attributes requiring improvement. Conversely, flavor consistency, product availability, packaging durability, and brand reputation demonstrate satisfactory performance and should be maintained as competitive strengths. The CSI value of 75.28% indicates that consumers are generally satisfied with Morinaga Chill Go products, although several product attributes still require enhancement to fully meet customer expectations. These findings provide practical insights for improving product quality, increasing customer satisfaction, and strengthening the competitiveness of Morinaga Chill Go in Indonesia's growing GUM market.

Keywords: *Product Quality, Customer Satisfaction, Importance Performance Analysis (IPA), Customer Satisfaction Index (CSI), Morinaga Chill Go.*

1. INTRODUCTION

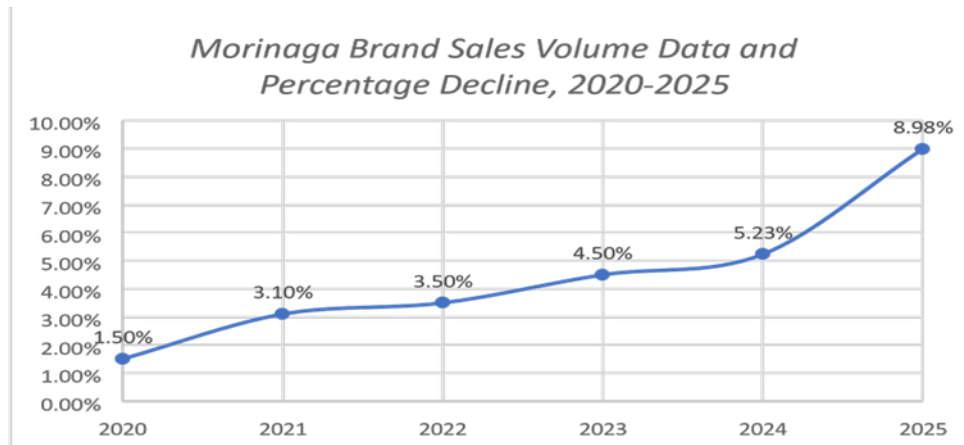
The Grow Up Milk (GUM) industry in Indonesia has experienced significant growth in recent years due to increasing public awareness of the importance of children's nutrition during their developmental stages. This growth has intensified competition among milk

manufacturers, requiring companies to continuously improve product quality, innovation, and marketing strategies to maintain their market position. In such a competitive environment, product quality has become one of the most important factors influencing customer satisfaction and purchasing decisions. According to Kotler and Keller (2022), product quality reflects a product's ability to satisfy customer needs and expectations through its performance, reliability, durability, and perceived value.

Customer satisfaction is closely associated with consumers' evaluations of product performance after purchase and consumption. When product performance meets or exceeds customer expectations, consumers are more likely to repurchase the product and recommend it to others. Conversely, dissatisfaction may encourage consumers to switch to competing brands. Previous studies have consistently demonstrated that product quality positively affects customer satisfaction and customer loyalty (Ali et al., 2018; Abigail et al., 2024). Therefore, maintaining superior product quality has become a strategic priority for companies operating in the increasingly competitive food and beverage industry. In addition to product quality, effective marketing strategies contribute significantly to organizational performance and long-term competitiveness. Companies that successfully integrate product quality with appropriate marketing strategies are more likely to achieve sustainable customer satisfaction and superior business performance (Adesoga & James, 2019).

Morinaga Chill Go is one of the premium Grow Up Milk products marketed in Indonesia through a collaboration between Morinaga Japan and Kalbe Nutritionals. The product is formulated to support children's nutritional needs and has established a strong brand image in the premium milk segment. Nevertheless, preliminary observations indicate that the product has experienced a continuous decline in sales performance during the 2020–2025 period, suggesting increasing challenges in maintaining market competitiveness. Recent research on Chill Go products also found that promotion, price, and brand image significantly influence consumers' purchase intentions, suggesting that maintaining product quality alone is insufficient without effective marketing strategies (Simatupang & Adam, 2025).

Figure 1. Morinaga Brand Sales Volume Data and Percentage Decline (2020–2025)



The declining sales trend indicates that consumers may perceive differences between their expectations and the product's actual performance. In addition, preliminary observations identified several customer complaints related to product quality, particularly regarding taste and price suitability. Taste represents one of the most important indicators of product performance, while price reflects consumers' perceptions of value for money. These complaints suggest that several product attributes may require improvement to better satisfy consumer expectations. Similar findings were reported by Aprilda and Ratnasari (2021), who found that product quality and price perception significantly influence consumers' purchasing decisions in the Indonesian milk industry.

Table 1. Consumer Complaint Data

Consumer Complaint Data	Percentage
Taste	43%
Price	27%
Product Availability	10%

Source: Researcher's Preliminary Study (2025)

Although Morinaga Chill Go continues to maintain a positive brand reputation, the decline in sales and the emergence of customer complaints indicate the need for a comprehensive evaluation of product quality from the consumer's perspective. Understanding which product attributes require improvement is essential for maintaining customer satisfaction and strengthening the product's competitiveness in the Indonesian Grow Up Milk market.

Previous studies have widely examined the relationship between product quality and customer satisfaction. However, limited research has specifically analyzed Morinaga Chill

Go products by integrating Importance Performance Analysis (IPA) and the Customer Satisfaction Index (CSI). IPA enables companies to identify product attributes requiring priority improvement based on consumers' evaluations of importance and performance, while CSI measures the overall level of customer satisfaction. The combination of these methods provides comprehensive managerial information for improving product quality and customer satisfaction.

Therefore, this study aims to analyze the influence of product quality on customer satisfaction toward Morinaga Chill Go products in Bogor City using the Importance Performance Analysis (IPA) and Customer Satisfaction Index (CSI) approaches. The findings are expected to provide practical recommendations for improving product quality, increasing customer satisfaction, and strengthening the competitiveness of Morinaga Chill Go products in Indonesia's increasingly competitive Grow Up Milk market.

2. LITERATURE REVIEW

Product quality is recognized as one of the primary factors influencing customer satisfaction and consumer purchasing decisions. According to Kotler and Keller (2022), product quality refers to a product's ability to perform its intended functions through dimensions such as performance, features, reliability, durability, conformance to specifications, serviceability, aesthetics, and perceived quality. According to Veselova (2018), consumers evaluate product quality through multiple dimensions, including functionality, safety, reliability, and perceived value, all of which influence purchasing behavior. Consumers tend to evaluate products based on their ability to meet expectations regarding functionality, safety, and overall value. Schiffman and Winsenblit (2019) explain that customer satisfaction arises when perceived product performance meets or exceeds consumer expectations, whereas dissatisfaction occurs when product performance falls below those expectations. Previous studies have also demonstrated that higher product quality positively influences customer satisfaction and encourages customer loyalty (Ali et al., 2018; Abigail et al., 2024). Likewise, Imron (2019) reported that improvements in product quality have a significant positive effect on customer satisfaction, indicating that quality remains one of the main determinants of consumer evaluation.

To evaluate product quality and customer satisfaction comprehensively, this study employs Importance Performance Analysis (IPA) and the Customer Satisfaction Index (CSI). IPA is used to compare the importance of product attributes with their perceived

performance, enabling the identification of attributes that should be prioritized for improvement or maintained. Meanwhile, CSI provides an overall measurement of customer satisfaction by integrating the importance and performance scores of each attribute. The combination of these methods offers a comprehensive assessment of consumer perceptions and supports managerial decision-making to improve product quality and strengthen customer satisfaction in the highly competitive Grow Up Milk market.

3. METHODOLOGY

This study employed a quantitative descriptive research design to examine the relationship between product quality and customer satisfaction toward Morinaga Chill Go Grow Up Milk (GUM) products in Bogor City. The research population consisted of 570 consumers who had purchased and consumed the product, and a sample of 235 respondents was determined using the Slovin formula with a 5% margin of error. Respondents were selected through purposive sampling based on predetermined criteria. Primary data were collected through a structured questionnaire using a five-point Likert scale, while secondary data were obtained from scientific journals, books, company reports, and other relevant literature. Prior to the main analysis, the research instrument was tested for validity using the Pearson Product Moment correlation and for reliability using Cronbach's Alpha, with all questionnaire items meeting the required validity and reliability standards.

The collected data were analyzed using Importance Performance Analysis (IPA) and the Customer Satisfaction Index (CSI). IPA was applied to compare the importance and performance levels of product quality attributes, allowing them to be classified into four quadrants to identify attributes requiring improvement and those that should be maintained. Meanwhile, CSI was used to measure the overall level of customer satisfaction by combining the Mean Importance Score (MIS) and Mean Satisfaction Score (MSS) of each attribute. The integration of these two analytical methods provides a comprehensive evaluation of product quality performance and customer satisfaction, supporting strategic recommendations for improving the competitiveness of Morinaga Chill Go products.

4. RESEARCH AND DISCUSSION

This section presents the research findings and discusses them in relation to the research objectives and previous studies. The analysis begins with respondent characteristics, followed by descriptive analyses of product quality and customer

satisfaction. Furthermore, the findings obtained from the Importance Performance Analysis (IPA) and Customer Satisfaction Index (CSI) are interpreted to identify product attributes that should be maintained and those requiring improvement. The discussion also explains the managerial implications of the findings for improving customer satisfaction and strengthening the competitiveness of Morinaga Chill Go products in the Indonesian Grow Up Milk market.

4.1. Respondent Characteristics

This study involved 235 respondents who had purchased and consumed Morinaga Chill Go Grow Up Milk products in Bogor City. Respondents were selected using purposive sampling because they had direct experience with the product and were considered capable of evaluating its quality and expressing their level of satisfaction accurately.

Table 2. Respondent Group Distribution

Group	Category	Frequency	Percentage
Gender	Male	18	7,7%
	Female	217	92,3%
Age	< 25 years	68	28,9%
	25–35 years	89	37,9%
	36–45 years	76	32,3%
	> 45 years	2	0,9%
Highest Education	Senior High School	88	37,4%
	D3/S1	141	60,0%
	S2/S3	7	2,6%
Occupation	Homemaker	69	29,4%

	Employee	54	23,0%
	Civil Servant	65	27,7%
	Entrepreneur	47	20,0%
Number of Children	1 child	96	40,9%
	2 children	88	37,4%
	3 children	51	21,7%

Based on Table 2, female respondents dominated the sample (92.3%), while male respondents represented only 7.7%. Most respondents were between 25 and 35 years old (37.9%), followed by respondents aged 36–45 years (32.3%). In terms of educational background, the majority held a diploma or bachelor's degree (60.0%), indicating relatively good knowledge and awareness regarding children's nutritional products. Regarding occupation, homemakers constituted the largest group of respondents, followed by civil servants, private employees, and entrepreneurs. Furthermore, most respondents had one child (40.9%), suggesting that the respondents accurately represent the primary target consumers of Morinaga Chill Go products.

The respondent profile indicates that the collected data are appropriate for evaluating consumer perceptions regarding product quality and customer satisfaction, as the majority of respondents are directly involved in purchasing decisions for children's nutritional products.

4.2. Descriptive Analysis of Product Quality and Customer Satisfaction

A descriptive analysis was conducted to evaluate respondents' perceptions of product quality and customer satisfaction. Product quality was assessed through eight dimensions, namely performance, features, reliability, conformance to specifications, durability, serviceability, aesthetics, and perceived quality. Meanwhile, customer satisfaction was measured using five indicators consisting of expectation fulfillment, suitability to customer needs, repurchase intention, willingness to recommend, and overall satisfaction.

Table 3. Descriptive Statistics of Product Quality and Customer Satisfaction

No	Dimension	Percentage

1	Performance	74,55%
2	Features	74,71%
3	Reliability	75,15%
4	Conformance to Specifications	74,50%
5	Durability	74,52%
6	Serviceability	75,01%
7	Aesthetics	73,77%
8	Perceived Quality	74,86%
9	Expectation Fulfillment	74,30%
10	Suitability to Needs	75,87%
11	Repurchase Intention	75,45%
12	Willingness to Recommend	75,40%
13	Overall Satisfaction	76,00%

The descriptive results show that all product quality dimensions obtained relatively high mean scores, indicating that consumers generally perceive Morinaga Chill Go products positively. Among all dimensions, Reliability achieved the highest score, demonstrating that consumers highly appreciate the consistency of product quality and nutritional benefits. Conversely, the Aesthetics dimension received the lowest score, although it remained within the high category. This finding suggests that improvements in packaging appearance and visual attractiveness could further strengthen consumer perceptions.

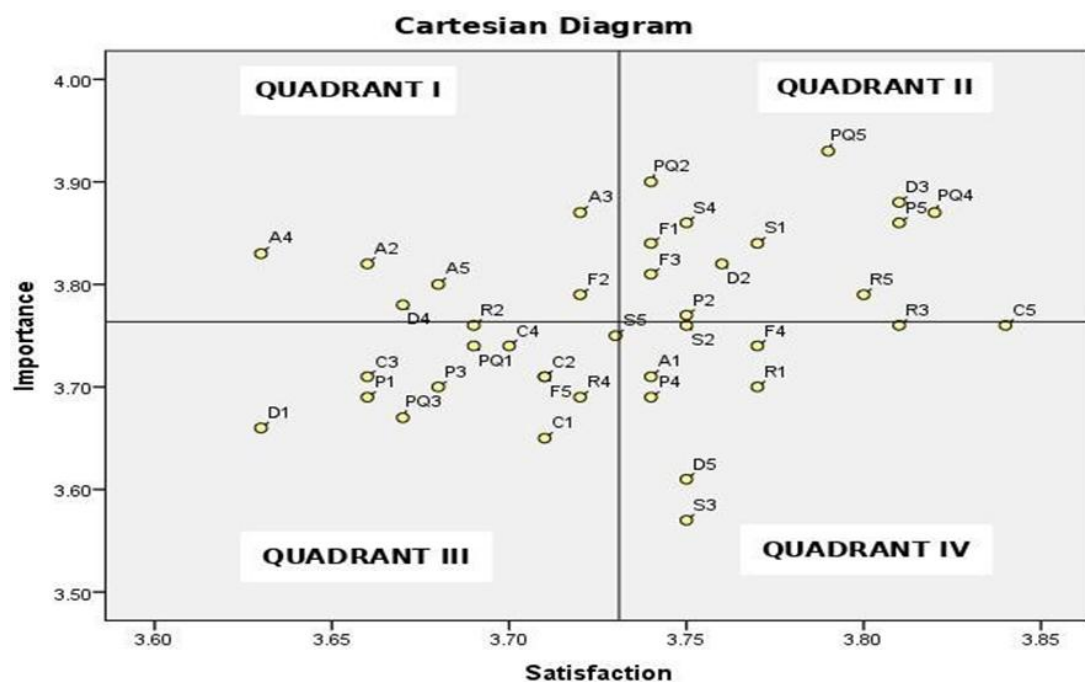
Similarly, customer satisfaction indicators also demonstrated relatively high scores. Overall satisfaction achieved the highest average score, followed by suitability to customer needs, repurchase intention, and willingness to recommend. Meanwhile, expectation fulfillment obtained the lowest score, indicating that although consumers are generally satisfied, several product attributes still require improvement to fully meet customer expectations.

These findings support Kotler and Keller (2022), who argue that superior product quality positively influences customer satisfaction and encourages long-term customer relationships.

4.3. Importance Performance Analysis (IPA)

Importance Performance Analysis (IPA) was employed to identify product quality attributes that require improvement and those that should be maintained. The IPA method compares consumers' perceived importance of each attribute with its actual performance and classifies the attributes into four quadrants based on their relative importance and performance levels.

Figure 2. Importance Performance Analysis (IPA) Cartesian Diagram



The IPA results indicate that several product attributes are located in Quadrant I (Concentrate Here), meaning that consumers consider these attributes highly important while their current performance remains below expectations. These attributes include packaging flexibility, ease of opening and resealing the package, product safety until the expiration date, and packaging appearance. Therefore, these aspects should become the company's highest priority for improvement because enhancing these attributes is expected to increase customer satisfaction significantly.

Attributes located in Quadrant II (Keep Up the Good Work) include flavor consistency, product availability, packaging durability, and brand reputation. These attributes demonstrate high importance and high performance, indicating that they

represent the competitive strengths of Morinaga Chill Go products. Consequently, maintaining the quality and consistency of these attributes is essential to preserve customer trust and loyalty.

Attributes positioned in Quadrant III (Low Priority) consist of several product characteristics that consumers consider less important and whose current performance remains relatively low. Since these attributes have limited influence on purchasing decisions, extensive improvements are not considered urgent.

Meanwhile, Quadrant IV (Possible Overkill) contains attributes with relatively high performance but lower perceived importance. These findings indicate that the company may have allocated more resources than necessary to these attributes and may consider reallocating resources toward higher-priority improvements.

Overall, the IPA findings demonstrate that packaging functionality represents the primary area requiring improvement, whereas product consistency, availability, and brand reputation should continue to be maintained as competitive advantages.

4.4. Customer Satisfaction Index (CSI)

The Customer Satisfaction Index (CSI) was calculated to evaluate the overall level of customer satisfaction toward Morinaga Chill Go products by integrating respondents' importance and performance evaluations across all product quality attributes.

Table 4. Customer Satisfaction Index (CSI) Results

Description	Value
Total Mean Importance Score (MIS)	149,2
Total Weighted Score (WS)	376,39
Customer Satisfaction Index (CSI)	75,28%
Category	Satisfied

The analysis produced a Customer Satisfaction Index (CSI) value of 75.28%, indicating that consumers are generally satisfied with Morinaga Chill Go products. This result demonstrates that the company has successfully met consumer expectations regarding product quality, nutritional value, packaging quality, and brand image.

Although the CSI value indicates satisfactory performance, it has not yet reached the Very Satisfied category. This finding suggests that improving the priority attributes

identified in the IPA analysis, particularly those related to packaging functionality and convenience, could further increase customer satisfaction and strengthen customer loyalty.

4.5. Discussion

The findings of this study confirm that product quality plays a significant role in influencing customer satisfaction toward Morinaga Chill Go products. Consumers generally expressed positive perceptions regarding product reliability, nutritional benefits, consistency, and brand reputation, indicating that these attributes successfully meet consumer expectations. These findings are consistent with Kotler and Keller (2022), who emphasize that superior product quality is one of the primary determinants of customer satisfaction and sustainable competitive advantage. These findings are also consistent with Lestari et al. (2024), who argued that improvements in product quality contribute to stronger marketing performance by enhancing customer perceptions and organizational competitiveness.

However, the Importance Performance Analysis revealed that several packaging-related attributes remain below consumer expectations. Packaging flexibility, ease of opening and resealing, product safety until the expiration date, and packaging appearance were identified as priority areas requiring improvement. These findings indicate that modern consumers not only evaluate children's milk products based on nutritional quality but also consider convenience, practicality, and packaging design during purchasing decisions. Pimenta da Gama (2024) also emphasized that customer satisfaction is an important indicator of marketing performance and organizational success, making continuous product improvement essential for long-term competitiveness.

Furthermore, the Customer Satisfaction Index demonstrates that Morinaga Chill Go has generally succeeded in satisfying its consumers. Nevertheless, continuous improvements remain necessary to achieve a higher level of customer satisfaction. By maintaining strengths such as flavor consistency, product reliability, and brand reputation while improving packaging functionality, the company can enhance customer satisfaction, encourage repeat purchases, strengthen customer loyalty, and improve its competitiveness within Indonesia's increasingly competitive Grow Up Milk market. This finding is in line with Rather (2020), who explained that positive

customer experiences and satisfaction encourage repeat purchases, customer engagement, and long-term loyalty.

5. CONCLUSION

This study examined the influence of product quality on customer satisfaction toward Morinaga Chill Go Grow Up Milk (GUM) products in Bogor City using the Importance Performance Analysis (IPA) and Customer Satisfaction Index (CSI) approaches. The findings indicate that product quality plays an important role in shaping customer satisfaction. Overall, consumers perceived the quality of Morinaga Chill Go positively, as reflected by a Customer Satisfaction Index (CSI) value of 75.28%, which falls within the Satisfied category. This result suggests that the product has generally met consumer expectations in terms of quality, nutritional value, packaging, and brand reputation.

The IPA results reveal that not all product quality attributes perform equally. Several attributes, particularly those related to packaging flexibility, ease of opening and resealing, product safety until the expiration date, and the visual quality of the packaging, were identified as priority areas for improvement because they are considered highly important by consumers but have not yet achieved satisfactory performance. In contrast, attributes such as flavor consistency, product availability, packaging durability, and brand reputation demonstrated strong performance and should be maintained to preserve customer confidence and competitive advantage.

These findings imply that continuous product quality improvement should focus not only on the core product but also on functional and aesthetic aspects of packaging that directly influence consumer perceptions and satisfaction. By addressing these priority attributes while maintaining existing strengths, Morinaga Chill Go can further enhance customer satisfaction, encourage repeat purchases, strengthen customer loyalty, and improve its competitive position in Indonesia's increasingly competitive Grow Up Milk market.

This study is limited to consumers in Bogor City and focuses primarily on product quality as the main determinant of customer satisfaction. Future research is recommended to include broader geographical coverage and additional variables such as price perception, brand trust, promotional effectiveness, service quality, and customer loyalty to provide a more comprehensive understanding of consumer behavior and purchasing decisions in the Grow Up Milk industry. These findings also support Wardhana (2024), who emphasized

that maintaining customer satisfaction is essential for sustaining business performance and achieving long-term competitive advantage in today's dynamic market.

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UNDERSTANDING MSME BUSINESS PROCESS EFFICIENCY THROUGH POINT-OF-SALE DATA UTILIZATION: A TECHNOLOGY-ORGANIZATION-ENVIRONMENT FRAMEWORK APPROACH

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Abstract

While digital adoption among Micro, Small, Medium Enterprises (MSMEs) is accelerating, the strategic utilization of Point-of-Sale (POS) data to drive business process efficiency remains under-explored. This study employs the Technology-Organization-Environment (TOE) framework to analyze the factors influencing how MSMEs leverage POS data for operational efficiency. Data were collected from 139 MSME owners/managers or persons in charge of strategic decision making who have been using the POS system analytical feature for at least 6 months. Partial Least Squares – Structural Equation Modelling (PLS-SEM) was used in this study using SmartPLS software to test the hypotheses. The research shows that MSMEs are significantly driven by Relative Advantage, Data Quality, Vendor/Developer Support, and Competitive Pressure in POS data utilization. While Perceived Complexity, Top Management Support, and Data Literacy show no significant influence. Mainly, POS data utilization has been proven to significantly contribute to improving business process efficiency within MSMEs. This finding offers important implications for MSMEs in developing a data-driven operational culture to achieve sustainable competitive advantage.

Keywords: business process efficiency, MSME, POS data analytics, PLS-SEM, TOE framework

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) are a fundamental pillar of the Indonesian economy. With 66 million MSMEs representing 99% of total business activity, they contribute significantly to 60% of GDP and 97% of employment (Einar H. Dyvik, 2025). The consistent increase in labour productivity in the MSMEs sector from year to year is a major driving factor in the high employment rate (Bank Indonesia, 2020). Given their contribution to the national economy, MSMEs have strong growth potential, particularly micro-scale businesses due to their high capacity to create jobs (Anatan & Nur, 2023).

Digitalization has transformed operational and decision-making paradigms within organizations, including MSMEs. Technology adoption has become a competitive urgency for MSMEs to maintain their existence in the global market (Mogaji & Nguyen, 2024). Through digital technology integration, MSMEs gain wider access to information, driving process automation and operational efficiency (Deku et al., 2024).

Various digital technologies are implemented in the MSME sector, such as Point-of-Sale system (POS), Cloud-based accounting system, and E-commerce platform. These technologies optimize business governance, accelerate customer service, and provide real-time transaction records that reduce human error. Such integrations support operational efficiency and strengthen transactional data management accuracy, which is crucial for business continuity (Tounekti et al., 2020; Moghavvemi *et al.*, 2021).

Previous literature has examined technology acceptance and adoption factors in MSMEs using frameworks such as the Technology Acceptance Model (TAM), UTAUT, and TOE (Maroufkhani *et al.*, 2020; Haq *et al.*, 2025). However, literature on the post-adoption phase, specifically digital data analytics utilization for decision making and business process efficiency in MSMEs, remains limited. Modern POS systems have transformed from digital cash registers into strategic transactional data collection instruments containing sales volume, customer preference, and demand patterns. Data analytics utilization from these systems allows MSMEs to optimize operations through inventory management efficiency, promotion targeting, and improved service quality during rush hour operations (Kim & Jin, 2024; Zotorvie, 2025).

Despite the potential impact of digital data utilization, empirical understanding of how MSMEs use data analytics as a basis for decision-making remains limited, indicating a gap between technology adoption and data utilization phases. Therefore, this research aims to analyze factors influencing MSMEs in utilizing POS data as drivers of business process efficiency. The Technology-Organization-Environment (TOE) Framework was used due to its capability in identifying contextual readiness factors, where technological, organizational, and environmental aspects determine the effectiveness of data analytics utilization (Religia *et al.*, 2025).

This study is expected to provide empirical evidence regarding the impact of strategic data utilization in enhancing business process efficiency, business performance, and MSME sustainability in the digital era (Salah & Ayyash, 2024). Furthermore, the results are projected to support business owners in optimizing technology investment and assist policy makers in designing more data-based supporting programs.

2. Literature review

2.6. MSME Business Process Efficiency

Business process efficiency is a systematic approach to optimizing organizational operational effectiveness through process analysis, modelling, and continuous improvement. In the MSME context, efficiency orientation includes not only operational cost reduction but also customer value improvement and competitiveness strengthening in dynamic market situations (Fu *et al.*, 2024). In this digital era, technology adoption has become a catalyst enabling MSMEs to simplify operations, encourage innovation, and achieve long-term business sustainability (Mogaji & Nguyen, 2024).

Data analytics technology plays a central role in business process efficiency transformation, where POS systems have evolved into strategic business intelligence sources through their capability to produce real-time transactional data (Zotorvie, 2025). These systems facilitate MSMEs in shifting from intuitive-based to data-driven decision making. Insights generated contribute directly to core business processes, including inventory management through sales trend analysis (Faiz *et al.*, 2024), marketing and sales strategy through pricing and promotion optimization and customer service improvement through purchasing history personalization (Ocloo *et al.*, 2025).

The success of POS data analytics utilization is reflected in improved operational efficiency, customer satisfaction, and financial performance in sales and profits (Lukitaningsih *et al.*, 2024). Business process efficiency therefore becomes a crucial outcome variable bridging technology investment and sustainable competitive advantage for MSMEs.

2.7. Technology-Organization-Environment (TOE) Framework

In the innovation management literature, the Technology-Organization-Environment (TOE) framework is widely recognized for understanding technology adoption in organizational environments. Since its introduction by Tornatzky and Fleischer in 1990, the model has remained relevant in explaining organizational willingness or hesitation in adopting technological innovations (Religia et al., 2025). The TOE structure categorizes factors influencing decision-making into three contexts: technological, organizational, and environmental, allowing organizations to systematically identify determinants of successful technology adoption at the MSMEs scale (Religia et al., 2025).

The technology context focuses on innovation characteristics as determinants of adoption decisions. Relative advantage is assessed through efficiency improvement, market expansion, or customer interaction optimization compared to current practices. Technology integration success also depends on alignment with organizational values, needs, and experiences, facilitating technological transitions (Lukitaningsih et al., 2024).

However, organizations often face obstacles related to system complexity and associated costs. Difficulty in operating complex technology becomes a barrier for MSMEs with limited resources (Fu et al., 2024), while high investment and maintenance costs become significant strategic considerations (Ocloo et al., 2025). In addition, service security and trust in data protection remain essential before innovations, particularly e-commerce-based services, can be widely accepted and implemented.

Organizational context refers to internal company elements under management control that function as catalysts or obstacles in innovation adoption (Faiz et al., 2024). Top management support plays a vital role in resource allocation and creating a conducive innovation climate (Ocloo et al., 2025). Organizational readiness, including infrastructure adequacy, financial stability, and information technology quality, also becomes a prerequisite for successful implementation (Ocloo et al., 2025). Company size further differentiates adoption capacity, where larger organizations generally possess greater investment flexibility and resource access (Faiz et al., 2024). In addition, human capability and innovation culture significantly influence digital transformation success, as limitations in internal expertise often hinder effective technology adoption (Lukitaningsih et al., 2024; Salah & Ayyash, 2024).

Environmental context focuses on external dynamics outside company control, including industry structure, competitive climate, and government policies shaping the business landscape (Faiz et al., 2024). Competitive pressure encourages companies to undertake technological transformation to maintain competitiveness, while government support through policies, subsidies, and technological infrastructure also accelerates innovation adoption in developing countries (Lukitaningsih et al., 2024). Besides competitor pressure and government roles, companies also face demands from business ecosystem partners to adopt specific technology standards, ensuring supply chain integration and continuity (Fu et al., 2024). Overall, technology adoption decisions are strategic responses to external business pressures rather than autonomous internal processes.

3. Methodology

3.1. Sample

The sampling technique used in this study was non-probability purposive sampling. Respondents were selected based on criteria relevant to the research objectives, namely MSME decision-makers (owners, managers, or supervisors) with access to digital transaction data generated from POS systems.

Selected MSMEs were required to: (1) use a modern POS system (third-party or ERP-based); (2) possess analytical or reporting features; (3) have used the system for at least 6

months; and (4) operate in Food & Beverage, Services, Retail Goods, or Health & Beauty sectors. Data were collected through online questionnaires distributed via Google Forms, WhatsApp, and social media, as well as direct MSME visits. Responses were measured using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

The minimum sample size was determined using Statistical Power Analysis, which considers model complexity (Hair et al., 2017). With seven predictors, significance level (α) = 0.05, and minimum effect size (R^2) = 0.1, the recommended minimum sample size was 137 respondents.

3.2. Hypothesis Development

This study adopts the TOE framework, emphasizing technological factors (Relative Advantage, Perceived Complexity, Data Quality); organizational factors (Top Management Support, Data Literacy); and environmental factors (Vendor Support, Competitive Pressure) related to POS data analytics utilization for MSMEs. The study also examines the impact of POS data analytics utilization on MSME business process efficiency, as shown in Figure 1.

3.2.1. Technological Context

The technological context includes innovation characteristics perceived by business actors as determinants of adoption decisions. This study focuses on Relative Advantage (RA), Data Quality (DQ), and Perceived Complexity (PCL). Relative Advantage reflects the extent to which an innovation provides greater benefits than previous methods (Faiz et al., 2024). If MSME owners perceive that data-based insights outperform manual tracking, motivation to utilize POS data analytics will increase. Data Quality becomes a technological prerequisite, where MSMEs tend to integrate POS data only if the information is accurate, timely, and reliable. Conversely, Perceived Complexity acts as a barrier when technology is perceived as difficult to understand or operate (Fu et al., 2024). Therefore, we propose:

H1a: Perceived Complexity negatively influences POS Data Utilization

H1b: Relative Advantage positively influences POS Data Utilization

H1c: Data Quality positively influences POS Data Utilization

3.2.2. Organizational Context

Organizational context refers to internal resource availability and managerial capacity within the company. This study examines Top Management Support (TMS) and Data Literacy (DL) as drivers of POS data analytics utilization. Top management support is fundamental in MSMEs, where owners often act as decision-makers by providing resources and encouraging data-driven operations. Data literacy reflects the capability to manage, analyze, and interpret information generated by POS systems. Therefore, we hypothesize:

H2a: Top Management Support positively influences POS Data Utilization

H2b: Data Literacy positively influences POS Data Utilization

3.2.3. Environmental Context

The environmental context includes external pressures driving MSMEs toward digital transformation, specifically Vendor/Developer Support (VDS) and Competitive Pressure (CP). Competitive pressure encourages MSMEs to adopt digital solutions to remain competitive. Vendor support also acts as a facilitator, particularly in the Indonesian MSME landscape where internal IT expertise is limited. Proactive vendor support, from training to troubleshooting, lowers barriers to entry and facilitates POS data analytics utilization. Therefore, we hypothesize:

H3a: Vendor/Developer Support positively influences POS Data Utilization

H3b: Competitive Pressure positively influences POS Data Utilization

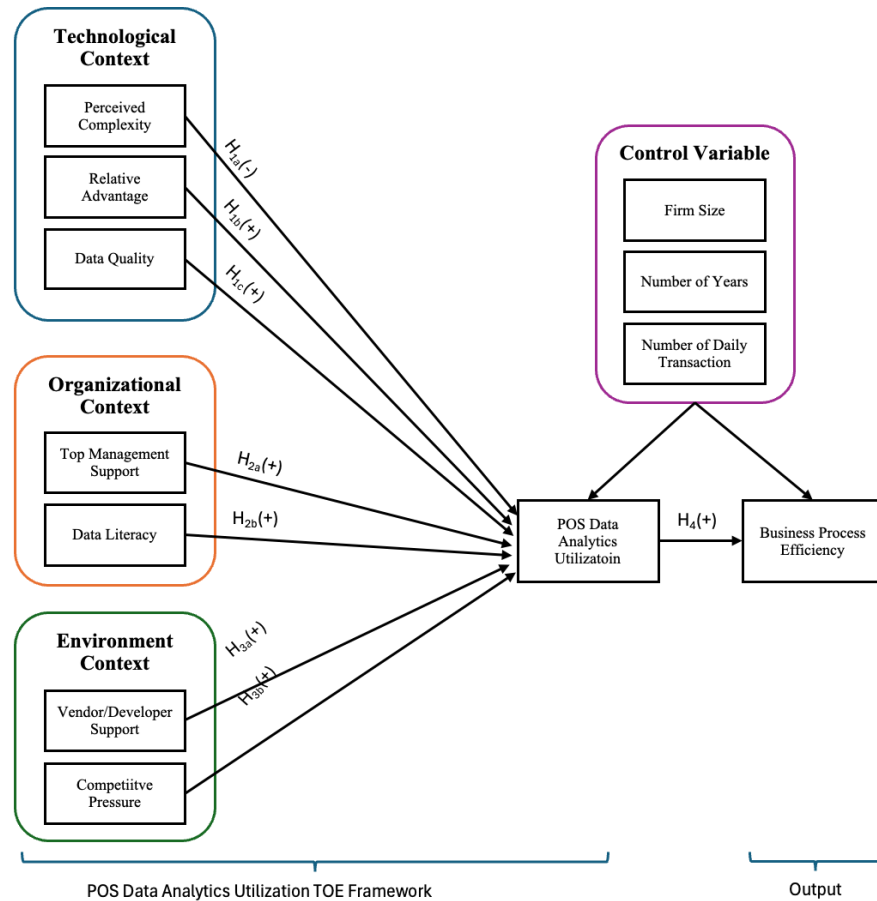


Figure 1. Proposed Research Model
(developed from Fu et al., 2024)

3.2.4. Relationship of Point of Sales Data Analytics Utilization and MSME Business Process Efficiency

While technological, organizational, and environmental factors influence adoption decisions, POS Data Utilization (PDU) translates these inputs into Business Process Efficiency (BPE). Data analytics utilization minimizes human error and optimizes operational activities through real-time inventory management, cash flow monitoring, and sales pattern identification. MSMEs therefore gain greater financial and operational transparency compared to manual methods. Therefore, we hypothesize:

H4a: POS Data Utilization positively influences Business Process Efficiency

3.2.5. Control Variables

In this research model, Firm Size (FS), Firm Age (FA), and Transaction Intensity (TI) are included as control variables to measure their impact on POS data analytics utilization and business process efficiency. The use of control variables is important to isolate the effects of independent variables and prevent demographic factors from distorting observed relationships (Ocloo et al., 2025). By controlling these variables, the model provides more accurate estimates of causal relationships.

4. Results and discussions

4.1 Demographic Characteristics of Respondents

The total number of usable respondent answers in this study was 139. Respondent demographic data based on nominal control variables was categorized into an ordinal scale, as presented in Table 1.

Table 1. Business Demographic Attributes of the Respondents

Variable	Category	Value	Percentage
Firm Size (Employee)	<5	1	30.94%
	5-10	2	43.17%
	10-20	3	20.14%
	> 20	4	5.76%
Firm Age (Years)	<1	1	4.32%
	1-3	2	42.45%
	3-5	3	38.85%
	>5	4	14.39%
Daily Transaction (Transaction)	<25	1	5.04%
	25-75	2	57.55%
	76-150	3	31.65%
	>150	4	5.76%

4.2 Measurement Model Evaluation

Validity and reliability tests were conducted to evaluate questionnaire consistency and construct accuracy. Convergent validity was assessed using Average Variance Extracted (AVE ≥ 0.50) and Outer Loading (≥ 0.7). As shown in Table 2, all constructs achieved the required AVE values, indicating acceptable convergent validity.

Most indicators showed outer loading values above 0.7. However, indicator DL4 had an outer loading value of 0.656 and was retained because indicators within the 0.40–0.70 range may be maintained if construct validity remains acceptable (Hair et al., 2017).

Reliability was evaluated using Cronbach's Alpha (CA) and Composite Reliability (CR). CR values ranged from 0.813 to 0.899, indicating good reliability. Although the Relative Advantage variable showed a Cronbach's Alpha value of 0.659, values between 0.60 and 0.70 are still considered acceptable (Hair et al., 2017).

The discriminant validity test using the Fornell-Larcker criterion in Table 3 confirmed that each latent variable was unique and distinct, as all square root AVE values exceeded inter-construct correlation values. Thus, the research data met discriminant validity requirements.

Table 2. Validity and Reliability Test Result

Construct	Indicator	Outer Loading	AVE	CA	CR (rho_a)	CR (rho_c)
Perceived Complexity (PCL)	PCL1	0.795	0.826	0.912	0.888	0.726
	PCL2	0.877				
	PCL3	0.795				
Relative Advantage (RA)	RA1	0.733	0.659	0.683	0.813	0.594
	RA2	0.72				
	RA3	0.852				
Data Quality (DQ)	DQ1	0.751	0.715	0.717	0.841	0.638
	DQ2	0.838				
	DQ3	0.806				
	TMS1	0.823	0.821	0.836	0.88	0.648

Top Management Support (TMS)	TMS2	0.82					
	TMS3	0.755					
	TMS4	0.819					
	DL1	0.771					
Data Literacy (DL)	DL2	0.837	0.772	0.773	0.885	0.597	
	DL3	0.814					
	DL4	0.656					
	VDS1	0.761					
Vendor/Developer Support (VDS)	VDS2	0.913	0.83	0.854	0.899	0.749	
	VDS3	0.913					
	CP1	0.747					
Competitive Pressure (CP)	CP2	0.845	0.743	0.761	0.853	0.659	
	CP3	0.84					
	PDU1	0.818					
POS Data Utilization (PDU)	PDU2	0.807	0.728	0.731	0.846	0.647	
	PDU3	0.789					
	BPE1	0.856					
Business Process Efficiency (BPE)	BPE2	0.815	0.789	0.79	0.877	0.703	
	BPE3	0.844					

Table 3. Fornell-Larcker Criterion

Variable	PCL	RA	DQ	TMS	DL	VDS	CP	PDU	BPE
PCL	0.852								
RA	0.000	0.770							
DQ	0.107	0.614	0.799						
TMS	-0.071	0.407	0.486	0.805					
DL	-0.235	0.303	0.453	0.506	0.773				
VDS	-0.023	0.262	0.390	0.350	0.426	0.865			
CP	0.035	0.418	0.512	0.428	0.387	0.390	0.812		
PDU	0.016	0.576	0.623	0.524	0.450	0.454	0.550	0.805	
BPE	-0.171	0.533	0.514	0.533	0.472	0.477	0.497	0.635	0.839

4.3 Structural Model Evaluation

After confirming measurement model validity and reliability, the structural model was evaluated using Multicollinearity ($VIF \leq 5$), Coefficient of Determination (r^2), Effect Size (f^2) and Predictive Relevance ($q^2 \geq 0$). Control variables (Firm Size, Firm Age, and Transaction Intensity) were included to examine demographic influences. Results of VIF and f^2 are presented in Table 4, while r^2 and q^2 are shown in Table 5.

The structural model showed no multicollinearity issues, with all VIF values below 5. The r^2 values for POS Data Analytics Utilization (0.564) and Business Process Efficiency (0.410) indicated moderate predictive ability, supported by $q^2 > 0$. Effect Size analysis showed POS Data Utilization as the strongest contributor ($f^2 = 0.674$), while control variables contributed minimally to model variance.

Table 4. Values of Variance Inflation Factor (VIF) and f^2

Variable	VIF	f^2

PCL → PDU	1.189	0.000
RA → PDU	1.765	0.073
DQ → PDU	2.212	0.051
TMS → PDU	1.766	0.032
DL → PDU	1.795	0.003
VDS → PDU	1.477	0.051
CP → PDU	1.552	0.057
Firm Size → PDU	1.012	0.674
Firm Age → PDU	1.683	0.002
Transaction Intensity → PDU	1.403	0.000
Firm Size → BPE	1.705	0.017
Firm Age → BPE	1.629	0.006
Transaction Intensity → BPE	1.237	0.001
PDU → BPE	1.499	0.008

Table 5. Values of r^2 and q^2

Variable	r^2	q^2
PDU	0.564	0.322
BPE	0.410	0.264

4.4 Hypothesis Testing

Hypothesis testing was conducted using bootstrapping with 5,000 subsamples. Hypotheses were accepted if T-statistic > 1.96 and P-value < 0.05. Result is shown in Table 6. Within the technological context, Relative Advantage (H1b: $p=0.002$) and Data Quality (H1c: $p=0.008$) significantly influenced POS data analytics utilization, indicating that MSMEs adopt analytics when operational benefits and information quality are clearly perceived (Justy et al., 2023). Conversely, Perceived Complexity (H1a: $p=0.952$) showed no significant effect, suggesting that operational needs outweigh technical barriers in technology adoption (Nautwima *et al.*, 2025).

Table 6. Hypotheses Testing

Hypothesis/Variable	P-value s	T Statistic	Result
H _{1a} Perceived Complexity → POS Data Utilization	0.952	0.061	Unsupporte d
H _{1b} Relative Advantage → POS Data Utilization	0.002	3.155	Supported
H _{1c} Data Quality → POS Data Utilization	0.008	2.667	Supported
H _{2a} Top Management Support → POS Data Utilization	0.075	1.783	Unsupporte d
H _{2b} Data Literacy → POS Data Utilization	0.559	0.585	Unsupporte d
H _{3a} Vendor/Developer Support → POS Data Utilization	0.015	2.448	Supported
H _{3b} Competitive Pressure → POS Data Utilization	0.025	2.255	Supported

H ₄	Pos Data Utilization → Business Process Efficiency	0.000	8.233	Supported

Within the organizational context, Top Management Support (H2a: $p=0.075$) and Data Literacy (H2b: $p=0.559$) did not significantly influence POS Data Analytics Utilization. This contradicts previous findings that emphasize literacy and management support as key drivers (Valdez-Juárez *et al.*, 2024); Noerchoidah *et al.*, 2025). The insignificance may reflect the increasingly intuitive interfaces of modern POS systems. Vendor/Developer Support (H3a: $p=0.015$) and Competitive Pressure (H3b: $p=0.025$) significantly influenced POS data analytics utilization. External support through training and technical assistance helps MSMEs overcome internal resource limitations, while competitive pressure encourages analytics adoption to maintain competitiveness (Maroufkhani *et al.* (2020); Al Kautsaf *et al.*, 2023). POS Data Utilization significantly improved Business Process Efficiency (H4: $p=0.000$). The use of analytics enhanced inventory management, cash flow monitoring, and marketing decisions through improved financial and operational transparency, supporting findings from Pertiwi and Hana (2025).

4.5 Control Variables Testing

This study also examined whether business demographic characteristics influenced the model. Criteria were based on $p\text{-value} \leq 0.05$ and $t\text{-value} \geq 1.96$. Based on Table 7, Firm Size, Firm Age, and Transaction Intensity did not significantly influence POS Data Utilization or Business Process Efficiency. These findings indicate that POS analytics adoption has become relatively homogeneous across MSMEs, regardless of business size or operational maturity. The results further suggest that affordable and user-friendly POS systems enable even newly established MSMEs to achieve efficiency comparable to more established businesses. Thus, analytics adoption is driven more by market needs and perceived benefits than by demographic characteristics.

Table 7. Control Variable Testing Result

Variables	p-values	T Statistic	Result
Firm Size → POS Data Utilization	0.576	0.560	Unsupported
Firm Age → POS Data Utilization	0.832	0.213	Unsupported
Transaction Intensity → POS Data Utilization	0.131	1.511	Unsupported
Firm Size → Business Process Efficiency	0.363	0.910	Unsupported
Firm Age → Business Process Efficiency	0.743	0.328	Unsupported
Transaction Intensity → Business Process Efficiency	0.369	0.899	Unsupported

4.6 Mediating Effect Testing

The mediation analysis examined the role of POS Data Utilization as an intermediary between TOE factors and Business Process Efficiency using Specific Indirect Effects with bootstrapping in PLS-SEM. Results are presented in Table 8.

Table 8. Mediating Effect Testing Result

Variables	p-values	T Statistic	Result
PCL → PDU → BPE	0.951	0.062	Unsupported
RA → PDU → BPE	0.004	2.918	Supported
DQ → PDU → BPE	0.010	2.602	Supported

TMS → PDU → BPE	0.094	1.680	Unsupported
DL → PDU → BPE	0.561	0.582	Unsupported
VS → PDU → BPE	0.019	2.361	Supported
CP → PDU → BPE	0.043	2.033	Supported

POS Data Utilization significantly mediated the relationship between Relative Advantage, Data Quality, Vendor/Developer Support, Competitive Pressure, and Business Process Efficiency. These findings confirm that these factors improve efficiency through data analytics implementation, supporting Al Kautsaf *et al.* (2023), where POS systems transform data inputs into operational efficiency. Conversely, Perceived Complexity, Top Management Support, and Data Literacy showed insignificant mediation effects, indicating that technical barriers and literacy levels are not determining factors in achieving business process efficiency through analytics.

4.7 Path Coefficient Analysis

Figure 2 presents path coefficient values ranging from -1 to +1, where values closer to +1 indicate stronger positive relationships. The strongest relationship was found between POS Data Analytics Utilization and Business Process Efficiency (0.634). Within the TOE context, Relative Advantage (0.238) and Data Quality (0.223) emerged as the main drivers of POS data analytics utilization, while control variables showed relatively small coefficients.

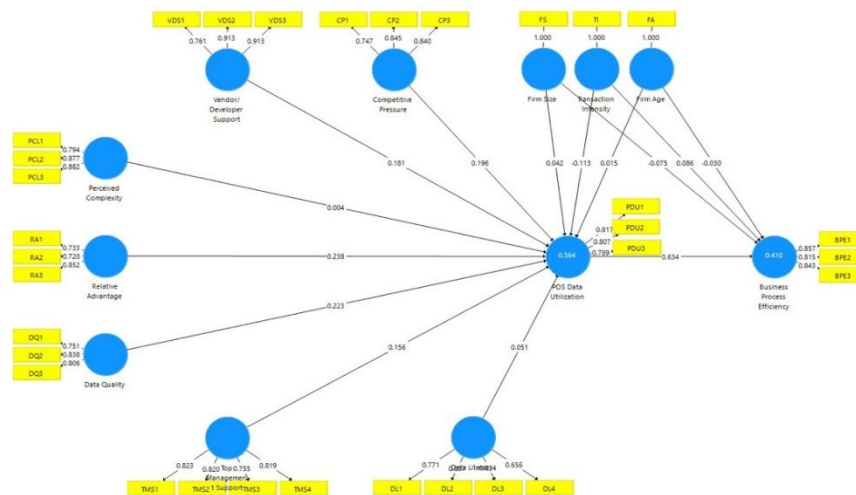


Figure 2. Path Coefficient

4.8 Practical Implication

Based on the structural model analysis results, this study formulates several managerial implications for MSMEs and POS service providers. MSMEs should strengthen a data-driven operational culture through regular monitoring of sales, inventory, and customer transaction data. The use of POS analytics enables businesses to identify sales trends, optimize inventory management, improve promotional strategies, and maintain operational efficiency. Data-driven decision-making also increases MSMEs' flexibility in responding to market dynamics and competitive pressure (Al Kautsaf *et al.*, 2023; Pertiwi & Hana, 2025). MSMEs with internal IT capabilities are encouraged to develop integrated operational systems that support automated reporting and real-time business insights, allowing faster adaptation to technological changes (Maroufkhani *et al.*, 2020).

Although Top Management Support was not statistically significant, owner commitment remains important in encouraging the integration of POS analytics into daily business activities. MSME owners should actively review analytical reports with operational staff to strengthen

awareness of data-driven decision-making and ensure that POS systems are utilized beyond transactional functions (Anatan & Nur, 2023).

For POS vendors, innovation should focus on improving data accuracy, system usability, and real-time synchronization to support MSMEs with varying levels of data literacy. Vendors are also encouraged to strengthen their role as consultative partners by providing business education, analytical guidance, and integrated digital payment ecosystems. Tailored support and user-friendly analytical features can increase customer satisfaction, encourage deeper analytics adoption, and ultimately improve MSME business process efficiency (Maroufkhani et al., 2020; Nugraha et al., 2022).

5. Conclusion

This study analyzes factors influencing POS data analytics utilization and its impact on MSME business process efficiency through the TOE framework. The results confirm that POS data analytics utilization is significantly driven by technological factors (Relative Advantage and Data Quality) and environmental factors (Competitive Pressure and Vendor Support). In contrast, organizational factors such as management support and data literacy did not significantly influence the MSME context. The study also demonstrates that data utilization positively impacts operational efficiency and plays a crucial mediating role. Without active data processing that generates managerial insights, the TOE framework does not automatically improve operational performance. This highlights that transforming transaction data into strategic insights determines whether POS system investments remain limited to digital cash register functions or become tools capable of generating comprehensive operational efficiency.

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BRIDGING THE GENDER INVESTMENT GAP AMONG YOUNG WOMEN IN PAPUA THROUGH DIGITAL FINANCIAL LITERACY AND FINANCIAL SELF-EFFICACY

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Abstract

Women continue to face challenges in participating in investment activities despite the rapid expansion of digital financial services. While digital financial literacy and financial self-efficacy have been widely recognized as important determinants of financial behavior, evidence regarding their roles in shaping investment intention remains inconclusive, particularly among young women in geographically peripheral regions. This study examines the relationship between Digital Financial Literacy, Financial Self-Efficacy, and Investment Intention among Generation Z women in Papua, Indonesia. Data were collected from 125 female respondents aged 17–26 years residing in Papua using a structured questionnaire. The study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the direct and indirect relationships among the constructs. The results reveal that Digital Financial Literacy significantly and positively influences Financial Self-Efficacy and Investment Intention. However, Financial Self-Efficacy does not significantly affect Investment Intention and fails to mediate the relationship between Digital Financial Literacy and Investment Intention. These findings indicate that Digital Financial Literacy serves as the primary driver of investment intention among young women in Papua, whereas financial confidence alone is insufficient to encourage investment participation. The findings further suggest that practical digital financial knowledge and capabilities may play a more influential role than psychological confidence in shaping investment-related decisions within financially underserved and geographically peripheral contexts. This study contributes to the literature on digital financial behavior by providing evidence from a gender-specific and underexplored regional context. The findings highlight the importance of strengthening digital financial literacy through financial education and digital inclusion initiatives to promote investment participation among young women.

Keywords: Digital Financial Literacy; Financial Self-Efficacy; Investment Intention; Generation Z; Young Women; Papua

1. Introduction

The rapid expansion of digital financial services has transformed how individuals access and participate in investment activities. Financial technology platforms, mobile banking applications, and online investment services have reduced many of the traditional barriers that once limited investment participation to financially sophisticated individuals or those with institutional access (Guo et al., 2022; Lu et al., 2024). As digital financial ecosystems continue to expand across emerging economies, digital financial literacy has become increasingly important in shaping individuals' ability to navigate digital financial environments, evaluate online financial information, and make informed investment decisions (Setiawan et al., 2022). This transformation is particularly relevant for Generation Z, a cohort that has grown up alongside rapid technological development and widespread internet accessibility. Compared to previous generations, Generation Z demonstrates greater familiarity with digital platforms and stronger engagement with digital financial services (Che Hassan et al., 2023). Nevertheless,

high exposure to digital technology does not necessarily translate into stronger investment intention. Prior studies suggest that investment intention is influenced not only by financial knowledge, but also by psychological factors that shape individuals' confidence in managing financial decisions (Jain et al., 2023; Sobaih & Elshaer, 2023).

One psychological factor that has attracted growing attention in financial behavior research is financial self-efficacy, which refers to an individual's confidence in their ability to manage financial tasks and make appropriate financial decisions. Rooted in Social Cognitive Theory, financial self-efficacy explains why individuals with similar levels of financial knowledge may demonstrate different financial behaviors (Lone & Bhat, 2022). Individuals with stronger financial self-efficacy are generally more willing to engage in financial planning, tolerate investment risk, and participate in investment activities. Existing studies have also shown that financial self-efficacy mediates the relationship between financial literacy and various financial outcomes, including financial well-being, fintech adoption, and financial management behavior (Al Rahahleh, 2023; Islam & Khan, 2024). However, limited research has examined this mediating mechanism in the context of digital financial literacy and investment intention.

The issue becomes more important when viewed through a gender perspective. Women in developing economies consistently demonstrate lower levels of investment participation and financial confidence than men, despite increasing access to digital financial services (Lone et al., 2025). These disparities are often influenced not only by differences in financial knowledge, but also by psychological factors such as financial self-efficacy, which tends to be lower among women due to socialization patterns, limited financial exposure, and unequal access to financial education. As a result, many women remain hesitant to participate in investment activities even when digital financial platforms are increasingly accessible.

These challenges may become more pronounced in geographically peripheral regions such as Papua, Indonesia. Compared to western regions of Indonesia, Papua continues to experience limitations in financial infrastructure, access to financial education, and broader economic opportunities (Edwar et al., 2026). Young women in Papua therefore face intersecting challenges associated with gender, youth, and regional marginalization. Although digital financial services potentially expand financial inclusion opportunities, limited financial confidence and digital financial capability may continue to restrict investment participation among young women in the region. Understanding the factors that encourage investment intention among Generation Z women in Papua is therefore important for promoting more inclusive financial development in eastern Indonesia.

Despite the growing literature on digital financial literacy and financial behavior, several important gaps remain unresolved. First, prior studies have predominantly focused on urban populations or economically advanced regions, while financially underserved and geographically peripheral areas such as Papua remain underexplored (Setiawan et al., 2022; Anwar, 2025). Second, although financial self-efficacy has frequently been identified as an important psychological determinant of financial behavior, its mediating role in the relationship between digital financial literacy and investment intention has received limited empirical attention (Gulati et al., 2026). Third, gender-focused analyses examining investment intention among Generation Z women in eastern Indonesia remain scarce despite the persistent gender disparities observed in financial participation.

Addressing these gaps, this study examines the relationship between digital financial literacy, financial self-efficacy, and investment intention among Generation Z women in Papua, Indonesia. Specifically, the study investigates the direct effect of digital financial literacy on investment intention, the effect of digital financial literacy on financial self-efficacy, the effect of financial self-efficacy on investment intention, and the mediating role of financial self-efficacy in the relationship between digital financial literacy and investment intention.

This study offers several contributions to the existing literature. First, it extends the application of Social Cognitive Theory and the Theory of Planned Behavior within the context of digital financial behavior among young women in a geographically peripheral region of Indonesia. Second, the study provides empirical evidence regarding the psychological mechanism linking digital financial literacy and investment intention through financial self-efficacy in a gender-specific context. Third, the findings are expected to provide practical insights for policymakers, educators, and financial institutions in designing more inclusive digital financial literacy programs for young women in eastern Indonesia. Collectively, these gaps suggest the need for a more context-specific understanding of how digital financial literacy influences investment intention through psychological mechanisms among young women in geographically peripheral regions.

2. Literature Review

2.1. Theoretical Foundation

This study is primarily grounded in Social Cognitive Theory (SCT) and the Theory of Planned Behavior (TPB). Social Cognitive Theory, developed by Bandura, emphasizes that human behavior is shaped not only by external conditions but also by internal cognitive processes, particularly self-efficacy beliefs. Within the financial context, financial self-efficacy reflects an individual's confidence in their ability to manage financial activities and make appropriate financial decisions (Lone & Bhat, 2022). SCT provides an important theoretical explanation for why individuals with similar levels of financial knowledge may exhibit different financial behaviors. Individuals with stronger self-efficacy are generally more likely to translate knowledge into purposive financial action (Gulati et al., 2026).

In addition, the Theory of Planned Behavior explains that behavioral intention is influenced by attitudes, subjective norms, and perceived behavioral control. In the context of investment behavior, financial self-efficacy may function as a form of perceived behavioral control that shapes an individual's readiness and confidence to participate in investment activities (Sobaih & Elshaer, 2023; Raut & Kumar, 2024). The integration of SCT and TPB therefore provides a suitable theoretical foundation for explaining how digital financial literacy may influence investment intention directly and indirectly through financial self-efficacy.

2.2. Digital Financial Literacy and Investment Behavior

Digital financial literacy refers to the knowledge and capabilities required to effectively use digital financial services and evaluate digital financial information. Unlike traditional financial literacy, digital financial literacy also includes competencies related to digital financial platforms, online financial transactions, and risk awareness in digital financial environments (Setiawan et al., 2022). As digital financial services become increasingly integrated into investment activities, digital financial literacy has emerged as an important determinant of financial decision-making and investment participation (Guo et al., 2022).

According to the Theory of Planned Behavior, behavioral intention is influenced by individuals' attitudes, subjective norms, and perceived behavioral control. Previous studies have demonstrated that perceived behavioral control significantly predicts investment intention across different investment contexts (Yee et al., 2022).

Previous studies have demonstrated that individuals with higher levels of digital financial literacy tend to show stronger financial decision-making capability, greater engagement with financial technology services, and higher willingness to participate in investment activities (Guo et al., 2022; Lu et al., 2024). Digital financial literacy enables individuals to better understand investment products, evaluate financial risks, and utilize digital investment platforms more effectively. In the context of Generation Z, whose financial activities are

increasingly mediated through digital platforms, digital financial literacy may therefore play an important role in shaping investment intention.

2.3. Financial Self-Efficacy as a Psychological Mechanism

Financial self-efficacy refers to an individual's confidence in their ability to manage financial resources, make financial decisions, and achieve desired financial outcomes (Lone & Bhat, 2022). As a psychological construct rooted in Social Cognitive Theory, financial self-efficacy explains how financial knowledge may be translated into financial behavior. Individuals with stronger financial self-efficacy are generally more confident in handling financial uncertainty, engaging in financial planning, and participating in investment activities. Existing literature has consistently identified financial self-efficacy as an important predictor of positive financial outcomes, including saving behavior, financial management, financial well-being, and investment participation (Al Rahahleh, 2023; Goyal et al., 2023). In addition, several studies suggest that financial self-efficacy may mediate the relationship between financial literacy and financial behavior because knowledge alone is often insufficient to encourage financial action without adequate confidence in one's financial capability (Islam & Khan, 2024). In the context of young women, financial self-efficacy may function as an important psychological mechanism that strengthens confidence and willingness to participate in investment activities.

2.4. Hypothesis Development

1. Social Cognitive Theory suggests that self-efficacy develops through the acquisition of knowledge and competence. Individuals with stronger digital financial literacy are generally more capable of understanding digital financial products, evaluating financial risks, and operating digital financial platforms effectively. These competencies may strengthen individuals' confidence in managing financial activities and making financial decisions (Islam & Khan, 2024). Previous studies have also reported a positive relationship between digital financial literacy and financial self-efficacy (Anwar, 2025; Setiawan et al., 2022). Therefore, the following hypothesis is proposed:

H1: Digital financial literacy has a significant positive effect on financial self-efficacy among Generation Z women in Papua, Indonesia.

2. Within the Theory of Planned Behavior framework, perceived behavioral control influences individuals' intention to perform a particular behavior. In the financial context, financial self-efficacy reflects individuals' confidence in their ability to engage in investment activities and manage financial uncertainty. Individuals with stronger financial self-efficacy are generally more willing to participate in investment activities and tolerate investment-related risks (Lim & Qi, 2023). Prior studies have also demonstrated a positive relationship between financial self-efficacy and investment intention (Al Rahahleh, 2023; Jain et al., 2023). Therefore, the following hypothesis is proposed:

H2: Financial self-efficacy has a significant positive effect on investment intention among Generation Z women in Papua, Indonesia.

3. Digital financial literacy provides individuals with the knowledge and capability required to understand investment products, evaluate investment alternatives, and utilize digital investment platforms effectively. Individuals with higher levels of digital financial literacy are therefore more likely to demonstrate stronger investment intention because they possess greater confidence in interpreting financial information and assessing investment opportunities (Guo et al., 2022; Raut & Kumar, 2024).

Previous studies have consistently identified financial literacy as a significant determinant of investment intention among young adults and digital financial users (Che Hassan et al., 2023). Therefore, the following hypothesis is proposed:

H3: Digital financial literacy has a significant positive effect on investment intention among Generation Z women in Papua, Indonesia.

4. The relationship between digital financial literacy and investment intention may not operate solely through a direct pathway. Social Cognitive Theory suggests that knowledge may strengthen behavioral intention through self-efficacy formation. Individuals with stronger digital financial literacy may develop higher financial self-efficacy, which subsequently increases their confidence and willingness to participate in investment activities. Existing studies have also identified financial self-efficacy as a mediating mechanism linking financial literacy and financial behavior (Islam & Khan, 2024; Gulati et al., 2026). Therefore, the following hypothesis is proposed:

H4: Financial self-efficacy significantly mediates the effect of digital financial literacy on investment intention among Generation Z women in Papua, Indonesia.

3. Methodology

3.1. Hypothesis Development

This study employed a quantitative research approach using a cross-sectional survey design. The research focused on Generation Z women residing in Papua Province, Indonesia. Following previous studies, Generation Z refers to individuals born between 1997 and 2012 (Che Hassan et al., 2023). To ensure adequate exposure to digital financial services and investment-related decision-making, respondents were limited to women aged between 17 and 27 years.

A purposive sampling technique was employed because the exact population size of Generation Z women who actively engage with digital financial services in Papua could not be accurately identified. Respondents were required to meet the following criteria: (1) female, (2) residing in Papua Province, Indonesia, (3) aged between 17 and 26 years, (4) having experience using digital financial services such as mobile banking applications, electronic wallets, or online investment platforms, and (5) possessing prior knowledge of or interest in digital investment activities.

Data were collected through an online questionnaire distributed using Google Forms via social media platforms, university networks, and youth communities across Papua. Participation was voluntary and anonymous. Following Hair et al. (2022), a minimum sample size of 100 respondents was considered sufficient for the proposed PLS-SEM model. Thus, the obtained sample of 125 respondents meets this requirement

3.2. Measure

All constructs were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The measurement instruments were adapted from previously validated scales in the financial literacy and investment behavior literature.

Table 1 Operational Definition of Variables

Variable	Dimensions	Source
Digital Financial Literacy	Knowledge	Guo et al (2022)
	Skills	Setiawan et al. (2022)
	Risk Awareness	

Financial Self-Efficacy	Confidence	Lone and Bhat (2022)
	Control	Al Rahahleh (2023)
	Capability Belief	
Investment Intention	Desire to Invest	Raut and Kumar (2024)
	Investment Planning	Che Hassan et al. (2023)
	Commitment	
	Readiness to Invest	
	Information-Seeking Behavior	

Digital Financial Literacy (DFL) was operationalized as an individual's ability to understand, evaluate, and utilize digital financial services and investment-related information. Financial Self-Efficacy (FSE) refers to an individual's confidence in managing financial resources and making financial decisions. Investment Intention (II) represents an individual's willingness and commitment to participate in investment activities in the future

3.3. Conceptual Framework

Based on Social Cognitive Theory and the Theory of Planned Behavior, this study proposes that Digital Financial Literacy directly influences Financial Self-Efficacy and Investment Intention. Furthermore, Financial Self-Efficacy is expected to positively influence Investment Intention and mediate the relationship between Digital Financial Literacy and Investment Intention.

The proposed hypotheses are as follows:

H1: Digital Financial Literacy positively affects Financial Self-Efficacy.

H2: Financial Self-Efficacy positively affects Investment Intention.

H3: Digital Financial Literacy positively affects Investment Intention.

H4: Financial Self-Efficacy mediates the relationship between Digital Financial Literacy and Investment Intention.

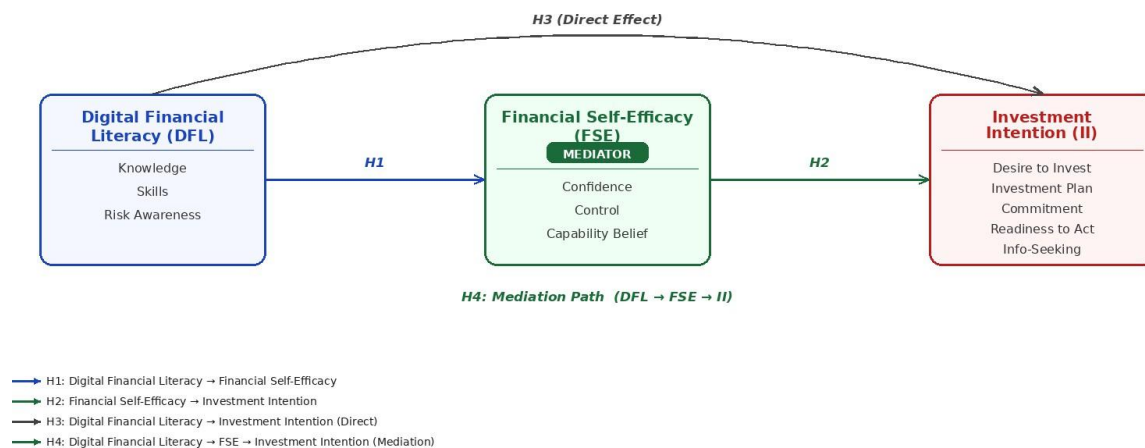


Figure 1 Conceptual Framework of The Study

Source: Author's own conceptual development

3.4. Data Analysis

The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. PLS-SEM was selected because it is suitable for predictive research models involving latent constructs and mediation analysis (Hair et al., 2022).

The analysis was conducted in two stages. First, the measurement model was evaluated by examining indicator reliability, convergent validity, discriminant validity, and construct reliability. Convergent validity was assessed using outer loadings (> 0.70) and Average Variance Extracted ($AVE > 0.50$). Construct reliability was evaluated using Cronbach's Alpha and Composite Reliability ($CR > 0.70$). Discriminant validity was assessed using the Heterotrait-Monotrait Ratio ($HTMT < 0.90$).

Second, the structural model was evaluated through path coefficient analysis, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and collinearity assessment using Variance Inflation Factor ($VIF < 5$). Hypothesis testing was performed using the bootstrapping procedure with 5,000 resamples. A hypothesis was considered supported when the t-value exceeded 1.96 and the p-value was below 0.05. The mediating effect of Financial Self-Efficacy was examined using indirect effect analysis through bootstrapping procedures.

4. Results and Discussion Results

This study analyzed data collected from 125 Generation Z women residing in Papua Province, Indonesia. The respondents represent the target population of the study and provide

valuable insights into the digital financial capabilities, financial confidence, and investment intentions of young women in a geographically peripheral region. Table 2 summarizes the demographic characteristics of the respondents.

Table 2 Demographic Profile of Respondents

Characteristic	Category	n	%
Age	17–20 years	70	56.0
	21–23 years	39	31.2
	24–26 years	8	6.4
	Others	8	6.4
Monthly Income (IDR)	<1,000,000	86	68.8
	1,100,000–3,000,000	28	22.4
	3,100,001–5,000,000	5	4.0
	>5,000,000	6	4.8
Primary Source of Income	Parents	99	79.2
	Employment	17	13.6
	Business	2	1.6
	Others	7	5.6
Financial Dependents	No	88	70.4
	Yes	37	29.6
Daily Internet Usage	< 2 hours	14	11.2
	2.5–5 hours	29	23.2
	5.5–8 hours	38	30.4
	> 8 hours	44	35.2
Primary Device	Smartphone	124	99.2
	Laptop/PC	1	0.8
Savings Ownership	Yes	90	72.0
	No	35	28.0
Investment Experience	Yes	39	31.2
	No	86	68.8

Data processing result using
excel

The sample was dominated by respondents aged 17–20 years (56.0%), followed by those aged 21–23 years (31.2%). Most respondents reported a monthly income of less than IDR 1,000,000 (68.8%), while only 8.8% earned more than IDR 3,000,000 per month. In addition, the majority of respondents identified their parents as their primary source of income (79.2%), indicating that many participants remained financially dependent on their parents.

The respondents demonstrated a high level of digital engagement. More than sixty percent of the participants reported using the internet for at least 5.5 hours per day, with 35.2% spending more than eight hours online daily. Furthermore, smartphones were the dominant digital device used by respondents (99.2%). These findings suggest that the respondents were highly exposed to digital technologies and digital information environments, making them an appropriate population for examining digital financial literacy and investment-related behavior. Regarding financial behavior, 72.0% of respondents reported having personal savings, indicating an emerging awareness of financial management among young women in Papua. However, only 31.2% had prior investment experience, while the majority (68.8%) had never invested. This finding reveals a notable gap between basic financial management practices and actual participation in investment activities. Although many respondents had already adopted saving behavior and were highly connected to digital technologies, relatively few had progressed toward investment participation. This pattern provides initial support for the relevance of investigating how digital financial literacy and financial self-efficacy may contribute to strengthening investment intention among young women in Papua.

The evaluation of the measurement model aims to assess the reliability and validity of the latent constructs used in the study. The measurement model was first assessed by examining indicator reliability, convergent validity, and internal consistency reliability. As presented in Table 3, all indicator loadings exceeded the recommended threshold of 0.70, ranging from 0.790 to 0.903. These results indicate that each indicator adequately represents its respective construct. The Cronbach's Alpha values ranged from 0.895 to 0.928, exceeding the recommended threshold of 0.70. Similarly, Composite Reliability values ranged from 0.923 to 0.943, indicating strong internal consistency reliability. Furthermore, the Average Variance Extracted (AVE) values ranged from 0.706 to 0.740, surpassing the minimum recommended value of 0.50. Collectively, these findings confirm that all constructs demonstrate satisfactory reliability and convergent validity. 1,000,000 (68.8%), while only 8.8% earned more than IDR 3,000,000 per month. In addition, the majority of respondents identified their parents as their primary source of income (79.2%), indicating that many participants remained financially dependent on their parents.

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Table 3 Outer Loading (OL), Cronbach's Alpha (CA), Composite Reliability (CR), and AVE for each measurement variable

Variables	Code	Measurement variables	OL	CA	CR	AVE	Result
Digital	DFL1	Understanding various digital financial products	0.856	0.928	0.943	0.735	Valid & Reliable
Financial	DFL2	Understanding how digital financial services work	0.875				Valid & Reliable
Literacy (DFL)	DFL3	Ability to use digital financial applications	0.867				Valid & Reliable
	DFL4	Ability to evaluate digital financial information before making decisions	0.903				Valid & Reliable
	DFL5	Understanding risks associated with digital financial services	0.847				Valid & Reliable
	DFL6	Being cautious when conducting digital financial transactions	0.791				Valid & Reliable
Financial Self-Efficacy (FSE)	FSE1	Confidence in making appropriate financial decisions	0.871	0.895	0.923	0.706	Valid & Reliable
	FSE2	Ability to manage income and expenses effectively	0.880				Valid & Reliable
	FSE3	Confidence in dealing with financial problems	0.833				Valid & Reliable
	FSE4	Confidence in achieving financial goals	0.824				Valid & Reliable
	FSE5	Ability to plan finances for the long term	0.790				Valid & Reliable
Investment Intention (II)	II1	Desire to invest	0.847	0.912	0.934	0.740	Valid & Reliable
	II2	Intention to start investing	0.859				Valid & Reliable
	II3	Commitment to invest in the near future	0.853				Valid & Reliable
	II4	Readiness to begin investing	0.896				Valid & Reliable
	II5	Willingness to seek investment-related information	0.846				Valid & Reliable

Data processing result using SmartPLS4

This study used the Heterotrait-Monotrait Ratio of Correlations (HTMT) as recommended by Henseler et al. (2015). HTMT values below 0.90 indicate that each latent construct is empirically distinct from the others.

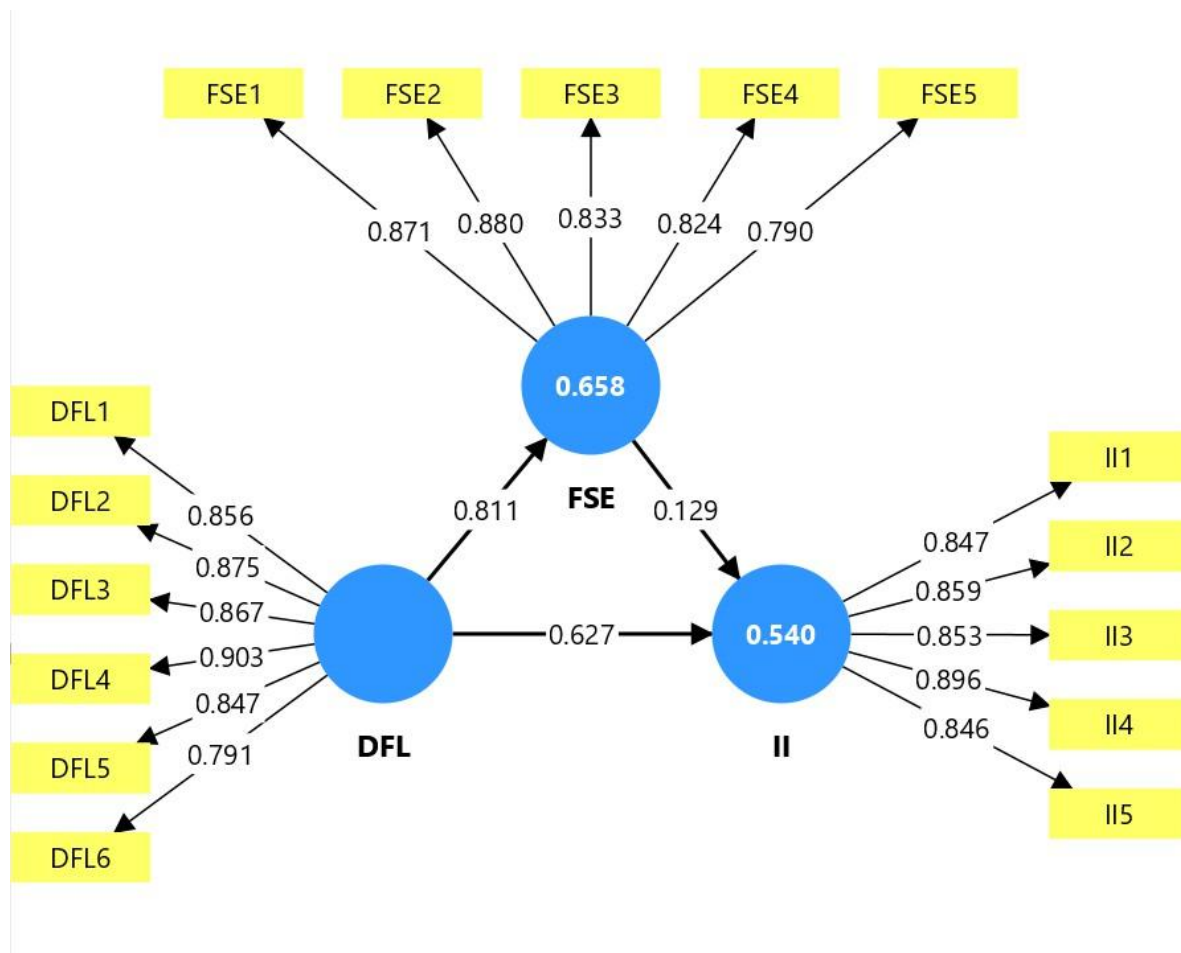
Table 4 Heterotrait-Monotrait Ratio (HTMT)

	DFL	FSE	II	Result
DFL				
FSE	0.888			Valid
II	0.780	0.699		Valid

Data processing result using SmartPLS4

As shown in Table 4, all HTMT values were below the recommended threshold of 0.90. The highest HTMT value was observed between Digital Financial Literacy and Financial Self-Efficacy (HTMT = 0.888), while the remaining values ranged from 0.699 to 0.780. These results indicate that the constructs are empirically distinct from one another and support the establishment of discriminant validity.

Figure 2 Structural (Inner) Model



Prior to evaluating the structural model, collinearity was assessed using the Variance Inflation Factor (VIF). As shown in Table 5, all VIF values ranged from 1.000 to 2.924, which are well below the recommended threshold of 5.0. These results indicate that multicollinearity is not a concern in the structural model, allowing further assessment of the hypothesized relationships.

Table 5 Variance Inflation Factor (VIF)

	VIF	Result
FSE -> II	2.924	No Multicollinearity
DFL -> II	2.924	No Multicollinearity
DFL -> FSE	1.000	No Multicollinearity

Data processing result using SmartPLS4

The explanatory and predictive capabilities of the structural model were assessed using the coefficient of determination (R^2), adjusted R^2 , and predictive relevance (Q^2 predict). As presented in Table 6, Digital Financial Literacy explained 65.8% of the variance in Financial Self-Efficacy ($R^2 = 0.658$), indicating a moderate to substantial level of explanatory power. Furthermore, Digital Financial Literacy and Financial Self-Efficacy jointly explained 54.0% of the variance in Investment Intention ($R^2 = 0.540$), suggesting a moderate level of explanatory power.

Table 6 Coefficient of Determination (R^2) and Predictive Relevance

	R-square	R-square adjusted	Q^2 predict	Interpretation
FSE	0.658	0.655	0.521	Moderate-Substantial
II	0.540	0.532	0.649	Moderate

Data processing result using SmartPLS4

The predictive relevance of the model was evaluated using the Q^2 statistic. The results showed Q^2 values of 0.521 for Financial Self-Efficacy and 0.649 for Investment Intention, both of which exceeded the recommended threshold of zero. These findings indicate that the model possesses satisfactory predictive relevance and is capable of predicting the endogenous constructs included in the study.

The structural relationships among the constructs were evaluated using the bootstrapping procedure with 5,000 resamples. The results of the hypothesis testing are presented in Table 7.

Table 7 Path Coefficients and Hypothesis Testing

	Path Coefficient	T-statistic	P-values	f-square	Result
DFL → FSE	0.811	22.391	0.000	1.924	Supported
FSE → II	0.129	1.183	0.237	0.012	Not Supported
DFL → II	0.627	5.893	0.000	0.292	Supported
DFL → FSE → II	0.104	1.168	0.243		Not Supported

Data processing result using SmartPLS4

The results indicate that Digital Financial Literacy has a significant positive effect on Financial Self-Efficacy ($\beta = 0.811$, $t = 22.391$, $p < 0.001$). Therefore, H1 is supported. The magnitude of the path coefficient suggests that higher levels of digital financial literacy are associated with stronger financial self-efficacy among young women in Papua.

The results also reveal that Financial Self-Efficacy does not significantly affect Investment Intention ($\beta = 0.129$, $t = 1.183$, $p = 0.237$). Therefore, H2 is not supported. Although the relationship is positive, the effect is statistically insignificant.

Furthermore, Digital Financial Literacy has a significant positive effect on Investment Intention ($\beta = 0.627$, $t = 5.893$, $p < 0.001$). Therefore, H3 is supported. This finding indicates that respondents with higher levels of digital financial literacy tend to demonstrate stronger intentions to engage in investment activities.

The indirect effect of Digital Financial Literacy on Investment Intention through Financial Self-Efficacy was positive but statistically insignificant ($\beta = 0.104$, $t = 1.168$, $p = 0.243$). Therefore, H4 is not supported. These results indicate that Financial Self-Efficacy does not mediate the relationship between Digital Financial Literacy and Investment Intention among young women in Papua.

Discussion

The findings reveal that Digital Financial Literacy significantly enhances Financial Self-Efficacy among Generation Z women in Papua. This result supports Social Cognitive Theory, which posits that self-efficacy develops through knowledge acquisition and mastery experiences. Young women with greater digital financial knowledge and skills are more likely to feel confident in managing financial resources and making informed financial decisions.

This finding is consistent with Islam and Khan (2024), Anwar (2025), and Setiawan et al. (2022), who reported that financial literacy strengthens individuals' confidence in utilizing digital financial services and managing financial matters effectively. The strong path coefficient obtained in this study further suggests that Digital Financial Literacy represents a highly influential factor in shaping financial confidence among young women in Papua.

The strong influence of Digital Financial Literacy may also be associated with the respondents' extensive exposure to digital technologies. Nearly all respondents reported smartphones as their primary digital device, indicating that financial information, digital transactions, and investment-related content are increasingly accessed through mobile platforms. In the context of Papua, where access to conventional financial education and

investment advisory services may be relatively limited, smartphones can serve as an important channel for acquiring financial knowledge and accessing digital financial services.

The results also demonstrate that Digital Financial Literacy has a significant positive effect on Investment Intention. This finding suggests that respondents with greater understanding of digital financial products, digital transactions, and financial risks are more willing to participate in future investment activities. The finding is consistent with previous studies by Guo et al. (2022), Lu et al. (2024), Che Hassan et al. (2023), and Raut and Kumar (2024), which emphasized the importance of financial literacy and digital financial capability in shaping investment-related decision-making. Similarly, Lin et al. (2023) found that digital finance facilitates investment participation by reducing information barriers and improving access to financial resources. A comparable result was also reported by Utami et al. (2025), who demonstrated that financial knowledge significantly enhances investment intention among Generation Z individuals. In the context of Papua, digital financial literacy may reduce information barriers and increase awareness of investment opportunities, thereby encouraging stronger investment intentions among young women.

Contrary to expectations, Financial Self-Efficacy did not significantly influence Investment Intention ($\beta = 0.129$, $p = 0.237$). This finding does not support the assumption derived from the Theory of Planned Behavior that individuals with greater perceived behavioral control will demonstrate stronger behavioral intentions. The result also contrasts with previous studies that reported a significant positive relationship between financial self-efficacy and investment intention (Al Rahahleh, 2023; Jain et al., 2023). While respondents in this study reported confidence in managing personal finances, such confidence may not necessarily translate into confidence in making investment-related decisions.

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The insignificant effect of Financial Self-Efficacy may also reflect the distinction between general financial confidence and investment-specific confidence. As argued by Lim and Qi (2023), investment participation requires not only confidence in managing personal finances but also confidence in evaluating investment opportunities, understanding market uncertainty, and making investment-related decisions. Consequently, respondents may feel capable of managing their daily finances while remaining hesitant to engage in investment activities due to limited investment-specific experience, knowledge, and exposure to investment products. One possible explanation relates to the socioeconomic characteristics of the respondents. The majority of participants reported monthly incomes below IDR 1,000,000 (68.8%) and remained financially dependent on their parents (79.2%). Furthermore, although 72.0% reported having personal savings, only 31.2% had prior investment experience. These findings suggest that respondents may possess confidence in managing routine financial activities, such as budgeting and saving, while still facing resource constraints that limit their willingness to engage in investment activities. Under such conditions, financial confidence alone may be insufficient to stimulate investment intention because investment decisions often require disposable income, access to capital, and prior exposure to investment products.

This interpretation is consistent with Hernandez-Perez and Cruz Rambaud (2025), who argue that financial self-efficacy does not operate in isolation but interacts with broader economic circumstances and financial constraints. Individuals may possess confidence in their financial capabilities; however, limited financial resources can reduce their willingness to undertake investment-related activities.

The insignificant effect of Financial Self-Efficacy on Investment Intention also explains why the mediating role of Financial Self-Efficacy was not supported. The indirect effect of Digital Financial Literacy on Investment Intention through Financial Self-Efficacy was positive but statistically insignificant ($\beta = 0.104$, $p = 0.243$). This finding suggests that Digital Financial Literacy influences Investment Intention primarily through a direct pathway rather than through psychological confidence mechanisms. Although higher levels of Digital Financial Literacy substantially enhanced Financial Self-Efficacy, such confidence did not translate into stronger investment intentions. Therefore, practical financial knowledge and digital financial capabilities appear to play a more important role than financial confidence in encouraging investment participation among young women in Papua.

Interestingly, the findings indicate that Digital Financial Literacy may play a more influential role than Financial Self-Efficacy in shaping Investment Intention among young women in Papua. The substantial effect size ($f^2 = 1.924$) further indicates that Digital Financial Literacy represents a highly influential factor in shaping Financial Self-Efficacy among young women in Papua. Respondents who understood digital financial products, digital financial services, and investment-related information were more likely to express an intention to invest regardless of their level of financial confidence. These findings suggest that knowledge-based capabilities may be more influential than psychological confidence in motivating investment participation within financially underserved contexts.

The finding may be particularly relevant for young women, as previous studies have shown that women often report lower levels of financial confidence despite increasing access

to digital financial services (Lone et al., 2025). In this context, digital financial literacy may function not only as a source of financial knowledge but also as a mechanism for strengthening women's confidence in navigating digital financial environments. The results suggest that practical financial knowledge and the ability to utilize digital financial services may be more critical than psychological confidence alone in encouraging investment participation within financially underserved and geographically peripheral contexts.

Collectively, the findings suggest that Digital Financial Literacy serves as a more influential determinant of Investment Intention than Financial Self-Efficacy among young women in Papua. While Digital Financial Literacy significantly enhances both Financial Self-Efficacy and Investment Intention, Financial Self-Efficacy does not translate into stronger investment intentions and fails to mediate the relationship between the two constructs. These findings contribute to the growing literature on digital financial behavior by demonstrating that knowledge-based capabilities may exert a stronger influence on investment intention than psychological confidence within geographically peripheral and financially underserved contexts. Consequently, initiatives aimed at improving digital financial literacy may represent a more effective strategy for promoting investment participation among young women than interventions that focus solely on strengthening financial confidence.

5. Conclusion

This study examined the relationships among Digital Financial Literacy, Financial Self-Efficacy, and Investment Intention among Generation Z women in Papua, Indonesia. The findings reveal that Digital Financial Literacy significantly and positively influences both Financial Self-Efficacy and Investment Intention. In contrast, Financial Self-Efficacy does not significantly affect Investment Intention and does not mediate the relationship between Digital Financial Literacy and Investment Intention. These results indicate that Digital Financial Literacy serves as the primary driver of investment intention among young women in Papua, whereas financial confidence alone is insufficient to encourage investment participation.

The results also demonstrate that Digital Financial Literacy has a significant positive effect on Investment Intention. This finding suggests that respondents with greater understanding of digital financial products, digital transactions, and financial risks are more willing to participate in future investment activities. The finding is consistent with previous studies by Guo et al. (2022), Lu et al. (2024), Che Hassan et al. (2023), and Raut and Kumar (2024), which emphasized the importance of financial literacy and digital financial capability in shaping investment-related decision-making. Similarly, Lin et al. (2023) found that digital finance facilitates investment participation by reducing information barriers and improving access to financial resources. A comparable result was also reported by Utami et al. (2025), who demonstrated that financial knowledge significantly enhances investment intention among Generation Z individuals. In the context of Papua, digital financial literacy may reduce information barriers and increase awareness of investment opportunities, thereby encouraging stronger investment intentions among young women.

Despite these contributions, this study has several limitations. The research was limited to Generation Z women in Papua and employed a cross-sectional design, which restricts the generalizability of the findings and the ability to infer causal relationships. Future studies may consider broader geographic coverage, larger sample sizes, and additional variables such as financial attitude, risk tolerance, financial inclusion, or investment experience to provide a more comprehensive understanding of investment intention among young adults.

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STRENGTHENING FINANCIAL RESILIENCE THROUGH DIGITAL HUMAN CAPITAL: THE MEDIATING EFFECT OF FINANCIAL SELF-EFFICACY AMONG GENERATION Z IN EASTERN INDONESIA

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Abstract

The accelerating pace of digital transformation has fundamentally reshaped the financial behaviors and economic capacities of younger generations, particularly Generation Z, who are extensively exposed to digital ecosystems yet remain susceptible to financial instability. This study examines the mediating role of financial self-efficacy in the relationship between digital human capital and financial resilience among Generation Z in Eastern Indonesia. Employing an explanatory quantitative approach within a positivistic paradigm, data were collected through an online survey administered to 175 Generation Z respondents residing in Eastern Indonesia, with a primary focus on Papua. Analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings demonstrate that digital human capital exerts a positive and statistically significant influence on both financial resilience and financial self-efficacy. Financial self-efficacy, in turn, positively and significantly predicts financial resilience and partially mediates the relationship between digital human capital and financial resilience. The most pronounced structural relationship was identified along the path from digital human capital to financial self-efficacy, indicating that digital competence substantially enhances individuals' confidence in managing their financial affairs. Furthermore, the research model demonstrates robust explanatory power, with an R^2 value of 0.744 for financial resilience. These findings affirm that strengthening digital competence alone is insufficient to improve financial resilience unless accompanied by psychological conviction in financial decision-making. Theoretically, this study advances the integration of Human Capital Theory and Social Cognitive Theory within the context of financial resilience among Generation Z. Practically, the results carry significant implications for the development of digital financial education initiatives, youth empowerment policies, and the promotion of inclusive financial capabilities in underrepresented regions such as Eastern Indonesia.

Keywords: *digital human capital; financial resilience; financial self-efficacy; Generation Z; Eastern Indonesia*

1. Introduction

Digital transformation has fundamentally reconstituted the economic and financial fabric of contemporary society. In an information-driven economy, an individual's capacity to access, comprehend, and leverage digital technology has transcended its status as a supplementary skill to become a distinct form of human capital, commonly referred to as digital human capital. This concept encompasses an individual's capacity to transform digital resources into productive economic value through technological proficiency, digital literacy, and the ability to adapt to ongoing digital change (Bach et al., 2013). Against this backdrop, digital human capital is increasingly recognized as a strategic determinant of individual

productivity, economic opportunity, and the quality of financial decision-making (Iordan et al., 2022; Kholifah et al., 2025).

Alongside this development, financial resilience has emerged as a global concern, particularly among Generation Z. Financial resilience refers to an individual's capacity to maintain economic stability, adapt to adverse circumstances, and recover from unanticipated financial shocks (Salignac et al., 2019). Despite being widely regarded as the most digitally connected generation, substantial evidence indicates that Generation Z faces elevated financial vulnerabilities. (Xie et al., 2023) found that Generation Z exhibits a pronounced tendency to neglect long-term savings preparation, which signals weakened financial resilience capacity at early productive stages. This suggests that heightened digital exposure does not automatically translate into adaptive and sustainable financial capability.

Similar dynamics are observable in Indonesia. National internet penetration reaching 80.66% confirms that Indonesian society is increasingly integrated into the digital ecosystem, with Generation Z constituting its most active user segment (APJII, 2025). Nevertheless, this expanding digital connectivity has not been matched by a corresponding strengthening of financial capacity among young people. The Sun Life Asia Financial Resilience Index 2025 reveals that only 49% of Indonesian Generation Z feel financially secure, a proportion lower than that of other generational cohorts. Additionally, 29% of Generation Z respondents reported never having sought professional financial advice (Sun Life Indonesia, 2025). Data from the Statistics Indonesia (BPS, 2024) further indicate that the average income of Generation Z aged 15–24 years remains relatively low in comparison to the cost of living across various urban areas in Indonesia. These findings collectively signal a widening gap between digital engagement intensity and the capacity to cultivate financial resilience.

Within the behavioral finance literature, financial self-efficacy is recognized as a pivotal psychological mechanism capable of explaining the link between individual capability and achieved financial outcomes. Financial self-efficacy refers to an individual's belief in their own capacity to manage finances, make sound financial decisions, and effectively cope with economic pressures (Hu et al., 2021). Individuals with elevated financial self-efficacy tend to demonstrate more adaptive financial behaviors, superior planning ability, and greater resilience in the face of economic shocks (Fan & Henager, 2022; Netemeyer et al., 2018). Ahmad (2025) further affirms that financial self-efficacy plays a significant mediating role in the relationship between personal characteristics and individual investment decisions. Accordingly, the influence of digital human capital on financial resilience may not operate exclusively through direct pathways but also through the reinforcement of individuals' psychological confidence in financial matters.

However, the distribution of digital capacity across Indonesia remains characterized by pronounced regional disparities. Eastern Indonesia, and Papua in particular, continues to face infrastructure constraints and limited digital access relative to the western parts of the country. (BPS, 2024) data indicate that Papua's Information and Communication Technology Development Index (IP-TIK) stands at merely 3.56, the lowest in the nation. Furthermore, internet penetration in the Maluku and Papua regions reaches only 69.26%, substantially below Java's rate of 84.69% (APJII, 2025). This situation underscores that the formation of digital human capital in Eastern Indonesia occurs within a distinctly different structural context compared to more advanced urban regions.

Prior studies have explored the relationship between digital capabilities and various economic and financial dimensions. (Sabri et al., 2026) found that digital capabilities and financial inclusion contribute to the financial resilience of households in Indonesia and Malaysia. (Edwar & Mangopo, 2025) similarly demonstrated that human capital development

influences financial inclusion among Papuan students, mediated by an entrepreneurial mindset. However, the majority of existing research has focused predominantly on employability, innovation, or financial inclusion contexts, and remains limited in elucidating the mechanisms through which digital human capital shapes individual financial resilience via psychological pathways such as financial self-efficacy. Moreover, research on Generation Z financial resilience in Indonesia has been disproportionately concentrated in urban Javanese and Sumatran contexts, leaving peripheral regions such as Eastern Indonesia significantly underrepresented.

In light of these gaps, this study aims to examine the influence of digital human capital on financial resilience among Generation Z in Eastern Indonesia, with financial self-efficacy as a mediating variable. This research is expected to extend the literature on digital human capital and financial resilience by providing empirical evidence from a region that has received insufficient scholarly attention. Moreover, the findings are intended to yield practical implications for strengthening digital literacy, financial education, and youth empowerment policies in Eastern Indonesia

2. Literature review

2.1. Theoretical Foundation

This study proceeds from the assumption that the financial resilience of Generation Z in the digital economic era is no longer determined solely by the possession of economic resources, but also by individuals' capacity to harness digital technology and their psychological ability to make adaptive financial decisions. Accordingly, this research integrates (Becker, 1964) Human Capital Theory and Bandura (1986) Social Cognitive Theory as its primary theoretical foundations.

Human Capital Theory posits that an individual's knowledge, skills, and competencies constitute a form of productive capital capable of enhancing economic capacity and improving decision-making quality. Investments in human capabilities generate long-term economic benefits and improve adaptive outcomes across various domains. Empirical evidence indicates that the development of individual competencies through appropriate learning strategies can improve performance outcomes and reduce economic burdens, thereby demonstrating the broader value of human capital investment (Damanik & Landjang, 2025).

As digital transformation has progressed, the concept of human capital has expanded to encompass digital human capital defined as individuals' ability to access, comprehend, evaluate, and leverage digital technologies to generate economic value and strengthen the effectiveness of financial decisions (Chhillar et al., 2025). This perspective has grown increasingly salient as digitalization has restructured virtually every dimension of economic activity, from financial transactions and investment to platform-based work and digital consumption patterns.

Social Cognitive Theory, in contrast, emphasizes that individual behavior is shaped by the dynamic interplay among personal factors, environmental influences, and self-efficacy one's belief in their own capabilities (Bandura, 1986). In the financial domain, financial self-efficacy reflects an individual's confidence in their capacity to manage finances, make sound economic decisions, and effectively navigate financial pressures. This theoretical framework posits that competencies acquired by individuals do not automatically produce positive outcomes unless accompanied by the conviction to translate those competencies into actual behavior.

The integration of these two theoretical perspectives provides a conceptual foundation for arguing that digital human capital can strengthen financial resilience both directly and

through the psychological mechanism of financial self-efficacy. This approach is particularly pertinent to understanding the condition of Generation Z in Eastern Indonesia a cohort that has come of age within digital environments yet continues to encounter limited economic access, technological infrastructure disparities, and insufficient financial literacy capacity.

2.2. Digital Human Capital

Digital human capital refers to an individual's capacity to leverage digital technology in support of economic activities, information management, and effective financial decision-making. This concept extends beyond technical proficiency in operating digital devices to encompass digital literacy, information evaluation skills, technological adaptability, and the productive and strategic utilization of digital platforms (Iordan et al., 2022). Within the digital economy, digital human capital has evolved into an increasingly decisive resource that determines individuals' ability to access economic opportunities and contemporary financial services.

(Nguyen et al., 2021) explain that digital competence enables individuals to gain broader access to financial information, formal financial services, digital work opportunities, and technology-driven economic activities. This suggests that digital capability is no longer supplementary but constitutes an essential component of modern economic capacity. For Generation Z, digital human capital carries heightened relevance, given that this cohort has matured in an environment deeply integrated with digital technology. Consumption patterns, financial transactions, investment activities, and employment are increasingly mediated by digital platforms and application-based services. Nevertheless, high-intensity technology use does not inherently lead to adequate financial management skills, underscoring the importance of digital human capital quality in equipping young people to navigate the digital economic landscape.

Empirical evidence consistently demonstrates the significant contribution of digital capabilities to economic capacity enhancement. (Sabri et al., 2026) found that digital capability and FinTech literacy positively influence households' capacity to withstand economic pressure. (Başar et al., 2025) showed that digital financial literacy promotes more effective saving behaviors and greater use of formal financial services. Furthermore, (Padi et al., 2026) established that mobile finance services can strengthen the economic capacity of informal workers by broadening access to transactions and financial management tools. In the context of Eastern Indonesia, building digital human capital assumes heightened strategic importance given the region's persistent digital access disparities and technological infrastructure deficiencies, which render individuals' technological competence a decisive factor in advancing their economic capacity and financial resilience.

2.3. Financial Self-Efficacy

Financial self-efficacy refers to an individual's belief in their capacity to manage their finances, make sound economic decisions, and respond to financial pressures effectively (Hu et al., 2021). This concept positions psychological factors as a fundamental element of financial behavior, recognizing that individuals who possess financial capability are not necessarily capable of acting effectively in the absence of confidence in their own abilities. In an increasingly complex digital economic environment—where individuals are exposed to a proliferation of financial options, investment risks, digital consumption pressures, and rapidly evolving economic information—financial self-efficacy becomes particularly salient.

Individuals with higher levels of financial self-efficacy tend to be more capable of formulating financial plans, managing economic risks, and making financial decisions in a rational and long-term-oriented manner (Fan & Henager, 2022). Netemeyer et al (2018) found that financial self-efficacy is positively associated with financial well-being and quality of life,

while (Xiao & Porto, 2017) demonstrated that individuals with elevated self-efficacy tend to exhibit more adaptive, disciplined, and sustainable financial behaviors. In the context of Generation Z, financial self-efficacy is particularly critical given the pressures of digital consumption, economic uncertainty, and the influence of social media on financial lifestyles. (Xie et al., 2023) found that Generation Z tends to exhibit short-term financial orientations that heighten their economic vulnerability, while (Schulz et al., 2025) explained that a scarcity mindset can diminish individuals' sense of control over their financial situation. Conversely, (Ghouse & McElwee, 2026) demonstrated that self-efficacy plays a central role in cultivating economic resilience when individuals confront financial adversity.

From the perspective of Social Cognitive Theory, self-efficacy serves as a psychological mechanism bridging individual competence and observable behavior (Bandura, 1986). Individuals who possess certain competencies may not produce effective behavior in the absence of belief in their own capacities. Accordingly, financial self-efficacy is positioned as a critical mechanism explaining how digital capabilities can be translated into financial resilience. (Ab Hamid et al., 2025) found that financial self-efficacy plays a pivotal role in the relationship between individual characteristics and investment decision-making, while (Xiao & Porto, 2017) confirmed that financial capability requires self-efficacy to be converted into effective financial behavior. Additionally, (Edwar et al., 2026) demonstrated that psychological factors exert a significant influence on the relationship between digital conditions and the financial behavior of Generation Z in Indonesia.

2.4. Financial Resilience

Financial resilience constitutes an individual's capacity to sustain economic stability, adapt to financial pressures, and recover from unforeseen economic shocks (Salignac et al., 2019). This concept extends beyond the mere capacity to meet basic needs to encompass risk management, the preservation of economic sustainability, and adaptive financial decision-making under conditions of uncertainty (Fan & Henager, 2022). In the digital economic era, financial resilience has gained increasing salience as economic change unfolds more rapidly, dynamically, and unpredictably.

Young people, particularly Generation Z, confront multifaceted challenges, including labor market instability, digital consumption pressures, elevated exposure to technology-based financial services, and shifting economic patterns driven by increasing economic flexibility. These conditions demand a stronger capacity for financial adaptation than was required of preceding generations. Evidence indicates that financial resilience is shaped by an interplay of economic, social, and psychological factors. Individuals with sound financial management skills, access to financial services, digital competence, and self-belief tend to be better equipped to withstand economic pressures and sustain long-term financial stability.

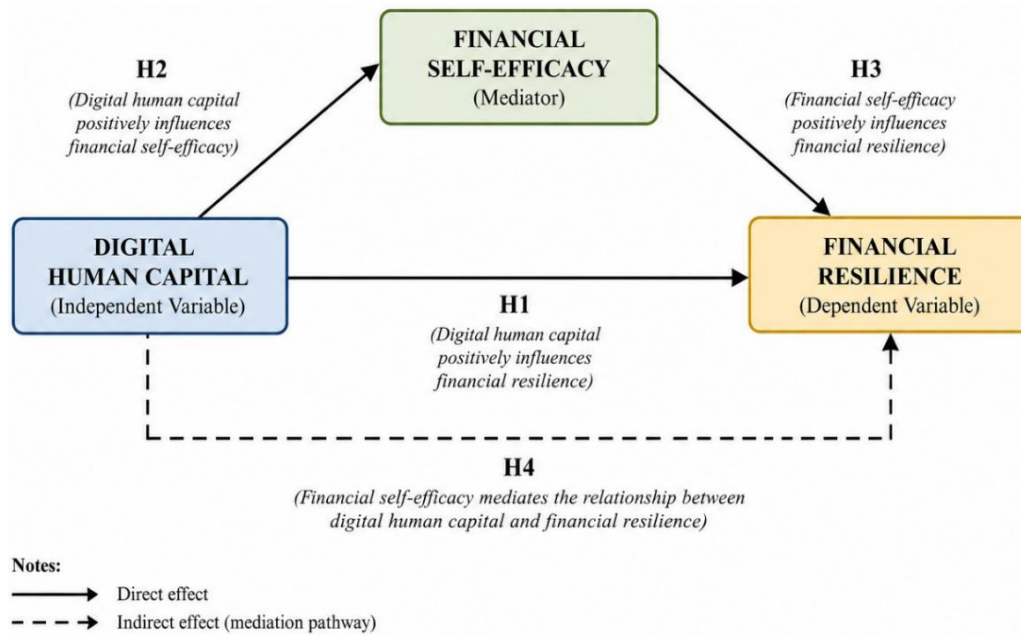
In the context of Eastern Indonesia, the issue of financial resilience is particularly pressing given that young people in this region continue to face limited economic access, uneven digital development, and low levels of financial inclusion. Consequently, strengthening individual capacity through the enhancement of digital human capital and financial self-efficacy is essential to fostering financial resilience among Generation Z.

2.5. Conceptual Framework

This study positions digital human capital as the independent variable, financial self-efficacy as the mediating variable, and financial resilience as the dependent variable. The research model is built on the assumption that digital capability influences financial resilience not only directly but also through the enhancement of individuals' confidence in their own financial capacities. Accordingly, financial self-efficacy is positioned as the psychological

mechanism that explains the process by which digital human capital is transformed into financial resilience among Generation Z in Eastern Indonesia.

Figure 1. Conceptual Framework of the Study



2.6 Research Hypotheses

- H1: Digital human capital exerts a positive and statistically significant influence on financial resilience among Generation Z in Eastern Indonesia.
- H2: Digital human capital exerts a positive and statistically significant influence on financial self-efficacy among Generation Z in Eastern Indonesia.
- H3: Financial self-efficacy exerts a positive and statistically significant influence on financial resilience among Generation Z in Eastern Indonesia.
- H4: Financial self-efficacy mediates the influence of digital human capital on financial resilience among Generation Z in Eastern Indonesia.

3. Methodology

3.1 Research Design

This study employs a quantitative approach with an explanatory design to analyze the causal relationships among digital human capital, financial self-efficacy, and financial resilience among Generation Z in Eastern Indonesia. Data were collected cross-sectionally through an online survey administered via Google Forms. The survey-based approach was selected as it aligns with the characteristics of Generation Z, who demonstrate high digital technology usage, and enables broad data collection across the geographically dispersed region of Papua and Eastern Indonesia. Data analysis was carried out using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 3. PLS-SEM was selected because it is well-suited for prediction-oriented research, capable of simultaneously analyzing relationships among latent constructs, testing mediation models, and exhibiting robustness with non-normally distributed data and moderate sample sizes (Hair et al., 2022). Furthermore, this approach is appropriate for model development research conducted in empirically underexplored contexts, such as Generation Z financial resilience in Eastern Indonesia.

3.2. Population and Sample

The study population comprises Generation Z individuals residing in or pursuing education in Eastern Indonesia, particularly Papua, who are actively engaged with digital technology. Purposive sampling was employed, with respondents required to meet the following criteria: (1) born between 1997 and 2012; (2) domiciled in Eastern Indonesia; (3) actively utilizing digital technology in daily activities; and (4) willing to complete the questionnaire in its entirety. Minimum sample size was determined using G*Power 3.1, with an effect size of 0.15, significance level of 5%, statistical power of 0.80, and three predictors (Faul et al., 2009). The calculation indicated a minimum requirement of 77 respondents. The study ultimately obtained 175 valid responses, surpassing the minimum threshold and deemed sufficient for PLS-SEM analysis. Although a non-probability sampling technique was employed, the purposive approach was justified by the study's specific targeting of Generation Z individuals with direct experience and engagement in digital technology use, rendering the sample appropriate for examining the inter-construct relationships under investigation.

3.3. Variable Measurement

This study encompasses three primary constructs: digital human capital (X), financial self-efficacy (Z), and financial resilience (Y). All indicators were assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Digital human capital was measured using six indicators reflecting the capacity to employ digital technology for productive activities, the ability to access and utilize digital information, literacy in digital platform usage, the application of technology to improve work efficiency, adaptability to emerging technologies, and the intensity of digital technology use for productive purposes. These indicators were developed drawing on (Bach et al., 2013; Huang & Song, 2026; Iordan et al., 2022; Nguyen et al., 2021).

Financial self-efficacy was measured using five indicators reflecting confidence in financial decision-making, the capacity to manage income and expenditure, self-assurance when confronting financial challenges, confidence in achieving financial goals, and the ability to engage in long-term financial planning. Measurement scales were adapted from (Hu et al., 2021; Netemeyer et al., 2018; Xiao & Porto, 2017). Financial resilience was assessed using six indicators encompassing the capacity to meet basic needs under economic stress, the availability of emergency funds, the ability to adjust financial management in deteriorating economic conditions, access to formal financial services, the capacity to maintain long-term financial stability, and social support in addressing financial difficulties. These indicators were developed from (Fan & Henager, 2022; Sakyi-Nyarko et al., 2022; Salignac et al., 2019). Prior to broad dissemination, the research instrument underwent a limited pilot test to ensure item clarity, contextual relevance, and respondent comprehension.

3.4 Data Analysis Technique

Data analysis was conducted in two stages in accordance with the PLS-SEM procedures outlined by (Hair et al., 2022) outer model evaluation and inner model evaluation. Outer model evaluation assessed construct validity and reliability through outer loadings (>0.70), Average Variance Extracted (AVE >0.50), Composite Reliability (>0.70), Cronbach's Alpha (>0.70), and discriminant validity using the Heterotrait-Monotrait Ratio (HTMT <0.90). Inner model evaluation assessed structural model quality using the Variance Inflation Factor (VIF <3.3), coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2).

Hypothesis testing was performed using bootstrapping with 5,000 subsamples. A one-tailed test was adopted given that all hypotheses were directionally specified based on theoretical foundations and prior empirical findings predicting positive relationships among constructs. Hypotheses were considered supported when t-statistics exceeded 1.645 and p-

values fell below 0.05. Mediation testing employed specific indirect effects analysis to evaluate financial self-efficacy's mediating role in the relationship between digital human capital and financial resilience.

To minimize the potential for common method bias, several procedural safeguards were implemented, including respondent anonymity, randomized item sequencing, and the use of concise, context-specific question wording. Collinearity assessment via full collinearity VIF yielded values below recommended thresholds, indicating that common method bias does not constitute a significant concern in this study. The research also adhered to ethical standards by ensuring that all respondent participation was voluntary, anonymous, and exclusively utilized for academic purposes.

4. Results and discussions

4.1 Respondent Characteristics

The study involved 175 Generation Z respondents residing in Eastern Indonesia. Respondent characteristics encompassed demographic attributes, digital activity patterns, and financial experience profiles. In general, respondents were predominantly from the early Generation Z age bracket with a relatively high degree of financial dependence, yet were already actively utilizing digital services and technology-based financial platforms.

Table 1. Demographic Profile of Respondents

Characteristic	Category	N	%
Age	17–20 years	94	53.7
	21–23 years	62	35.4
	24–26 years	11	6.3
	Outside this range	8	4.6
Gender	Female	125	71.4
	Male	50	28.6
Income/Allowance	< IDR 1,000,000	123	70.3
	IDR 1,100,000–IDR 3,000,000	36	20.6
	IDR 3,100,000–IDR 5,000,000	8	4.6
	> IDR 5,000,000	8	4.6
Income Source	Parents	128	73.1
	Salary	25	14.3
	Other	14	8.0
	Business income	8	4.6
Financial Dependents	No dependents	125	71.4
	Has dependents	50	28.6

The majority of respondents were aged between 17 and 23 years, with women comprising the predominant gender group. Most respondents reported monthly income below IDR 1,000,000 and remained financially reliant on parental support, indicating that the majority were still at an early stage of financial independence.

Table 2. Digital and Financial Characteristics of Respondents

Variable	Category	n	%
Internet Usage Duration	> 8 hours/day	61	34.9
	5.5–8 hours/day	51	29.1
	2.5–5 hours/day	39	22.3
	< 2 hours/day	24	13.7
Digital Activities*	Social media	163	93.1
	Learning	85	48.6
	Digital finance	39	22.3
	Working	27	15.4
	Business	16	9.1
Savings Ownership	Has savings	134	76.6
	No savings	41	23.4
Investment Experience	Has invested	67	38.3
	Has not invested	108	61.7
Digital Financial Platforms*	Mobile banking	127	72.6
	E-wallet	58	33.1
	Investment app	19	10.9
	Does not use platforms	31	17.7

**Note: Multiple responses allowed.*

Respondents demonstrated high internet usage intensity, with more than half using the internet for over five hours per day. Social media constituted the most dominant digital activity, followed by learning-related activities and digital financial service usage. The widespread adoption of mobile banking and e-wallets confirms respondents' integration into the digital financial ecosystem. The majority had savings accounts, although investment participation remained relatively limited.

Table 3. Types of Investment Instruments Used by Respondents

Investment Type*	n	%
Gold	54	80.6
Stocks	23	34.3
Mutual Funds	15	22.4
Cryptocurrency	8	11.9

Investment Type*	n	%
Bonds	4	6.0

**Note: Based on respondents who have invested (n = 67).*

Gold was the most frequently utilized investment instrument, followed by stocks and mutual funds. This finding reflects Generation Z's preference for investment vehicles perceived as relatively safe and readily accessible through digital platforms.

4.2 Outer Model Evaluation

4.2.1 Indicator Reliability (Outer Loadings)

Outer model evaluation commenced with the assessment of indicator reliability through outer loading values. According to (Hair et al., 2022), an indicator is deemed reliable when its loading value is ≥ 0.708 .

Table 4. Outer Loadings of Indicators

Construct	Ind.	Load.	Construct	Ind.	Load.	Construct	Ind.	Load.
Digital Human Capital (DHC)	X1	0.893	Financial Resilience (FR)	Y1	0.843	Financial Self-Efficacy (FSE)	Z1	0.898
	X2	0.850		Y2	0.806		Z2	0.877
	X3	0.831		Y3	0.857		Z3	0.863
	X4	0.901		Y4	0.822		Z4	0.842
	X5	0.888		Y5	0.872		Z5	0.844
	X6	0.884		Y6	0.710		-	-

All indicators across the three constructs recorded outer loading values exceeding 0.708, satisfying the indicator reliability criterion. Consequently, no indicators were required to be eliminated from the research model.

4.2.2 Internal Consistency Reliability and Convergent Validity

Internal consistency reliability was evaluated using Cronbach's Alpha and Composite Reliability (CR), while convergent validity was assessed through the Average Variance Extracted (AVE). (Hair et al., 2022) specify that $CR \geq 0.70$ and $AVE \geq 0.50$ are indicative of adequate reliability and convergent validity.

Table 5. Construct Reliability and Convergent Validity

Construct	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Digital Human Capital (DHC)	0.939	0.939	0.951	0.765
Financial Resilience (FR)	0.902	0.908	0.925	0.672
Financial Self-Efficacy (FSE)	0.916	0.917	0.937	0.748

All constructs yielded Cronbach's Alpha and Composite Reliability values exceeding 0.70, alongside AVE values surpassing 0.50. These results confirm that all constructs satisfy the criteria for internal consistency reliability and convergent validity.

4.2.3 Discriminant Validity (HTMT)

Discriminant validity was evaluated using the Heterotrait-Monotrait Ratio of Correlations (HTMT). (Hair et al., 2022) stipulate that HTMT values must remain below 0.85 for conceptually distinct constructs or below 0.90 for constructs sharing conceptual proximity.

Table 6. Heterotrait-Monotrait Ratio (HTMT)

Construct	DHC	FR	FSE
Digital Human Capital (DHC)	—	—	—
Financial Resilience (FR)	0.796	—	—
Financial Self-Efficacy (FSE)	0.784	0.926	—

HTMT values between DHC and FR and between DHC and FSE fell below the 0.85 threshold. The HTMT value between FSE and FR (0.926) marginally exceeded the 0.90 threshold; however, this remains acceptable given the conceptual proximity between these two constructs within the domain of individual psychological and financial behavior. Overall, the discriminant validity of the model is considered satisfactory.

4.3 Inner Model Evaluation

4.3.1 Collinearity Assessment and Predictive Relevance

Collinearity was assessed using the Variance Inflation Factor (VIF). (Hair et al., 2022) recommend VIF values below 3.3 to confirm the absence of collinearity issues among predictor constructs. Model predictive relevance was additionally evaluated using Q² values.

Table 7. Collinearity and Predictive Relevance Assessment

Assessment	Relationship	Value	Interpretation
VIF	DHC → FR	2.144	No collinearity issue
VIF	FSE → FR	2.144	No collinearity issue
VIF	DHC → FSE	1.000	No collinearity issue
Q ²	Financial Resilience (FR)	0.492	Predictive relevance confirmed
Q ²	Financial Self-Efficacy (FSE)	0.392	Predictive relevance confirmed

All VIF values remained below 3.3, confirming that the model is free from collinearity concerns. Additionally, Q² values for both endogenous constructs exceeded zero, demonstrating adequate predictive relevance of the model.

4.3.2 Coefficient of Determination (R²) and Effect Size (f²)

The coefficient of determination (R^2) quantifies the extent to which exogenous constructs account for variance in endogenous constructs, while effect size (f^2) assesses the relative contribution of individual predictor constructs to the structural model.

Table 8. Coefficient of Determination and Effect Size

Relationship / Construct	R^2	R^2 Adjusted	f^2	Interpretation
Financial Resilience (FR)	0.744	0.741	—	Strong
Financial Self-Efficacy (FSE)	0.534	0.531	—	Moderate
DHC → FR	—	—	0.116	Medium effect
DHC → FSE	—	—	1.144	Very large effect
FSE → FR	—	—	0.796	Large effect

An R^2 value of 0.744 indicates that Digital Human Capital and Financial Self-Efficacy collectively account for 74.4% of the variance in Financial Resilience. The R^2 value of 0.534 indicates that Digital Human Capital accounts for 53.4% of the variance in Financial Self-Efficacy. Effect size results indicate that the strongest influence is observed along the DHC-to-FSE pathway.

4.3.3 Hypothesis Testing

Hypothesis testing was conducted using bootstrapping with 5,000 subsamples, applying a one-tailed test with criteria of T-statistic ≥ 1.645 and p-value < 0.05 .

Table 9. Structural Model Results

Hypothesis	Relationship	β	T-Statistic	P-Value	Decision
H1	DHC → FR	0.253	3.706	0.000	Supported
H2	DHC → FSE	0.731	16.071	0.000	Supported
H3	FSE → FR	0.661	11.124	0.000	Supported

All direct relationships in the model yielded statistically significant results. The most pronounced effect was found along the path from Digital Human Capital to Financial Self-Efficacy ($\beta = 0.731$), indicating that digital competence makes a substantial contribution to enhancing Generation Z's financial self-confidence.

4.3.4 Mediation Effect Testing

Mediation testing was performed through specific indirect effects analysis employing bootstrapping procedures.

Table 10. Mediation Effect Testing

Hypothesis	Mediation Path	Indirect Effect	T-Statistic	P-Value	Decision
H4	DHC → FSE → FR	0.483	8.547	0.000	Supported

The results indicate that Financial Self-Efficacy partially mediates the relationship between Digital Human Capital and Financial Resilience. The direct effect of Digital Human Capital on Financial Resilience remained statistically significant following the inclusion of the mediator, establishing the mediation type as partial mediation.

4.4 Discussion

4.4.1 The Influence of Digital Human Capital on Financial Resilience

The findings demonstrate that digital human capital exerts a positive and statistically significant influence on financial resilience among Generation Z in Eastern Indonesia. This result affirms that in a region characterized by limited formal economic access, digital capabilities have evolved into a strategic resource enabling young people to sustain financial stability amid economic uncertainty. In the context of Papua and Eastern Indonesia, financial resilience is not determined solely by income levels but, critically, by individuals' capacity to employ digital technology for accessing alternative economic opportunities. Generation Z individuals with stronger digital human capital demonstrate a greater tendency to utilize mobile banking, digital wallets, online marketplaces, social media, and digital work platforms to supplement their income, manage transactions, and access financial information promptly, suggesting that digital capability operates as an economic adaptation mechanism in contexts with restricted formal economic access.

These findings indicate that digital transformation has fundamentally reshaped the formation of financial resilience among young people. Whereas financial resilience was historically associated with the possession of conventional economic assets, digital ecosystem access and utilization have begun to emerge as principal determinants for Generation Z. This is consistent with (Bach et al., 2013), who identify digital human capital as a crucial form of capital for participation in the digital economy. The findings also reinforce (Sabri et al., 2026), who found that digital capability and financial technology literacy contribute to the strengthening of financial resilience. However, this study offers a contextual contribution by demonstrating that such influence remains robust in peripheral regions where digital development is less advanced than in urban centers, suggesting that digital human capital fulfills a compensatory function vis-à-vis regional structural economic limitations.

The high rates of internet use and mobile banking adoption observed in this study point to a behavioral shift among Generation Z toward digital-based financial behavior, consistent with (Başar et al., 2025), who explained that financial technology adoption enhances saving behaviors and individual economic capacity. In this study, digital technology does not merely improve transactional efficiency but also extends respondents' capacity to anticipate and manage financial risks. Theoretically, these results advance Human Capital Theory (Becker, 1964) by demonstrating that in the digital economy, human capital is no longer confined to formal education and conventional occupational skills but extends to encompass adaptive digital technological competencies that directly bear on individuals' capacity to sustain their financial stability.

4.4.2 The Influence of Digital Human Capital on Financial Self-Efficacy

This study establishes that digital human capital exerts a positive and statistically significant influence on financial self-efficacy, indicating that digital capability not only expands access to technology but also cultivates individuals' confidence in managing their financial circumstances. Individuals with stronger digital capabilities tend to be more accustomed to accessing financial information, comparing financial products, using financial management applications, and comprehending digital investment opportunities. These

experiences foster a perception that they are capable of making independent financial decisions, suggesting that digital human capital generates not only technical competence but also psychological empowerment in financial management.

In the context of this study, financial self-efficacy is formed not primarily through income level or formal education but through digital interaction experiences that progressively enhance financial self-confidence. This is particularly significant given that the majority of respondents were still in the early stages of economic independence. When individuals are able to independently understand and utilize digital financial services, they tend to feel better prepared to withstand economic pressures. This supports (Harrison et al., 2026), who found that access to financial information influences the formation of financial self-confidence among young people, while demonstrating that access alone is insufficient more decisive is individuals' capacity to process and translate digital information into concrete financial decisions. The findings further reinforce (Leong & Cheng, 2025), who explain that digital learning and exposure can strengthen financial confidence among young people.

Furthermore, the findings suggest that the digital divide does not merely affect access to technology but also impairs the formation of economic self-belief among young people. Individuals with lower digital human capital risk experiencing hesitancy in financial decision-making due to restricted information access and limited comprehension of digital financial services. These results carry important psychological implications, underscoring that strengthening digital human capital is essential to building financial self-efficacy among Generation Z in Eastern Indonesia.

4.4.3 The Influence of Financial Self-Efficacy on Financial Resilience

The findings establish that financial self-efficacy exerts a positive and statistically significant influence on financial resilience, suggesting that the capacity to withstand financial adversity is shaped not only by objective economic conditions but also by individuals' confidence in their ability to manage financial situations. For Generation Z in Eastern Indonesia, financial self-efficacy is a particularly important factor given the multifaceted economic pressures confronted by this cohort, including limited formal employment opportunities, elevated living costs, and income instability during early productive years. Under these conditions, individuals with higher financial self-efficacy tend to demonstrate greater capacity to control expenditure, establish financial priorities, and identify alternative solutions when facing economic stress.

These findings indicate that financial resilience among young people is shaped more substantially by adaptive financial behavior than by income level alone. Individuals with high self-efficacy demonstrate stronger financial management discipline, greater willingness to make financial decisions, and greater preparedness to confront economic risks, while those with low self-efficacy are more susceptible to financial stress and diminished financial stability. The findings support (Hu et al., 2021), who found that financial self-efficacy is closely associated with financial management quality and life satisfaction, and (Ahmad, 2025), who positions financial self-efficacy as a primary psychological mechanism in financial behavior formation. This study adds a further contribution by demonstrating that the role of financial self-efficacy is particularly pronounced among young people in regions characterized by elevated economic uncertainty, consistent with (Fan & Henager, 2022), who affirm that psychological factors are important determinants of financial well-being and resilience.

4.4.4 The Mediating Role of Financial Self-Efficacy in the Relationship Between Digital Human Capital and Financial Resilience

The findings confirm that financial self-efficacy mediates the relationship between digital human capital and financial resilience, constituting the primary contribution of this study by demonstrating that the influence of digital human capital on financial resilience operates not exclusively through direct pathways but through a psychological process involving the formation of financial self-confidence. In the context of Generation Z in Eastern Indonesia, access to the internet and digital services does not automatically produce financial resilience. The key differentiating factor lies in individuals' capacity to develop financial self-efficacy through digital technology use experiences. When individuals are able to employ technology to access financial information, comprehend digital financial services, conduct transactions, or discover new economic opportunities, these experiences cultivate the belief that they can exercise control over their financial circumstances. This conviction, in turn, drives the formation of more adaptive and resilient financial behaviors.

These findings reinforce (Bandura, 1986) Social Cognitive Theory, which posits that individual competencies will translate into actual behavior when accompanied by self-belief. In this study, digital human capital functions as a source of experience and learning, while financial self-efficacy serves as the psychological mechanism that transforms this competence into financial resilience. The results also reinforce (Xiao & Porto, 2017), who demonstrate that financial capability is shaped not solely by literacy or financial knowledge but also by individuals' psychological dimension, and (Edwar et al., 2026), who show that psychological factors significantly influence the relationship between digital conditions and Generation Z's financial behavior in Indonesia.

Furthermore, this study provides empirical contributions given that much of the prior literature has been conducted in developed-country or urban contexts with more established digital infrastructure. The findings demonstrate that, even in peripheral regions such as Papua and Eastern Indonesia, strengthening digital human capital can enhance financial resilience, but its effectiveness is critically contingent on the capacity to build financial self-efficacy among young people. This implies that digital capacity-building programs for Generation Z must extend beyond technical training in technology use to encompass the cultivation of financial self-confidence, the ability to make autonomous economic decisions, and the courage to leverage digital technology for productive activities. Accordingly, digital ecosystem development in Eastern Indonesia should aim not only to produce a technologically connected society but to forge a younger generation equipped with both the psychological and financial capacity to persevere amid economic uncertainty.

5. Conclusion

This study demonstrates that digital human capital plays a significant role in strengthening the financial resilience of Generation Z in Eastern Indonesia, both directly and through financial self-efficacy as a mediating variable. Individuals with stronger digital competencies tend to possess greater confidence in financial management, enabling them to better maintain financial stability and adapt to economic pressures. All research hypotheses were supported. Digital human capital exerted a significant influence on both financial resilience and financial self-efficacy, while financial self-efficacy also significantly predicted financial resilience. These results indicate that digital capability functions not only as a technical resource but also as a psychological determinant that reinforces individuals' confidence in financial decision-making.

Mediation analysis demonstrates that financial self-efficacy partially mediates the relationship between digital human capital and financial resilience, indicating that digital capability does not automatically generate financial resilience in the absence of self-belief

when confronting economic challenges. Accordingly, financial resilience emerges from the combination of digital competence and individuals' conviction in their own financial capacity.

Theoretically, this study advances Human Capital Theory and Social Cognitive Theory by integrating digital competence and psychological mechanisms in the formation of Generation Z's financial resilience. It also enriches the literature on financial resilience in peripheral regions such as Eastern Indonesia and Papua, which continue to face digital inequality and economic vulnerability. Practically, the findings indicate that strengthening youth financial resilience cannot be achieved through conventional financial literacy alone. Governments, educational institutions, and financial service providers need to develop integrated programs that simultaneously enhance digital competence and fortify financial self-efficacy through digital financial education, financial technology training, and financial mentoring tailored to the socioeconomic realities of Generation Z in Eastern Indonesia.

This study is subject to several limitations, including its cross-sectional design, geographic focus restricted to Eastern Indonesia, and reliance on self-reported data, which may introduce subjective bias. Future research is encouraged to adopt longitudinal approaches, expand geographic coverage, and examine additional psychological and behavioral variables such as financial anxiety, digital trust, financial well-being, or financial behavior. Overall, this study affirms that strengthening the financial resilience of Generation Z requires a multidimensional approach that integrates digital competence and psychological empowerment. In an era of digital transformation and economic uncertainty, financial resilience is determined not solely by economic resources but equally by individuals' capacity and conviction to navigate the digital financial ecosystem effectively.

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APPLICATION OF THE BALANCED SCORECARD IN A SNACK BAR SERVING UNIVERSITY STUDENTS

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Abstract

Small businesses in the food service sector operate in highly competitive environments, particularly those focused on specific customer segments such as university students. Factors including service speed, product quality, affordable prices, and customer satisfaction play a critical role in ensuring long-term competitiveness and sustainability. In this context, strategic management tools can support decision-making and improve organizational performance.

Keywords: Balanced Scorecard; strategy; performance indicators; snack bar; management

AI ADOPTION IN SMES: ORGANIZATIONAL RESISTANCE AND RESILIENCE IN ENTREPRENEURIAL FIRMS

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Abstract

Much of the existing research focuses on AI adoption in large firms, but SMEs present a very different context. Adoption rates often remain below 25%, compared to over 60% in large firms. Small firms do not have the budget, the technical staff, or the flexibility to experiment freely with new technologies.

This paper examines what happens when a small company attempts to adopt AI. The study is based on a case study of a micro-sized Swedish IT consultancy, using interviews, a workshop, and on-site observation over several months. From this, the research develops the SME AI Adoption Resilience Model (SAARM). The model consists of three dimensions: the types of resistance observed (such as fear of job loss, mistrust, and perceived complexity), the strategies that help overcome resistance (including phased rollouts, pilot testing, and peer-led demonstrations), and the conditions under which resilience emerges as adoption becomes integrated into organizational practices.

The findings highlight a feedback loop in the adoption process: when managers hesitate, employees become more skeptical, and this skepticism reinforces managerial hesitation. The study also identifies a pattern described as passive disengagement, where employees do not openly resist change but gradually withdraw from engagement. Successful adoption strategies tend to be incremental and bottom-up, including task segmentation, hands-on experimentation, and the influence of informal organizational champions.

The paper contributes by providing a framework tailored to SMEs and highlights that AI adoption is not primarily a technological challenge, but an organizational one. The findings offer practical insights for managers and policymakers seeking to support digital transformation in resource-constrained environments.

Keywords: AI adoption; SMEs; SAARM; organizational resistance; resilience

BEYOND THE MARGINS: ARTIST EMPOWERMENT IN SOUTH ASIA BARRIERS, PATHWAYS, AND A MULTILEVEL CONCEPTUAL MODEL

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Abstract

The empowerment of artists in South Asian countries including Pakistan, India, Bangladesh, Nepal, and Sri Lanka remains critically understudied despite the profound cultural, economic, and social significance of the region's artistic traditions. Whether it's a classical calligraphy, miniature painting, folk weaving, puppetry, classical music or digital art, South Asian artists are working within a complex socio-political environment of structural exclusion, economic precarity and institutional neglect. This conceptual-theoretical paper brings together interdisciplinary literature to propose a multilevel framework of the Artist Empowerment Model for South Asia (AEM-SA), which explains the barriers to artists' empowerment at macro, meso, and micro levels, identifies typologies of empowerment economic, social, political, institutional, digital and psychological and maps them. Based on theory from the creative economy, post-colonial studies, feminist cultural theory, social capital theory, psychological empowerment theory and institutional theories, this paper presents an integrated conceptual model and a detailed conceptual framework that proposes some propositions for future empirical research. The results of the study have important implications for cultural policy, arts education, development studies and international organisations dealing with the synergy between culture and sustainable development.

Keywords: artist empowerment, South Asia, creative economy, calligraphy, cultural policy, barriers to empowerment, multilevel model, traditional arts, Pakistan, India, post-colonial cultural studies

1. INTRODUCTION

South Asia is the region that has the world's oldest and most varied artistic tradition. Artisans in the region, including calligraphers of Lahore, Dhaka who write sacred texts in flowing Nastaliq script, street performers of Kathmandu and dancers of Colombo, or weavers of Varanasi, Rajasthan who know and carry centuries of craft knowledge in their hands, are irreplaceable repositories of human cultural heritage. However, these are the same artists who may be in the middle of the greatest economic insecurity, social isolation, and institutional invisibility. Empowerment has been a much discussed subject in development studies with women, rural communities and ethnic minorities, as well as small entrepreneurs given special attention (Kabeer, 1999; Sen, 1999; Rowlands, 1997). Social-Professional category of artists, however, has been comparatively less systematically discussed, especially in the context of the South Asia. This is remarkable because the creative economy, as Howkins (2001) and UNCTAD (2010) have said, is a human rights issue and an economic opportunity, especially for the developing world, which is rich in cultural assets. This paper puts forward a paradox: in spite of South Asia's impressive artistic richness materialized in handicrafts, performing arts, visual culture and architecture, the people creating, maintaining and passing on South Asian heritage are among the least economically and socially empowered sectors of society. What is the reason behind this paradox? How do structural, institutional and psychological mechanisms contribute to artist disempowerment? So what could be the paths, theoretically, towards meaningful artist empowerment? In this paper, I make four contributions to the answers to

these questions. First, it collates previous literature from various fields' development economics, cultural policy, creative economy studies, sociology, and psychology to describe the current situation of the empowerment of artists in South Asia. Second, it creates a typology of the different kinds of artist empowerment as applicable to the South Asian context. Third, it identifies and documents barriers to empowerment at macro, meso and micro levels systematically. Forth, it suggests an integrated conceptual model (AEM-SA) and a conceptual framework with formal propositions as a basis for future empirical studies.

This paper is specifically on South Asia as denoted by the South Asian Association for Regional Cooperation (SAARC) Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. The primary cases are Pakistan, India, Bangladesh and Nepal, for these countries have the largest body of literature on artist communities. The paper covers traditional/folk artists (such as calligraphists, weavers, miniaturists, folk musicians, puppeteers) as well as contemporary artists (such as visual artists, digital artists, and independent film makers). The paper does not consider the commercial entertainment industries (Bollywood, pop music) because they have significantly different market conditions.

Paper Organization Section 2 provides a review of the theory. Section 3 defines types of artists from South Asia. The empowerment typology is developed in Section 4. The barriers are analyzed systematically in Section 5. In Section 6, the conceptual model and conceptual diagram of AEM-SA are presented. Conceptual framework with propositions provided in Section 7. Section 8 discusses implications. Section 9 concludes.

2. THEORETICAL FOUNDATIONS

This paper draws on six different theoretical traditions, and asserts that no single theory is able to explain disempowerment of artists in South Asia. A multi-disciplinary synthesis is required. 2.1 Creative Economy Theory Howkins (2001) used a definition of the creative economy as the group of industries where creativity is the main resource used and intellectual property is the main product produced. In 2010, UNCTAD extended this to include cultural and creative industries as "development vectors" for the Global South. Florida (2002) contended that creativity is the key to economic growth in the 21st century. But critics, such as Pratt (2008) and Oakley (2009), pointed out that a creative economy system tends to favour high technology creative professions and miss the more traditional and artisanal creative professions, which is exactly what the dominant type of artists in the South Asia are.

Post-Colonial Cultural Theory Said's (1978) initial work on Orientalism set the baseline for the understanding of the self-image of colonized peoples and the products of their culture in a distorted manner. Bhaba (1994) and Spivak (1988), however, further developed the idea of the persistence of the colonial legacy in cultural institutions in the postcolonial world. In the context of South Asians, post-colonial theory has helped illuminate the "craft" vs. "art" dichotomy and the exclusion of artists from the colonial era's administration framework and the subsequent professionalization of the art world (Appadurai, 1996; Cohn, 1996). Contemporary cultural policy has only partially overcome the colonial stratification of indigenous knowledge that occurred when cultural work was devalued.

Social Capital Theory Bourdieu (1986) identified three types of capital: economic, cultural and social, which he believed could be translated into economic gain through the use of social networks and other forms of social capital. Putnam (2000) made another distinction between bonding social capital, social capital within, and bridging social capital, social capital across groups. South Asian artists have generally low levels of solidarity, or bonding social

capital, among themselves, and bridging social capital with markets, policy makers and institutions, which sustains their marginalisation (Throsby, 2010).

Feminist Cultural Theory Mirza (1997), hooks (1994) and Gangoli (2007) are a few feminist scholars who have noted that gender overlaps with class and caste as well as ethnicity and creates compounded disadvantages for women in cultural production. In the South Asian context, women artists are confronted with the dual burden of the norms associated with male identity which limit their mobility and engagement in public cultural life, and the economic context whereby the feminized artistic work is devalued on a system level (Kalpagam, 2008). Women's involvement in household and community-based creation of art is largely invisible and invisible, and women calligraphers, weavers, embroiderers and folk singers are paid less for the same work done by their male counterparts.

Psychological Empowerment Theory Zimmerman (1990, 1995) considered psychological empowerment as having an intrapersonal (self-efficacy, perceived control), an interactional (critical awareness, skills) and a behavioral (community participation, coping) dimension. Thomas and Velthouse (1990) determined four cognitive dimensions of psychological empowerment: impact, competence, meaningfulness, and choice. The psychological challenge is internal oppression, that is, the perception of marginalisation as normal and natural, for artists from the South Asian community. Thus for any model of artist empowerment, Freire's (1970) idea of a 'critical awakening' to one's structural conditions is central.

According to DiMaggio and Powell (1983), organizations undergo the process of institutional isomorphism through coercive, mimetic and normative processes. North (1990) separated formal and informal institutions (laws, regulations and norms, customs) and claimed that institutional change is slow and path dependent. Weak formal institutions (the absence of copyright enforcement, the lack of artist welfare legislation) and restrictive informal institutions (social norms against artistic professions, caste hierarchy) form a hostile institutional environment for artistic empowerment for artists from South Asia. A good framework for identifying particular institutional failures is Scott's three pillars of institutionalism: regulative, normative, and cognitive (1995).

3. ARTIST TYPES IN SOUTH ASIA: A TYPOLOGICAL OVERVIEW

South Asian artistic traditions encompass an extraordinary range of forms. For the purposes of systematic analysis, this paper proposes a four-category typology based on medium, tradition, and market orientation.

Traditional arts include arts with long histories that go back through several centuries, and are frequently supported through patronage systems of religious, royal, and community establishments. Key categories include: Calligraphy: Islamic calligraphy in Pakistan & Bangladesh (Nastaliq, Thuluth, Naskh scripts) and Hindu Sanskrit calligraphy in India & Nepal. Religious texts, architectural inscriptions, and decorative art are the products of calligraphers, who produce them in Lahore, where masters of Nastaliq calligraphy have continued this tradition since the period of Mughals' patronage, but most of the contemporary calligraphers are unable to earn a living wage (Ali, 2019). Miniature Painting: The Mughal and the Rajput miniature painting traditions are highly skilled traditional art forms, which take many years of training in fine brush technique, preparation of natural pigments and compositional vocabulary to learn. The Lahore school of miniature paintings, taught in the National College of Arts is a fine example of the miniature painting traditions. Artisanal textile traditions of global cultural significance whose practice is often carried out by people living

below the poverty line include block printing in Sindh, Jamdani weaving in Bangladesh (inscribed on the UNESCO Intangible Cultural Heritage list), Kantha embroidery in West Bengal, and Pashmina weaving in Kashmir. Specific communities have traditions of folk and tribal arts, such as Madhubani painting in Bihar, Warli art in Maharashtra and Thangka painting in Nepal and Bhutan, with the arts being a part of their artistic identity as well as their broader cultural and social identity.

The arts of South Asia are one of the most rich and abundant in the world: In India, Pakistan and Bangladesh, classical music traditions that are known as Hindustani or Carnatic are taught in years of guru-shishya (master-apprentice) training. Outside of celebrity musicians, the incomes of the professional classical musicians are precarious. Classical Dance: Bharatanatyam, Kathak, Odissi, Manipuri, Kuchipudi are these types of dance forms which need 10 years or more of training. Classical dancers especially women have been dealing with the social stigma of devadasis (temple dancers) history. The most democratic and the most economically tenuous of the performing traditions are folk and street performance: Khayal, Qawwali, Baul music in Bangladesh, Jatra folk theatre in Bengal, Nautanki in Uttar Pradesh, Kathakali storytelling. The traditional folk art forms such as puppetry are under great threat from changing media of entertainment, including string puppetry (Kathputli of Rajasthan), shadow puppetry (Tolu Bommalata of Andhra Pradesh) and rod puppetry (Putul Nach of Bengal).

3.3 Contemporary and Hybrid Arts There is an emerging group of SA artists producing contemporary and hybrid works: Visual Art: Gallery contemporary painters, sculptors, installation artists and photographers. There is a commercial market in this sector in India and Pakistan, albeit small, based in Mumbai, Delhi, Lahore and Karachi. Digital Arts: Digital illustration, graphic design, motion graphics and digital calligraphy. Today's younger generation of artists from South Asia are using platforms such as Instagram and Behance to tap into international markets, however, platform algorithms and payment infrastructure challenges still pose a formidable barrier.

· Independent Cinema: Independent film makers across the region are heavily under-resourced, have restricted distribution and are struggling with censorship issues.

3.4 Artisanal/Craft Workers Craft workers, who form the largest group in terms of numbers, are frequently found to have a position somewhere between the artist and the industrial worker. The artisans of villages such as those of potters in Gujarat and Punjab, brass and bronze casters in Moradabad, gem cutters in Jaipur, and leather workers around the country make culturally rich products but often go unnoticed by export middlemen with the recognition and remuneration that their skills deserve (Kumar, 2016).

4. ARTIST EMPOWERMENT: A MULTIDIMENSIONAL TYPOLOGY

Based on the theoretical underpinnings developed in Section 2, the paper makes the case for artist empowerment in the South Asian context being a multidimensional phenomenon with at least six dimensions that are interrelated. The discussion that follows offers a definition of each dimension and a few examples of its applicability to South Asian artists.

Economic empowerment is the ability of the artists to sustain fairly, earn from creative activities and possess and claim intellectual property rights to their artistic work, and to have access to markets and financial services. Economic disempowerment is likely the artist's most pressing concern as a South Asian. Bhatt (2006), Kumar (2016) and International Labour Organization (ILO, 2017) have found that most of the traditional artisans and folk performers in India, Pakistan and Bangladesh work below the minimum wage. There are three ways of economic disempowerment: 1) lack of intellectual property rights means that mass producers can copy, and industrially produce traditional designs without paying any remuneration to the designer; 2) when the artist is working in a handicraft export sector, long value chains enable

middlemen to enjoy a major share of the value; 3) when the artist is working in a non-formal contract context, no social security system and no formal employment contract means that, in the event of illness, old age or downturns in the market, the artist is exposed and does not earn any income.

Social empowerment means the ability of artists to assert their dignity, recognition and respect in their community and in society as a whole. Social disempowerment in South Asia is related with the colonial stigma attached to some artistic professions (especially the performing arts) and the caste-based hierarchy that is related to various crafts and low caste communities. Historical conditions of discrimination faced by female classical dancers, the affiliation of some folk music genres with low social status, and the designation of 'craftspeople' instead of 'artists' for artisans all contribute to the lack of recognition given to the artists whose skills deserve it (Kersenboom, 1987; Srinivasan, 1985).

Political empowerment is the ability of artists to participate in cultural policies, to be represented in decision-making bodies and to collectively advocate for their rights. South Asian artists are virtually missing from cultural policymaking processes. The cultural ministries and the artist communities in Pakistan, India and Bangladesh are hardly artistically inclined, and do not have significant lobbying power among the civil servants. There are no artist unions which function in a normal way (there are some in India but they are weak, almost non-existent in Pakistan and Bangladesh) which means that artists have no collective voice in the negotiations of wages, copyright policy, cultural heritage management decisions, etc. (Wyszomirski, 2002).

Institutional empowerment is the existence of well-functioning institutions, such as educational institutions, professional associations, legal aid centers and government bodies, that actively promote systematic support for the professional development and rights protection of artists. The institutional landscape in South Asia is characterized by a number of deficits: little investment in the arts education system, pedagogical problems in art education, weak copyright laws, weak and fragmented professional arts associations, and a lack of support for working artists by government cultural institutions, which tend to focus on high-profile events over more structural support (Ashworth & Tunbridge, 2017).

Digital empowerment is the ability of artists to use digital technologies, platforms and networks to create, distribute, market and make money from their work. South Asian artists face immense opportunities and big challenges in the digital revolution. Opportunities include the possibility of selling products around the world via e-commerce channels, the capacity to directly target consumers through social media platforms, and the access to digital technologies, which can improve the quality of traditional art forms (such as combining traditional Nastaliq letterforms with more modern graphic design). Barriers include lack of access to devices and reliable internet connections in rural areas, where many of the traditional artists live, lack of digital literacy, language barriers on predominantly English-language platforms, and payment infrastructure gaps which make it difficult to receive payments from abroad (UNESCO, 2013; Lacy, 2014).

Based on Zimmerman (1990) and Spreitzer (1995), psychological empowerment is the internalization of agency, self-efficacy and the perception of value of one's work and the right to fair treatment in the domain of the artist. Economic marginalisation and social stigma, as experienced in other contexts, have been found to create internal oppression, that is, the marginalised groups internalise the devaluation of their work or contribution as a natural or inevitable process (Freire, 1970; hooks, 1994). Internal devaluation of artists' skills by artists

from traditional craft communities, especially South Asian artists, has been identified as a significant barrier to their empowerment that needs to be overcome in addition to structural changes through education and peer networks and consciousness raising.

5. BARRIERS TO ARTIST EMPOWERMENT IN SOUTH ASIA

This section aims at systematically outlining barriers to artist empowerment at three analysis levels: macro (societal/structural); meso (institutional/organizational); micro (individual/psychological). This multilevel approach is based on Bronfenbrenner's (1979) ecological systems theory and consistent with multilevel approaches in empowerment research (Cattaneo & Chapman, 2010).

Table 1: Multilevel Barrier Framework for Artist Empowerment in South Asia

Level	Category	Specific Barrier
Macro	Economic	Absence of public arts funding; no social security for artists; poverty cycles
Macro	Political	Colonial-era policies not reformed; arts marginalized in national budgets
Macro	Cultural	Stigmatization of artist profession; patriarchal norms limiting women artists
Meso	Institutional	Weak copyright enforcement; lack of artist unions; poor art education infrastructure
Meso	Market	Middlemen exploitation; no standardized pricing; counterfeit products hurting artisans
Meso	Social	Caste-based discrimination against traditional artisans; urban-rural divide
Micro	Individual	Low literacy; limited digital skills; lack of business knowledge among artists
Micro	Psychological	Internalized oppression; low self-efficacy; fear of market competition

Macro level barriers are those that exist at a structural level in the economic, political and cultural context that limit the empowerment of artists whether they are working individually or through institutions, irrespective of their efforts. Colonial Legacy: The ongoing macro-level obstacle is the colonial restructuring of cultural production along with its institutional legacy. British colonial administration 'abolished' patronage networks (royal courts, religious institutions, aristocratic households) that had supported artists for centuries, and simultaneously established a fine arts/crafts (European/indigenous, artisanal) dichotomy in cultural institutions that have survived into the post-colonial era (Mitter, 1994; Guha-Thakurta, 1992). These colonial hierarchies were largely reproduced in post-independence cultural policies of the countries of India, Pakistan and Bangladesh, giving a disproportionate importance to the institutions of Western art and the folk and traditional art ecosystems. Multiple Market Failures: South Asian creative markets suffer from several market failures. Because of cultural production's characteristics, the private market produces less art than is socially desirable. The information asymmetries enable buyers to take advantage of the artist's lack of knowledge of the market prices. Lack of quality certification makes it challenging for consumers to differentiate authentic traditional crafts from mass produced ones and thus undermines prices for authentic crafts (Caves, 2000, Towse, 2010). Gender and Caste Structures: Women artists' mobility, access to the market, and professional status are restricted by patriarchal norms in South Asia. Social attitudes against artisans from traditionally low-caste community's remains culturally entrenched as a result of caste hierarchy, which has an impact on their social networks, education, and access to credit (Jodhka, 2016).

Meso-level barriers include institutional and organisational inadequacies that hinder the ability of the institutional environment to support artists even if the macro-level environment may allow this. Insufficient Copyright Infrastructure: Copyright laws are in place in all SAARC countries, but their implementation is very weak. The courts are already overloaded, legal fees are expensive and unaffordable for unskilled artists, there is not enough legal knowledge about cultural property law, and copyright cases can last for decades (Chaudhri, 2015). The result is that old-fashioned designs, folk music recordings and artisanal techniques are freely copied by the commercial sector with virtual impunity. Poorly funded and marginalized Arts Education: Arts education in South Asia is always underfunded and underutilized. Art teachers are among the lowest paid in a school system, arts subjects are often cut in times of budget restraint and there are fewer higher arts education institutions which are more concentrated in major urban areas, effectively excluding rural artists (Deane, 2014). Most importantly, art education doesn't cover business skills, IP literacy, or digital skills. Unfortunately, graduates lack any preparation for professional life in art education, which doesn't include business skills, IP literacy, or digital skills. Handicraft export industries, where the sum of the values of the exporter, wholesaler and retailer, dominates the value created by the artisan-producers, exploit the artisans by paying them subsistence wages in India, Pakistan and Bangladesh. Research on the South Asian handicraft industry has in all cases revealed that the artisans receive between 5–15% of the final retail price of their products (Kumar, 2016; Bhatt, 2006). 5.3 Micro-Level Barriers Micro-level barriers are individual attributes and circumstances that stand in the way of certain artists gaining from empowerment opportunities even when the structural conditions are conducive to empowerment. Skills and Literacy Gaps: A lack of formal education among many traditional artisans in South Asia impacts their ability to understand bureaucratic processes, obtain credit, connect with foreign buyers, and access digital tools. The time inculcated to master the conventional art works, which for calligraphy in Pakistan is usually ten to fifteen years, is often sacrificed for education (Ali, 2019). A major micro-level barrier is psychological barriers represented by the acceptance of low status and economic insecurity. Artists who do not think that the market and institutions will pay them fairly, or who are not confident in their ability to

navigate them, will not seek empowerment opportunities if they are available. The results are consistent across a number of qualitative research studies conducted with artisans from South Asian communities (Bhatt, 2006; Misra, 2011) which have found that the self-efficacy towards business and advocacy activities is low.

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6. THE ARTIST EMPOWERMENT MODEL FOR SOUTH ASIA (AEM-SA)

Based on the theoretical foundations and above barrier analysis, the Artist Empowerment Model for South Asia (AEM-SA) is presented. Conceptual model for artist empowerment is a multidimensional, multilevel conceptual model that incorporates structural, institutional and individual determinants of artist empowerment and centers on South Asian contexts and conditions.

The AEM-SA is based on the premise that the interaction of these forces at macro, meso and micro level, within six dimensions of empowerment, determines artist empowerment in South Asia. The model is dynamic – empowerment at one level and dimension can in turn trigger empowerment at other levels and dimensions; barriers at one level can inhibit empowerment potential at other levels and dimensions. The model also includes feedback loops: economically empowered artists can invest in their own psychological empowerment and institutional strengthening; artist communities institutionally empowered can question the macro-level policy environments.

Conceptual Diagram

Figure 1: The Artist Empowerment Model for South Asia (AEM-SA) — Multilevel Conceptual Diagram

ARTIST EMPOWERMENT MODEL IN SOUTH ASIA (AEM-SA)		
MACRO-LEVEL BARRIERS		
Colonial Legacy & Cultural Policy Deficits	Market Failures & Absent Legal Infrastructure	Gender & Caste-Based Exclusion
▼ FILTER THROUGH MESO-LEVEL INSTITUTIONS ▼		

NGOs / Cultural Orgs	Educational Institutions	Government Schemes & Policies
▼ IMPACT ON MICRO-LEVEL ARTIST ▼		
ARTIST TYPES IN SOUTH ASIA		
Traditional Arts: Calligraphy, Miniature, Block Printing, Weaving	Performing Arts: Music, Dance, Theatre, Puppetry	Contemporary Arts: Digital, Installation, Street Art, Film
EMPOWERMENT PATHWAYS		
Economic Empowerment: Fair Pay, IP Rights, Market Access	Social Empowerment: Recognition, Community, Gender Equity	Institutional Empowerment: Policy Reform, Education, Digital Tools
▼ OUTCOMES ▼		
Cultural Preservation & Identity	Sustainable Artist Livelihoods	Creative Economy Growth

Note: The AEM-SA integrates macro-level structural conditions, meso-level institutional mediators, and micro-level artist characteristics within a multilevel empowerment framework. Arrows indicate directional influence; feedback loops are implicit in the dynamic model.

6.3 Key Relationships in the Model

The AEM-SA has identified 5 major theoretical relationships as follows: First, the macro level structures limit the meso level institutional possibilities. In fact, artists' cultural policies that ignore artists will restrict the ability of culture organisations to achieve whatever they want, whatever their capacities. The forms and priorities of organizations remain shaped by colonial legacies that affect traditional artists' abilities to access them. Second, the relationship between macro-level structures and micro-level artists is mediated by meso-level institutions. Artists will be impacted by the same structural conditions in different ways if functional institutions are present to buffer, translate, or amplify the structural impact. The organized artist can be protected from the market failures which can cause devastation to the unorganized artist, by means of a strong artist cooperative. Third, in terms of the effects of meso-level institutional support on micro-level artist characteristics, it was found that the medium-level institutional support was mediated by the micro-level artist characteristics. The same institutional support will have greater impact for an artist with high self-efficacy, digital skills, and social networks than for an artist who does not have these. Fourth, the six dimensions of empowerment build on each other. Economic empowerment helps to build psychological empowerment which helps to build political empowerment, which helps to build digital empowerment which helps to build institutional empowerment which helps to build economic empowerment. Fifth, empowering outcomes also lead to changes in structures in a subtle but tangible way, as a result of cultural and policy change. The more economically and politically

empowered artists are, the more macro level institutional environment they can shape, establishing a virtuous cycle which creates artists' empowerment.

7. CONCEPTUAL FRAMEWORK AND THEORETICAL PROPOSITIONS

Based on the AEM-SA model, this section presents a formal conceptual framework and derives eight theoretical propositions for future empirical research.

Table 2: Conceptual Framework — Artist Empowerment Dimensions, Theoretical Bases, and Indicators

Empowerment Dimension	Key Indicators	Theoretical Basis	Expected Outcomes
Economic Empowerment	Fair wages, IP rights, market access, micro-finance	Marxist Political Economy; Creative Economy Theory (Howkins, 2001)	Income security, reduced exploitation
Social Empowerment	Recognition, community networks, gender equity	Social Capital Theory (Bourdieu, 1986); Feminist Cultural Studies	Dignity, belonging, reduced discrimination
Political Empowerment	Representation in policy, advocacy rights	Foucault's Power/Knowledge; Post-Colonial Theory	Policy influence, institutional inclusion
Institutional Empowerment	Education reform, legal protections, organizational support	Institutional Theory (DiMaggio & Powell, 1983)	Structural sustainability
Digital Empowerment	E-commerce, social media, digital tools	Technology Adoption Model (Davis, 1989)	Global market access, visibility
Psychological Empowerment	Self-efficacy, identity, creative freedom	Zimmerman (1990) Psychological Empowerment Model	Artist well-being, resilience

7.1 Theoretical Propositions

The following propositions are derived from the AEM-SA and are offered as hypotheses for future empirical testing:

- Proposition 1 (P1): The weaker a country's formal cultural policy framework, the lower the average economic empowerment of its traditional and folk artists, controlling for GDP per capita.

- Proposition 2 (P2): Artists embedded in organized collective structures (cooperatives, guilds, associations) will demonstrate significantly higher levels of economic and political empowerment than unorganized artists in equivalent structural conditions.
- Proposition 3 (P3): Women artists in South Asia experience compounded disempowerment — a multiplicative rather than additive combination of gender-based barriers and artist-specific barriers — relative to male artists in equivalent economic and institutional environments.
- Proposition 4 (P4): Caste-based social stigma attached to specific artistic traditions (e.g., weaving castes, performing caste communities) independently predicts lower psychological empowerment scores, even when controlling for objective economic conditions.
- Proposition 5 (P5): Digital empowerment (measured by e-commerce income, social media following, digital skill index) mediates the relationship between institutional empowerment and economic empowerment, particularly for urban and peri-urban artists.
- Proposition 6 (P6): Psychological empowerment moderates the effectiveness of economic empowerment interventions: artists with higher baseline self-efficacy will generate higher income returns from equivalent market access interventions.
- Proposition 7 (P7): The relationship between macro-level cultural policy strength and micro-level artist empowerment is fully mediated by meso-level institutional capacity, consistent with the multilevel structure of the AEM-SA.
- Proposition 8 (P8): Empowerment trajectories differ systematically by artist type: traditional/folk artists face predominantly structural and institutional barriers, while contemporary artists face predominantly market and psychological barriers, requiring differentiated policy responses.

8. DISCUSSION

This paper adds to the existing knowledge in several ways through the creation of the AEM-SA framework. Firstly, it enlarges the creative economy literature in that it is based on the traditional/folk artists, which form the bulk of the artists in South Asian societies in terms of numbers, as opposed to the high-tech creative workers who have been the focus of creative economy scholarship (Flew, 2012). Second, by incorporating the post-colonial analysis into the empowerment framework it suggests that colonial institutional inheritance is not just a past reality, but a structural obstacle to the empowerment of artists today. Third, it offers a theoretical framework for the conceptualisation of various kinds of empowerment and for defining the interaction between barriers at varying levels which can lead to disempowerment.

8.1 Implications for Cultural Policy

The AEM-SA has major direct relevance for cultural policymakers in South Asian governments and international organizations. The framework underscores that isolated interventions addressing a specific empowerment element (such as vocational training without any complementary measures at other levels) are not likely to drive a change in empowerment unless other empowerment elements are addressed at other levels. A good policy should tackle economic (IP law reform, market access), social (changing narrative representations of artists), political (artist representation in cultural governance), institutional (strengthening arts education, strengthening professional associations), digital (digital literacy, digital infrastructure) and psychological (consciousness raising, peer networks) aspects at once. Specifically, this paper calls for the following measures: Integrated artist welfare legislation with social security benefits for professional artists; effective enforcement of copyright,

facilitated by effective legal aid; compulsory arts education which includes traditional artists in school curricula; training programs on digital skills for traditional artists; and artists' governance bodies within cultural ministries.

Implications for Civil Society and NGOs The AEM-SA can be a diagnostic and planning tool for civil society organisations that interact with South Asian artists. To guide their interventions, organisations can identify the lack of empowerment in a specific artist community in order to avoid the trap of investing only in economic empowerment (income generation), and forgetting about equally important social, psychological, and institutional empowerment issues. Artisans like the members of the Self-Employed Women's Association (SEWA) in India, whose activities have successfully brought together economic, social and psychological empowerment of artisan women, offer an empirical example for the integrated approach advocated by the AEM-SA.

Health and nutrition implications for international development UNESCO 2005 Convention on the Protection and Promotion of the Diversity of Cultural Expressions, as well as the UNCTAD Creative Economy Reports, have created a global normative framework that has taken into account the development value of cultural production. The AEM-SA offers a more operationally specific model that can inform the implementation of these overarching pledges in the South Asian region. The framework can be applied to the development of more comprehensive and effective programmes of empowerment for artists by international development organisations like the UNESCO, UNDP and ILO, as well as bilateral development organisations.

8.4 Limitations

As a conceptual paper, the AEM-SA makes several simplifying assumptions that future empirical research should address. The framework treats South Asia as a relatively homogeneous context, whereas significant variation exists between countries (India's much larger formal cultural economy compared to Bangladesh's, for example) and within countries (urban-rural divides, regional variations). The framework is also static in its current form; a dynamic model incorporating temporal change processes would be a valuable extension. Finally, the paper draws primarily on published academic literature, which likely underrepresents voices of artists themselves; future research should center artist perspectives through qualitative and participatory methods.

9. CONCLUSION

This paper has developed the Artist Empowerment Model for South Asia (AEM-SA), a multilevel conceptual framework that synthesizes creative economy theory, post-colonial cultural theory, social capital theory, feminist cultural theory, psychological empowerment theory, and institutional theory to explain artist disempowerment in South Asia and propose pathways toward meaningful empowerment.

The paper has argued that the paradox of South Asia's cultural richness coexisting with deep artist poverty and marginalization is not accidental or inevitable, but is the product of identifiable structural barriers operating at macro, meso, and micro levels across six empowerment dimensions. Colonial institutional legacies, market failures, patriarchal and caste-based exclusions, weak intellectual property enforcement, inadequate arts education, middlemen exploitation, and psychological barriers combine to suppress the empowerment of calligraphers, weavers, folk musicians, classical dancers, puppeteers, and visual artists across the region.

The AEM-SA provides a basis for more systematic, multilevel, and multidimensional approaches to artist empowerment — in policy, civil society, and development practice. The eight theoretical propositions derived from the framework provide a research agenda for future empirical work that can test, refine, and extend the conceptual model. The ultimate goal of this research is to contribute to a South Asia in which artists — from the master calligrapher inscribing Quranic verse in Nastaliq in Lahore to the young digital artist posting work from Dhaka — can exercise their creative genius with dignity, security, and fair reward.

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AUDIT QUALITY, ESG RATING DIVERGENCE, AND COST OF CAPITAL OF MALAYSIAN LISTED FIRMS: A CONCEPTUAL FRAMEWORK

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Abstract

Sustainable finance has become an important topic in corporate finance research, with Environmental, Social, and Governance (ESG) ratings serving as a key indicator for evaluating firms' sustainability practices. The increasing importance of ESG information in financial markets has highlighted the challenges posed by ESG rating divergence, where different rating agencies assign inconsistent scores to the same firm's ESG Performance. This discrepancy creates an information uncertainty for investors that can affect firms' financing costs. Simultaneously, audit quality is a key governance mechanism that enhances the credibility and reliability of corporate disclosures, which may mitigate the negative consequences of ESG divergence. This conceptual paper develops a framework concerning ESG rating divergence, audit quality, and firms' cost of capital in the Malaysian context, where ESG disclosure is evolving and institutional frameworks are heterogeneous. Grounded in agency theory and stakeholder theory, the framework proposes that ESG rating divergence increases the cost of capital, while high audit quality moderates this relationship by reducing information asymmetry and enhancing investor confidence. The study offers testable hypotheses and provides a theoretical basis for future empirical research on how governance mechanisms can shape the financial implications of ESG information in emerging markets context.

Keywords: ESG Rating Divergence, Cost of Capital, Audit Quality, Malaysian listed firms

THE INFLUENCE OF MINDFUL LEADERSHIP ON LECTURERS' PERFORMANCE WITH JOB COMMITMENT AS MEDIATING VARIABLE AT A BUDDHIST COLLEGE IN INDONESIA

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Abstract

This study aims to analyse the influence of mindful leadership on lecturers' performance, with job commitment as a mediating variable, at State Buddhist Higher Education Institutions in Indonesia. This study employs a quantitative approach using a survey method, involving the distribution of questionnaires to 258 lecturers selected using purposive sampling. The respondents were active lecturers involved in the implementation of the three pillars of higher education, namely teaching, research, and community service. Data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) with the aid of SmartPLS version 3. This study is based on the Job Demands-Resources (JD-R) Model, which explains that job resources, such as leadership, can enhance individual motivation and performance. The results indicate that mindfulness leadership has a positive and significant effect on lecturers' performance and job commitment. However, job commitment was not found to mediate the relationship between mindfulness leadership and lecturer performance. This suggests that the influence of mindfulness leadership on lecturer performance is more predominantly direct rather than mediated by job commitment. These findings underscore the importance of implementing mindfulness-based leadership in enhancing lecturers' performance and job commitment within Buddhist higher education institutions. Consequently, institutions are encouraged to integrate mindfulness principles into leadership practices to foster a more productive, harmonious, and sustainable academic environment.

Keywords: Mindful Leadership; Lecturer Performance; Job Commitment; PLS-SEM; Buddhist College

1. Introduction

Global transformations characterized by technological disruption, organizational complexity and increasing performance demands have prompted institutions to adopt more adaptive and holistic management approaches. The higher education sector is no exception to these demands, particularly when it comes to improving the quality of human resource performance. As key actors in the implementation of the three pillars of higher education, lecturers play a strategic role in determining the quality of educational outcomes, research and community service. Lecturers' performance not only reflects individual success but also serves as a key indicator in assessing the competitiveness of higher education institutions. Data indicates that lecturers' productivity in Indonesia still faces various challenges, particularly regarding international scientific publications and research innovation (Kementerian Pendidikan, Kebudayaan, Riset, 2021).

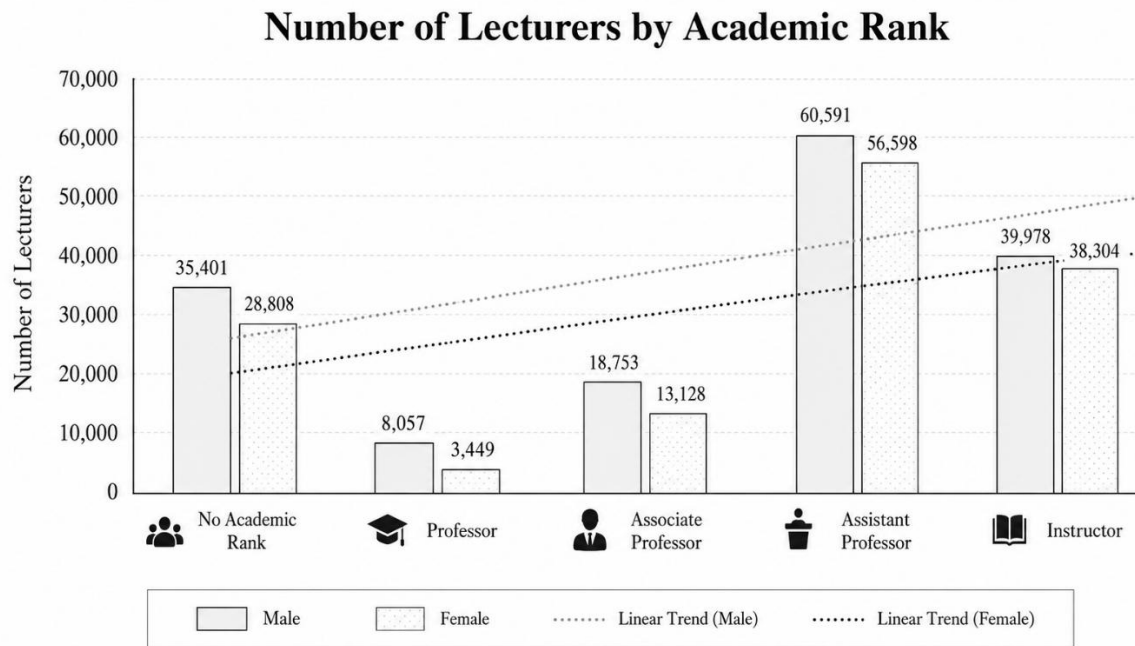


Figure 1. Number of Lecturers by Academic Rank

According to official data from the 2024 Higher Education Statistics Book published by PDDikti, out of a total of 303,067 lecturers in Indonesia, only 11,506, or around 3.8%, have attained the rank of professor. This low proportion of lecturers at the highest academic level indicates that academic performance at the national level still needs to be improved. This situation calls for a leadership approach that is not only results-oriented but also takes into account psychological aspects and individual well-being.

Developments in modern management literature show a growing focus on mindfulness-based approaches in leadership. Mindfulness is defined as a state of full awareness of the present experience, openly and without judgement (Wood, 2025). In an organisational context, mindfulness-based leadership is believed to enhance the quality of decision-making, reduce work-related stress, and promote sustainable individual performance (Burmansah et al., 2019). This approach is becoming increasingly relevant in addressing complex and high-pressure work dynamics, including within the higher education environment (Watson, 2024).

Religious higher education in Indonesia has distinctive characteristics, as it integrates spiritual values into the learning process and organizational management. State-run Buddhist higher education institutions form part of the national education system, which focuses not only on academic development but also on character building based on Buddhist values. The value of mindfulness, rooted in the concept of sati within Buddhist teachings, is highly relevant for application in leadership practice within this context. This context provides an opportunity to examine how mindfulness-based leadership can influence lecturers' performance, particularly within an environment that has philosophically embraced and internalized the concept of mindfulness.

A number of studies have shown that leadership has a significant influence on individual performance within organizations. Modern leadership theory emphasizes the importance of the leader's role in shaping work behavior and attitudes, including in enhancing performance (Xu et al., 2021). In recent developments, mindfulness leadership has emerged as an approach that prioritizes awareness, empathy, and emotional regulation in leadership (Xu et al., 2021). Furthermore, work engagement has been identified as a key factor influencing performance. Work engagement is a positive psychological state characterized by vigour, dedication, and

absorption (Perreira & Berta, 2016). Individuals with high levels of organizational commitment tend to demonstrate better performance, greater productivity, and a strong commitment to the organization (Chaubey & Giri, 2025). The relationship between leadership and performance is often mediated by psychological factors, with job engagement acting as a mechanism that bridges the influence of leadership on performance (Afari et al., 2019).

Studies on the relationship between leadership, job engagement, and performance have been widely conducted across various organizational contexts. However, most previous research has focused on the business sector or general organizations, and thus has not extensively explored the context of religious higher education. Research specifically examining mindfulness leadership within organizations based on religious values, particularly Buddhist ones, remains very limited. Furthermore, research findings regarding the relationship between leadership and performance show varying results, necessitating a more comprehensive approach that considers the role of mediating variables. Work engagement as a mediating variable in the relationship between mindfulness leadership and lecturer performance has rarely been studied, particularly within the context of state-run Buddhist religious higher education institutions in Indonesia. This situation highlights a research gap that warrants attention.

This study offers a novel approach by integrating the concepts of mindfulness leadership, work engagement, and lecturer performance into a single conceptual model within the context of Buddhist religious higher education. This integration contributes to the development of human resource management literature grounded in spiritual values, particularly from a Buddhist perspective. The use of the context of state-run Buddhist religious universities in Indonesia also adds value due to the limited research in this setting. Furthermore, this study strengthens the understanding of the role of work engagement as a psychological mechanism that bridges the influence of mindfulness leadership on lecturer performance.

This study aims to analyze the influence of mindfulness leadership on lecturer performance, with work engagement as a mediating variable, at state-run Buddhist higher education institutions in Indonesia. The research findings are expected to provide a theoretical contribution to the development of spirituality-based human resource management science, as well as a practical contribution to leadership management in enhancing work engagement and lecturer performance within the religious higher education environment.

2. Literature Review

2.1. Mindful Leadership Influences Lecturers' Performance

Mindfulness leadership is receiving increasing attention in organisational research due to its ability to enhance the quality of working relationships, self-awareness, and more prudent decision-making in the workplace. Leaders who practise mindfulness tend to be highly attentive to the emotional state and needs of their team members, thereby creating a more supportive and productive working environment. Research indicates that the practice of mindfulness in leadership can improve focus, emotional regulation, and the quality of interpersonal interactions, which ultimately has a positive impact on individual performance within the organisation (Li et al., 2022).

In the context of higher education, mindful leadership helps lecturers manage the pressures of academic work such as teaching, research, and community service. Leaders who are fully aware of the dynamics of lecturers' work can provide more appropriate support, improve open communication, and foster a healthy work culture. This enables lecturers to work more effectively and purposefully in achieving academic performance targets (Tobias Mortlock, 2023).

Several studies have also shown that mindfulness-based leadership can improve the quality of decision-making, reduce work-related stress, and strengthen the relationship between

leaders and subordinates. These factors contribute to improved employee performance as staff feel more valued and supported in carrying out their duties (Kabat-Zinn, 2003; Mischenko, 2021). Consequently, mindfulness-based leadership holds great potential to enhance lecturers' performance by increasing awareness, attentiveness, and the quality of interactions within the academic workplace.

2.2. Mindful Leadership Influences Work Engagement

Work engagement is a positive psychological state characterised by enthusiasm, dedication and full involvement in one's work. Leadership plays a crucial role in shaping employees' levels of work engagement. Leaders who practise mindfulness are generally better able to demonstrate empathy, full attention, and openness in communication, thereby fostering more positive and supportive working relationships (Kelly, 2023).

Previous research indicates that mindful leadership can enhance employees' psychological well-being, as leaders are able to create a psychologically safe and trusting work environment. These conditions encourage employees to be more engaged in their work, feel a greater sense of meaning in the tasks they perform, and demonstrate higher commitment to the organisation (Gilson et al., 2017; Hulsheger et al., 2019).

In the context of higher education, lecturers who feel supported by mindful leaders tend to demonstrate higher levels of work engagement. They are more enthusiastic about carrying out teaching, research and community engagement activities. Furthermore, a mindful and attentive work environment can also enhance lecturers' intrinsic motivation in carrying out their professional duties (Khari & Bali, 2024). Consequently, mindful leadership can be a key factor in enhancing lecturers' work engagement within higher education institutions.

2.3. Mindful Leadership Influences Performance through Work Engagement

In addition to having a direct impact on performance, mindful leadership can also influence performance through work engagement as a mediating variable. Work engagement is a key factor in explaining how leadership can enhance individual performance. Employees with high levels of work engagement tend to demonstrate greater energy, dedication, and concentration in completing work tasks (Roche et al., 2023).

Several studies indicate that effective leadership can enhance work engagement, which ultimately leads to improved employee performance. Mindful leaders are able to create a work environment characterised by attentiveness and emotional support, thereby encouraging employees to become more psychologically engaged in their work (Dyas et al., 2022). When employees feel more engaged in their work, they tend to demonstrate higher productivity, better work quality, and a stronger commitment to the organisation.

In the academic environment, lecturers' work engagement can enhance the quality of teaching, research productivity, and contributions to community service activities. Therefore, mindful leadership not only directly influences lecturers' performance but also indirectly affects it through the enhancement of work engagement. This indicates that work engagement may serve as an important mechanism in explaining the relationship between mindful leadership and lecturers' performance.

3. Methodology

This study employed a quantitative research approach to analyze the effect of mindful leadership on lecturers' performance through work engagement. A quantitative approach was selected because the study aimed to examine the relationships among variables and statistically analyze the proposed research model. Data collection was conducted through the distribution of questionnaires to lecturers working at higher education institutions.

The total number of respondents in this study was 258 lecturers. Respondents were selected using a purposive sampling technique, with the criteria that they were active lecturers involved in the Tri dharma of higher education, namely teaching, research, and community service activities. The collected data were subsequently analysed using SmartPLS version 3 with the Partial Least Squares Structural Equation Modelling (PLS-SEM) approach. This analytical technique was chosen because it is capable of examining complex relationships among variables and testing mediation models in social science research.

3.1. Theoretical framework

This study is grounded in the Job Demands-Resources Model (JD-R Model), which explains how job demands and job resources influence individuals' motivation and performance. The model suggests that job resources, such as leadership support, autonomy, and a positive work environment, can enhance employees' motivation and work engagement, which ultimately contribute to improved performance (Harrison et al., 2020).

The JD-R Model explains two primary psychological processes, namely the health impairment process and the motivational process. The health impairment process occurs when excessive job demands lead to physical and mental exhaustion, thereby reducing performance. In contrast, the motivational process occurs when individuals obtain adequate job resources, which increase motivation, work engagement, and ultimately individual performance.

Within this framework, mindful leadership can be viewed as an important form of job resource. Leaders who practice mindfulness demonstrate full awareness, attentiveness to subordinates' conditions, and the ability to manage emotions effectively. This can create a positive and supportive work environment, thereby encourage lecturers' work engagement and ultimately enhance their performance.

3.2. Conceptual framework

The conceptual framework of this study explains the relationship among mindful leadership, work engagement, and lecturers' performance. Mindful leadership refers to a leadership style characterized by full awareness of present conditions, non-judgmental attention, and the ability to manage emotions effectively in interactions with subordinates.

Work engagement is defined as a positive psychological state related to work and is characterized by vigor, dedication, and absorption in one's job (Schaufeli & Bakker, 2004). Individuals with high levels of work engagement typically demonstrate enthusiasm, commitment, and strong concentration in carrying out their responsibilities.

In the context of higher education, lecturers' performance is associated with their ability to implement the Tri dharma of higher education, which includes teaching, research, and community service activities. Lecturers with high levels of work engagement tend to exhibit better performance because they are more enthusiastic and dedicated in carrying out their academic responsibilities.

Therefore, this study proposes that mindful leadership not only has a direct effect on lecturers' performance but also exerts an indirect effect through work engagement as a mediating variable. The conceptual model of this study is presented in Figure 1.1.

Figure 1. Research Model: Mindful Leadership, Work Engagement, and Lecturers' Performance.

3.3. Instrumentation

Data collection in this study was conducted using a structured questionnaire consisting of several statement items designed to measure each research variable. The research instrument was developed based on scales that had been utilized in previous studies and adapted to the context of higher education.

The mindful leadership variable was measured using several indicators reflecting leaders' awareness, attentiveness to subordinates, and emotional management abilities in leadership practices. The work engagement variable was measured through indicators of work vigor, dedication to work, and absorption in carrying out job responsibilities. Meanwhile, lecturers' performance was measured using indicators related to teaching effectiveness, research productivity, and participation in community service activities.

All questionnaire items employed a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Prior to further analysis, the research instrument was tested for reliability and validity using composite reliability and Cronbach's alpha to assess the internal consistency of each construct.

The results of the testing indicated that all constructs achieved composite reliability and Cronbach's alpha values above the recommended minimum threshold of 0.70. This demonstrates that all items in the research instrument possess good levels of reliability and validity, making them appropriate for analysis using the PLS-SEM method.

4. Results and Discussions

4.1. Results

At the stage of evaluating the measurement model (outer model), convergent validity testing was conducted by examining the outer loading values of each indicator on its respective construct. Outer loading is used to measure the extent to which an indicator is capable of reflecting the latent variable being measured. The recommended outer loading value is above 0.70, although in exploratory research, values above 0.60 are still considered acceptable. The results of the outer loading test for each indicator within the constructs of Lecturer Performance, Mindfulness Leadership, and Work Engagement are presented in the following Table 1.

Table 1. Outer Loadings

Construct	Indicator	Loading		
		Lecturer Performance	Mindful Leadership	Work Engagement
Lecturer Performance	LP-1	0.770		
	LP-2	0.770		
	LP-3	0.742		
	LP-4	0.759		
	LP-5	0.837		
	LP-6	0.850		
Mindful Leadership	ML-1		0.778	
	ML-2		0.716	
	ML-3		0.786	
	ML-4		0.759	
	ML-5		0.757	
	ML-6		0.733	
Work Engagement	WE-1			0.752
	WE-2			0.739
	WE-3			0.761
	WE-4			0.731
	WE-5			0.760

WE-6

0.753

Based on Table 1, all indicators within each construct demonstrate outer loading values above 0.70, indicating that they meet the criteria for convergent validity. The indicators for the Lecturer Performance variable show loading values ranging from 0.742 to 0.850, the Mindful Leadership variable ranges from 0.716 to 0.786, and the Work Engagement variable ranges from 0.731 to 0.761. Therefore, it can be concluded that all indicators used in this study are valid and capable of representing the measured constructs effectively, making them appropriate for further analysis.

The results of the outer model evaluation were also visualized in the form of a path diagram to provide a more comprehensive illustration of the relationships between indicators and latent constructs. This diagram presents the outer loading values of each indicator as well as the relationships among the variables in the research model, namely Mindful Leadership, Lecturer Performance, and Work Engagement. The visualization of the measurement and structural models can be seen in the following figure.

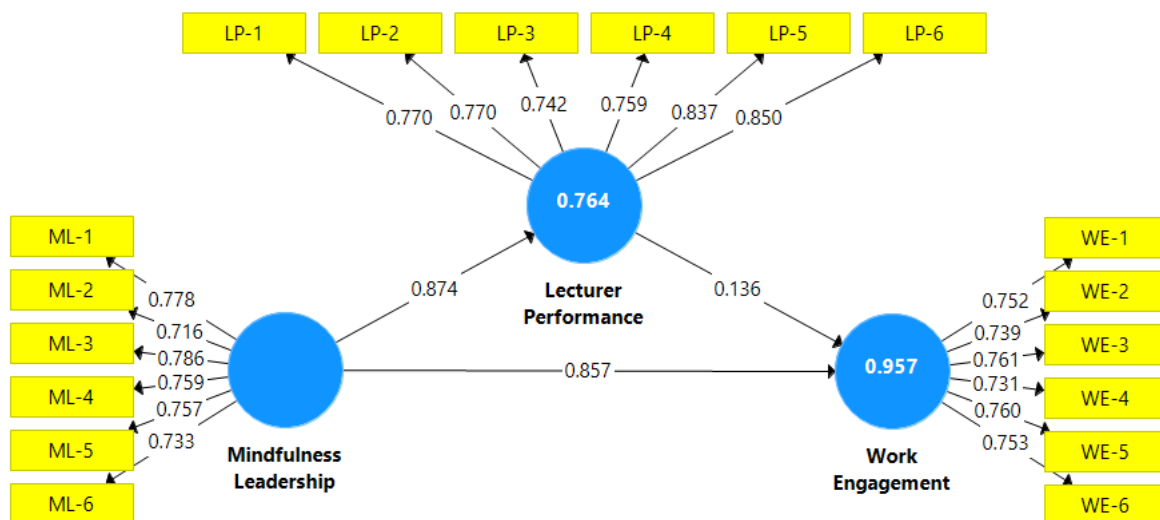


Figure 1. Structural Equation Modeling (SEM)

Based on the figure above, it can be observed that all indicators have outer loading values above 0.70, indicating that each indicator is capable of reflecting the measured construct effectively. In addition, the diagram also illustrates the relationships among the latent variables, where Mindfulness Leadership has a strong influence on Lecturer Performance with a coefficient value of 0.874, and also has a direct effect on Work Engagement with a coefficient value of 0.857. Meanwhile, Lecturer Performance has a relatively small effect on Work Engagement, with a coefficient value of 0.136.

The coefficient of determination (R^2) values are also presented for each endogenous variable, namely 0.764 for Lecturer Performance and 0.957 for Work Engagement. These results indicate that the Mindfulness Leadership variable is able to explain 76.4% of the variance in Lecturer Performance and, together with Lecturer Performance, explains 95.7% of the variance in Work Engagement. Therefore, the model developed in this study demonstrates very strong explanatory power.

4.1.1. Construct Reliability and Convergent Validity

After evaluating the outer model through the outer loading values, the next stage was to assess construct reliability and convergent validity. This testing was conducted by examining the values of Cronbach's Alpha, rho_A, Composite Reliability (CR), and Average Variance

Extracted (AVE). A construct is considered reliable if the values of Cronbach's Alpha and Composite Reliability are greater than 0.70, while convergent validity is achieved when the AVE value exceeds 0.50.

Table 2. Construct Reliability and Convergent Validity

Construct	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Lecturer Performance	0.878	0.879	0.908	0.622
Mindful Leadership	0.849	0.850	0.888	0.570
Work Engagement	0.844	0.844	0.885	0.561

Based on Table 4, all constructs demonstrate Cronbach's Alpha and Composite Reliability values above 0.70, indicating that the research instrument is reliable. In addition, the AVE values for each construct are also above 0.50, namely 0.622 for Lecturer Performance, 0.570 for Mindfulness Leadership, and 0.561 for Work Engagement. Therefore, it can be concluded that all constructs have satisfied the criteria for convergent validity.

Following the presentation in tabular form, the results of the construct reliability and convergent validity tests were also visualized in graphical form to provide a clearer and more comprehensible illustration. The graph shows that all constructs, namely Lecturer Performance, Mindfulness Leadership, and Work Engagement, consistently achieved Cronbach's Alpha and Composite Reliability values above the minimum threshold of 0.70. This further reinforces the previous findings that the research instrument possesses a high level of reliability.

Furthermore, the Average Variance Extracted (AVE) graph indicates that all constructs have values above 0.50, suggesting that each construct is capable of explaining more than 50% of the variance in its indicators. This visualization further confirms that Lecturer Performance has the highest AVE value, followed by Mindfulness Leadership and Work Engagement, although the differences among them are not particularly significant.

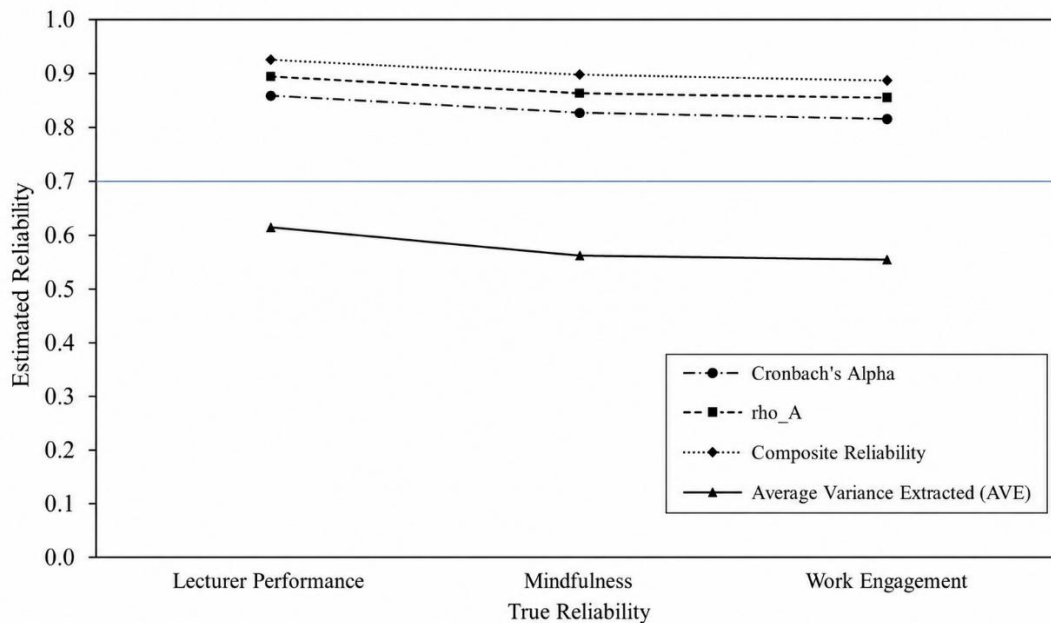


Figure 1. Relationship between true reliability and that estimated by PLS-SEM.

4.1.2. Discriminant Validity (Fornell-Larcker Criterion)

Furthermore, discriminant validity was tested using the Fornell-Larcker criterion. This test aims to ensure that each construct demonstrates a clear distinction from the other constructs. The criterion is considered fulfilled when the square root of the AVE value for each construct is greater than the correlations between that construct and the other constructs.

Table 3. Fornell-Larcker Criterion

	Lecturer Performance	Mindful Leadership	Work Engagement
Lecturer Performance	0.789		
Mindful Leadership	0.874	0.755	
Work Engagement	0.885	0.976	0.749

Based on Table 3, the square root of the AVE value for each construct is greater than the correlation values with the other constructs. This indicates that each variable demonstrates good discriminant validity and is able to distinguish itself clearly from the other constructs within the model. Therefore, the discriminant validity in this study has been successfully established.

4.1.3. Structural Model Evaluation (Inner Model)

After the measurement model was confirmed to be valid and reliable, the next stage involved evaluating the structural model (inner model). This evaluation was conducted by examining the path coefficient values, t-statistics, and p-values to test the significance of the relationships among variables. In addition, the structural model evaluation was complemented by assessing the R-square (R^2) values to determine the extent to which the independent variables explain the dependent variables. The higher the R-square value, the better the model's ability to explain the relationships among the constructs in this study.

Table 4. Structural Model Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Lecturer Performance -> Work Engagement	0.136	0.139	0.085	1.600	0.110
Mindful Leadership -> Lecturer Performance	0.874	0.871	0.034	25.769	0.000
Mindful Leadership -> Work Engagement	0.857	0.853	0.088	9.781	0.000

Based on Table 4, the relationship between Mindful Leadership and Lecturer Performance demonstrates a coefficient value of 0.874, with a t-statistics value of 25.769 and a p-value of 0.000, indicating a significant effect. In addition, Mindful Leadership also has a significant effect on Work Engagement, with a coefficient value of 0.857, a t-statistics value of 9.781, and a p-value of 0.000. However, the relationship between Lecturer Performance and Work Engagement shows a coefficient value of 0.136, with a t-statistics value of 1.600 and a p-value of 0.110, indicating that the effect is not significant. These findings suggest that Lecturer Performance does not have a significant direct effect on Work Engagement.

4.1.4. Coefficient of Determination (R^2)

The R-Square value is used to measure the extent to which the independent variables are capable of explaining the dependent variables within the research model.

Table 5. Coefficient of Determination

Endogenous Variable	R Square	R Square Adjusted	Interpretation
Lecturer Performance	0.764	0.762	Moderate
Work Engagement	0.957	0.956	Moderate

Based on Table 5, the R-Square value for the Lecturer Performance variable is 0.764, indicating that 76.4% of the variance in Lecturer Performance can be explained by Mindful Leadership. Meanwhile, the R-Square value for Work Engagement is 0.957, meaning that 95.7% of its variance can be explained by Mindful Leadership and Lecturer Performance. These findings indicate that the model possesses very strong explanatory power.

4.1.5. Predictive Relevance (Q^2)

In addition to the R-Square values, the model evaluation was also conducted using the Predictive Relevance (Q^2) value to assess the predictive capability of the model. A Q^2 value greater than 0 indicates that the model possesses predictive relevance.

Table 6. Predictive Relevance (Q^2)

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
Lecturer Performance	702.000	377.934	0.462
Mindful Leadership	702.000	702.000	
Work Engagement	702.000	335.530	0.522

Based on Table 6, the Q^2 value for Lecturer Performance is 0.462, while the Q^2 value for Work Engagement is 0.522, both of which are greater than 0. This indicates that the model possesses good predictive capability. According to the predictive strength classification, these values fall within the large category, suggesting that the research model demonstrates strong predictive relevance.

4.1.6. Hypothesis Testing

Hypothesis testing was conducted to determine whether the relationships among variables in the research model were empirically supported.

Table 7. Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Lecturer Performance -> Work Engagement	0.136	0.139	0.085	1.600	0.110
Mindful Leadership -> Lecturer Performance	0.874	0.871	0.034	25.769	0.000
Mindful Leadership -> Work Engagement	0.857	0.853	0.088	9.781	0.000

Indirect hypothesis testing (mediation analysis) was conducted to determine whether Lecturer Performance is capable of mediating the relationship between Mindful Leadership and Work Engagement. Based on the bootstrapping results shown in the figure above, the relationship between Mindful Leadership and Lecturer Performance produced a t-statistics value of 25.499, indicating a significant effect. Likewise, the direct relationship between Mindful Leadership and Work Engagement showed a t-statistics value of 9.653, which is also significant. However, the relationship between Lecturer Performance and Work Engagement yielded a t-statistics value of only 1.575, which is below the critical value of 1.96, indicating that the effect is not significant.

Since one of the paths in the mediation model, namely the effect of Lecturer Performance on Work Engagement, is not significant, the indirect effect of Mindful Leadership on Work Engagement through Lecturer Performance is also considered insignificant. Therefore, Lecturer Performance does not function as a mediating variable in this relationship. These findings indicate that the influence of Mindful Leadership on Work Engagement occurs more dominantly through a direct effect rather than through the enhancement of Lecturer Performance. Accordingly, the mediation hypothesis proposed in this study is not supported (rejected).

4.2. Discussion

4.2.1. Mindful Leadership Influences Lecturers' Performance

The results of this study indicate that mindful leadership has a positive and significant effect on lecturers' performance. These findings suggest that the higher the level of mindfulness demonstrated by leaders, the better the performance of the lecturers under their supervision. Mindful leadership is characterized by a leader's ability to be fully present, actively listen, and respond wisely to the situations encountered (Rahmadani et al., 2020). Such conditions create a supportive work environment that enables lecturers to perform optimally (Schaufeli et al., 2002).

Theoretically, these findings are consistent with leadership concepts that emphasize awareness and self-regulation, in which mindful leaders are able to manage emotions and work-related pressures effectively, thereby generating positive impacts on their subordinates. In the context of higher education, lecturers' performance is measured not only in terms of teaching but also through research and community service activities. Mindful leadership enables lecturers to become more focused, directed, and intrinsically motivated in carrying out the tridharma of higher education.

From a Buddhist perspective, these findings may be associated with the concepts of *sati* (mindfulness) and *paññā* (wisdom). Leaders who cultivate *sati* are better able to understand the conditions and needs of their subordinates deeply, while *paññā* enables them to make appropriate and wise decisions. The combination of these two qualities creates a form of leadership that is not only effective but also capable of generating positive impacts on the improvement of lecturers' performance.

4.2.2. Mindful Leadership Influences Work Engagement

The results of this study also indicate that mindful leadership has a positive and significant effect on work engagement. This finding suggests that leaders who demonstrate mindfulness are able to enhance lecturers' emotional, cognitive, and physical involvement in their work. Work engagement reflects a condition in which individuals feel energized, dedicated, and deeply absorbed in their work activities. Theoretically, work engagement is largely influenced by psychological and social factors in the workplace, such as leadership support, interpersonal relationships, and meaningful work (Kinsella, 2023). Mindful leadership is capable of fulfilling these needs because it emphasizes full presence, empathy, and non-judgmental acceptance. As

a result, lecturers feel valued and supported, thereby strengthening their sense of belonging toward both their work and the institution (Ardianto et al., 2024).

From a Buddhist perspective, these findings can be explained through the concepts of *mettā* (loving-kindness) and *karuṇā* (compassion). Leaders who embody these values are more likely to create a harmonious and caring work environment. Such conditions encourage the development of work engagement because lecturers feel psychologically safe and maintain positive relationships with both leaders and colleagues (Dena & Haque, 2024). Therefore, mindful leadership not only affects performance outcomes but also contributes to the inner well-being of lecturers.

4.2.3. Mindful Leadership Influences Performance through Work Engagement

The results of the indirect hypothesis testing indicate that work engagement is not able to mediate the effect of mindful leadership on lecturers' performance. Therefore, this hypothesis is rejected. These findings suggest that although mindful leadership has a significant direct effect on both work engagement and lecturers' performance, the increase in work engagement does not significantly contribute to bridging this relationship. Conceptually, lecturers' performance is more strongly influenced by direct factors such as competence, workload, and performance evaluation systems rather than by psychological conditions such as work engagement (Ogu, 2024). This explains why work engagement does not function as a mediating variable in this relationship. In other words, lecturers may still demonstrate high levels of performance even when work engagement is not the primary determining factor.

From a Buddhist perspective, this finding can be associated with the concept of *virīya* (effort or energy), which emphasizes the importance of direct effort in achieving outcomes. In this context, performance reflects the tangible efforts made by individuals, whereas work engagement is more closely related to inner psychological (Siriwong et al., 2025). Therefore, although mindful leadership is capable of enhancing inner quality through work engagement, its influence on performance occurs more dominantly through a direct pathway rather than through mediation. Accordingly, the findings of this study confirm that mindful leadership plays a strategic role in directly improving lecturers' performance, while work engagement does not serve as a significant mediating mechanism in this relationship.

5. Conclusion

This study aims to analyze the effect of mindful leadership on lecturers' performance, with work engagement serving as a mediating variable, at State Buddhist Higher Education Institutions in Indonesia. Based on the results of the analysis, it can be concluded that mindful leadership has a positive and significant effect on both lecturers' performance and work engagement. These findings indicate that leaders who demonstrate full awareness, empathy, and genuine presence are capable of creating a work environment that supports improved performance while simultaneously strengthening lecturers' engagement in their work.

However, work engagement was not found to mediate the relationship between mindful leadership and lecturers' performance. This finding suggests that the influence of mindful leadership on lecturers' performance occurs more dominantly through a direct effect rather than indirectly through work engagement. In other words, improvements in lecturers' performance are not significantly influenced by the level of work engagement as an intervening variable.

The implications of this study highlight the importance of developing mindfulness-based leadership within higher education institutions, particularly in the context of Buddhist higher education. A leadership approach that emphasizes full awareness, wisdom, and values such as *mettā* (loving-kindness) and *karuṇā* (compassion) has proven effective in directly enhancing both lecturers' performance and work engagement. Therefore, institutions are expected to

integrate mindfulness principles into leadership development in order to create a more productive and harmonious academic environment.

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STRATEGIC HUMAN RESOURCE MANAGEMENT AND INNOVATIVE WORK BEHAVIOR: THE MEDIATING ROLE OF ORGANIZATIONAL COMMITMENT AMONG EMPLOYEES IN THE BANKING INDUSTRY IN INDONESIA

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Abstract

Innovative work behavior has become a critical capability for banking organizations seeking to sustain competitiveness in an increasingly dynamic and technology-driven business environment. Although Strategic Human Resource Management (SHRM) has been widely recognized as a driver of employee innovation, limited evidence has clarified the mechanism through which SHRM promotes innovative work behavior, particularly through employees' organizational commitment in the context of emerging economies. Addressing this gap, the present study examined the direct effect of SHRM on Innovative Work Behavior (IWB) and the mediating role of Organizational Commitment (OC) among employees in the Indonesian banking industry. A quantitative research design was employed using a survey of 150 employees from commercial banks across Indonesia. Data were collected through structured questionnaires and analyzed using Structural Equation Modeling (SEM). The findings demonstrated that SHRM significantly enhanced employees' innovative work behavior both directly and indirectly by strengthening organizational commitment. Furthermore, organizational commitment served as a significant mediating mechanism linking SHRM and innovative work behavior, indicating that strategically aligned human resource practices foster employee innovation by reinforcing psychological attachment to the organization. This study extends the strategic human resource management literature by providing empirical evidence of the mediating role of organizational commitment within the banking sector of an emerging economy. Practically, the findings suggest that banking institutions should integrate strategic talent management, continuous employee development, performance-based reward systems, and engagement initiatives to cultivate organizational commitment and sustain employees' innovative work behavior.

Keywords: strategic human resource management; innovative work behavior; organizational commitment; banking industry; employee innovation; Indonesia.

1. Introduction

In the era of digital transformation and technological disruption, the banking industry in Indonesia faces increasingly complex pressures to enhance competitiveness and business sustainability. The development of financial technology (fintech), changes in customer behaviour, and demands for operational efficiency drive banking organisations to rely not only on financial resources but also on innovative and adaptive human resource capabilities. In this context, employees' innovative work behaviour becomes a key factor in creating sustainable competitive advantage.

Data released by the Financial Services Authority through Indonesian Banking Statistics shows that the number of workers in the banking sector remains relatively stable, at around 449,738 people in 2024 (Bany Mohammed et al., 2024). However, the number of bank branches experienced a significant decline at the beginning of 2025 due to the accelerated

digitalisation of banking services. This condition reflects a shift in the industry structure from a physically based network model towards digital services, impacting the changing competencies and roles of human resources within banking organisations (Bhatta & Acharya, 2024). Therefore, digital transformation not only affects operational aspects but also requires a more strategic management of human resources to support employee adaptation and innovation.

Innovative work behaviour refers to an individual's ability to generate, promote, and implement new ideas that add value to the organisation (Kamna & Ilkhanizadeh, 2022). Previous research has shown that this behaviour is influenced by various organisational factors, including strategic human resource management practices (SHRMP) and organisational commitment (Getnet & Fujie, 2024; Salahuddin et al., 2019). SHRMP plays a role in creating work systems that support competency development, employee empowerment, and the creation of an innovative culture within the organisation.

Nevertheless, research results regarding the relationship between MSDMS and innovative work behaviour still show inconsistencies. Some studies find that MSDMS has a significant direct influence on innovative behaviour, while other research indicates that this influence is not always strong without mediating psychological factors, such as organisational commitment (Ibrahim et al., 2023; Zhang et al., 2023). This suggests that the relationship between human resource management strategies and work innovation is not linear, but involves more complex psychological mechanisms.

Organisational commitment, as a form of emotional attachment and employee loyalty to the organisation, is suspected to play an important role in bridging this relationship. From the perspective of Social Exchange Theory, when an organisation provides support through strategic HRM practices, employees respond by enhancing attachment and positive contributions, including in the form of innovative behaviour (Almuayad & Chen, 2024). Thus, organisational commitment not only functions as an outcome of HRM practices but also as a mechanism that strengthens their influence on innovative work behaviour.

Although the relationship between MSDMS, organisational commitment, and innovative work behaviour has been extensively studied (Meku Lelo, 2024), there are still limitations in the empirical context, particularly in the banking industry in Indonesia, which is undergoing rapid digitalisation. Most previous studies were conducted in the manufacturing sector or in advanced country contexts, so generalising the results to the banking industry in Indonesia remains limited. Furthermore, research simultaneously examining the mediating role of organisational commitment in this relationship is still relatively scarce.

Based on this gap, this study aims to analyse the effect of strategic human resource management on innovative work behaviour with organisational commitment as a mediating variable among employees in the banking industry in Indonesia. This study is expected to provide theoretical contributions by enriching the literature on the mechanism of the relationship between SHRM and work innovation, as well as practical contributions for banking organisations in designing more effective HR management strategies to promote innovation.

2. Literature Review

2.1 Strategic Human Resource Management

Strategic Human Resource Management (SHRM) is an approach to human resource management that positions employees as strategic assets of the organisation to achieve corporate objectives (Wahitu & Muhama, 2025). In facing increasingly intense business competition, particularly in the banking industry in Indonesia, companies are required to have competent, adaptive, and innovative human resources in order to maintain their

competitiveness. Technological changes, service digitalisation, and increasing customer demands make HR management a crucial factor in the success of a company.

According to Vekeman et al., (2025), Strategic Human Resource Management is a planned and systematic approach to managing human resources that aligns with the organization's business strategy to achieve competitive advantage. This indicates that HR management is not only focused on administrative aspects, but also on efforts to create added value for the company through improving employee quality. In other words, the success of an organisation is greatly influenced by how the company designs an appropriate HR strategy.

Mousa & Arslan, (2026), explain that HRM includes various activities such as workforce planning, recruitment, selection, training, career development, performance appraisal, compensation, and labour relations aimed at improving organisational effectiveness. In the banking industry, these practices are very important because the quality of service to customers heavily depends on employee competence and performance. If a company can manage human resources strategically, productivity and service quality will significantly improve.

According to Van Beurden et al., (2026), human resource management is the science and art of managing relationships and the roles of the workforce so as to be effective and efficient in helping achieve the goals of the company, employees, and society. With the proper implementation of HRMS, companies can increase loyalty, motivation, job satisfaction, and encourage employees to create innovation in their work.

In the banking sector, the implementation of MSDMS is becoming increasingly important due to digital transformation, the development of financial technology (fintech), and rising customer expectations for fast and high-quality services. Banks are not only competing with other conventional financial institutions but also with technology-based companies that offer faster and more flexible services. Therefore, companies need to implement human resource management strategies capable of fostering innovative work behaviour among employees.

2.2 Innovative Work Behavior

Innovative work behaviour is the behaviour of individuals related to the creation, development, and implementation of new ideas that benefit the organisation. This behaviour is crucial in supporting the sustainability of a company, especially in a constantly changing business environment such as the banking industry. Innovation has become one of the main factors determining a company's success in maintaining competitiveness.

According to Hunsaker & Ding, (2022), innovative work behaviour is an individual's deliberate action to create, introduce, and implement new ideas in their work, work group, or organisation to improve work effectiveness. Innovative behaviour is not only limited to generating new ideas but also includes the courage to propose and apply these ideas in practice. Innovative employees typically possess critical, creative thinking skills and the confidence to take initiative.

Khan et al., (2020) in Venketsamy & Lew, (2024) explain that innovative work behaviour consists of three main stages: idea generation, idea promotion, and idea realization. These three stages are interconnected in producing innovations that can provide tangible benefits to the organisation. Without practical implementation, innovative ideas will not have a significant impact on the company. In the banking industry, innovative work behaviour is highly needed due to changes in digital service systems such as mobile banking, internet banking, and other electronic transaction services. Employees with innovative behaviour will be able to provide creative solutions, improve operational efficiency, and create better services for customers. This is crucial to enhancing customer satisfaction and maintaining customer loyalty.

Alfarajat & Emeagwali, (2021), stated that innovative work behaviour is influenced by organisational support, leadership, work culture, and reward systems. When a company provides space for employees to grow and innovate, innovative work behaviour will increase significantly. Therefore, organisations must create a work environment that supports creativity and collaboration.

2.3 Organisational Commitment

Organisational commitment is the level of emotional attachment, loyalty, and the desire of employees to remain part of the organisation. This commitment is one of the important factors in improving work quality and employee contributions to the company. Employees with high commitment are more willing to work hard to achieve organisational goals.

According to Pokhrel et al., (2023), organisational commitment is a state in which an employee aligns with a particular organisation and its goals and has the desire to maintain membership in that organisation. Employees with high commitment tend to work more diligently and are willing to contribute their best to the company. They are also more loyal and have a strong sense of responsibility.

Triguero-Sánchez et al., (2022), divide organisational commitment into three main components, namely affective commitment, continuance commitment, and normative commitment. Affective commitment is related to emotional attachment to the organisation, continuance commitment concerns the cost considerations of leaving the organisation, while normative commitment relates to the sense of moral obligation to remain in the organisation.

Haoyan et al., (2023), explained that organisational commitment has a significant impact on work productivity, job satisfaction, absenteeism, and employee turnover. Employees with high commitment are usually more responsible, disciplined, and active in supporting the organisation's success. In the banking industry, organisational commitment is crucial because the work requires high precision, excellent service, and the ability to handle significant work pressure. Employees with high commitment will adapt more easily to changes and are more motivated to innovate in their work. Organisational commitment also helps the company retain a quality workforce.

2.4 The Influence of Strategic Human Resource Management on Innovative Work Behaviour

The implementation of strategic human resource management plays an important role in enhancing employees' innovative work behaviour. Effective HR management strategies can create a work environment that supports creativity, learning, and the development of new ideas. Employees who feel valued and supported are more likely to be motivated to make innovative contributions to the organisation.

Nevertheless, previous research on the relationship between MSDMS and innovative work behaviour still shows inconsistencies. Some studies have found that MSDMS practices such as training, competency development, reward systems, and employee participation in decision-making are capable of fostering innovation in the workplace (Jahadhiya Firdausi M et al., 2024; Ng et al., 2024). In addition, Laursen and Foss stated that flexible and participation-based work systems can enhance innovation because employees feel trusted and have autonomy in their work (Oroh et al., 2024).

On the other hand, several studies indicate that the influence of MSDMS on innovative work behaviour is not always strong and depends on internal organisational conditions, such as psychological support and employee engagement (António Porfirio et al., 2024). This suggests that the relationship between MSDMS and innovative work behaviour is not straightforward, but can be influenced by other factors.

In the context of the banking industry, this condition becomes increasingly relevant given the demands of technological change and the dynamic market needs. Therefore, this study proposes the following hypothesis:

H1: Strategic Human Resource Management has a positive effect on Innovative Work Behaviour.

2.5 The Role of Organisational Commitment Mediation

The relationship between strategic human resource management and innovative work behaviour does not always occur directly, but can be strengthened through organisational commitment as a mediating variable. When an organisation implements good HRM practices, employees will feel valued, cared for, and have opportunities to grow. According to Pereira et al., (2024), positive organisational treatment will enhance employee loyalty and emotional attachment to the organisation. Employees with a high level of organisational commitment tend to have a strong sense of ownership and are motivated to give their best contributions, including in the form of work innovation. This is also supported by Mehralian et al., (2024), who state that employees with high affective commitment are more proactive in generating new ideas.

Nevertheless, research on the mediating role of organisational commitment in the relationship between MSDMS and innovative work behaviour still shows varied results. Some studies find that organisational commitment can strengthen this relationship, while other studies indicate that the mediating role is not always significant in all organisational contexts. This indicates a need to re-examine the role of organisational commitment, particularly in the banking industry in Indonesia, which is undergoing digital transformation.

In this context, the implementation of MSDMS such as continuous training, a fair reward system, and career development opportunities is expected to enhance employees' organisational commitment. This commitment then encourages the emergence of innovative work behaviour. Based on the description, the hypotheses are formulated as follows:

- H2 : Strategic Human Resource Management has a positive effect on Organisational Commitment
- H3 : Organisational Commitment has a positive effect on Innovative Work Behaviour
- H4 : Organisational Commitment mediates the relationship between Strategic Human Resource Management and Innovative Work Behaviour

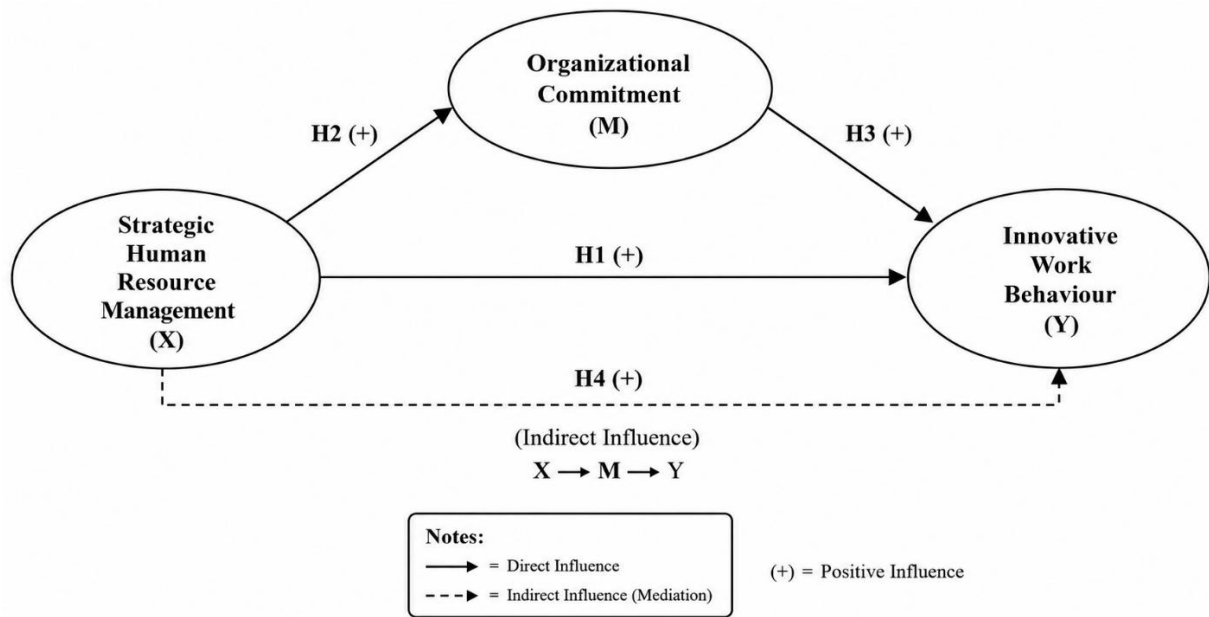


Figure 1. Research Constellation Model

3. Methodology

3.1 Research Design and Approach

This study uses a quantitative approach with an explanatory research design to analyse the causal relationship between Strategic Human Resource Management, Organisational Commitment, and Innovative Work Behaviour among employees in the banking industry in Indonesia. The quantitative approach was chosen because this research focuses on testing hypotheses previously formulated through the measurement of numerical data and systematic statistical analysis. Explanatory research aims to explain the cause-and-effect relationships between variables and to examine the extent to which independent variables influence dependent variables through mediating variables. According to Nwabuko, (2024), quantitative research is a research method used to test a specific theory by investigating the relationships between variables measured using research instruments and analysed statistically. In this study, Strategic Human Resource Management is positioned as the independent variable, Innovative Work Behaviour as the dependent variable, and Organisational Commitment as the mediating variable that bridges the relationship between the two.

Through the constructed structural model, this study seeks to explain how effective human resource management strategies can enhance employee loyalty and engagement with the organisation, ultimately encouraging the emergence of innovative work behaviour. This systematic approach provides a deeper understanding of the importance of HR strategies in fostering work innovation in the banking sector, which faces high competition and rapid digital transformation.

3.2 Population and Sampling Techniques

The population in this study includes all employees working in the banking industry in Indonesia, both state-owned and national private banks. The banking industry was chosen as the research object because this sector heavily depends on the quality of human resources in facing technological changes, business competition, service quality improvement, and the rapid development of financial technology (fintech).

According to Djafar et al., (2021), the population is the entire group of individuals, events, or objects that are the primary focus of the research. Since the population in the banking industry is very large and spread across various regions of Indonesia, this study uses a sampling technique to obtain representative data.

The sampling technique used is purposive sampling, which is a method of selecting samples based on certain considerations or criteria that align with the research objectives. This technique is chosen to ensure that the respondents involved truly possess characteristics relevant to the variables being studied. The criteria for respondents in this study include permanent employees working in banking companies in Indonesia, having a minimum of one year of service, being involved in operational activities or customer service, and being willing to complete the research questionnaire thoroughly. A minimum of one year of service was chosen as it is considered sufficient for respondents to understand the organisational culture, human resource policies, and the work environment within the company.

The number of samples in this study was set at 150 respondents. This number is considered adequate for analysis using Structural Equation Modeling (SEM). According to Mehedi & Emon, Hasan, Neuman, (2024); Selvaratnam et al., (2022), the minimum sample size for SEM analysis is five to ten times the number of research indicators used. With this number, the study is expected to produce valid, reliable data and accurately represent the real conditions of employees in the banking industry in Indonesia.

3.3 Data Collection and Measurement Scales

Primary data in this study were collected through the distribution of questionnaires to respondents working in the banking sector. The questionnaire was used as the main instrument because it can directly obtain information from respondents about their perceptions regarding the implementation of Strategic Human Resource Management, the level of Organisational Commitment, and Innovative Work Behaviour. In addition to primary data, this study also used secondary data obtained from scientific journals, books, research articles, and other supporting documents relevant to the research topic. Secondary data was used to strengthen the theoretical foundation, support the analysis of research results, and compare the research findings with previous studies.

The research instruments were designed using a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). According to Gamage, (2025), the Likert scale is an effective measurement method for assessing respondents' attitudes, perceptions, and opinions regarding a social phenomenon. The use of this scale helps researchers convert respondents' answers into numerical data that can be statistically analysed.

Strategic Human Resource Management is measured through indicators of training and development, reward systems, performance appraisal, career development, and employee involvement in decision-making. Innovative Work Behaviour is measured through the indicators of idea generation, idea promotion, and idea realization, which depict employees' ability to create and implement new ideas in their work. Meanwhile, organisational commitment is measured through affective commitment, continuance commitment, and normative commitment, reflecting employees' loyalty and emotional attachment to the company. This measurement strategy is carried out to ensure that each variable can be measured accurately and consistently so that the research results can be scientifically trusted.

3.4 Hypothesis Testing and Mediation Analysis

The final stage in this research methodology is hypothesis testing using Structural Equation Modeling (SEM) based on Partial Least Squares (PLS) with the assistance of SmartPLS software. This method is chosen because it is capable of analysing complex

relationships between variables, both direct relationships and indirect relationships through mediating variables.

According to Choy, (2014), PLS-SEM is very suitable for research that is predictive in nature and involves research models with latent variables and mediation. This method also has advantages in processing data with a relatively limited sample size and is not heavily dependent on the assumption of data normality.

The analysis was conducted through two main stages, namely the outer model and the inner model. The outer model was used to test the validity and reliability of the research indicators through convergent validity, discriminant validity, composite reliability, and Cronbach's alpha. This test aimed to ensure that each indicator could measure the research constructs accurately and consistently. Subsequently, the inner model was used to test the structural relationships between variables through R-square values, path coefficients, T-statistics, and P-values. The research hypothesis is considered accepted if the P-value is less than 0.05, indicating a significant effect at the 95% confidence level.

To analyse the mediating role of Organisational Commitment, this study uses Specific Indirect Effects testing to determine the magnitude and significance of the indirect effect of Strategic Human Resource Management on Innovative Work Behaviour through Organisational Commitment. This testing is crucial because the primary aim of the research is to see whether Organisational Commitment truly functions as a variable that strengthens the relationship between HRM strategies and employee work innovation. Through this systematic and rigorous analysis procedure, the study is expected to yield statistically valid and theoretically relevant conclusions regarding the relationship between Strategic Human Resource Management, Organisational Commitment, and Innovative Work Behaviour among employees in the banking industry in Indonesia. The results of this study are also expected to provide a basis for banking companies in designing more effective human resource management policies to enhance work innovation and the organisation's competitiveness sustainably.

4. Results dan Discussions

4.1 Results

The evaluation of the outer model in this study was conducted through two main tests, namely the convergent validity test and the construct reliability test. Convergent validity is used to determine the extent to which the indicators can represent the latent variables being measured, namely Strategic Human Resource Management, Organisational Commitment, and Innovative Work Behaviour. This test was carried out by examining the outer loading values of each indicator and the Average Variance Extracted (AVE) values for each construct.

An indicator is considered valid if it has an outer loading value above 0.70, while the AVE value must be greater than 0.50 so that the construct can explain more than 50% of its indicator's variance. According to Kunduru & Kandepu, (2023), this value indicates that the indicator has a strong relationship with the variable it represents and is therefore suitable for use in research. Furthermore, construct reliability is tested using Cronbach's Alpha and Composite Reliability (CR). A construct is considered reliable if both values exceed the minimum threshold of 0.70. The purpose of testing reliability is to ensure that all questionnaire items have good internal consistency and can produce stable and trustworthy data.

Based on the data processing results using the PLS-SEM method with the assistance of SmartPLS software, several indicators with outer loading values below the standard were eliminated to improve the quality of the research model. After the elimination process, all indicators of the Strategic Human Resource Management, Organisational Commitment, and Innovative Work Behaviour variables met the required validity and reliability criteria.

The final results of the convergent validity and construct reliability tests are presented in the following table.

Table 1. Convergent Validity Test and Reliability Test

Variable	Indicator	Outer Loading Value	AVE	Cronbach's Alpha	Composite Reliability
Strategic Human Resource Management	MSDM1	0,912	0,724	0,914	0,936
	MSDM2	0,821			
	MSDM3	0,784			
	MSDM4	0,887			
	MSDM5	0,861			
Organisational Commitment	KO1	0,918	0,731	0,918	0,939
	KO2	0,826			
	KO3	0,793			
	KO4	0,891			
	KO5	0,872			
Innovative Work Behaviour	PKI1	0,927	0,745	0,921	0,942
	PKI2	0,834			
	PKI3	0,801			
	PKI4	0,889			
	PKI5	0,884			

Source: Output Smart PLS 3

Based on Table 1, all indicators in the three research variables have outer loading values ranging from 0.784 to 0.927. These values indicate that all indicators have met the convergent validity requirements as they are above the minimum threshold of 0.70. This means each indicator is able to measure the construct it represents well and has a strong relationship with its respective latent variable.

The Average Variance Extracted (AVE) values for all variables are also above 0.50, ranging from 0.724 to 0.745. This result indicates that more than 70% of the variance of the indicators can be explained by the constructs being measured, so the convergent validity in this study is considered very good. In terms of reliability, the Cronbach's Alpha values for all variables are above 0.90, while the Composite Reliability values range from 0.936 to 0.942. Both values far exceed the minimum threshold of 0.70, indicating that the research instruments have a very high level of internal consistency. Thus, all variables in this study are considered reliable and suitable for use in the structural model testing in the next stage.

These results indicate that the implementation of Strategic Human Resource Management, the level of Organisational Commitment, and Innovative Work Behaviour among employees in the banking industry in Indonesia can be accurately measured through the indicators used in this study. Therefore, the analysis can proceed to the inner model testing stage to examine the relationships between variables in more depth.

Table 2. Discriminant Validity (Fornell-Larcker Criterion)

	Strategic Human Resource Management	Organisational Commitment	Innovative Work Behaviour
Strategic Human Resource Management	0,851		
Organisational Commitment	0,812	0,855	

	Strategic Human Resource Management	Organisational Commitment	Innovative Work Behaviour
Innovative Work Behaviour	0,798	0,836	0,863

Source: Output Smart PLS 3

As presented in Table 2, the diagonal values indicate the square root of the Average Variance Extracted (AVE) for each variable, while the values outside the diagonal show the correlations between constructs. Discriminant validity is considered to be fulfilled if the square root of the AVE for each construct is greater than the correlations between other constructs.

Based on the test results, the square root of AVE values for the Strategic Human Resource Management variable is 0.851, for Organisational Commitment is 0.855, and for Innovative Work Behaviour is 0.863. All these values are higher than the correlation values between variables, which range from 0.798 to 0.836. This indicates that each construct has distinct characteristics and is able to explain its own variable well without excessive overlap between constructs.

The highest correlation was observed between Organisational Commitment and Innovative Work Behaviour, at 0.836. This indicates that in the banking industry in Indonesia, the level of loyalty, emotional attachment, and sense of belonging to the organisation is closely related to the emergence of innovative behaviours among employees. Employees with high commitment to the company are more likely to be motivated to generate new ideas, seek creative solutions, and actively contribute to the progress of the organisation. Furthermore, the fairly strong relationship between Strategic Human Resource Management and Organisational Commitment, at 0.812, shows that effective human resource management strategies can enhance employee loyalty to the company. Practices such as training, reward systems, career development, and employee involvement in decision-making are important factors in building strong organisational commitment.

Although there is a fairly high correlation between constructs, the Fornell-Larcker test results still indicate that the research model meets the criterion for discriminant validity. Thus, it can be concluded that the variables Strategic Human Resource Management, Organisational Commitment, and Innovative Work Behaviour are empirically distinct constructs and are suitable for use in subsequent structural model analysis. After ensuring that the measurement model (outer model) meets the validity and reliability criteria, the next step is to evaluate the structural model (inner model). This evaluation aims to determine the model's predictive capability and the strength of the relationships between variables in the study. One of the main indicators in the inner model evaluation is the coefficient of determination or R-square (R^2). The R-square value indicates the extent to which the dependent variable can be explained by the independent and mediating variables in the research model.

Based on the results of the PLS-SEM analysis, the R-square value for the Innovative Work Behaviour construct is recorded at 0.728. This value indicates that the research model involving Strategic Human Resource Management and Organisational Commitment is able to explain 72.8% of the variance in Innovative Work Behaviour among employees in the banking industry in Indonesia. Meanwhile, the remaining 27.2% is explained by other factors outside this research model. This value indicates a strong level of predictive accuracy, meaning that the research model has a good ability to explain the relationships between the variables studied. The high determination value provides a strong basis for continuing the significance testing of relationships between variables through the bootstrapping procedure.

The bootstrapping results were then used to examine the path coefficient values, T-statistics, and P-values in testing the research hypotheses. Visually, the relationships between

variables in the structural model can be illustrated through a path diagram (path coefficient) showing both direct and indirect influences between Strategic Human Resource Management, Organisational Commitment, and Innovative Work Behaviour.

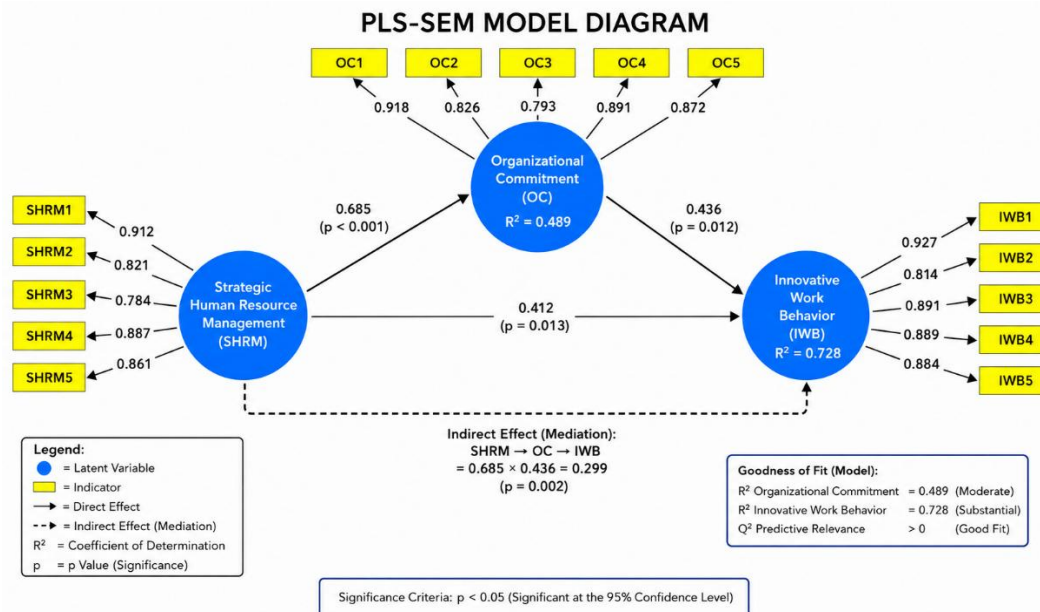


Figure 2. Path Coefficient Results

The evaluation of the structural model (inner model) was conducted to determine the significance of the relationships between constructs in this study. Testing was carried out using the bootstrapping method in SmartPLS to generate path coefficient values, T-statistics, and P-values which serve as the basis for accepting or rejecting the research hypotheses. This model aims to examine the direct influence of Strategic Human Resource Management on Innovative Work Behaviour, the influence of Strategic Human Resource Management on Organisational Commitment, the influence of Organisational Commitment on Innovative Work Behaviour, as well as the indirect influence through mediating variables. Based on the PLS-SEM analysis, the results of the direct effect hypothesis testing are presented in the following table.

Table 3. Results of the Direct Effect Hypothesis Test

Relationship Between Variables	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics O/STDEV	P Values
Strategic HR Management → Innovative Work Behaviour	0,412	0,418	0,165	2,497	0,013
Strategic HR Management → Organisational Commitment	0,685	0,691	0,128	5,352	0,000
Organisational Commitment → Innovative Work Behaviour	0,436	0,441	0,174	2,506	0,012

Source: Output Smart PLS 3

Based on the hypothesis testing results in Table 3, the relationship between Strategic Human Resource Management and Innovative Work Behaviour shows a positive and significant effect with a path coefficient value of 0,412, a T-statistics value of 2,497, and a P value of 0,013. Since the P value is less than 0,05, the first hypothesis is accepted. These results

indicate that the better the implementation of human resource management strategies in banking companies, the higher the innovative work behaviour exhibited by employees.

Furthermore, the relationship between Strategic Human Resource Management and Organisational Commitment shows a highly significant positive influence with a path coefficient value of 0.685, a T-statistics value of 5.352, and a P value of 0.000. These results indicate that HR management strategies such as training, career development, reward systems, and employee involvement have a strong impact on increasing employee loyalty and emotional attachment to the organisation. Therefore, the second hypothesis is accepted.

The relationship between Organisational Commitment and Innovative Work Behaviour also shows a positive and significant effect with a coefficient value of 0.436, a T-statistics value of 2.506, and a P value of 0.012. This indicates that employees with high commitment to the organisation tend to be more active in generating new ideas, taking initiative, and contributing to creating work innovations. Therefore, the third hypothesis is also accepted.

These results show that Organisational Commitment plays an important role in supporting the development of Innovative Work Behaviour among employees in the banking industry in Indonesia. Furthermore, the implementation of Strategic Human Resource Management not only has a direct impact on work innovation but also strengthens employees' commitment to the organisation, which ultimately contributes to the enhancement of innovative work behaviour.

The next step is to test the indirect effects or mediation effects to determine whether Organisational Commitment truly acts as a mediating variable in the relationship between Strategic Human Resource Management and Innovative Work Behaviour. The results of this test are presented in the following table.

4.2 Discussions

4.2.1 The Influence of Strategic Human Resource Management on Innovative Work Behaviour

The results of this study indicate that Strategic Human Resource Management has a positive and significant impact on Innovative Work Behaviour among employees in the banking industry in Indonesia. These findings suggest that well-planned human resource management practices aligned with organizational goals can encourage employees to be more creative, proactive, and willing to generate new ideas in their work. Strategies such as continuous training, fair reward systems, career development, and employee involvement in decision-making are important factors in shaping such innovative behaviour.

This finding differs from several previous studies which found that human resource management practices do not always have a direct impact on innovative work behaviour, especially in organisations with high levels of control and low job autonomy (Hermawan et al., 2024). This can be explained by the context of the banking industry in Indonesia, which is undergoing digital transformation, making organisations more adaptive to change and innovation.

In the highly competitive banking industry, which is continuously undergoing digital transformation, innovative work behaviour has become one of the key factors determining organisational success. Employees are not only required to carry out routine tasks, but are also expected to provide new solutions, improve work efficiency, and create better services for customers. According to (Lahlou-Kassi & Eddakir, 2025; Onur et al., 2024), strategic human resource management plays a role in creating a work system that supports the continuous development of employees' competence and innovation.

Theoretically, these results indicate that when an organisation is able to manage its human resources strategically, the innovative potential of employees will develop optimally. Employees who feel valued and given opportunities to grow tend to have higher motivation to

contribute to the company's progress. This aligns with previous research stating that a work environment that supports individual development will strengthen innovative behaviour in modern organisations.

4.2.2 The Influence of Strategic Human Resource Management on Organisational Commitment

Research results also prove that Strategic Human Resource Management has a positive and significant effect on Organisational Commitment. This finding indicates that the better a company manages its employees through effective HR strategies, the higher the level of loyalty, emotional attachment, and sense of belonging employees have towards the organisation.

However, these findings differ from research that states HRM practices do not always have a significant impact on organisational commitment, especially when there is a gap between strategy and policy implementation in the organisation (Qiao et al., 2024). This can be explained because, in the context of this research, the banking sector has a more stable and structured work system, enabling it to enhance employees' emotional attachment to the organisation.

In the banking sector, organisational commitment is a crucial element due to high work demands, target pressures, and the need to maintain service quality for customers. When the company pays attention to employee welfare, career development, and fair recognition, employees feel valued as an important part of the organisation. This condition will enhance their desire to remain and contribute fully to the company.

Organisational commitment reflects the psychological relationship between an individual and the organisation, which influences a person's decision to remain a part of that organisation (Alwahhabi et al., 2023). In the context of this research, strategic HRM practices serve as the main foundation in building this relationship. A fair and supportive work system can create trust and long-term loyalty among banking employees.

4.2.3 The Influence of Organisational Commitment on Innovative Work Behaviour

This study found that Organisational Commitment has a positive and significant influence on Innovative Work Behaviour. This indicates that employees with a high level of commitment to the organisation tend to be more active in generating new ideas, solving problems creatively, and making innovative contributions to the company.

This finding is in line with the research of Bahagia et al., (2024); Bernards, (2025), which shows that organisational commitment positively affects innovative work behaviour because it can enhance employee engagement, motivation, and sense of responsibility towards their work and the organisation. Employees with high commitment tend to be more proactive in developing ideas, seeking new solutions, and contributing to the continuous improvement of work processes.

A strong organisational commitment makes employees feel that the company's success is part of their personal success. This sense of ownership encourages them to work more optimally and focus not only on completing tasks, but also on improving overall work systems. In the banking industry, this condition is very important because innovation is one of the keys to coping with changes in financial technology and market competition.

According to (Nicolescu & Rîpa, 2024), innovative work behaviour involves the process of generating ideas, promoting ideas, and then implementing those ideas into concrete actions. Employees with high commitment are more motivated to go through the entire process because they have a strong concern for the organisation's progress. Thus, organisational commitment becomes one of the psychological factors that significantly influence the promotion of work innovation.

4.2.4 The Role of Organisational Commitment in Mediating the Influence of Strategic Human Resource Management on Innovative Work Behaviour

The most important finding in this study is the proven role of Organisational Commitment as a mediating variable in the relationship between Strategic Human Resource Management and Innovative Work Behaviour. These results indicate that the implementation of effective HR strategies not only has a direct impact on work innovation but also exerts a stronger influence through the enhancement of employee organisational commitment.

Organisational commitment acts as a psychological bridge that connects company policies with employees' actual behaviour in the workplace. When employees feel supported by the organisation through training, rewards, career development, and a healthy work environment, they build strong loyalty to the company. This loyalty then encourages the emergence of innovative behaviour as a form of contribution to the organisation's progress. Without strong organisational commitment, strategic HRM practices may only result in formal compliance without fostering deep emotional engagement. Therefore, the success of HR strategies heavily depends on the company's ability to sustainably build employee commitment. This finding has practical implications for bank management, indicating that enhancing work innovation is not sufficient through administrative policies alone, but must be accompanied by efforts to build employees' emotional attachment to the organisation.

Thus, this study confirms that the integration between Strategic Human Resource Management and Organisational Commitment is the most effective model in enhancing Innovative Work Behaviour among employees in the banking industry in Indonesia. This approach can serve as an important strategy for companies in facing increasingly complex and dynamic business competition.

5. Conclusion

Based on the research on the influence of Strategic Human Resource Management on Innovative Work Behaviour with Organisational Commitment as a mediating variable in employees of the banking industry in Indonesia, it can be concluded that Strategic Human Resource Management has a positive and significant impact on Innovative Work Behaviour. This indicates that the implementation of effective human resource management strategies, such as continuous training, fair reward systems, career development, performance appraisal, and employee involvement in decision-making, can encourage employees to be more creative, proactive, and innovative in performing their work.

In addition, Strategic Human Resource Management has also been shown to have a positive and significant impact on Organisational Commitment. The better a company manages its human resources, the higher the level of loyalty, emotional attachment, and sense of ownership employees have towards the organisation. Strong organisational commitment makes employees more motivated to contribute their best to the company. Research results also indicate that Organisational Commitment has a positive and significant influence on Innovative Work Behaviour. Employees with high commitment to the organisation tend to be more active in generating new ideas, solving problems creatively, and supporting change and innovation within the company. This is particularly important in the banking industry, which continues to face digital transformation and increasingly intense business competition.

The main finding of this study is that Organisational Commitment is proven to be able to mediate the relationship between Strategic Human Resource Management and Innovative Work Behaviour. This means that good HR management strategies will be more effective in enhancing innovative work behaviour if they are able to build strong organisational commitment among employees. Organisational commitment becomes an important bridge connecting company policies with employees' innovative behaviour in the workplace.

Therefore, banking companies in Indonesia need to strengthen Strategic Human Resource Management practices while also enhancing Organisational Commitment in order to foster sustainable Innovative Work Behaviour. This strategy is a key factor in improving the company's competitiveness and facing business challenges in the digital era.

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WORKPLACE SPIRITUALITY AND TURNOVER INTENTION: THE MEDIATING ROLE OF JOB SATISFACTION AMONG HOSPITAL EMPLOYEES IN BANDAR LAMPUNG CITY

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Abstract

This study aims to analyse the effect of workplace spirituality on turnover intention with job satisfaction as a mediating variable among hospital employees in Bandar Lampung City. This study uses a quantitative approach with a cross-sectional method. Data were collected from 179 respondents who are hospital employees through a purposive sampling technique, with the criterion of having worked for at least one year. Data analysis was carried out using the Partial Least Squares Structural Equation Modelling (PLS-SEM) method. The results indicate that all constructs met the criteria for validity and reliability, both in terms of convergent and discriminant validity. Hypothesis testing shows that workplace spirituality has a positive and significant effect on turnover intention as well as job satisfaction. In addition, turnover intention also has a positive and significant effect on job satisfaction, although with a lower level of influence. Among these relationships, the influence of workplace spirituality on job satisfaction is the most dominant. This finding indicates that workplace spirituality plays an important role in enhancing employee job satisfaction and affects attitudes related to turnover. Therefore, hospital management needs to create a work environment that supports spiritual values as a strategy to improve employee retention and service quality. In addition, turnover intention also has a positive and significant effect on job satisfaction, although with a lower level of influence. Among these relationships, the influence of workplace spirituality on job satisfaction is the most dominant. This finding indicates that workplace spirituality plays an important role in enhancing employee job satisfaction and influencing attitudes related to turnover. Therefore, hospital management needs to create a work environment that supports spiritual values as a strategy to improve employee retention and the quality of service.

Keywords: Workplace spirituality; Job satisfaction; Turnover intention; Hospital employees.

1. Introduction

In the era of modern healthcare transformation, the sustainability of human resources has become a key factor in determining the quality and effectiveness of hospital services (Wang et al., 2025). Turnover intention, or the desire of employees to leave an organisation, has become a global strategic issue, particularly in the healthcare sector which experiences high work pressure and complex service demands (Arakelian et al., 2022). High turnover not only increases recruitment and training costs but also has the potential to reduce service quality and patient safety (C. Liu & Min, 2023). In Bandar Lampung City, as one of the healthcare centres in the Sumatra region, the challenge of maintaining hospital workforce stability is increasing in line with demands for professional and patient-oriented services (Maniscalco et al., 2024).

In this context, value- and meaning-based approaches to work are beginning to gain attention, one of which is through the concept of workplace spirituality (Nabil et al., 2025). Workplace spirituality refers to the extent to which individuals perceive meaning, purpose, and

connectedness in their work (Pawar, 2023). Recent research indicates that a work environment supporting spiritual values can enhance employees' psychological well-being, strengthen organisational commitment, and reduce turnover intention (Hunsaker, 2024). Dalam sektor rumah sakit, di mana interaksi sosial, empati, dan nilai kemanusiaan menjadi aspek utama, spiritualitas di tempat kerja memiliki peran penting dalam membentuk sikap kerja yang positif dan meningkatkan ketahanan psikologis karyawan. In the hospital sector, where social interaction, empathy, and humanitarian values are key aspects, workplace spirituality plays an important role in shaping positive work attitudes and enhancing employees' psychological resilience (Hoilett, 2024).

However, the relationship between workplace spirituality and turnover intention does not always occur directly (Nikensari et al., 2024). In many studies, job satisfaction acts as a psychological variable that bridges this relationship (Ning et al., 2023). Job satisfaction reflects an individual's overall evaluation of their job, including aspects of the work environment, rewards, and interpersonal relationships (Ertemsir et al., 2024b). Employees with high levels of job satisfaction tend to have stronger loyalty and lower turnover intention (Y. Chen et al., 2023). Thus, workplace spirituality can enhance job satisfaction, which ultimately contributes to reducing employees' desire to leave the organization (Lee & Yu, 2023).

Although various studies have examined the relationship between workplace spirituality, job satisfaction, and turnover intention, there remains a gap in understanding the interaction of these three variables comprehensively, particularly in the context of hospital employees in regional areas (Putri, N. K., & Handayani, 2024). Most previous research has focused more on the corporate sector or general organisations, so the context of the healthcare sector, especially in regions such as Bandar Lampung City, is still relatively limited (Dewi, R. S., 2023). In fact, the nature of hospital work, which demands high emotional involvement and significant social responsibility, requires a more contextual and human-value-centered approach (Wang, Y., Liu, J., & Zhu, 2024).

Based on this, the study aims to analyse the effect of workplace spirituality on turnover intention with job satisfaction as a mediating variable among hospital employees in Bandar Lampung City (Syahrul et al., 2024). By positioning job satisfaction as the main mediator, this research is expected to provide theoretical contributions to the development of organisational behaviour studies that focus more on psychological aspects and employees' intrinsic values (Melhem & Thesis, 2019). In addition, practically, the results of this study are expected to serve as a basis for hospital management in designing more effective human resource management strategies to improve employee retention and the quality of healthcare services (Bassam & Rahman, 2024).

2. Literature Review

2.1 Spirituality in the Workplace

Spirituality in the workplace is a concept that emphasises the importance of meaning, purpose, and relationships among individuals in performing their work (Cechm & Drbohlay, 2024). In today's organisations, spirituality is not only related to religious aspects but also encompasses fundamental values such as meaningful work and a sense of togetherness that can enhance employees' psychological well-being (Chandra & Kumar, 2025). Employees who perceive meaning in their work tend to display more positive attitudes and have stronger bonds with the organization (laercio Andre Gassen Balsan, 2020). Furthermore, a work environment that supports spiritual values can create a more harmonious workplace and increase overall employee participation (Nabil et al., 2025).

2.2 Turnover Intention

Turnover intention is an employee's intention to voluntarily leave the company, which can negatively affect the stability of the organization (Xu et al., 2024). In the hospital sector, high turnover intention can disrupt service continuity and reduce the quality of healthcare (Arakelian et al., 2022). Therefore, it is important for organisations to recognise the factors influencing turnover intention in order to design more effective retention strategies (Qian et al., 2024). Research indicates that job satisfaction and work atmosphere are crucial elements in reducing employees' intention to resign (Y. Liu & Duan, 2023).

2.3 Job Satisfaction

Job satisfaction is an emotional state that reflects how happy someone feels with their work (Cole, 2025). Various elements such as workplace conditions, interactions with colleagues, and the recognition received influence job satisfaction (Latif et al., 2024). High levels of job satisfaction can strengthen employee loyalty and dedication to the organisation, as well as reduce the likelihood of them leaving their job (M et al., 2024). In the healthcare sector, job satisfaction plays a crucial role in maintaining workforce stability and improving the quality of service (Nabil et al., 2025).

2.4 The Relationship of Spirituality in the Workplace

Spirituality in the workplace shows a negative impact on the intention to change job (Wnuk, 2024). Employees who feel meaning and purpose in their work tend to have a deeper emotional attachment to the company, thus reducing the desire to leave (Casal et al., 2025). In addition, spirituality also contributes to creating a positive and supportive work environment, which in turn enhances employee comfort and significantly decreases the intention to change jobs (Z. Chen et al., 2023).

2.5 The Role of Job Satisfaction Mediation

Job satisfaction functions as a mediator in the relationship between workplace spirituality and the intention to change jobs (Sreeja et al., 2023). Workplace spirituality can enhance job satisfaction by creating a meaningful work environment and fulfilling employees' psychological needs (Van der Walt, F., & De Klerk, 2023). Furthermore, a high level of job satisfaction will reduce employees' motivation to leave the company (Westover., 2024). Thus, the effect of spirituality on the intention to change jobs is both direct and indirect through job satisfaction (Z. Chen et al., 2023).

3. Conceptual Framework and Hypothesis Development

3.1 The Influence of Workplace Spirituality on Turnover Intention

Workplace spirituality is one of the elements that greatly influences employee attitudes and behaviour within an organisation (Sambul, 2023). This concept includes the search for meaning in work, a sense of solidarity, and the alignment of values between individuals and the company (Ortiz, 2023). When employees feel that their work has a deeper purpose and aligns with their personal values, they usually develop a stronger emotional attachment to the company (Jonathan H. Westover, 2025). Therefore, H1: workplace spirituality has a negative and significant impact on the intention to change jobs, which ultimately can reduce employees' desire to leave their jobs (Priyanti, 2023).

3.2 The Influence of Spirituality in the Workplace on Job Satisfaction

Spirituality in the workplace also contributes to increased employee job satisfaction (Misra et al., 2024). A work environment that provides meaning, social support, and positive interactions will make employees feel more valued and comfortable at work (Jose & George, 2025). This leads to H2: workplace spirituality positively and significantly contributes to job satisfaction, as those who find meaning in their work tend to enjoy work activities more and have healthier social interactions (Ravinal, 2024).

3.3 The Influence of Job Satisfaction on Turnover Intention

Job satisfaction is an important element that influences employees' decisions to stay in an organisation or leave (Ravinal, 2024). Employees who feel satisfied with their jobs typically exhibit high loyalty and commitment (Prasad, 2025). Thus, H3: job satisfaction is negatively and significantly related to the intention to change jobs, as a high level of satisfaction will reduce the intention to seek employment elsewhere (Rosalia Maria da Silva, 2023).

3.4 The Role of Job Satisfaction Mediation

Job satisfaction can also act as a mediator variable between workplace spirituality and the intention to change jobs (Polewczyk & Joanna, 2021). A high level of spirituality will increase employee job satisfaction (Surya, 2022). This supports H4: job satisfaction acts as a link between the influence of workplace spirituality on the intention to change jobs, where increased job satisfaction will contribute to a decreased desire to leave the organisation (Brauer3 & Junior, 2023).

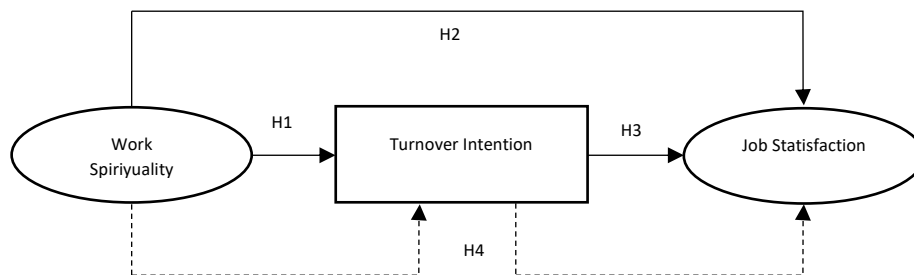


Figure 1. Research Constellation

4. Methodology

The research method was chosen based on the problem or objective to be achieved, where selecting the appropriate method is crucial to ensure the accuracy of the research results. This study adopts a quantitative and cross-sectional approach to analyse the issues raised. The research applies a quantitative approach using the cross-sectional method. This approach was chosen because the research aims to test the relationship between variables in an objective and measurable way. The cross-sectional method is used because data is collected at a specific point in time to understand the situation of the respondents. The population in this study includes all hospital employees in Bandar Lampung City. The sample involved in this study consisted of 179 respondents obtained through purposive sampling, a technique of selecting samples based on certain criteria, such as employees who have worked for at least one year. This sample size is considered sufficient for analysis using SEM-PLS, which does not require a large sample but can still provide accurate estimates.

5. Results dan Discussions

5.1 Results

The measurement model was examined to ensure that the constructs had validity and reliability before testing the hypotheses. Convergent validity was determined through the outer loading values, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). The analysis showed that all indicators had outer loading values above 0.7, and the Cronbach's alpha and composite reliability values were also above 0.7, indicating reliability. Furthermore, the AVE value for each variable was higher than 0.5, indicating that the constructs had achieved convergent validity. Next, discriminant validity was tested using the Fornell-Larcker criterion. The results showed that the square root of the AVE for each variable was greater than the correlations among constructs, allowing the conclusion that the model had met discriminant validity. The measurement model results are shown in Figure 2 and Table 2.

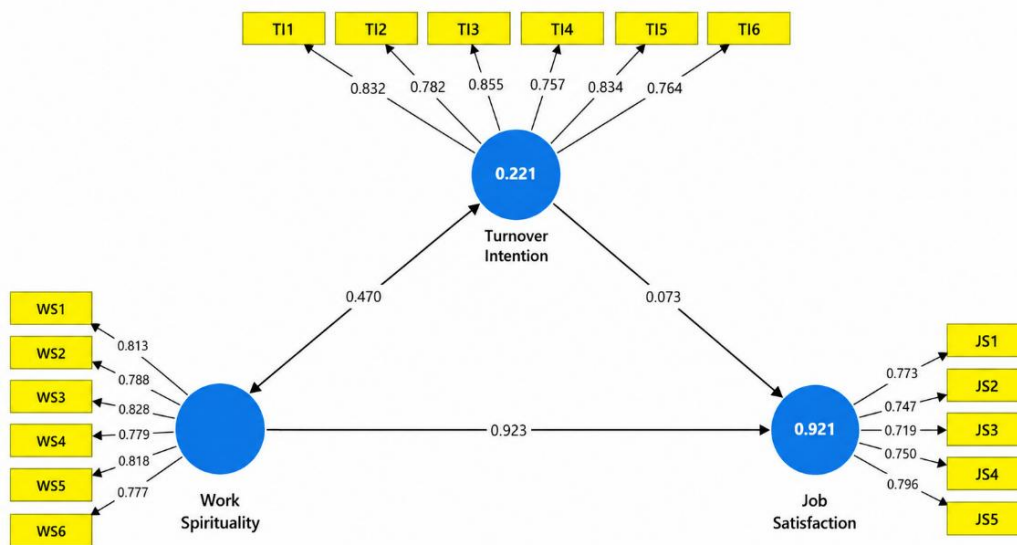


Figure 2. Measurement Model Assessment

Based on the illustration shown above, it can be seen that there are six statements from the Workplace Spirituality aspect that show an outer loading value of more than 0.7 and are considered valid. On the other hand, five statements from the overall Job Satisfaction aspect also show an outer loading value of more than 0.7. Additionally, for the Turnover Intention variable, there are six questions, all of which have an outer loading value above 0.7. The Workplace Spirituality indicators include: WS1 = 0.813; WS2 = 0.788; WS3 = 0.828; WS4 = 0.779; WS5 = 0.818; and WS6 = 0.777. An outer loading value higher than 0.7 indicates that the indicators contribute significantly and are relevant in representing the latent construct. In this case, these indicators successfully reflect the measured construct dimensions well, thus all indicators are declared to have satisfactory convergent validity.

Table 2. Internal Consistency, Convergent Validity, Composite Reliability, and Ave

Construct	Indicators	Loadings	Cronbach's Alpha	Composite Reliability	AVE
Work Spirituality (WS)	WS1	0,813	0,888	0,888	0,641
	WS2	0,788			
	WS3	0,828			
	WS4	0,779			
	WS5	0,818			
	WS6	0,777			
Turnover Intention (TI)	TI1	0,832	0,892	0,902	0,648

	TI2	0,782			
	TI3	0,855			
	TI4	0,757			
	TI5	0,834			
	TI6	0,764			
	JS1	0,773			
	JS2	0,747			
Job Satisfaction (JS)	JS3	0,719	0,819	0,871	0,641
	JS4	0,750			
	JS5	0,796			

Based on the table above, the loading values show the relationship between the indicators and the latent construct. Loadings above 0.7 indicate that the indicator has a significant influence in representing the latent construct. For the Work Spirituality (WS) construct, all loading values are above 0.7, indicating that indicators WS1 to WS6 consistently represent this construct. On the other hand, for the Job Satisfaction (JS) construct, there is one indicator, JS3, which has the lowest loading value (0.719), but still shows a valid contribution as it exceeds the threshold. Furthermore, the Cronbach's Alpha value is used to assess internal consistency or reliability among indicators within a construct. A Cronbach's Alpha value above 0.7 is considered to indicate good results. In the table above, all three constructs showed Cronbach's Alpha values above 0.8, indicating that each construct has strong internal consistency.

The Composite Reliability (CR) value serves as a more accurate indicator of internal reliability compared to Cronbach's Alpha as it takes into account the loading value of each indicator. If the CR value is above 0.7, it indicates good reliability. All constructs in this table show CR values greater than 0.8, indicating that the indicators in each construct have a high level of reliability. Meanwhile, the Average Variance Extracted (AVE) value serves as a measure for convergent validity, showing how much of the variation in the construct can be explained by these indicators. An AVE value above 0.5 indicates that the construct has good convergent validity, meaning more than 50% of the variation can be explained by its indicators. In this table, all constructs have AVE values greater than 0.5, indicating adequate convergent validity.

Overall, this table shows that the constructs of Work Spirituality, Turnover Intention, and Job Satisfaction have good internal consistency and adequate convergent validity. Based on these results, it can be concluded that the indicators used are reliable in representing their respective constructs.

Table 3. Fornell–Larcker Criterion.

	Company Digitalization System	Job Satisfaction	Technology Adoption
Work Spirituality	0,958		
Turnover Intention	0,507	0,805	
Job Satisfaction	0,757	0,470	0,801

The results of the Fornell–Larcker criterion test show that the square root of the AVE for each construct is higher than the correlation values between constructs. This indicates that the research model meets good discriminant validity standards. The construct with the lowest Fornell–Larcker value is Turnover Intention, reaching 0.805, while the construct with the highest value is Work Spirituality at 0.958. These values are greater than the correlations between constructs, such as the relationship between Work Spirituality and Turnover Intention at 0.507, Work Spirituality and Job Satisfaction at 0.757, and Job Satisfaction and Turnover

Intention at 0.470. Therefore, it can be concluded that each construct in this research model shows clear differentiation and meets the criteria for discriminant validity.

Table 4. Structural Model Assessment.

Hypotheses	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Work Spirituality > Turnover Intention	0,470	0,471	0,069	6.812	0,000
Work Spirituality > Job Satisfaction	0,923	0,992	0,016	57.152	0,000
Turnover Intention > Job Satisfaction	0,073	0,076	0,026	2.818	0,005

The PLS-SEM method was applied to estimate the model and test hypotheses in this study. The bootstrapping process was used to assess the significance of the relationships between variables. The results of the SEM analysis shown in Table 4 indicate that Work Spirituality has a positive and significant impact on Turnover Intention ($\beta = 0.470$; $t = 6.812$; $p = 0.000$), thus H1 is accepted. Furthermore, Work Spirituality also shows a positive and significant influence on Job Satisfaction ($\beta = 0.923$; $t = 57.152$; $p = 0.000$), thus H2 is accepted. In addition, Turnover Intention is proven to positively and significantly affect Job Satisfaction ($\beta = 0.073$; $t = 2.818$; $p = 0.005$), thus H3 is accepted. Overall, all hypotheses in this study are accepted because they have t-statistic values greater than 1.96 and p-values lower than 0.05.

5.2. The Relationship between Work Spirituality and Turnover Intention

The path coefficient value from Work Spirituality to Turnover Intention has a t-statistics value of 6.812. This value indicates that Work Spirituality has a significant effect on Turnover Intention. This means that the higher the level of spirituality perceived in the workplace, the greater its influence on employees' tendency regarding their intention to leave the organization. These findings indicate that aspects such as meaningful work, sense of community, and value alignment play an important role in shaping employee attitudes towards the desire to stay with or leave the organization.

5.3. The Relationship between Work Spirituality and Job Satisfaction

The path coefficient value from Work Spirituality to Job Satisfaction has a t-statistics value of 57.152. This value is the highest compared to other relationships, indicating a very strong and significant positive effect. This suggests that the higher the work spirituality, the higher the employee's job satisfaction. Employees who find meaning in their work and have value alignment with the organization tend to have higher levels of job satisfaction.

5.4. The Relationship between Turnover Intention and Job Satisfaction

The path coefficient value from Turnover Intention to Job Satisfaction has a t-statistics value of 2.818. Although this value is lower compared to other relationships, it still indicates a significant effect. This means that Turnover Intention also plays a role in influencing job satisfaction, although its effect is relatively smaller. These findings indicate that employees' desire to leave the organization is still related to the level of job satisfaction experienced.

5.5. t values for Indicators

Each indicator in the construct has a t-statistic value that shows its level of significance in representing the latent variable. In general, a t-statistic value greater than 1.96 indicates that

the indicator is significant at the 95% confidence level. In the Work Spirituality construct, several indicators show high t-statistic values, meaning that dimensions such as work meaning, sense of community, and value alignment are strong indicators in representing the construct. In the Turnover Intention construct, the indicators used also show adequate t-statistic values, making them valid in measuring employees' tendency to leave the organization. Meanwhile, in the Job Satisfaction construct, the indicators show strong t-statistics values, indicating that aspects such as job satisfaction, work environment, and overall working conditions significantly contribute to representing job satisfaction. Overall, the findings of this study show that Work Spirituality has a stronger influence on Job Satisfaction compared to Turnover Intention, and all indicators used in this study have been valid in measuring their respective constructs. These findings indicate that enhancing spirituality in the workplace can be an effective strategy to improve employee job satisfaction and influence attitudes related to turnover.

5. Discussion

5.1 The Effect of Workplace Spirituality on Turnover Intention

The findings of this study indicate that workplace spirituality has a positive and significant effect on turnover intention. This result suggests that workplace spirituality is significantly associated with employees' attitudes regarding their intention to leave the organization. In the context of hospitals, workplace spirituality reflected through meaningful work, a sense of community, and alignment of values can influence employees' perceptions of their organization and work environment.

This finding supports the argument of Raamkhumar & Swamy, (2024), who emphasized that workplace spirituality plays an important role in shaping employees' attitudes and behaviors. Similarly, (Sari & Januarti, 2024), suggested that a work environment that promotes meaning and purpose may influence employees' decisions regarding organizational commitment and retention. In healthcare organizations, where work is closely related to humanitarian services and emotional involvement, spiritual values become increasingly important in fostering meaningful work experiences and employee engagement.

5.2 The Effect of Workplace Spirituality on Job Satisfaction

The results reveal that workplace spirituality has a positive and significant effect on job satisfaction. This relationship demonstrates the strongest path coefficient among all variables examined in the study, indicating that workplace spirituality is a dominant factor in enhancing job satisfaction among hospital employees. This finding is consistent with previous studies conducted by (Ertemsir et al., 2024a), which found that workplace spirituality contributes significantly to employees' job satisfaction through meaningful work experiences. Employees who perceive their work as meaningful and aligned with their personal values are more likely to experience higher levels of satisfaction. In the hospital setting, where employees frequently encounter emotionally demanding situations, the presence of spiritual values can provide a sense of purpose, belonging, and fulfillment, ultimately increasing job satisfaction.

5.3 The Effect of Turnover Intention on Job Satisfaction

The findings show that turnover intention has a positive and significant effect on job satisfaction. Although the magnitude of this effect is relatively small compared to the other relationships in the model, the result indicates a statistically significant association between the two constructs. This finding suggests that employees' intention to leave the organization is related to their evaluation of job satisfaction. However, the relatively weak coefficient indicates that turnover intention contributes only marginally to explaining job satisfaction. Interestingly,

this result differs from the majority of previous studies, which generally report that job satisfaction negatively affects turnover intention. Therefore, the present finding may reflect the unique characteristics of hospital employees in Bandar Lampung City and highlights the need for further investigation into contextual factors such as career opportunities, organizational support, workload, and working conditions.

5.4 The Mediating Role of Job Satisfaction

This study proposes job satisfaction as a mediating variable in the relationship between workplace spirituality and turnover intention. The findings demonstrate that workplace spirituality has a strong positive effect on job satisfaction, while job satisfaction is also significantly associated with turnover intention. These results suggest that job satisfaction serves as an important psychological mechanism through which workplace spirituality influences employees' attitudes toward remaining in or leaving the organization.

The findings are in line with the study conducted by Mittal et al., (2024), which highlighted the mediating role of job satisfaction in the relationship between workplace spirituality and turnover intention. A workplace environment that promotes meaningful work, social connectedness, and value congruence can enhance employees' satisfaction with their jobs. In turn, this increased satisfaction influences employees' organizational attitudes and behavioral intentions, including their willingness to remain with the organization.

Overall, the results emphasize the strategic importance of workplace spirituality in healthcare organizations. By fostering a work environment that supports spiritual values, meaningful work, and positive interpersonal relationships, hospital management can enhance employee job satisfaction and effectively manage turnover-related issues. Consequently, workplace spirituality can be considered a valuable organizational strategy for improving employee retention and maintaining high-quality healthcare services.

6. Conclusion

This study aims to analyse the impact of workplace spirituality on turnover intention with job satisfaction as a mediating variable among hospital employees in Bandar Lampung City. Based on the analysis using the PLS-SEM method, it can be concluded that all constructs in the model meet the criteria for validity and reliability, both in terms of convergent and discriminant validity. The hypothesis testing results show that workplace spirituality has a positive and significant effect on turnover intention and job satisfaction. The influence of workplace spirituality on job satisfaction is the strongest compared to the other relationships. In addition, turnover intention is also proven to have a positive and significant effect on job satisfaction, although with a relatively lower level of influence. These findings indicate that workplace spirituality plays an important role in shaping employees' attitudes and perceptions towards their work. Employees who experience meaning, purpose, and connectedness in their work tend to have higher job satisfaction. On the other hand, although turnover intention is still related to job satisfaction, its influence is not as significant as that of spirituality. Overall, this study confirms that enhancing workplace spirituality can be an effective strategy for increasing employee job satisfaction and influencing turnover dynamics within the organisation. Therefore, hospital management is advised to create a working environment that supports spiritual values to improve employee well-being and service quality.

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HUMAN RESOURCE MANAGEMENT: THE ROLE OF MINDFULNESS AND BUDDHIST ETHICAL LEADERSHIP IN ENHANCING EMPLOYEE PERFORMANCE THROUGH WORK ENGAGEMENT IN BUDDHIST EDUCATIONAL ORGANISATIONS IN INDONESIA

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Abstract

This study aims to analyse the role of mindfulness and Buddhist ethical leadership in improving employee performance through work engagement in Buddhist educational organisations in Indonesia, using a Human Resource Management approach based on Sammā Vāyāma. The study employs a quantitative method with Structural Equation Modeling (SEM) analysis based on SmartPLS with 130 respondents consisting of teaching and educational staff. The results show that mindfulness and Buddhist ethics have a positive and significant effect on employee performance, with Buddhist ethics having a stronger influence. Employee performance is proven to have a significant effect on work engagement and is the dominant variable in the research model. Meanwhile, mindfulness does not have a direct effect on work engagement but has an indirect effect through employee performance as a full mediator. On the other hand, Buddhist ethics directly or indirectly influence work engagement through employee performance, indicating partial mediation. These findings affirm that integrating Buddhist spiritual values into HRM practices can create a productive, ethical, and sustainable work environment. This study provides theoretical contributions to the development of HRM concepts based on spiritual values as well as practical implications for managing Buddhist educational organisations in Indonesia.

Keywords: Mindfulness; Buddhist Ethics; Employee Performance; Work Engagement; Sammā Vāyāma.

1. Introduction

Amid rapid global changes and the complexity of psychological challenges in the workplace, organisations today are required to pay attention not only to business objectives, but also to the well-being and ethical development of their human resources (Elbistian, K. P., Asih, S., & Albert, 2026). This is especially important in the context of Buddhist educational organisations in Indonesia, which have two identities: as educational institutions that must operate professionally and as entities that uphold the spiritual values of the Dhamma. Difficulties in managing teachers and staff often arise when administrative demands and national education standards conflict with the ethics and the need to achieve inner peace as taught in Buddhist teachings. In facing this challenge, Buddhist educational institutions need to implement a management approach that is not only procedurally efficient but also ethical and sustainable, in line with their philosophical principles (Sumaryati & Lasiyo, 2024; Wang & Tan, 2024).

This study presents an innovative framework in Human Resource Management by integrating the Buddhist concept of *Sammā Vāyāma* or Right Effort, which is part of the Noble Eightfold Path (Fry & Vu, 2024). In the context of contemporary organisations, *Sammā Vāyāma* is not only interpreted as hard work but also encompasses four aspects of effort:

preventing the emergence of unhealthy conditions, overcoming existing adverse situations, developing good conditions that do not yet exist, and maintaining and enhancing existing good conditions (Prasert, 2024). This principle is highly aligned with the organisation's need to build resilient and ethical human resources. Previous research has shown that the application of Buddhist values such as mindfulness and compassion within organisations can significantly enhance commitment and performance (Lassri & Gewirtz-Meydan, 2022). Specifically, mindfulness plays a crucial role in reducing work stress and increasing employee engagement, while Buddhist ethical leadership provides strong moral guidance in decision-making (Anna, A., Nyanasuryanadi, P., & Burmansah, 2023).

The purpose of this study is to analyse how mindfulness and Buddhist ethical leadership can enhance employee performance, considering work engagement as a mediating variable. This study focuses on Buddhist educational institutions in Indonesia, which have their own distinctive characteristics in managing human resources. By involving 130 respondents from educators and staff at these institutions, the study will explore the extent to which the implementation of *Sammā Vāyāma*-based Human Resource Management can create a productive yet humane work environment that aligns with the noble values of Buddhism.

2. Literature Review

2.8. Human Resource Management from the Perspective of Values and Ethics

Human Resource Management (HRM) today not only considers efficiency and work results, but also thinks about the mental well-being and ethics of employees. This strategy is called sustainable HRM, which highlights the importance of maintaining a balance between company performance and individual well-being (Tyagi & Ganguly, 2024). Various studies show that companies that adopt ethical principles in human resource management tend to have higher levels of job satisfaction and employee loyalty (Katarzyna Piwowar-Sulej, Sakshi Malik, Olatunji A. Shobande, Sanjeet Singh, 2023). Furthermore, in the field of education, values-based HRM is crucial, as teachers play more than just a working role; they also act as moral bearers and character builders (Aswad et al., 2024).

In faith-based organisations, such as in Buddhist education, HRM needs to be aligned with the spiritual values upheld. This aligns with the principle of value-based management, which emphasises the importance of integrating organisational values into daily managerial practices (Kawi & Pontjoharyo, 2023). If these spiritual values are ignored, conflicts may arise between work demands and the inner needs of employees, which can ultimately lead to decreased performance and mental wellbeing (Anugrah Metha & Avni Tejas Patel, 2023).

2.9. The Concept of Sammā Vāyāma in an Organisational Context

Sammā Vāyāma or Right Effort is an important component of the Noble Eightfold Path found in Buddhist teachings. This concept focuses on managing effort with full awareness and ethics through four main aspects: preventing negative conditions, eliminating bad conditions, developing positive conditions, and maintaining good conditions (Shah & Sah, 2025). In the context of modern organisations, this principle can be interpreted as a management approach that emphasises continuous improvement and the development of employee character (Ghaleb, 2025).

Studies in Buddhist economics and value-based management indicate that principles drawn from Buddhist teachings can enhance the quality of decision-making within organisations and create a more harmonious working environment (Sharma, 2023). In addition, awareness-based approaches such as *Sammā Vāyāma* help organisations to reduce unproductive behaviour and enhance work norms (Jay Barach, 2024).

2.10. Mindfulness and Employee Performance (Development)

In addition to enhancing concentration and mental health, mindfulness also helps improve employees' emotional regulation and thinking abilities in coping with work stress. Individuals with high levels of mindfulness are usually better able to manage pressure effectively, allowing them to maintain their performance even in stressful situations (Koopmans et al., 2024). This is particularly important in the context of educational institutions, where educators often face significant emotional pressure.

Furthermore, mindfulness also contributes to enhanced task performance and contextual performance. Research indicates that regular mindfulness practice can improve an individual's ability to complete tasks effectively as well as enhance relationships among colleagues (Vainre et al., 2022). In Buddhist-based educational settings, mindfulness practice serves not only as a management tool but also as part of a spiritual practice that helps reinforce the integrity and self-awareness of educators (Lee et al., 2024). This practice aligns with the values of Dharma, which emphasise balance and integrity, and in turn can create a more inclusive and productive working environment (Lie et al., 2024).

In addition, mindfulness also has a wide impact on organisational culture. Organisations that support mindfulness practices typically have lower levels of conflict, better communication, and higher levels of trust among their members (Tewari et al., 2023). Thus, mindfulness not only affects individuals but also the overall dynamics of the organisation.

2.11. Ethical Foundation in Organisational Dynamics

Ethics-based leadership is a key element in shaping behaviour and culture within an organisation. From a Buddhist perspective, leadership is not only focused on the end results, but also on moral values, wisdom, and compassion (Dena & Haque, 2024). Leaders who adopt Buddhist principles tend to prioritise justice, honesty, and balance when making decisions (Pooja Dabral, 2025).

Numerous studies indicate that ethical leadership has a positive impact on employees' trust, commitment, and performance (Yiting et al., 2024). In the realm of spiritual leadership, values such as empathy and self-awareness have been shown to enhance intrinsic motivation and engagement at work (Siswanto et al., 2023). Leadership that is ethical and influenced by Buddhist values plays an important role in creating a peaceful and sustainable work environment (Chi & Roger, 2023). By prioritising mindfulness practices as well as self-control, a leader can foster a calmer, more transparent, and respectful workplace (Zohreh Hosseinzadeh, 2024). This not only helps reduce disputes within the organisation but also promotes good communication and healthy relationships among employees (Yang Sui, Guangxi Hou, Ang Gao, 2025).

Moreover, the integration of moral and spiritual values in leadership provides long-term positive effects on the sustainability of the organisation (Ohri & Dutta, 2025). Employees who feel valued and treated fairly tend to show greater loyalty and better performance. In addition, this approach can also improve the organisation's image in the eyes of the public as it is seen to have strong moral and social responsibility. Thus, ethical leadership based on Buddhism not only supports the achievement of organisational goals but also builds a foundation of a work culture with integrity and a focus on collective well-being (Dena & Haque, 2024).

2.12. Work Engagement as a Mediating Variable (Development)

Work engagement occurs not only as a result of good working conditions, but also as a psychological factor connecting individuals and organisations to performance outcomes. In the Job Demands-Resources (JD-R) model, work engagement is influenced by resources such as social support, leadership, and the individual's psychological state (Fernandes & Martins, 2023). Mindfulness can serve as a personal resource that strengthens work engagement.

Individuals who are mindful tend to have higher vigour and commitment to their work (Mahanta & Chakravarty, 2022). On the other hand, ethical leadership acts as an organisational resource that creates a work environment supportive of employee engagement.

2.13. Conceptual Integration in the Context of Buddhist Education (Development)

The integration of *Sammā Vāyāma*, mindfulness, and ethical leadership in the Buddhist tradition provides a comprehensive method in Human Resource Management, especially in educational institutions that prioritize spiritual values. This method not only focuses on improving employee performance but also aims to create a balance between professional achievement and individual spiritual growth. Spiritual practices such as mindfulness and the principle of compassion in the workplace positively contribute to job satisfaction, organisational commitment, and individual performance (Panya Lita Teri et al., 2024). These findings emphasise that incorporating spiritual values into managerial practices can shape a more meaningful and productive work environment.

In Indonesia, Buddhist educational institutions face specific challenges in aligning modern educational standards with the principles of Dhamma. Therefore, implementing Human Resource Management based on Buddhist values becomes an appropriate approach to create a balance between professional demands and spiritual needs. Religion-based spirituality within an organisation can strengthen integrity, ethical behaviour, and leadership quality (Neogi, 2023). This emphasises that an approach based on *Sammā Vāyāma* can serve as an important foundation for building a sustainable Human Resource Management system that is appropriate for the context of Buddhist educational institutions.

3. Methodology

This study employs a quantitative approach by referring to the *Sammā Vāyāma*-Based Human Resource Management concept, which emphasises right effort in the practice of human resource management based on Buddhist values. The research model integrates the variables of mindfulness, Buddhist ethical leadership, work engagement, and employee performance to examine the structural relationships between variables within the context of Buddhist educational organisations in Indonesia.

Data for this study were collected from educators and administrative staff working in Buddhist-based educational organisations in Indonesia. The data collection technique was conducted using a questionnaire as the main research instrument. The questionnaire was developed based on indicators from each variable adapted from relevant previous research. The measurement scale used is a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The data collection process was conducted over approximately three weeks and successfully obtained 130 respondents who met the research criteria. Respondents were selected using purposive sampling, specifically individuals with direct experience in the work environment of Buddhist educational organisations. The data analysis technique used in this study was Structural Equation Modeling (SEM) to examine the causal relationships between variables in the proposed research model. Parameter estimation was conducted using the Maximum Likelihood Estimation (MLE) approach, which is suitable for a sample size of around 130 respondents. SEM analysis was performed with the assistance of the Smart PLS 3 software, allowing for the simultaneous testing of both the measurement model and the structural model.

Through SEM analysis, this study aims to test the proposed hypotheses and evaluate the fit of the developed conceptual model, thereby providing a comprehensive understanding of

the role of mindfulness and Buddhist ethical leadership in enhancing employee performance through work engagement in Buddhist educational organisations.

4. Results and Discussions

4.1. Results

After gathering information, the next step is to ensure that the tools used for research can measure variables accurately and consistently. Convergent validity tests are conducted to assess the relationships among indicators within a single variable, while reliability tests evaluate how consistently the questionnaire items measure the intended construct. This process is crucial to ensure that the data to be analysed in the next stage have high credibility.

The results of testing four main variables, namely Mindfulness, Buddhist Ethics, Employee Performance, and Work Engagement, are presented in the table below. The analysed values include Outer Loading, Average Variance Extracted (AVE), Cronbach's Alpha, and Composite Reliability. These findings form the basis for determining whether all indicators can be used in the research model or require further modification.

Table 1. Convergent Validity Test and Reliability Test

Variable	Indicator	Outer Loading Value	AVE	Cronbach's Alpha	Composite Reliability
Mindfulness	MF1	0.767	0.633	0.854	0.896
	MF2	0.834			
	MF3	0.778			
	MF4	0.835			
	MF5	0.759			
Buddhist Ethics	BE1	0.838	0.711	0.865	0.908
	BE2	0.831			
	BE3	0.871			
	BE4	0.834			
Employee Performance	EP1	0.781	0.691	0.936	0.947
	EP2	0.861			
	EP3	0.860			
	EP4	0.837			
	EP5	0.806			
	EP6	0.847			
	EP7	0.819			
	EP8	0.837			
Work Engagement	WE1	0.869	0.744	0.885	0.921
	WE2	0.864			
	WE3	0.859			
	WE4	0.857			

Based on the data presented in Table 1, the results of the research instrument testing show that all indicators have met the required convergent validity criteria. This is evidenced by the Outer Loading values for each statement item in the Mindfulness, Buddhist Ethics, Employee Performance, and Work Engagement variables, all of which are above the threshold of 0.70, with values ranging from 0.759 to 0.871. These figures confirm that each indicator has a strong correlation and can accurately represent its respective variable construct.

In addition to external loading values, the quality of instrument validity is also strengthened by the Average Variance Extracted (AVE) values which exceed the minimum standard of 0.50. All variables in this study recorded significant AVE values, with the lowest value found in the Mindfulness variable at 0.633 and the highest value in the Work Engagement variable reaching 0.744. These achievements indicate that more than 50% of the variance of these indicators can be explained by their respective constructs, thus fully meeting the convergent validity requirements in this model.

From a reliability perspective, the test results confirm that the research instruments have a very high level of reliability or internal consistency. All variables showed Cronbach's Alpha and Composite Reliability values well above the minimum threshold of 0.70, with the Employee Performance variable recording the highest reliability with a Composite Reliability value of 0.947. With all validity and reliability parameters met, this instrument is considered highly suitable and consistent for use as a measuring tool in data analysis and hypothesis testing in the next stage of the research.

Table 2. Challenges faced by respondents in engaging with a work-from-home environment

Variable	Buddhist Ethics	Employee Performance	Mindfulness	Work Engagement
Buddhist Ethics	0.843			
Employee Performance	0.770	0.831		
Mindfulness	0.693	0.615	0.795	
Work Engagement	0.674	0.785	0.520	0.862

As presented in Table 2, the diagonal values represent the square root of the Average Variance Extracted (AVE) for each variable, while the values off the diagonal represent correlations between constructs. The data show that the square root of the AVE for all variables ranges from 0.795 to 0.862, which is higher than the correlations between constructs below them. This proves that each latent variable shares more variance with its own indicators than with other variables, thus meeting the strict discriminant validity criteria.

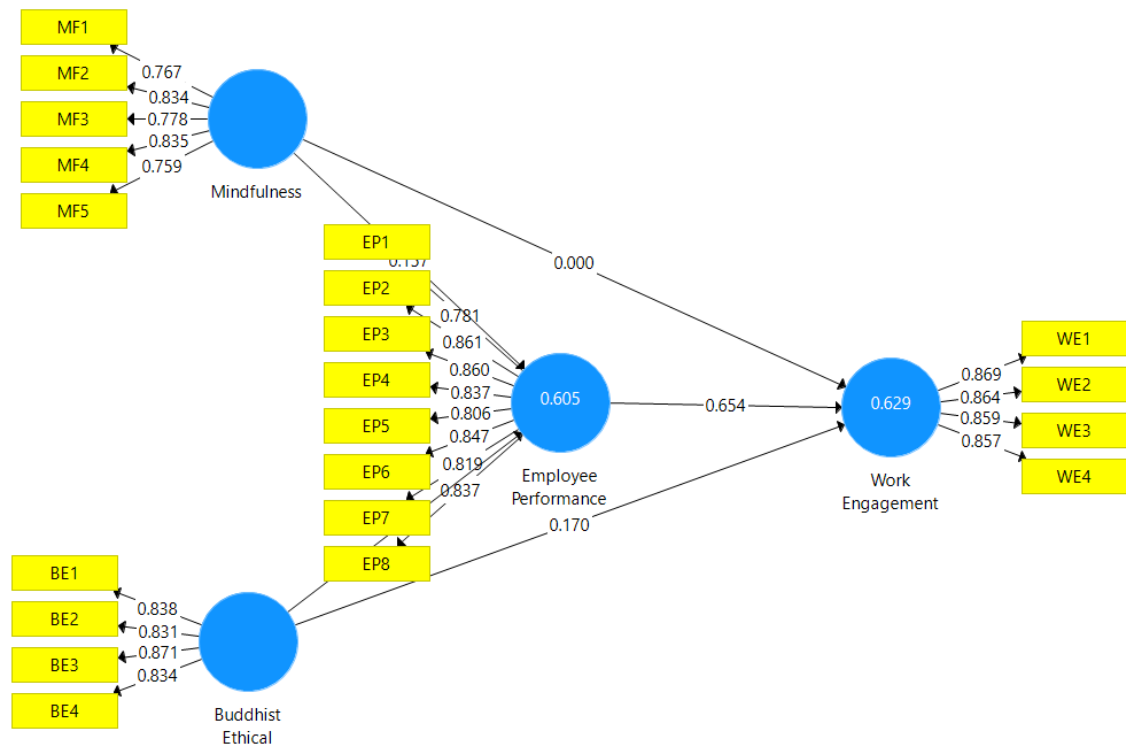
The correlation coefficients between variables indicate a positive and significant relationship, with the highest correlation observed between Employee Performance and Work Engagement at 0.785. This phenomenon suggests that, in the context of the work environment studied, employee performance and work engagement are considered closely intertwined aspects. Although there is a fairly strong correlation, the value remains below the square root of the AVE for each construct, reflecting that while they synergise closely, statistically they remain distinct identities. This synergy illustrates that an increase in work engagement is almost always accompanied by an enhancement in individual performance within the organisation.

After ensuring that the measurement model (outer model) is valid and reliable through the discriminant validity test above, the next step is to evaluate the structural model (inner model). This evaluation aims to determine the predictive power of the model and the relationships between constructs. The main criteria for assessing the internal model are the coefficient of determination and the path coefficient. These values reflect the percentage of variance in the dependent variable that can be explained by the independent variables within the model.

Based on the PLS-SEM analysis shown in Figure 1, the R^2 value for the Employee Performance construct is recorded at 0.605, while for Work Engagement it is recorded at 0.629. These figures indicate that the research model integrating Mindfulness and Buddhist Ethics is

able to explain 62.9% of the variance in employee work engagement. This value shows a moderate to strong level of predictive accuracy, with only around 37.1% of the variance influenced by factors outside of this model framework. The high determination value provides a solid basis for continuing the analysis to test the significance of relationships through the bootstrapping procedure, the results of the path coefficients of which have been visually mapped in Figure 1.

Figure 1. Path Coefficient Results



Evaluation of the structural model (internal model) was conducted to examine how significant the relationships between constructs in this study are. This testing process utilised the bootstrapping method with 500 subsamples to obtain path coefficient values, T statistics, and P values, which will be used as a basis for decision-making regarding the proposed hypotheses. From the PLS-SEM analysis results shown in the model image, it is known that the Mindfulness construct does not have a significant direct effect on Work Engagement (P-value = 0.000), but contributes indirectly through Employee Performance. In addition, Employee Performance shows a strong and significant influence on Work Engagement with a path coefficient of 0.654. On the other hand, Buddhist Ethical also has a direct influence on Work Engagement with a coefficient of 0.170, although this figure is lower compared to the influence of Employee Performance. The R-square value of 0.605 for the Employee Performance variable indicates that this variable can be moderately explained by the exogenous constructs, while an R-square of 0.629 for Work Engagement shows that the model has a fairly good explanatory level. Overall, these findings indicate that the structural model is able to adequately predict the relationships between variables in this study.

Table 1. Hypothesis Test Results of Direct Effects

Variable Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic	P-Value

Buddhist Ethics → Employee Performance	0.661	0.658	0.065	10.175	0.000
Buddhist Ethics → Work Engagement	0.170	0.176	0.075	2.283	0.023
Employee Performance → Work Engagement	0.654	0.649	0.078	8.410	0.000
Mindfulness → Employee Performance	0.157	0.162	0.077	2.028	0.043
Mindfulness → Work Engagement	0.000	0.000	0.077	0.003	0.998

Based on the results of the direct effect hypothesis test, it is known that Buddhist Ethics has a positive and significant effect on Employee Performance with a coefficient value of 0.661, T-statistic of 10.175, and P-value of 0.000 (<0.05). This indicates that the better the implementation of Buddhist ethics in the organisation, the more significantly employee performance will improve. In addition, Buddhist Ethics also has a positive and significant effect on Work Engagement with a coefficient of 0.170, T-statistic of 2.283, and P-value of 0.023. Although its effect is not as large as on performance, this value still shows that ethics contributes to enhancing employee work engagement.

Furthermore, Employee Performance is proven to have a positive and significant effect on Work Engagement with a coefficient of 0.654, T-statistic of 8.410, and P-value of 0.000. This indicates that employees with higher performance tend to have stronger work engagement levels. Meanwhile, Mindfulness has a positive and significant effect on Employee Performance with a coefficient of 0.157, T-statistic of 2.028, and P-value of 0.043, which means that an increase in mindfulness can improve employee performance.

However, mindfulness does not have a significant direct effect on Work Engagement, with a coefficient value of 0.000, T-statistic 0.003, and P-value 0.998 (>0.05). This indicates that mindfulness does not directly affect work engagement, but is most likely influential through the intermediary variable, namely Employee Performance. Overall, these results confirm that Employee Performance functions as an important mediating variable and is also the dominant factor in enhancing Work Engagement in this research model.

Table 2. Mediation Variable Test Results

Path	Original Sample (β)	Statistic T	P Values	Description
Mindfulness → Employee Performance → Work Engagement	0.102	1.986	0.048	Significant
Buddhist Ethics → Employee Performance → Work Engagement	0.433	6.083	0.000	Significant

Based on the results of the mediation variable test, it is known that Mindfulness has a significant indirect effect on Work Engagement through Employee Performance, with a coefficient value of 0.102, T-statistic 1.986, and P-value 0.048 (<0.05). This indicates that Employee Performance is able to mediate the relationship between mindfulness and work engagement. In other words, an increase in mindfulness does not directly increase work engagement, but first enhances employee performance, which then impacts the rise in work engagement. These findings indicate full mediation, as in previous tests the direct effect of mindfulness on work engagement was not significant.

Furthermore, Buddhist Ethics has also been shown to have a significant indirect effect on Work Engagement through Employee Performance, with a coefficient value of 0.433, T-statistic of 6.083, and P-value of 0.000. This indicates that employee performance acts as a strong mediator in this relationship. Since the direct effect of Buddhist Ethics on work engagement is also significant, it can be concluded that partial mediation occurs. This means that Buddhist Ethics can enhance work engagement both directly and through improvements in employee performance. Overall, these results underscore the importance of Employee Performance as an intervening variable in strengthening the relationship between the independent variables and work engagement in the research model.

4.2. Discussions

4.2.1 The Influence of Mindfulness on Employee Performance

Research results indicate that Mindfulness has a positive and significant effect on Employee Performance. These findings confirm that mindfulness is an important psychological resource capable of enhancing individual work quality. Employees with high levels of mindfulness tend to be more focused, able to manage emotions effectively, and possess better resilience to work-related stress (Mahanta & Chakravarty, 2022). In the context of Buddhist educational organisations, this condition is highly relevant because educators often face emotional demands and complex workloads. With mindfulness, individuals can maintain mental stability and remain productive in challenging situations. Furthermore, mindfulness also enhances self-reflective abilities, enabling employees to continuously improve the quality of their performance. This aligns with the concept of *Sammā Vāyāma*, which emphasises right effort in developing positive conditions and avoiding negative conditions within the individual.

4.2.2 The Influence of Buddhist Ethics on Employee Performance.

The Buddhist Ethics variable has been proven to have a positive and significant influence on Employee Performance, even with a greater coefficient compared to mindfulness. This indicates that ethical values play a very strong role in shaping productive work behaviour (Örgütsel & Arda, 2022). In Buddhist educational organisations, ethics not only serve as normative rules but also as a foundation for decision-making and social interactions. Employees working in an environment that upholds values of honesty, responsibility, and compassion tend to have higher intrinsic motivation. They work not only to achieve targets but also to uphold the moral values they believe in. These findings reinforce the view that ethical leadership can create a healthy, quality-oriented work culture. Thus, the application of Buddhist ethics becomes a strategic factor in enhancing overall organisational performance.

4.2.3 The Influence of Mindfulness on Work Engagement

Unlike its effect on performance, Mindfulness does not have a significant direct influence on Work Engagement. This finding indicates that mindfulness does not automatically result in emotional attachment to work. This can be explained by the fact that work engagement is a psychological condition influenced not only by internal factors but also by work experience,

achievements, and the organisational environment. Mindfulness serves more as an internal foundation that enhances an individual's readiness to perform optimally, but it does not directly create a sense of engagement (Chen et al., 2022). In other words, mindful employees do not necessarily feel engaged if not supported by other factors such as good performance or a conducive work environment.

4.2.4 The Influence of Buddhist Ethics on Work Engagement.

Conversely, Buddhist Ethics has a positive and significant influence on Work Engagement. This indicates that ethical values within an organisation can create a work environment that supports employee engagement. When employees feel treated fairly, valued, and are in an environment of integrity, they tend to have a higher commitment to their work. In this context, Buddhist ethics not only shape individual behaviour but also create an organisational climate conducive to work engagement (Fu et al., 2024). Values such as empathy, balance, and wisdom can strengthen social relationships among employees and enhance a sense of belonging to the organisation.

In addition, Buddhist ethics also play a role in building trust between employees and management. This trust becomes an important element in creating healthy and sustainable working relationships. When employees feel that the organisation is run fairly and with integrity, they are more motivated to contribute to the fullest. This strengthens emotional attachment to the organisation, which ultimately leads to increased loyalty and long-term commitment.

4.2.5 The Influence of Employee Performance on Work Engagement

The Employee Performance variable has a positive and significant effect on Work Engagement and represents the strongest relationship in this research model. This indicates that work engagement is greatly influenced by individual achievement in their job. Employees with high performance tend to experience satisfaction, a sense of meaningful work, and pride in their accomplishments, thereby enhancing their engagement (Prasad et al., 2025). This finding confirms that work engagement is built not only through motivational factors but also through successful work experiences. Thus, employee performance becomes a key factor in creating sustainable engagement.

In addition, good performance achievements also provide positive feedback for individuals in the form of recognition and rewards, both formally and informally. This recognition reinforces self-confidence and enhances employees' intrinsic motivation to continue performing well. When individuals feel that their efforts are valued, they tend to be more emotionally and cognitively engaged in their work. Therefore, an effective reward and performance evaluation system becomes an important supporting factor in strengthening the relationship between performance and work engagement.

4.2.6 The Role of Employee Performance Mediation in the Relationship between Mindfulness and Work Engagement.

The results of the mediation test indicate that Employee Performance acts as a full mediator in the relationship between Mindfulness and Work Engagement. This means that mindfulness can only enhance work engagement through improving employee performance. These findings provide an understanding that mindfulness needs to first be translated into actual performance before it can influence work engagement (Prasad et al., 2025). In other words, the benefits of mindfulness are indirect on engagement, but they are crucial in enhancing work quality, which ultimately impacts employee engagement.

These findings also indicate that organisations need to ensure the existence of mechanisms capable of converting individual awareness into tangible work outcomes. Without

clear performance achievements, the benefits of mindfulness will not be fully realised in an organisational context. Therefore, it is important for organisations to integrate mindfulness practices with work systems that support productivity, so that their impact can be optimally felt in enhancing employee engagement.

4.2.7 The Mediating Role of Employee Performance in the Relationship between Buddhist Ethics and Work Engagement.

Furthermore, Employee Performance also acts as a partial mediator in the relationship between Buddhist Ethics and Work Engagement. This indicates that Buddhist ethics have two pathways of influence, namely directly and indirectly through performance. The direct influence shows that ethical values are capable of building emotional and moral work engagement, while the indirect influence demonstrates that ethics also enhance engagement through improved performance (Prasad et al., 2025). Thus, Buddhist ethics play a more comprehensive role in shaping work engagement compared to mindfulness.

This partial mediation role indicates that Buddhist ethics have flexibility in influencing work engagement through various channels. This makes ethics a strategic factor that not only affects cognitive and behavioural aspects but also the emotional aspects of employees (Prasad et al., 2025). With a combination of direct and indirect influences, Buddhist ethics can strengthen the relationship between individuals and the organisation more comprehensively.

4.2.8 Theoretical Implications from the Perspective of Sammā Vāyāma

Theoretically, this study reinforces the relevance of the concept of *Sammā Vāyāma* in the context of modern HRM. Mindfulness represents an internal effort to manage mental states, while Buddhist ethics reflect an external effort to create a valuable work environment (Paliwal & Nagda, 2022). Kinerja karyawan menjadi hasil dari usaha yang benar, sedangkan keterikatan kerja merupakan manifestasi dari keseimbangan antara pencapaian profesional dan kondisi psikologis. Employee performance is the result of right effort, while work engagement manifests the balance between professional achievements and psychological conditions. Thus, integrating these four variables reflects the practical implementation of the principle of right effort within an organisation.

This research also contributes to expanding the study of spiritually-based HRM by integrating Buddhist concepts into a measurable empirical model. This opens up opportunities for developing a more holistic management theory, which not only focuses on rational and economic aspects but also on ethical and spiritual dimensions. Thus, the concept of *Sammā Vāyāma* can be used as an alternative foundation for formulating human resource management strategies in various types of organisations.

4.2.9 Practical Implications for Buddhist Educational Organisations

From a practical perspective, this study provides the recommendation that Buddhist educational organisations need to integrate mindfulness programmes and the strengthening of ethical leadership into their HRM strategy. Mindfulness training, regular meditation, and value-based leadership development can be strategic steps to improve human resource quality (Alfred Wijaya et al., 2025). In addition, organisations also need to emphasise the importance of performance achievement as a means to enhance employee engagement. With this approach, organisations can not only increase productivity but also create a harmonious, meaningful, and sustainable work environment.

5. Conclusion

This study confirms that the implementation of Human Resource Management based on *Sammā Vāyāma* contributes significantly to improving employee performance quality and

work engagement in Buddhist educational organisations in Indonesia. This approach not only emphasises productivity aspects but also integrates spiritual and ethical values as a foundation in human resource management. The results indicate that mindfulness as a form of full awareness plays an important role in enhancing employee performance, particularly in helping individuals manage emotions, improve focus, and deal with work pressure more adaptively. However, mindfulness does not directly affect work engagement, but rather through the improvement of performance as an intermediary variable.

On the other hand, Buddhist ethical leadership has been proven to have a broader and stronger influence. Buddhist ethics not only significantly enhance employee performance, but also directly promote work engagement. This suggests that values such as honesty, responsibility, compassion, and wisdom are capable of creating a conducive work environment, full of trust, and increasing a sense of belonging to the organisation. Thus, ethical leadership functions not only as a moral guide, but also as an effective managerial strategy in improving the quality of work relationships and employee motivation. This study identifies that employee performance is a key variable that plays the most dominant role in the research model. Performance is not only the result of the application of mindfulness and Buddhist ethics, but also a primary factor influencing work engagement. Employees with high performance tend to experience satisfaction, a sense of meaning in their work, and pride in their jobs, which ultimately increases their level of engagement in the organisation. Therefore, employee performance serves as an important mediator linking independent variables with work engagement.

The research findings also indicate the presence of two mediation mechanisms. First, mindfulness affects work engagement through full mediation by employee performance. This means that without an improvement in performance, mindfulness is not able to directly enhance work engagement. Second, Buddhist ethics show partial mediation, where its influence on work engagement occurs both directly and indirectly through employee performance. This underscores that ethics plays a more comprehensive role in shaping work engagement compared to mindfulness. Theoretically, this study reinforces the relevance of the *Sammā Vāyāma* concept as a framework in modern Human Resource Management. The principle of right effort, which includes developing positive conditions and controlling negative conditions, is reflected in the relationship between mindfulness, ethics, performance, and work engagement. The integration of these four variables illustrates the balance between an individual's internal aspects and the external organizational factors in creating optimal performance and engagement.

From a practical perspective, the findings of this study have important implications for Buddhist educational organisations. Institutions are advised to develop continuous mindfulness training programmes, such as meditation and self-awareness exercises, to enhance employees' psychological well-being. Furthermore, strengthening ethical leadership based on Buddhist values should be a priority in human resource management strategies, as it has been shown to improve both performance and work engagement. Organisations also need to establish fair and transparent performance evaluation and development systems so that employees can reach their full potential.

Furthermore, this study emphasises that the success of Buddhist educational organisations is determined not only by academic or administrative achievements, but also by the ability to maintain a balance between professional demands and spiritual values. By integrating mindfulness and Buddhist ethics into HRM practices, organisations can create a work environment that is not only productive but also harmonious, meaningful, and sustainable. Overall, this study provides a significant contribution to the development of HRM literature based on spiritual values and offers a conceptual model that can be applied to other

value-based organisations. Future research is recommended to expand the sample size, test additional variables, and examine the application of this model in different organisational contexts to strengthen the generalisability of the findings.

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THE INFLUENCE OF WORK MOTIVATION AND ORGANISATIONAL CULTURE ON EMPLOYEE PERFORMANCE THROUGH JOB SATISFACTION AMONG EMPLOYEES OF REGIONAL GOVERNMENT AGENCIES IN LAMPUNG PROVINCE

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Abstract

Employee performance is a critical determinant of organizational effectiveness in the public sector, particularly amid increasing demands for bureaucratic reform and high-quality public service delivery. Although work motivation and organisational culture have been widely recognised as important antecedents of employee performance, limited empirical evidence has explained how these factors jointly influence performance through job satisfaction within local government institutions. Addressing this gap, the present study examined the direct effects of work motivation and organisational culture on employee performance and the mediating role of job satisfaction among employees of the Regional Development Planning Agency (Bappeda) of Lampung Province, Indonesia. A quantitative explanatory research design was employed using a census approach involving all 105 employees of the agency. Primary data were collected through structured questionnaires measured on a five-point Likert scale and analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings revealed that both work motivation and organisational culture significantly enhanced job satisfaction, which subsequently exerted a positive effect on employee performance. Furthermore, job satisfaction served as a significant mediating mechanism, indicating that motivated employees working within a supportive organisational culture tend to achieve higher levels of performance through increased job satisfaction. The structural model demonstrated substantial explanatory power, accounting for 70.7% of the variance in employee performance ($R^2 = 0.707$). This study extends the public sector human resource management literature by confirming the mediating role of job satisfaction in strengthening the effects of motivational and organisational factors on employee performance. Practically, the findings suggest that public institutions should cultivate supportive organisational cultures and implement motivation-enhancing human resource policies to improve employee satisfaction and organisational performance.

Keywords: work motivation; organisational culture; job satisfaction; employee performance; public sector; PLS-SEM

1. Introduction

In the contemporary era of global governance, the performance of public sector employees has emerged as a determinant of a country's fundamental competitive advantage (Noviaristanti & Boon, 2022). As part of a broader bureaucratic reform initiative in Indonesia, local government agencies face unprecedented pressure to transition into agile and community-centred service providers. In Lampung Province, this transition is particularly crucial given its strategic position in Sumatra (Wulandari & Luturlean, 2023). Effective provincial administration requires a workforce that is not only technically competent but also highly

environmentally conscious. However, achieving peak performance in a bureaucratic environment is often hampered as formalistic procedures tend to stifle individual initiative.

Performance is a multifaceted construct driven by the interaction of internal psychological states (Setiawan & Ribhan, 2022). Work motivation serves as the main internal engine that directs effort and perseverance towards organisational goals (Rahayu & Dahlia, 2023). However, in many local government contexts, there is a recurring gap between individual drives and organisational objectives. When motivation is high but the environment is unsupportive, performance is bound to stagnate (Uma'iyah et al., 2023). Complementing motivation is the role of organisational culture, which determines how policies are implemented in the field (Muzaki et al., 2023). A culture that emphasises professional ethics and innovation can significantly strengthen individual efforts (Firman, 2025; Shaleh & Firman, 2018).

Although numerous studies have examined the influence of work motivation and organisational culture on employee performance, most still focus on the private sector or more flexible organisational contexts (Rada et al., 2024). In the public sector context, particularly local government agencies, the complex dynamics of bureaucracy, rigid hierarchies, and strict regulations create fundamentally different conditions. This means that previous findings cannot yet be fully generalised to explain the behaviour and performance of local civil servants. In addition, some studies tend to analyse the direct relationships between variables without considering the psychological mechanisms that mediate these relationships (Kasmaludin et al., 2023).

Furthermore, research that simultaneously examines the role of job satisfaction as a mediating variable in the relationship between work motivation and organisational culture on performance is still limited, especially in the context of local government in Indonesia (Daniel Dami et al., 2022). In fact, job satisfaction plays a strategic role in shaping employees' emotional attachment and commitment to the organisation. The absence of this mediation model may result in a partial understanding of the factors influencing employee performance (Yassin & Hasyim, 2022). Therefore, research is needed that can fill this gap by integrating the variables of motivation, organisational culture, and job satisfaction into a comprehensive and contextual analytical framework in Lampung Province.

Although important, much previous research still leaves room to discuss how motivation and culture interact within the specific psychological landscape of local civil servants. A key variable in this equation is job satisfaction, which theoretically serves as a bridge between psychological inputs and work outputs. High motivation and a supportive culture do not automatically result in high performance in a vacuum; they must first cultivate a sense of professional satisfaction and affective commitment among staff. In the specific context of Lampung bureaucracy, understanding the mediating role of job satisfaction is crucial (Pratiwia & Nursyamsiah, 2019). By positioning satisfaction as the main mediator, this study aims to provide a more nuanced and human-centred model of bureaucratic performance.

2. Literature Review

2.1. The Influence of Work Motivation on Employee Performance

Work motivation is a key factor that drives individuals to achieve optimal performance within an organisation. Theoretically, motivation influences the direction, intensity, and persistence of a person's work behaviour (Elisnawati et al., 2023). Theories such as Expectancy Theory and Goal Setting Theory explain that individuals with high motivation tend to set more challenging goals and strive harder to achieve them. In the context of public organisations, motivation is also related to the drive to provide the best service to the community.

Empirically, various studies indicate that work motivation has a positive and significant impact on employee performance. Employees with high motivation tend to show better productivity, high work quality, and commitment to their tasks and responsibilities. In bureaucratic environments, motivation becomes an important factor in overcoming structural limitations that often hinder innovation and work effectiveness (Kasmaludin et al., 2023). However, the influence of work motivation on performance is not always direct or optimal. In some conditions, high motivation does not necessarily result in high performance if it is not supported by a conducive work environment. Therefore, intermediary variables such as job satisfaction are needed to strengthen the relationship between motivation and employee performance.

2.2 The Influence of Organisational Culture on Employee Performance

Organisational culture plays an important role in shaping employee behaviour and performance. A strong culture provides clear guidance on the values, norms, and expectations within the organisation. In the context of the public sector, organisational culture often reflects the level of professionalism, integrity, and service orientation that underpins the execution of government duties (Palupi & Zulfa, 2024). Previous research shows that organisational culture has a direct impact on employee performance. A culture that supports innovation, collaboration, and strong work ethics can enhance both individual and organisational effectiveness. Conversely, a culture that is overly bureaucratic and rigid can hinder creativity and reduce employee performance (Wulandari & Luturlean, 2023).

In addition, organisational culture also serves as a contextual factor that strengthens or weakens the influence of other variables on performance. In this case, a positive culture can create a supportive work environment, making employees more motivated and able to achieve optimal performance (Pertiwi & Kusmiadewi, 2025). Thus, organisational culture not only has a direct impact but also plays a strategic role in shaping productive working conditions.

2.3 The Influence of Work Motivation on Job Satisfaction

Work motivation is closely related to job satisfaction because both are related to an individual's psychological condition at work. Theoretically, individuals with high motivation tend to feel more satisfied because they are able to achieve personal and organizational goals. The Self-Determination Theory also explains that fulfilling psychological needs such as competence, autonomy, and relatedness will increase job satisfaction (Pertiwi & Kusmiadewi, 2025).

In the context of the public sector, work motivation can come from intrinsic factors such as the desire to serve the community or extrinsic factors such as rewards and recognition (Yusuf et al., 2023). When these motivations are fulfilled, employees will feel more satisfied with their jobs. Conversely, a mismatch between expectations and work reality can reduce job satisfaction. Empirical research shows that work motivation has a positive effect on job satisfaction. Motivated employees tend to have a more positive attitude towards their work, work environment, and organisation. Therefore, enhancing work motivation becomes an important strategy in increasing employee job satisfaction.

2.4 The Influence of Organisational Culture on Job Satisfaction

Organisational culture plays a role in creating a work environment that influences employee job satisfaction (Almeyda & Gulo, 2022). A culture that supports openness, fairness, and recognition of individual contributions will enhance comfort and job satisfaction. Conversely, an unconducive culture can cause work stress and dissatisfaction. In the public sector, organisational culture often plays a decisive role in shaping employees' work experiences. A culture that is overly bureaucratic can reduce flexibility and work autonomy, thereby negatively affecting job satisfaction (Hartini & Tanuwijaya, 2022).

Therefore, the development of a more adaptive organisational culture that focuses on employee well-being is needed. Research results indicate that organisational culture has a significant effect on job satisfaction. Employees working in a positive cultural environment tend to have higher levels of satisfaction. Thus, organisational culture becomes an important factor in creating working conditions that support employee satisfaction.

2.5 The Influence of Job Satisfaction on Employee Performance

Job satisfaction is one of the main determinants in improving employee performance. Individuals who feel satisfied with their work tend to have higher motivation, strong commitment, and greater engagement in their jobs (Risambessy et al., 2022). This will have a positive impact on the work results achieved. In the public sector, job satisfaction plays an important role in enhancing the quality of services to the community (Aulia & Dania, 2023). Satisfied employees are more responsive, productive, and have a positive attitude in carrying out their duties. Conversely, job dissatisfaction can lead to a decline in performance and service quality. Empirical research shows that job satisfaction has a positive and significant effect on employee performance. Therefore, organisations need to pay attention to the factors that influence job satisfaction as part of strategies to improve employee performance.

2.6 The Indirect Influence of Work Motivation on Performance through Job Satisfaction

In addition to the direct effect, work motivation also has an indirect effect on employee performance through job satisfaction as a mediating variable. Theoretically, work motivation will first increase job satisfaction, which in turn leads to improved performance. This indicates that job satisfaction serves as a psychological mechanism that bridges this relationship (Nelly & Erdiansyah, 2022). In practice, employees who have high motivation but are not satisfied with their jobs tend not to exhibit optimal performance (Tanjung et al., 2022). Therefore, it is important for organisations to ensure that the work motivation of employees is accompanied by an increase in job satisfaction. Previous research supports the presence of a mediating effect of job satisfaction on the relationship between work motivation and employee performance. Therefore, job satisfaction becomes a key factor in strengthening the influence of work motivation on performance.

2.7 The Indirect Influence of Organisational Culture on Performance through Job Satisfaction

Organisational culture also has an indirect influence on employee performance through job satisfaction. A positive culture will enhance employees' job satisfaction, which in turn will lead to improved performance (Mustari, 2022). This indicates that job satisfaction acts as a mediator in this relationship. In the context of public organizations, a culture that supports employee well-being and creates a comfortable work environment will enhance job satisfaction. Employees who feel satisfied will be more motivated to work optimally and contribute their best to the organization (N. Nelly et al., 2024). Empirical research shows that job satisfaction mediates the relationship between organisational culture and employee performance. Therefore, developing a positive organisational culture becomes an important strategy in improving employee performance through increased job satisfaction.

3. Methodology

3.1. Research Design and Approach

This study employs a quantitative approach with an exploratory research design to investigate the causal relationship between work motivation, organisational culture, job satisfaction, and employee performance. The explanatory nature of this research aims to test specific hypotheses and elucidate the psychological and environmental mechanisms that drive bureaucratic output within a structured administrative framework (Rada et al., 2024). Using a

structural model, the study seeks to explain how organisational culture and intrinsic motivation, measured through job satisfaction, influence final work outcomes. This systematic approach ensures that line coefficients and indirect effects are interpreted within a robust theoretical context (N. Nelly et al., 2024).

3.2 Population and Sampling Techniques

The population of this study includes all employees at the Regional Development Planning Agency (Bappeda) of Lampung Province. In accordance with the principles of census-based research, this study uses a saturated sampling technique (total sampling), in which the entire population of 105 employees is designated as respondents. This technique was chosen specifically to eliminate sampling error and to ensure that the data accurately represent the actual conditions of the agency. By involving every staff member from various divisions in Bappeda, this study captures a comprehensive organisational perspective and minimises the bias that often arises from the use of partial samples (Ichdan et al., 2023).

3.3 Data Collection and Measurement Scales

Primary data was collected through a questionnaire distributed on 10 April 2026, allowing for direct responses from employees. Each construct was operationalised through specific indicators and measured using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Work motivation was measured based on intrinsic and extrinsic drivers, while organisational culture was assessed through shared values and professional norms. Furthermore, job satisfaction and employee performance were evaluated through self-assessment items reflecting everyday work achievements and satisfaction. This measurement strategy ensures that each variable is captured with high precision and clarity.

3.4 Hypothesis Testing and Mediation Analysis

The final stage of the methodology involves testing the research hypotheses using T-test statistics and P-values generated through the PLS-SEM algorithm in SmartPLS. Hypotheses are accepted if the P-value is less than 0.05, indicating a significant effect at the 95% confidence level. To analyse mediation, this study uses the Specific Indirect Effect method to determine the strength and significance of Job Satisfaction in bridging the influence of independent variables on Performance. This rigorous testing procedure ensures that all conclusions about causal relationships in the local government institutions in Lampung Province are statistically valid and theoretically sound (Fitriadi et al., 2022).

4. Results and Discussions

4.1 Results

The evaluation of the outer model in this study involved two main tests: convergent validity and reliability analysis. Convergent validity was assessed through the factor loading values of each indicator and the Average Variance Extracted (AVE) for each construct. An indicator is considered valid if its factor loading exceeds 0.70, while the AVE value must be greater than 0.50 to indicate that the construct explains more than half of its indicators' variance. Next, internal consistency and instrument reliability were evaluated using Cronbach's Alpha and Composite Reliability (CR). A construct is considered reliable if both values are above the 0.70 threshold, indicating that the measurement items are consistent and dependable. Based on the PLS-SEM algorithm processed through SmartPLS, several indicators that did not meet the minimum factor loading requirement were removed from the model to optimise data quality. The final results of the convergent validity and reliability tests for work motivation,

organisational culture, job satisfaction, and employee performance are presented in the following table:

Table 1. Convergent Validity Test and Reliability Test

Variable	Indicator	Outer Loading Value	AVE	Cronbach's Alpha	Composite Reliability
Motivation Work	MW1	0,923	0,716	0,900	0,926
	MW2	0,786			
	MW3	0,779			
	MW4	0,883			
	MW5	0,851			
Organizational Culture	OC1	0,908	0,718	0,901	0,927
	OC2	0,790			
	OC3	0,783			
	OC4	0,872			
	OC5	0,877			
Job Satisfaction	JS1	0,933	0,728	0,905	0,930
	JS2	0,820			
	JS3	0,759			
	JS4	0,889			
	JS5	0,854			
Employee Performance	EP1	0,923	0,745	0,913	0,936
	EP2	0,828			
	EP3	0,782			
	EP4	0,883			
	EP5	0,891			

The results of the convergent validity test, as presented in Table 1, show that all indicators used in this study have met the required statistical standards. The Outer Loading values for all items in the four variables of Work Motivation, Organisational Culture, Job Satisfaction, and Employee Performance range from 0.759 to 0.933. Since all factor loadings exceed the threshold of 0.70, it can be concluded that each indicator is valid and has a strong capacity to measure its respective construct. Furthermore, the Average Variance Extracted (AVE) for all variables is above 0.716, significantly exceeding the minimum requirement of 0.50. This indicates that more than 70% of the indicator variance is captured by the construct, confirming strong convergent validity.

In terms of reliability, the measurement model demonstrated high internal consistency. The Cronbach's Alpha values for all constructs were above 0.900, and the Composite Reliability values ranged from 0.926 to 0.936. Both metrics are well above the recommended threshold of 0.70. These results confirm that the research instrument is highly reliable and consistent, ensuring that the data collected from 105 respondents at Bappeda Lampung can be relied upon for further hypothesis testing. The second stage of evaluating the measurement model is the discriminant validity test using the Fornell-Larcker criterion. This test is designed to ensure that each construct in the research model is empirically unique and distinct from the other constructs. Discriminant validity is achieved when the square root of the Average Variance Extracted (AVE) for each construct is higher than its highest correlation with other constructs in the model.

Table 2. Discriminant Validity (Fornell-Larcker Criterion)

	Motivation Work	Organization al Culture	Job Satisfaction	Employee Performanc e
Motivation Work	0,846			
Organizational Culture	0,996	0,848		
Job Satisfaction	0,995	0,991	0,853	
Employee Performance	0,991	0,991	0,990	0,863

As presented in Table 2, the diagonal values represent the square root of the AVE for each variable, while the values off the diagonal represent the correlations between constructs. The data show that the square root of the AVE for all variables ranges from 0.846 to 0.863, indicating strong internal consistency within each construct. However, the correlation coefficient between variables is very high, with the highest correlation observed between Work Motivation and Organisational Culture at 0.996. This phenomenon indicates that within regional government agencies in Lampung Province, employees' internal drives and prevailing organisational values are considered as a highly integrated and inseparable entity. Although this high correlation suggests potential overlap between constructs, it also reflects a very strong synergy where positive changes in one aspect are almost entirely mirrored in other aspects within the bureaucratic ecosystem of the institution.

After ensuring that the measurement model is valid and reliable, the next step is to evaluate the structural model (internal model). This evaluation aims to determine the predictive power of the model and the relationships between constructs. The main criteria for assessing the internal model are the coefficient of determination and the path coefficients. These values reflect the percentage of variance in the dependent variable that can be explained by the independent variables. After ensuring that the measurement model (outer model) quality is met, the next evaluation focuses on the structural model (inner model) through the assessment of the coefficient of determination (R²). Based on the PLS-SEM analysis results, the R² value for the Employee Performance construct is recorded at 0.707. This figure indicates that the research model integrating Work Motivation, Organisational Culture, and Job Satisfaction is able to explain 70.7% of the variance in employee performance at the Lampung Provincial Bappeda. This value demonstrates a strong level of predictive accuracy, with only 29.3% of the variance influenced by factors outside this model framework. The high determination value provides a solid foundation to proceed with the analysis on testing the significance of relationships between variables through the bootstrapping procedure, the results of which are visually mapped in the path coefficient flow in the following figure.

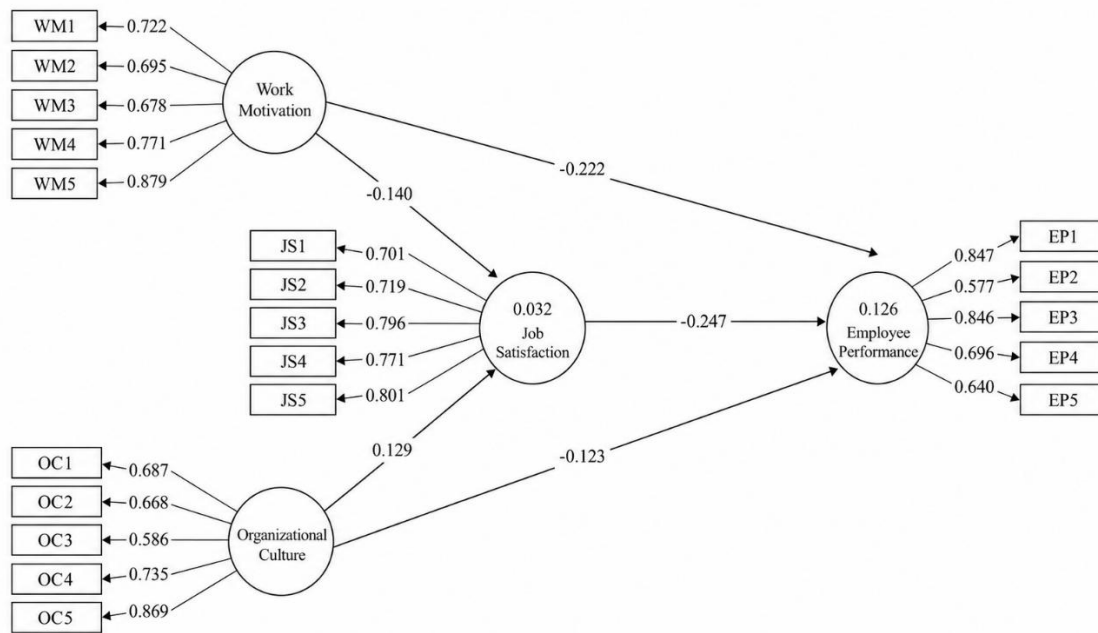


Figure 1. Path Coefficient Results

Structural model evaluation, or internal model testing, is conducted to determine the significance of relationships between constructs in the research model. Using a bootstrapping method with 500 subsamples, this study produces path coefficients, T statistics, and P values which serve as the basis for accepting or rejecting the proposed hypotheses. The empirical results from the PLS-SEM analysis at Bappeda Lampung are detailed in the following table:

Table 3. Hypothesis Test Results of Direct Effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Job Satisfaction -> Employee Performance	0.389	0.394	0.183	2.122	0.034
Organizational Culture -> Employee Performance	0.495	0.505	0.356	1.389	0.165
Organizational Culture -> Job Satisfaction	-0.009	0.031	0.184	0.049	0.961
Work Motivation - > Employee Performance	0.111	0.096	0.398	0.278	0.781
Work Motivation - > Job Satisfaction	1.004	0.964	0.184	5.452	0.000

Based on the statistical parameters presented in the table above, hypothesis testing provides several deep insights into organisational behaviour at Bappeda Lampung. First, the

relationship between Work Motivation and Job Satisfaction (H1) shows a highly significant positive effect, with a path coefficient of 1.004, a T statistic of 5.452, and a P value of 0.000. These findings indicate that internal and external motivation factors are major precursors to employee satisfaction; when employees feel motivated, their level of satisfaction with the work environment and responsibilities increases exponentially.

Secondly, this analysis confirms that Job Satisfaction has a significant positive effect on Employee Performance (H5), producing a coefficient of 0.389, a T-statistic of 2.122, and a P-value of 0.034. This indicates that satisfaction acts as a critical psychological condition that drives higher productivity and better work quality. However, an interesting finding emerges where Work Motivation does not directly affect Employee Performance (H3), as indicated by a non-significant P-value of 0.781. This implies that motivation alone, without being translated into job satisfaction, is insufficient to directly improve employee performance in this government agency.

Furthermore, the influence of Organisational Culture seems to be less dominant in this specific context. Test results for H2 (Organisational Culture on Job Satisfaction) and H4 (Organisational Culture on Employee Performance) show P values of 0.961 and 0.165 respectively, both exceeding the 0.05 significance threshold. This lack of significance indicates that the organisational culture in place at Bappeda Lampung may be viewed as a static or formal administrative requirement that does not directly fluctuate with individual staff satisfaction or performance. These results point to a mediation-dominated model where human factors such as motivation and satisfaction have a greater impact than structural factors such as organisational culture.

The final stage of structural model analysis is to examine the indirect effects to determine the mediating role of Job Satisfaction. Mediation testing is carried out to see whether the effects of Work Motivation and Organisational Culture on Employee Performance are channelled through the level of satisfaction experienced by employees at Bappeda Lampung. Based on the specific indirect effects produced by the bootstrapping procedure, the results are as follows:

Table 4. Results of the Mediation Variable Test

Path	Original Sample (β)	Statistic T	P Value	Description
Work motivation→Job satisfaction→Employee performance	0.391	2.012	0.044	Significant
Organisational culture→Job satisfaction→Employee performance	-0.003	0.048	0.962	Not Significant

Statistical results reveal important findings regarding the role of Job Satisfaction as a mediator. The indirect path of Work Motivation on Employee Performance through Job Satisfaction (H6) is statistically significant, with a T-statistic value of 2.012 (exceeding the threshold of 1.96) and a P-value of 0.044. This confirms a full mediation effect, meaning that although work motivation does not directly affect performance, it successfully promotes higher performance when first translated into job satisfaction. This underscores the psychological reality at Bappeda Lampung, where motivated employees only reach peak productivity when they also experience satisfaction in their work.

Conversely, the indirect pathway for Organisational Culture (H7) shows no significance, with a T statistic of only 0.048 and a P value of 0.962. This indicates that Job Satisfaction does not act as a mediator for organisational culture to influence performance in this study. The prevailing culture may be seen as a formal administrative framework that does not necessarily fluctuate with individual staff satisfaction or performance. These findings highlight that

internal motivation strategies are more effective in improving employee outcomes when specifically designed to foster job satisfaction.

4.2 Discussion

4.2.1 The Influence of Work Motivation on Employee Satisfaction and Performance

The results of this study reveal that work motivation is the main determinant driving the level of professional satisfaction among employees in government agencies in Lampung Province. These findings indicate that both intrinsic drives, such as a sense of devotion, and extrinsic ones, such as reward systems, function as psychological energy that makes government officials feel more meaningful in performing their duties. Well-managed motivation can minimise job monotony and maintain productivity rhythms in the public sector (Yusuf et al., 2023).

However, a unique phenomenon is found in the direct relationship path, where high motivation does not automatically result in maximum work output without a transition through job satisfaction. This confirms that in a bureaucratic ecosystem, strong enthusiasm requires a positive emotional outlet so that it does not merely become momentary excitement, but transforms into measurable productivity. In the context of a modern organisation, motivation acts as an internal catalyst that turns employees' latent abilities into active contributions aligned with the organisation's goals (Dems de Haan et al., 2022).

Theoretically, this relationship indicates that in government institutions, strengthening intrinsic motivation through recognition and self-actualisation is a more reliable predictor of maintaining long-term dedication. Unlike the private sector, which is often driven by purely financial incentives, this study contributes the understanding that inner satisfaction from work outcomes is a key driver of performance in Lampung. This aligns with the view that the psychological well-being of public sector employees heavily depends on their perception of the meaningfulness of their assigned tasks (N. A. Irawan, 2023).

4.2.2 Organisational Culture as a Shaper of an Effective Work Ecosystem

Data analysis shows that the organisational culture in the local government of Lampung Province serves as a foundational value that creates order in work. A culture that prioritises integrity and collaboration has been proven to create a sense of security and role clarity for every employee, ultimately fostering professional comfort within the bureaucratic environment. An adaptive organisational culture is crucial in maintaining work stability amid dynamic government policy changes (Nasution & Rapono, 2018). Although organisational culture is an important element, this study notes that its influence on performance is often indirect because culture is better understood as everyday behavioural norms. When the values set by the organisation align with the personal principles of employees, the work environment transforms into a supportive and low-conflict ecosystem. Strong internalisation of cultural values functions as an internal control instrument that is far more effective than merely physical administrative supervision (Kuntadi et al., 2023).

Furthermore, these findings affirm that to enhance bureaucratic effectiveness, leaders must not only establish formal rules but also ensure that cultural values truly resonate with the psychological aspects of employees. A positive culture enables employees to perceive work routines as part of their moral responsibility to the Lampung community. Previous studies emphasise that the alignment between organisational culture and individual values is a key driver in fostering employees' emotional attachment to the institution (Rahmah, 2022).

4.2.3 The Contribution of Job Satisfaction to Performance Output

Job satisfaction is found to hold a very crucial position as the main foundation of productivity in the public sector of Lampung Province. Research results show that emotional

aspects, such as satisfaction with agency policies and leadership style, directly determine the quality of services provided by employees. Employees who experience high job satisfaction tend to give greater affective commitment to achieving regional development goals (Risambessy et al., 2022).

Practically, a high level of satisfaction has been shown to reduce the potential for work errors and enhance employee creativity in solving complex administrative problems. This proves that emotional well-being is not merely an accessory, but the main "fuel" for the success of bureaucratic reform programmes at the local level. Job satisfaction acts as a key variable ensuring that every human resource in the organisation operates at its best capacity (Pratiwi et al., 2022).

These findings provide insights for government management that neglecting aspects of job satisfaction can result in a decline in service quality, even when technical facilities are fully available. When employees feel their professional needs are met, they will reach their full potential in contributing to the sustainable development of the region. Recent literature asserts that job satisfaction is an essential requirement for creating an innovative work environment in local government institutions (A. F. Nasution et al., 2024).

4.2.4 The Role of Job Satisfaction in Mediating Motivation and Culture on Performance

The most strategic point in this study is the affirmation of job satisfaction as a single mediating variable bridging the influence of motivation and culture on performance. This finding means that however much motivation is provided or however good the culture established, it will not translate into superior performance if it fails to create a sense of satisfaction in employees. This mediating effect demonstrates that job satisfaction is the psychological mechanism that transforms organisational input into performance output (Lestari & Octavianty, 2024).

Job satisfaction acts as a filter that absorbs motivational energy and cultural values, which are then manifested in tangible actions in the field. Without satisfaction, an organisation's efforts to enhance productivity through training or cultural reinforcement will only have a superficial impact and will not address the root of productivity. Focusing on the employee work experience becomes very important because satisfaction serves as an emotional bridge between organisational expectations and work reality (F. Irawan et al., 2023).

Thus, this study provides a new policy direction for local government leaders in Lampung to prioritise human-centred management strategies. Fulfilling job satisfaction must be the primary priority before expecting significant bureaucratic performance improvements that have a wide impact on the community. The integration of motivational factors and cultural support through enhanced job satisfaction has been proven to be the most effective model for improving the professionalism of civil servants (Haryono et al., 2023; Indah et al., 2022).

5. Conclusion

Based on the results of data analysis and discussions conducted, this study concludes that employee performance in local government agencies in Lampung Province is fundamentally determined by the interaction between work motivation, organisational culture, and job satisfaction. Specifically, this study demonstrates that work motivation and organisational culture play a dual role; they not only directly enhance performance but also serve as the primary prerequisite for creating job satisfaction among civil servants. High motivation and the internalisation of a positive organisational culture have been proven to create a stable and productive work environment, allowing employees to contribute maximally to regional development goals. Furthermore, the findings of this study affirm the crucial role of job satisfaction as a significant mediating variable. This means that the effectiveness of any effort by leadership to enhance motivation or strengthen organisational cultural values will heavily

depend on the extent to which such efforts can generate a sense of satisfaction in employees. Job satisfaction serves as a psychological mechanism that filters and strengthens the positive impact of work incentives and organizational environment, which is then converted into high-quality output performance. Without adequate job satisfaction, the influence of motivation and culture on performance will not reach its optimal potential. Thus, the structural model in this study successfully provides.

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SERVANT LEADERSHIP AND EMPLOYEE PERFORMANCE: THE MEDIATING ROLE OF ORGANIZATIONAL CITIZENSHIP BEHAVIOR AMONG UNIVERSITY EMPLOYEES IN LAMPUNG PROVINCE, INDONESIA

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Abstract

Leadership in higher education institutions plays a crucial role in shaping employee performance amid increasing demands for organizational efficiency and effectiveness. Although servant leadership has been widely discussed in organizational behavior literature, limited empirical evidence explains the psychological mechanism linking this leadership style to employee performance through organizational citizenship behavior (OCB), particularly in higher education institutions in developing countries such as Indonesia. Addressing this gap, this study aims to examine the effect of servant leadership on employee performance with OCB as a mediating variable among university employees in Lampung Province. This study employed a quantitative explanatory research design. Data were collected from 160 respondents consisting of academic and administrative staff using a census (saturated sampling) technique. The research instrument was a structured questionnaire measured using a five-point Likert scale and adapted from relevant prior studies. Data analysis was conducted using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS 3 to test both direct and indirect relationships among the variables. The results indicate that servant leadership has a positive and significant effect on both organizational citizenship behavior and employee performance. In addition, OCB positively influences employee performance and partially mediates the relationship between servant leadership and employee performance. These findings suggest that servant leadership not only directly enhances employee performance but also strengthens it indirectly by fostering discretionary work behaviors beyond formal job requirements. Theoretically, this study contributes to leadership and organizational behavior literature by confirming the mediating role of OCB in the relationship between servant leadership and employee performance in a higher education context. Practically, the findings highlight the importance for institutional leaders to adopt servant leadership practices and cultivate a work environment that encourages OCB in order to achieve sustainable improvements in organizational performance.

Keywords: servant leadership; organizational citizenship behavior; employee performance; higher education; SEM-PLS; Indonesia

1. Introduction

As times change, organisations are shifting their focus from merely achieving operational efficiency to the realisation that long-term success is driven by a resilient, engaged and proactive workforce. This is particularly important in the education sector, where the ability to adapt and maintain high-quality services is essential. In this ever-evolving landscape, the role of leadership is receiving renewed attention. Traditional top-down leadership models often fail to address the complex, people-centred challenges present in today's workplace.

Consequently, the concept of servant leadership has gained significant traction (Hermanto & Srimulyani, 2022). Servant leadership is a philosophy in which a leader's primary role is to support employees by prioritising their growth, well-being and empowerment. It is regarded as an effective approach to fostering a positive and productive organisational culture (Yus Jayusman et al., 2025). This leadership style is particularly important in higher education institutions, where a supportive and collaborative environment is necessary to nurture academic staff and realise the institution's overall mission.

A key factor linking leadership to positive organisational outcomes is the extra-role behaviour exhibited by employees, known as Organisational Citizenship Behaviour (OCB) (Amruloh et al., 2021). OCB encompasses voluntary actions by employees that go beyond their formal job descriptions, such as helping colleagues, showing initiative, and maintaining a positive attitude, which collectively enhance organisational effectiveness (Pratiwi & Nawangsari, 2021) (Arifin & Narmaditya, 2024). Although previous studies have explored the direct relationship between servant leadership and employee performance, the findings have not always been conclusive.

For example, some studies suggest that servant leadership may not have a significant direct effect on performance, indicating that its influence may be more indirect, operating through other key variables (Maria Kristina 2025). This highlights a gap in our understanding of the specific mechanisms through which servant leadership translates into improved performance. This study aims to address this gap by examining the mediating role of Organisational Citizenship Behaviour (OCB) in the relationship between servant leadership and employee performance. Specifically, this research is set within the context of higher education institutions in Lampung Province, Indonesia.

By focusing on this specific context, this study aims to provide deeper insights into how the principles of servant leadership can foster a culture of voluntary contribution (OCB) amongst academic and administrative staff, and, furthermore, how this culture contributes to improved performance within the unique environment of a university. The findings of this research aim to offer valuable insights for university leaders and policymakers in Lampung and the surrounding region, emphasising that effective leadership is no longer about direct command, but rather about empowering staff to actively contribute to the institution's success.

2. Literature Review

2.1. Servant Leadership Towards Employee Performance

Servant leadership is a leadership style that focuses on serving employees, individual development, and the well-being of organisational members. This concept was first proposed by Greenleaf, who emphasised that leaders should prioritise the needs of their subordinates over their own interests (Elche et al., 2020). Research indicates that servant leaders can enhance motivation, trust, and harmonious working relationships. A study by (Kartono 2024) found that servant leaders have a positive and significant impact on employee performance due to their approach to good working relationships and their support for subordinates. In practice, servant leadership fosters a positive working environment because employees feel valued, supported and cared for. When employees experience this, they typically demonstrate greater enthusiasm, high levels of loyalty and dedication to the organisation. This, in turn, directly contributes to improved employee performance.

Studies show that servant leadership has a significant impact on employee performance. Leaders who adopt a servant mindset are able to build harmonious working relationships, foster trust, and provide the support employees need to complete their tasks (Lu et al. 2024). With this support, employees become more productive and better able to achieve their goals. Consequently, the level of employee performance achieved is positively correlated with the

level of servant leadership implementation within an organisation. However, recent research indicates that servant leadership does not always have a direct impact on performance, but rather acts through specific mediating mechanisms (Yus Jayusman et al., 2025).

2.2. Servant Leadership Towards Organizational Citizenship Behavior (OCB)

Organizational Citizenship Behavior (OCB) refers to voluntary actions undertaken by employees beyond their formal duties, such as assisting colleagues, maintaining a conducive working environment, and going the extra mile for the organisation without expecting direct rewards (F. Saleem et al., 2020). This behavior is crucial as it can enhance the overall effectiveness and efficiency of the organization.

Servant leadership plays a significant role in fostering OCB. Leaders who prioritise the interests of their employees, act fairly, and show concern for the well-being of their subordinates will create a sense of comfort and trust within the workplace. When employees feel they are treated well, they are motivated to reciprocate through positive behaviour, one example of which is OCB (Lu et al., 2024). (Anselmus Dami et al., 2024; Atmoko & Tjahjono, 2024; Baety & Rojuaniah, 2022) found that servant leadership has an indirect impact on OCB through the mediating effects of trust and job satisfaction within the higher education sector in Indonesia.

Furthermore, servant leadership can also foster strong emotional bonds between leaders and employees. These bonds make employees feel a sense of ownership towards the organization, so that they are willing to go the extra mile to help the organization run smoothly, even if such actions are not part of their day-to-day duties. It can therefore be concluded that servant leadership is one of the key factors that can increase levels of OCB within an organization.

2.3. Organizational Citizenship Behavior (OCB) Towards Employee Performance

OCB is closely linked to employee performance, as this behavior reflects the additional contributions employees make to the organization. Employees with high levels of OCB do not merely focus on their core duties, but also strive to assist their colleagues, foster teamwork and create a positive working atmosphere. Behaviour such as this greatly contributes to improved performance, both individually and as a team (Masrohatin et al., 2022). For example, when employees help one another to complete tasks, the workload can be dealt with more quickly and efficiently. Furthermore, a harmonious working environment can also reduce conflict and boost morale.

Research Prias Julian Asa Putra et al., (2023), shows that OCB has a positive effect on employee performance. Employees with high levels of OCB tend to be more productive, more responsible, and demonstrate a high degree of initiative in their work Adi Arianto & Endang Tjahjaningsih, (2025). This enables organizations to be more effective in achieving their set objectives. Therefore, OCB can be regarded as one of the key factors supporting improved employee performance.

2.4. The Mediating Role of Organizational Citizenship Behavior (OCB)

In the relationship between servant leadership and employee performance, OCB often acts as a mediating variable, (Harmen et al., 2025) and (Simamora et al. 2019) demonstrate that OCB serves as an additional link between servant leadership and the performance of civil servants in Indonesia. This means that servant leadership not only influences employee performance directly but also indirectly through an increase in OCB (Ardiani et al., 2025) When a leader practices servant leadership, employees feel valued and supported. This feeling then encourages them to demonstrate OCB behavior, such as helping colleagues and

contributing more to the organization. Furthermore, such OCB behaviour will lead to improved employee performance, both individually and as a group.

In other words, OCB serves as a mechanism that explains how servant leadership can enhance employee performance. Without OCB, the impact of servant leadership on performance might not be maximized (Simamora et al., 2019). Therefore, OCB is crucial in strengthening the link between leadership style and employee performance. Based on various studies, it can be concluded that OCB acts as a significant intervening variable in the relationship between servant leadership and employee performance. This suggests that, in order to optimally improve employee performance, organisations need not only to implement servant leadership but also to encourage the development of OCB behaviour amongst employees.

3. Methodology

This study employs a quantitative methodology focusing on the concept of servant leadership, with the primary emphasis on the leader's responsibility to support, empower and develop employees in order to drive improvements in organizational performance. The model used in this study integrates the variables of servant leadership, organizational citizenship behaviour and employee performance to examine the structural relationships between these variables within the context of higher education institutions in Lampung Province, Indonesia. The data for this study were obtained from teaching staff and educational staff working at higher education institutions in Lampung Province. Data collection was carried out using a questionnaire as the primary research tool. This questionnaire was designed based on the indicators for each variable, adapted from relevant previous studies. The measurement scale used was a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The population for this study consisted of 160 respondents, all of whom were university staff in Lampung Province. The sampling method used was exhaustive sampling, whereby all members of the population were included as research subjects. Consequently, the sample size for this study was 160 respondents who met the research criteria. In this study, the data analysis technique employed was Structural Equation Modelling (SEM) to explore the causal relationships between variables in the proposed model. Parameter estimation was carried out using the Partial Least Squares (PLS) approach, which is considered appropriate for a limited sample size and predictive models. The SEM analysis was carried out using SmartPLS 3 software, which allows for the simultaneous testing of measurement models and structural models.

Using the SEM-PLS approach, this study aims to test the proposed hypotheses and assess the mediating role of organizational citizenship behavior in the relationship between service-oriented leadership and employee performance. It is hoped that the findings of this study will provide in-depth insights into the importance of service-oriented leadership in enhancing employees' extra-role behaviour and its impact on performance within a higher education setting.

4. Results and discussions

4.1 Results

Based on the information gathered, the demographic characteristics of the participants in this study are described as follows. This study involved 160 participants who were employees (academic and administrative staff) at various universities in Lampung Province. The results of the analysis regarding the three main factors Servant Leadership, Employee Performance, and Organisational Citizenship Behaviour are presented in the following table. The values analysed include Outer Loading, Average Variance Extracted (AVE), Cronbach's Alpha, and

Composite Reliability. These findings serve as a reference for assessing whether all indicators can be applied in the research model or whether further adjustments are required.

Table 1. Convergent Validity Test and Reliability Test

Variable	Indicator	Outer Loading Value	AVE	Cronbach's Alpha	Composite Reliability
Servant Leadership	SL1	0.918	0.822	0.957	0.965
	SL2	0.907			
	SL3	0.906			
	SL4	0.912			
	SL5	0.918			
	SL6	0.879			
Organizational Citizenship Behavior	OCB1	0.891	0.798	0.949	0.959
	OCB2	0.893			
	OCB3	0.897			
	OCB4	0.914			
	OCB5	0.885			
	OCB6	0.879			
Employee Performance	EP1	0.933	0.855	0.966	0.973
	EP2	0.931			
	EP3	0.932			
	EP4	0.913			
	EP5	0.919			
	EP6	0.919			

Based on the information contained in the table of validity and reliability test results, it can be concluded that all indicators in this study have met the established standards for convergent validity. This is evident from the outer loading values of each indicator for the variables Servant Leadership, Organisational Citizenship Behaviour (OCB), and Employee Performance, all of which exceed the minimum threshold of 0.70. The outer loading values for the Servant Leadership variable range from 0.879 to 0.918, for OCB from 0.879 to 0.914, and for Employee Performance from 0.913 to 0.933. These values indicate that each indicator has a very strong relationship in reflecting the latent construct being measured, and can therefore be said to be convergent valid.

Furthermore, the validity of the measurement instrument is also supported by the Average Variance Extracted (AVE) values, all of which exceed the minimum threshold of 0.50. For the Servant Leadership variable, the AVE value reached 0.822; the OCB variable obtained a value of 0.798; and the Employee Performance variable had a value of 0.855. These high AVE figures indicate that each construct can explain more than 50% of the variance in its respective indicators; indeed, in this study, they demonstrate a very strong explanatory power. Consequently, all variables in the model have optimally met the criteria for convergent validity.

In terms of reliability, the test results show that all variables exhibit excellent levels of internal consistency. This is evident from Cronbach's Alpha values ranging from 0.949 to 0.966 and Composite Reliability values ranging from 0.959 to 0.973, all of which far exceed the minimum standard of 0.70. The Employee Performance variable has the highest level of reliability with a Composite Reliability value of 0.973, followed by Servant Leadership at 0.965 and OCB at 0.959. Overall, these results indicate that the research instrument possesses excellent measurement quality, in terms of both validity and reliability. Consequently, all

indicators and constructs in this study are deemed suitable, accurate and consistent for use in further analysis, particularly in testing structural models and research hypotheses.

The strong validity and reliability results also indicate that the measurement model is robust and capable of minimizing measurement error, thereby increasing the credibility of the structural model analysis. High outer loading, AVE, Cronbach's Alpha, and Composite Reliability values demonstrate that the indicators consistently capture the underlying dimensions of each latent construct and provide stable measurements across respondents. As a result, the relationships identified among Servant Leadership, Organisational Citizenship Behaviour (OCB), and Employee Performance are more likely to reflect the actual relationships between the constructs rather than being influenced by weaknesses in the measurement instrument. Therefore, the measurement model can be considered sufficiently robust to support hypothesis testing and the interpretation of the structural relationships examined in this study.

Table 2. Respondents' Challenges in Engaging Work-From-Home Environment

Variable	Servant Leadership	Organizational Citizenship Behavior	Employee Performance
Servant Leadership	0.907		
Organizational Citizenship Behavior	0.662	0.893	
Employee Performance	0.626	0.252	0.925

As shown in Table 2, the numbers on the diagonal reflect the square roots of the Average Variance Extracted (AVE) for each variable, namely Servant Leadership (0.907), Organisational Citizenship Behaviour (0.893), and Employee Performance (0.925). Meanwhile, the numbers off the diagonal illustrate the relationships between variables in this study. The analysis conducted shows that each square root of the AVE value for the variables is higher than the relationship values between the variables. For example, the square root of the AVE for Servant Leadership (0.907) is greater than the relationship with Organisational Citizenship Behaviour (0.662) and Employee Performance (0.626). The same applies to the variables Organisational Citizenship Behaviour and Employee Performance, where the diagonal values for each variable are higher than the relationships with the other variables.

These results indicate that each variable is better able to explain the variance of its own indicator than the variance shared with other variables. It can therefore be concluded that this model meets the criteria for discriminant validity based on the Fornell-Larcker approach. Furthermore, the relationships between the variables show positive interactions, with the strongest correlation being between Servant Leadership and Organisational Citizenship Behaviour (0.662). This suggests that servant leadership is strongly associated with the emergence of additional employee behaviour. However, all correlation values remain below the square root of the AVE for each variable, meaning that each variable still possesses clear discrimination both conceptually and statistically.

Overall, these results confirm that the measurement model (outer model) in this study meets the criteria for good validity and is ready to proceed to the structural equation modelling (inner model) stage. Although the correlation between the two constructs is relatively high, the figure remains below the square root of the AVE for each variable; therefore, statistically, the two can still be distinguished as distinct constructs. This indicates a strong relationship but one that remains conceptually distinct, whereby an increase in Organisational Citizenship Behaviour will be followed by an increase in Employee Performance without obscuring the identity of each variable.

Once it has been established that the measurement model (outer model) meets the criteria for validity and reliability, the next step is to evaluate the structural model (inner model). This evaluation aims to assess the model's predictive power and to test the causal relationships between the constructs in the study. One key indicator in the evaluation of the structural model is the coefficient of determination (R^2), which reflects the extent to which variation in the dependent variable can be explained by the independent variables in the model. Based on the results of the PLS-SEM analysis, the R^2 value for Employee Performance is 0.612, meaning that 61.2% of the variation in employee performance can be explained by Servant Leadership and Organisational Citizenship Behaviour.

Meanwhile, the R^2 value for Organisational Citizenship Behaviour was recorded at 0.659, indicating that 65.9% of the variation in OCB can be explained by Servant Leadership. This value is categorised as moderate to strong, indicating that the model possesses good predictive power. Consequently, these results provide a solid foundation for proceeding to the hypothesis testing stage via the bootstrapping procedure, the results of which are visually mapped in the path coefficient diagram in the following figure.

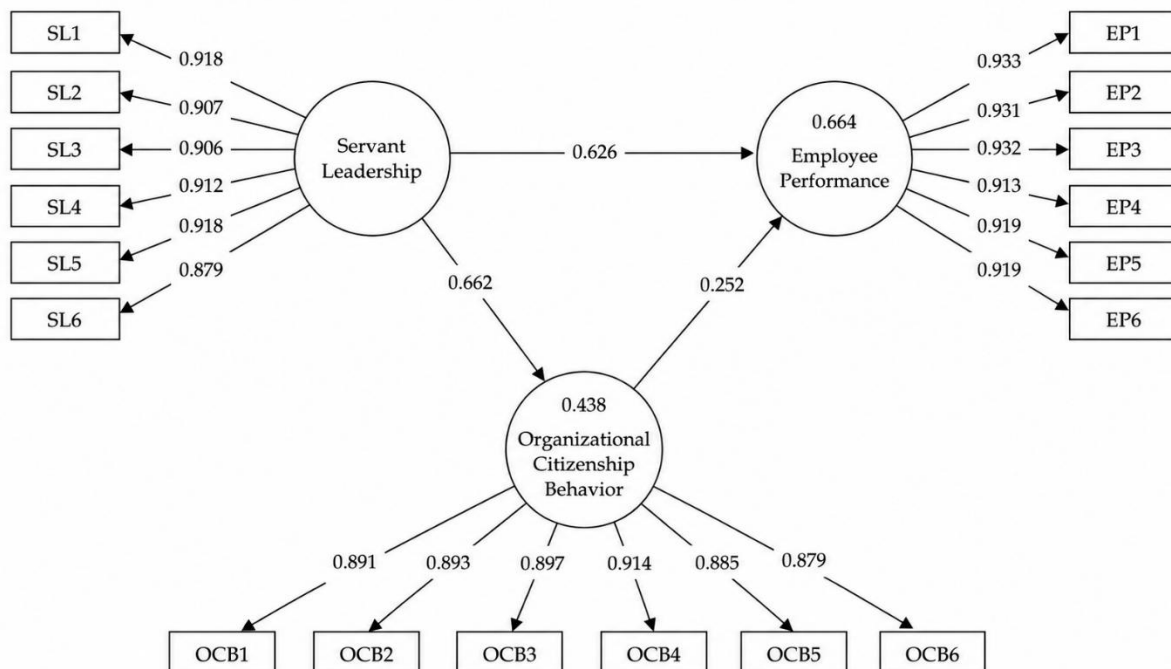


Figure 1. Path Coefficient Results

Based on the analysis conducted on the structural model (internal model) shown in the figure, it appears that the path coefficients indicate a positive and significant relationship between the variables. The relationship between Service Leadership and Employee Performance has a coefficient of 0.626, indicating a strong direct influence. Furthermore, the relationship between Service Leadership and Organisational Citizenship Behaviour (OCB) shows a coefficient value of 0.662, which also reflects a fairly significant positive influence. On the other hand, the relationship between Organisational Citizenship Behaviour and Employee Performance has a coefficient of 0.252, indicating that although the influence is relatively smaller, there is still a positive influence compared to the direct influence of Servant Leadership on Employee Performance. This suggests that OCB remains important in enhancing employee performance, even though its contribution is not as strong as the direct influence of leadership.

The coefficient of determination (R^2) for the Organisational Citizenship Behaviour construct is 0.438, meaning that 43.8% of the variability in OCB can be explained by Servant Leadership. Meanwhile, the R^2 value for Employee Performance is 0.664, indicating that 66.4% of the variability in employee performance can be explained by the combination of Servant Leadership and Organisational Citizenship Behaviour. This figure is classified as moderate to strong, suggesting that the model has good predictive power.

Furthermore, all indicators for each variable showed high outer loadings, i.e. above 0.8, such as the Service Leadership (0.879–0.918), OCB (0.879–0.894), and Employee Performance (0.913–0.933) indicators. This indicates that all indicators make a significant contribution to forming their respective latent constructs. Overall, these findings suggest that Service Leadership exerts a significant influence, both directly and indirectly, on Employee Performance via Organisational Citizenship Behaviour. Consequently, it can be concluded that the development of a service-focused leadership style will enhance employees' extra-role behaviour, which ultimately has a positive impact on employee performance within a higher education setting.

Table 3. Results of the Hypothesis Test on the Direct Effect

Variable Relationships	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic	P-Value
Servant Leadership > Organizational Citizenship Behavior (OCB)	0.662	0.659	0.066	10.030	0.000
OCB > Employee Performance	0.252	0.248	0.079	3.190	0.002
Servant Leadership > Employee Performance	0.626	0.623	0.070	8.943	0.000
Servant Leadership > OCB > Employee Performance	0.167	0.163	0.058	2.879	0.004

Based on the analysis in Table 3, all relationships between variables showed a T-statistic above 1.96 and a P-value below 0.05; therefore, all hypotheses in this study are accepted. Firstly, it was proven that Servant Leadership has a positive and significant effect on Organisational Citizenship Behaviour (OCB), with a coefficient of 0.662, a T-statistic value of 10.030, and a P-value of 0.000. These results indicate that the stronger the application of a service-oriented leadership style, the higher the tendency for employees to exhibit behaviour beyond their primary duties. Furthermore, OCB was found to have a positive and significant influence on employee performance, with a coefficient of 0.252, a T-statistic of 3.190, and a P-value of 0.002. This finding suggests that employees' voluntary contributions beyond their formal responsibilities can drive an improvement in overall performance.

Furthermore, Servant Leadership also has a strong direct influence on Employee Performance, with a coefficient of 0.626, a T-statistic of 8.943, and a P-value of 0.000. This means that leadership that prioritises service not only shapes employees' additional behaviours but also directly improves their work performance. Tests of indirect effects also show that Servant Leadership influences Employee Performance via OCB as a mediator, with a coefficient of 0.167, a T-statistic of 2.879, and a P-value of 0.004. This reinforces the finding that OCB acts as a mediating variable in the relationship between servant leadership and employee performance. Overall, the research findings indicate that OCB significantly mediates the relationship between Servant Leadership and Employee Performance, both directly and

indirectly, thereby highlighting the importance of servant leadership in driving employee performance through these two channels.

Table 4. Mediator Analysis Results

Path	Original Sample (β)	T Statistic	P Value	Description
Servant Leadership > Organizational Citizenship Behavior > Employee Performance	0.167	2.879	0.004	Significant

Based on the results of the mediation test shown in Table 4, Organisational Citizenship Behaviour (OCB) was found to be a significant mediating variable in the relationship between Servant Leadership and employee performance. This is evident from the path coefficient of 0.167, with a T-statistic of 2.879 and a P-value of 0.004—figures that meet the significance threshold ($P < 0.05$). This finding indicates that the influence of Servant Leadership on performance is not only direct but also occurs through an increase in employees' behaviour beyond their formal duties. In other words, leaders who demonstrate a service-oriented attitude, empathy, and concern for the needs of their subordinates tend to trigger the emergence of OCB, which in turn contributes to improved performance.

Conceptually, these findings support the argument that OCB acts as a key mechanism linking leadership style to performance outcomes. Employees who actively assist their colleagues, demonstrate initiative, and maintain loyalty to the organisation make a tangible contribution to overall work effectiveness. Furthermore, as the direct influence of Servant Leadership on performance has also been shown to be significant, it can be concluded that the mediation involved is partial. This means that, although Servant Leadership directly influences performance, this impact is further strengthened when facilitated by OCB as an intermediary. Thus, these findings confirm that improvements in employee performance within higher education institutions are not determined solely by leadership style, but also by the organisation's ability to create conditions that encourage positive employee behaviour through OCB.

4.2 Discussions

4.2.1 Servant Leadership and Employee Performance

The findings demonstrate that servant leadership has a positive and significant effect on employee performance among university employees in Lampung Province. This result indicates that leaders who prioritize serving, supporting, and empowering employees are able to create a work environment that encourages higher levels of performance. Rather than relying on authority and control, servant leaders build trust, provide opportunities for personal development, and demonstrate genuine concern for employees' well-being. These leadership behaviors increase employees' motivation, commitment, and willingness to perform their tasks effectively, ultimately leading to improved individual performance.

From the perspective of Social Exchange Theory (SET), employees tend to reciprocate the supportive treatment they receive from their leaders by increasing their work effort and contributing more effectively to organizational goals. When leaders consistently demonstrate fairness, empathy, and concern, employees perceive the relationship as beneficial and respond through greater dedication and higher performance. Similarly, Servant Leadership Theory suggests that leaders who focus on meeting followers' needs foster psychological safety, trust, and intrinsic motivation, which collectively enhance employee performance.

These findings are consistent with previous studies reporting that servant leadership positively influences employee performance. Research by Liden et al. (2014), Eva et al. (2019), and Karatepe et al. (2020) found that servant leadership encourages employees to achieve superior performance by creating supportive interpersonal relationships and facilitating personal growth. The present study extends this evidence to the higher education sector in Indonesia, suggesting that servant leadership is equally effective in universities, where collaboration, service orientation, and knowledge sharing are essential organizational characteristics.

4.2.2 Servant Leadership and Organizational Citizenship Behavior

The results further reveal that servant leadership positively and significantly affects Organizational Citizenship Behavior (OCB). This finding suggests that employees are more likely to engage in discretionary behaviors beyond their formal job responsibilities when they perceive their leaders as caring, ethical, and committed to serving others. Servant leaders create an organizational climate characterized by mutual respect, trust, and collaboration, encouraging employees to voluntarily assist colleagues, support institutional activities, and contribute to organizational effectiveness beyond contractual obligations.

This finding can also be explained through Social Learning Theory, which argues that employees learn appropriate workplace behaviors by observing their leaders. Leaders who consistently demonstrate altruism, humility, stewardship, and ethical conduct become role models whose behaviors are imitated by employees. Consequently, employees develop stronger prosocial attitudes and are more willing to perform extra-role behaviors that benefit the organization.

The findings support earlier studies demonstrating that servant leadership is an important antecedent of OCB. Previous research by Liden et al. (2008), Newman et al. (2017), and Eva et al. (2019) concluded that servant leadership enhances employees' voluntary contributions by fostering trust, organizational commitment, and psychological empowerment. In the context of higher education institutions, such behaviors are particularly valuable because university performance depends heavily on collaboration among academic and administrative staff in achieving institutional objectives.

4.2.3 Organizational Citizenship Behavior and Employee Performance

This study also confirms that Organizational Citizenship Behavior positively and significantly influences employee performance. Employees who voluntarily assist coworkers, demonstrate responsibility beyond formal job requirements, and actively contribute to organizational success tend to achieve higher performance levels. OCB creates a cooperative work environment where employees share knowledge, solve problems collectively, and support one another, thereby improving both individual and organizational effectiveness.

According to Organizational Citizenship Behavior Theory, extra-role behaviors enhance organizational efficiency by reducing coordination costs, strengthening teamwork, and promoting knowledge sharing. Employees who willingly contribute beyond their assigned responsibilities create positive social interactions that facilitate smoother work processes and improve overall productivity. Such behaviors are particularly important in higher education institutions, where organizational outcomes often depend on collective effort rather than individual achievement alone.

The findings are consistent with previous empirical studies by Podsakoff et al. (2009), Organ (2018), and Klotz et al. (2018), which concluded that OCB contributes significantly to employee performance by improving cooperation, communication, and organizational effectiveness. The present findings reinforce the argument that fostering OCB among university employees can enhance institutional performance through improved collaboration and stronger organizational commitment.

4.2.4 The Mediating Role of Organizational Citizenship Behavior

The results further indicate that Organizational Citizenship Behavior partially mediates the relationship between servant leadership and employee performance. This finding suggests that servant leadership enhances employee performance both directly and indirectly through the development of employees' voluntary behaviors. Although servant leadership independently contributes to higher performance, part of its influence operates by encouraging employees to engage in OCB, which subsequently strengthens their work performance.

This mediating mechanism is consistent with Social Exchange Theory, which explains that employees reciprocate supportive leadership by exhibiting positive discretionary behaviors that ultimately improve their job performance. Employees who perceive servant leaders as trustworthy, supportive, and genuinely concerned about their welfare are more likely to develop stronger organizational commitment and voluntarily contribute beyond their formal responsibilities. These extra-role behaviors subsequently facilitate better task completion, teamwork, and organizational effectiveness.

The finding of partial mediation indicates that OCB represents one of the important psychological mechanisms through which servant leadership improves employee performance, although other mediating variables may also exist, such as work engagement, organizational commitment, psychological empowerment, or job satisfaction. Therefore, servant leadership should not only be viewed as a leadership style that directly influences employee outcomes but also as a managerial approach capable of cultivating positive workplace behaviors that reinforce sustainable organizational performance.

Overall, this study contributes to the servant leadership literature by providing empirical evidence from Indonesian higher education institutions that Organizational Citizenship Behavior serves as an important mechanism linking servant leadership to employee performance. The findings enrich existing leadership research by demonstrating that promoting servant leadership practices can simultaneously strengthen employees' extra-role behaviors and improve work performance, thereby supporting the long-term effectiveness of universities in achieving their organizational goals.

5. Conclusion

This study concludes that servant leadership plays a significant role in enhancing employee performance among university employees in Lampung Province, Indonesia. The findings demonstrate that servant leadership not only directly improves employee performance but also positively influences Organizational Citizenship Behavior (OCB), which subsequently contributes to higher employee performance. Furthermore, OCB partially mediates the relationship between servant leadership and employee performance, indicating that the effectiveness of servant leadership is strengthened through employees' willingness to engage in voluntary behaviors beyond their formal job responsibilities.

Theoretically, this study enriches the literature on servant leadership and organizational behavior by providing empirical evidence that OCB serves as an important psychological mechanism linking servant leadership to employee performance within the higher education context. These findings extend previous research by confirming the applicability of servant

leadership theory and Social Exchange Theory in Indonesian universities, where collaborative work behaviors are essential for achieving organizational effectiveness.

Practically, the findings suggest that university leaders should adopt servant leadership practices by emphasizing employee empowerment, ethical leadership, trust, and personal development while simultaneously fostering a work environment that encourages Organizational Citizenship Behavior. Such efforts can strengthen employee commitment, improve collaboration, and ultimately enhance both individual and institutional performance. Despite these contributions, this study has several limitations. The data were collected from universities in a single province using a cross-sectional research design, limiting the generalizability of the findings and the ability to infer causal relationships. Future research is therefore encouraged to employ longitudinal designs, involve broader geographical coverage, and examine additional mediating or moderating variables, such as organizational commitment, work engagement, psychological empowerment, or organizational culture, to obtain a more comprehensive understanding of the mechanisms through which servant leadership influences employee performance.

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THE EFFECTS OF SOCIAL MEDIA MARKETING ON PURCHASE INTENTION: THE MEDIATING ROLE OF BRAND TRUST AMONG INSTAGRAM USERS IN BANDAR LAMPUNG

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Abstract

This study aims to analyze the influence of social media marketing on purchase intention through the mediating role of brand trust among Instagram users in Bandar Lampung. This study employs a quantitative approach using an explanatory method. Data were collected through a questionnaire distributed to 250 respondents who are active Instagram users and have been exposed to product marketing content on social media. The sampling technique used was purposive sampling. Data analysis was conducted using the Partial Least Squares Structural Equation Modeling (SEM-PLS) method with the assistance of SmartPLS software. The results indicate that social media marketing has a positive and significant effect on brand trust and purchase intention. Additionally, brand trust was also found to have a positive and significant effect on purchase intention. Furthermore, brand trust acts as a partial mediating variable in the relationship between social media marketing and purchase intention. The findings of this study indicate that the success of social media marketing depends not only on the quality of the content presented but also on the company's ability to build consumer trust in the brand. Therefore, companies need to optimize social media marketing strategies that are not only engaging but also credible and consistent to enhance consumer purchase intention.

Keywords: Social Media Marketing, Brand Trust, Purchase Intention, Consumer Behavior.

1. Introduction

The development of digital technology has transformed how companies interact with consumers. The presence of social media serves not only as a communication channel but also as a strategic tool in marketing activities (Hajli, 2015). Platforms like Instagram allow companies to convey product information, build relationships with consumers, and create a more interactive brand experience (C. S. Putri, 2016). Through visual features, short stories, and direct interaction with users, social media offers significant opportunities for companies to influence consumer perceptions and behavior in the purchasing decision-making process (I. Rahmawati, 2021).

In the context of digital marketing, social media marketing has become one of the most widely used strategies by companies to increase consumer engagement and expand market reach (Gefen, 2000). Marketing activities via social media can include promotional content, product reviews, recommendations from influencers, or interactions between brands and consumers. These activities aim not only to increase brand awareness but also to foster purchase intent among consumers (D. Sari & Nugroho, 2020). Purchase intent itself is the psychological tendency of consumers to buy a product after evaluating the information received.

Although social media marketing can capture consumers' attention, the decision to purchase does not always occur immediately. One key factor influencing the relationship between marketing activities and purchase intent is brand trust (Kim & Ko, 2012). Brand trust

is a crucial element because consumers often face uncertainties in online transactions, such as product quality, transaction security, and the credibility of the information provided (De Veirman et al., 2017). Therefore, when consumers have a high level of trust in a brand, they tend to have stronger purchase intentions.

At the local level, social media usage in Indonesia has experienced rapid growth, including in Bandar Lampung. Urban residents, particularly the younger generation and active internet users, are increasingly turning to Instagram as a source of product information, a lifestyle reference, and a platform to discover new brands (Laroche et al., 2012). This trend positions Instagram as a potential marketing channel for businesses to build relationships with consumers and influence their purchasing behavior (Yadav & Rahman, 2017).

However, research specifically examining how social media marketing influences purchase intention through the mediating role of brand trust, particularly among Instagram users in Bandar Lampung City, remains relatively limited. Yet, understanding this relationship is crucial for both companies and local businesses in designing more effective and sustainable digital marketing strategies (Alalwan, 2018a).

Based on this background, this study aims to analyze the influence of social media marketing on purchase intention and to test the role of brand trust as a mediating variable among Instagram users in Bandar Lampung City. The results of this study are expected to contribute to the development of digital marketing research in the field of marketing management, while also serving as a practical reference for business practitioners in optimally utilizing social media to enhance consumer purchase intention.

2. Literature Review

2.1. Social Media Marketing

The development of digital technology has driven companies to utilize social media as an effective marketing tool to reach a wider and more interactive audience. Social media marketing is a marketing activity that uses social media platforms to promote products, build relationships with consumers, and increase brand awareness. Through social media, companies can convey product information, establish two-way communication, and create direct consumer engagement (F. Rahmawati & Utami, 2021). According to Sak et al., (2025), digital marketing, including social media, enables companies to build long-term relationships with customers through more personal and sustained interactions. Social media marketing activities typically include creating engaging content, interacting with users, promoting products, and leveraging influencers to expand promotional reach.

One of the social media platforms widely used in marketing activities is Instagram. This platform features visual elements such as photos, videos, Reels, and Stories, which make it easy for companies to showcase products engagingly and communicatively. Additionally, Instagram facilitates direct interaction between brands and consumers through comments, direct messages, and other features (N. L. Putri & Santoso, 2022). Social media marketing is often measured across several dimensions, such as entertainment, interaction, trendiness, customization, and electronic word of mouth (e-WOM). These dimensions illustrate how social media marketing activities can create positive experiences for consumers. The more effective a company's social media marketing activities are, the greater the likelihood that consumers will form a positive perception of the brand and the products offered.

The effectiveness of social media marketing is often measured through several key dimensions. These dimensions include entertainment, which relates to the content's ability to provide enjoyment for users; interaction, which reflects two-way communication between the company and consumers; trendiness, which indicates how up-to-date the information shared is; customization, which relates to a company's ability to tailor content to individual consumer needs; and electronic word of mouth (e-WOM), which refers to the online dissemination of

information or recommendations from consumers to other consumers. These dimensions play a crucial role in shaping consumers' positive experiences with the marketing activities conducted (Sasongko, 2021). Furthermore, e-WOM is one of the most influential factors in social media marketing because consumers tend to trust recommendations from other users more than company advertisements. Reviews, testimonials, and comments on social media can influence consumers' perceptions of product quality and brand reputation. Therefore, companies need to actively and responsively manage communication on social media to maintain a positive image in the eyes of consumers.

In addition to offering various benefits, social media marketing also presents challenges, such as intense competition among brands, changes in platform algorithms, and the potential for negative feedback from consumers. Consequently, companies must adopt adaptive and creative strategies to remain relevant and competitive in the dynamic digital marketplace. Thus, social media marketing is a crucial strategy in the digital age as it enhances consumer engagement, strengthens the relationship between companies and customers, and influences consumer behavior in the purchasing decision-making process. The success of social media marketing is largely determined by a company's ability to create engaging content, foster effective interactions, and leverage technology optimally to meet consumer needs.

2.2. Brand Trust

Brand trust is one of the key factors in building long-term relationships between companies and consumers. Brand trust can be defined as consumers' belief that a brand can deliver benefits in line with their expectations and is reliable in meeting their needs. In the context of modern marketing, trust in a brand has become a crucial element because consumers often face uncertainty regarding product quality or the information provided by companies (D. P. Sari & Nugroho, 2021). According to Aaker, brand trust is formed through consumer experiences, perceptions of product quality, and the brand's consistency in fulfilling promises made to customers. This trust encourages consumers to continue choosing the same brand even when numerous product alternatives are available in the market.

Meanwhile, Arjun & Morris, (2001), explain that brand trust is the consumer's willingness to rely on a brand based on the belief that the brand possesses the capability, integrity, and good intentions toward its consumers. When consumers have a high level of trust in a brand, they feel safer and more comfortable making purchases. Brand trust is also often associated with the concept of risk reduction. Consumers tend to choose brands they trust because they can minimize functional, financial, or psychological risks that may arise from purchasing decisions. With trust, consumers no longer need to conduct complex evaluations of various product alternatives, making the decision-making process simpler and more efficient (Khotimah, 2023).

Furthermore, brand trust has a close relationship with customer loyalty. Consumers with a high level of trust in a brand tend to exhibit loyal behavior, such as making repeat purchases, recommending the brand to others, and demonstrating resilience against the influence of competing brands. Thus, trust not only impacts short-term purchasing decisions but also contributes to the long-term sustainability of the business (Luwiha, 2023). In the context of digital marketing and social media, the role of brand trust has become increasingly crucial. This is due to the high volume of information and the ease with which consumers can share experiences and opinions online. Brand trust in the digital environment can be built through various factors, such as information transparency, content quality, communication consistency, and the company's responsiveness in addressing consumer questions or complaints. Active and open interaction on social media can enhance positive perceptions of the brand and strengthen emotional bonds with consumers (Khairunnisa, 2022).

Additionally, electronic word of mouth (e-WOM) plays a crucial role in building brand trust in the digital age. Reviews, comments, and testimonials from other consumers are often seen as more trustworthy sources of information compared to promotional messages from the company. Therefore, companies must maintain their online reputation by ensuring product quality remains high and providing satisfactory service to earn positive reviews from consumers. Authentic, informative, and relevant content is also a key factor in enhancing brand credibility on social media. Consumers tend to trust brands that communicate information honestly and without exaggeration. Furthermore, leveraging influencers or figures with high credibility can help strengthen consumer trust in a brand, especially if the influencer is perceived as having integrity and expertise in a specific field (Luwaha, 2024).

However, brand trust is also fragile and can easily diminish if a company fails to meet consumer expectations or becomes involved in negative issues. Therefore, companies must maintain consistency in quality, transparency in communication, and business ethics in every marketing activity they undertake. Brand trust management must be conducted continuously to ensure that the relationship with consumers remains intact. Thus, brand trust is a strategic factor that not only influences purchasing decisions but also plays a role in building loyalty and long-term relationships with consumers. In the context of social media marketing, brand trust is a key variable that can strengthen the impact of marketing activities on consumer behavior, particularly in shaping purchase intent and brand preferences.

2.3. Purchase Intention

Purchase intention is a key indicator in predicting consumer behavior regarding the purchase of a product or service. Purchase intention can be defined as a consumer's tendency or desire to buy a product after considering various information and experiences they have obtained (Bilgin, 2018). According to Ajzen, (2020)'s Theory of Planned Behavior, intention is the primary factor influencing a person's behavior. In a marketing context, purchase intention reflects the likelihood that a consumer will purchase a specific product in the near future.

Meanwhile, Schiffman & Wisenblit explain that purchase intention is a stage in the consumer decision-making process that arises after consumers evaluate various product alternatives. At this stage, consumers begin to form preferences for a particular brand and are more likely to make a purchase (Alalwan, 2018). In the digital age, purchase intention is also influenced by various factors arising from online activities, such as consumer reviews, recommendations from influencers, and promotional content on social media. Effective marketing activities on social media can increase consumer interest in a product, thereby strengthening their intention to make a purchase (Prasetyo & Hidayat, 2020). Therefore, purchase intention is often used as a key variable in marketing research because it can indicate the potential for future consumer purchasing behavior.

Purchase intention is also frequently linked to perceived value and perceived quality. Consumers tend to have a higher purchase intention if they assess that the product offers greater benefits compared to the cost incurred. Additionally, a high perception of product quality can enhance consumer confidence, thereby strengthening the intention to make a purchase (D. P. Sari & Nugroho, 2021). In the digital age, the factors influencing purchase intent have become increasingly complex. Consumers rely not only on information from companies but also on various online sources such as consumer reviews, electronic word of mouth (e-WOM), and recommendations from influencers. Information obtained from these sources is often considered more credible because it stems from the real-life experiences of other users. Therefore, the presence of positive reviews and good testimonials can boost trust and encourage the formation of purchase intent (Wicaksana, 2020).

Social media also plays a significant role in influencing consumer purchase intent. Engaging, informative, and relevant content can increase consumer attention and interest in the

products being offered. Additionally, interactions between companies and consumers via social media can foster closer relationships, thereby increasing engagement and reinforcing purchase intent (Prasetyo & Hidayat, 2020). Activities such as promotions, discounts, digital campaigns, and the use of influencers have also proven effective in encouraging consumers to develop a desire to purchase (Yulia, 2018). Furthermore, purchase intent is also influenced by emotional and psychological factors. Feelings of joy, trust, and comfort toward a brand can increase consumers' tendency to make a purchase. Conversely, negative experiences or dissatisfaction can significantly reduce purchase intent. Therefore, companies need to pay attention to the overall consumer experience, both before and after the purchase.

Additionally, situational factors such as economic conditions, price promotions, ease of access, and product availability can also influence purchase intent. For example, the presence of discounts or special offers can increase urgency and encourage consumers to make a purchase immediately. Similarly, ease in the transaction process, such as digital payment systems and fast delivery services, can strengthen consumers' purchase intent (L. Luwiha et al., 2026). In marketing research, purchase intention is often used as a dependent variable because it can describe the potential for future consumer behavior. Although intention does not always lead to actual purchasing behavior, it remains a strong indicator for understanding consumer behavior trends. Therefore, many studies use purchase intention as a measure of the effectiveness of marketing strategies, including in the context of social media marketing.

Thus, purchase intention is a crucial concept in understanding consumer behavior. This intention is influenced by various factors, both internal, such as attitudes and perceptions, and external, such as social influence and marketing activities. In the digital age, the role of social media, online reviews, and digital interactions increasingly reinforces the formation of purchase intent. Therefore, companies need to design marketing strategies capable of increasing consumer interest, trust, and engagement to foster high purchase intent.

3. Methodology

3.1 Research Design

This study employs a quantitative research design with an explanatory research approach. Quantitative research aims to test relationships between variables through the collection of numerical data analyzed using statistical methods. The explanatory approach is used to elucidate the causal relationships among independent variables, mediating variables, and dependent variables within the research model. In this study, the variables analyzed include social media marketing as the independent variable, brand trust as the mediating variable, and purchase intention as the dependent variable. This study aims to examine the effect of social media marketing on purchase intention, both directly and indirectly through brand trust, among Instagram users in Bandar Lampung. Data collection was conducted using a survey method with a questionnaire distributed to respondents who met the study criteria.

3.2 Population and Sample

The population in this study consists of all active Instagram users residing in Bandar Lampung who have viewed or interacted with product marketing content on social media. Since the exact population size is unknown, the sampling technique used in this study is non-probability sampling via purposive sampling. Purposive sampling was employed because the researcher established specific criteria for selecting respondents. The determination of the sample size in this study is based on recommendations from Structural Equation Modeling - Partial Least Squares (SEM-PLS) analysis, which suggests a minimum sample size of 5 - 10 times the number of research indicators. With approximately 13 - 15 indicators, the sample size used in this study ranges from 100 to 150 respondents. Therefore, this study uses a minimum of 120 respondents so that the analysis results can provide more stable estimates.

3.3 Unit of Analysis

The unit of analysis for this study is 250 active Instagram users residing in Bandar Lampung who have viewed or interacted with product marketing content on social media. This sample size was selected in accordance with SEM guidelines, which require a minimum of 5 - 10 times the number of parameters being tested. A sample size of 250 respondents is considered sufficient to achieve model estimation stability and the reliability of the analysis results. The sampling technique used is proportional stratified random sampling to ensure that the representation of students from each study program is maintained.

3.4 Research Instrument

The research instrument consists of a Likert-scale questionnaire (1: strongly disagree, 5 : strongly agree). Social media marketing variables were measured using indicators of planning, prioritization, and time allocation (Astuti & Pratama, 2021). Brand trust variables were measured through metacognitive, motivational, and behavioral dimensions (Hajli, 2014). The purchase intention variable includes engagement, presence, commitment, and performance sustainability.

3.5 Data and Data Collection Techniques

Validity testing was conducted via Confirmatory Factor Analysis (CFA), while instrument reliability was measured using Cronbach's Alpha with a standard of 0.70. SEM analysis was performed using AMOS/SmartPLS software, employing goodness-of-fit indices such as CFI, TLI, RMSEA, and Chi-Square to assess model fit.

4 Results

4.1 Discriminant Validity.

The AVE (Average Variance Extracted) value for each construct is greater than 0.5 (Social Media Marketing = 0.777; Brand Trust = 0.781; Purchase Intention = 0.777). This indicates that the indicators used are valid in measuring their respective constructs. As shown in Table 4.1.

Table 4.1 Discriminant Validity.			
	Social Media Marketing	Brand Trust	Purchase Intention
Social Media Marketing	0.828		
Brand Trust	0.958	0.771	
Purchase Intention	0.919	0.953	0.775

4.2 Loadings and Cross-Loadings

The cross-loading results show that each indicator has a higher loading value on the construct it measures compared to other constructs. For example, indicator X1 is higher on Social Media Marketing (0.906) compared to Brand Trust (0.842) and Purchase Intention (0.902). This confirms that discriminant validity has been met.

Table 4.2 Loadings and Cross-Loadings			
	Social Media Marketing	Brand Trust	Purchase Intention
X1	0.532	0.638	0.683
X2	0.789	0.821	0.902
X3	0.609	0.683	0.706
X4	0.906	0.832	0.721
X5	0.791	0.823	0.899

X6	0.836	0.816	0.867
Y1	0.887	0.821	0.715
Y2	0.819	0.794	0.846
Y3	0.875	0.788	0.690
Y4	0.612	0.694	0.717
Y5	0.906	0.832	0.721
Y6	0.814	0.842	0.896
Z1	0.849	0.819	0.691
Z2	0.695	0.776	0.770
Z3	0.510	0.618	0.560
Z4	0.596	0.708	0.731
Z5	0.902	0.839	0.733
Z6	0.516	0.547	0.704

4.3 Path Coefficients

Table 4.3 Path Coefficients.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (O/STDEV)	P- Values
H1	0.903	0.919	0.080	11.219	0.000
H2	0.733	0.735	0.041	17.719	0.000
H3	0.953	0.953	0.006	153.127	0.000

H1: Social Media Marketing on Brand Trust: $\beta = 0.919$; $T = 11.219$; $P = 0.000$

H2: Social Media Marketing on Purchase Intention: $\beta = 0.735$; $T = 17.719$; $P = 0.000$

H3: Brand Trust on Purchase Intention: $\beta = 0.953$; $T = 153.127$; $P = 0.000$

All paths show significant results ($P < 0.05$).

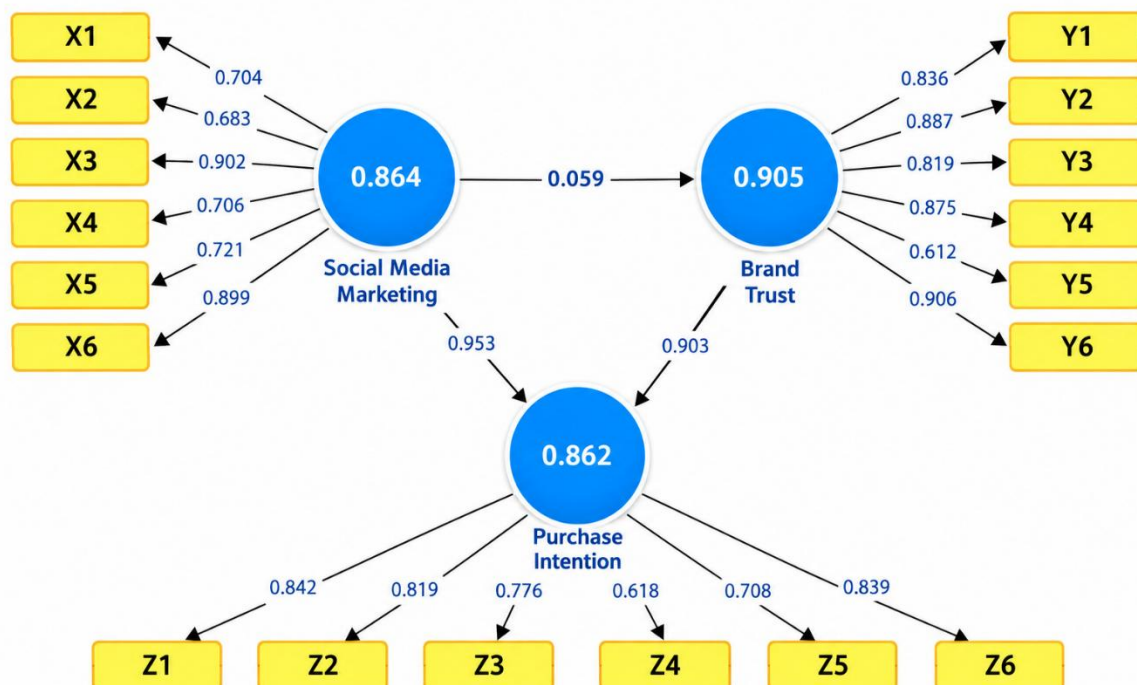


Figure 4.1 Measurement Model Assessment

5 Discussions

The results of this study indicate that all tested relationships between variables have a positive and significant influence. These findings make an important contribution to explaining how social media marketing influences purchase intention, both directly and through the mediation of brand trust among Instagram users in Bandar Lampung.

5.1 The Effect of Social Media Marketing on Brand Trust

Test results indicate that social media marketing has a positive and significant effect on brand trust. This suggests that the more effective the marketing activities conducted via social media, the higher the level of consumer trust in the brand. Theoretically, this finding aligns with the concept proposed by J. L. Aaker, (1997), who states that brand trust is formed through consumer experiences and the consistency of brand communication. In the context of social media, these experiences are shaped through content that is informative, interactive, and relevant to consumer needs. Additionally, features on Instagram such as comments, user reviews, and direct interactions enable two-way communication between consumers and the brand. These interactions foster transparency and enhance perceptions of brand credibility.

Thus, social media marketing serves not only as a promotional tool but also as a means to build emotional connections and consumer trust. Effective social media marketing can increase consumer trust in a brand through transparent, interactive, and consistent communication. Interactions between consumers and brands on social media can build positive perceptions of a brand's credibility and quality. These results also reinforce previous research stating that dimensions of social media marketing, such as interaction and electronic word of mouth (e-WOM), play a significant role in shaping consumer trust in a brand.

5.2 The Effect of Social Media Marketing on Purchase Intention

The research findings indicate that social media marketing has a positive and significant effect on purchase intention. This implies that the more engaging and effective the marketing content presented via social media, the higher the likelihood of consumers making a purchase. This finding aligns with the consumer behavior theory proposed by (Ikhwan et al., 2025), which states that effective marketing communication can influence consumer attitudes and purchasing decisions. In the digital context, social media has become one of the primary channels for shaping consumer perceptions and preferences regarding a product.

Engaging visual content, the use of influencers, and positive reviews from other users can enhance a product's appeal and encourage consumers to consider a purchase. Additionally, the ease of accessing information via Instagram allows consumers to quickly evaluate a product before making a decision. Engaging and informative marketing activities on social media can increase consumer interest in a product, thereby fostering purchase intent. Visual content, user reviews, and influencer recommendations are key factors in influencing consumer decisions. However, although the direct influence of social media marketing on purchase intent is quite strong, the results of this study indicate that this influence can be further strengthened through the mediating variable of brand trust.

5.3 The Effect of Brand Trust on Purchase Intention

Test results indicate that brand trust has the strongest influence on purchase intention. This suggests that trust is a key factor in encouraging consumers to make a purchase. This finding supports (Ajzen, 2011) Theory of Planned Behavior, which posits that trust can influence an individual's attitudes and intentions regarding a specific action. In a marketing context, trust in a brand serves as a determining factor in reducing the uncertainty and perceived risk experienced by consumers. Consumers who trust a brand will feel more secure in making

transactions, especially in a digital environment where physical interaction is limited. This trust also fosters loyalty and increases the likelihood of repeat purchases.

Brand trust plays a crucial role in reducing consumers' perceived risk and increasing their confidence in making purchases. Consumers who have a high level of trust in a brand tend to have stronger purchase intentions. Furthermore, these findings are consistent with the research by (Holbrook & Chaudhuri, 2001), which states that brand trust has a strong relationship with purchasing behavior and consumer loyalty.

5.4 The Mediating Role of Brand Trust

Based on the analysis results, it can be concluded that brand trust acts as a mediating variable in the relationship between social media marketing and purchase intention. This is evident from:

- 1) The significant influence of social media marketing on brand trust
- 2) The significant influence of brand trust on purchase intention
- 3) As well as the continued direct influence of social media marketing on purchase intention

Thus, the type of mediation occurring in this study is partial mediation. Conceptually, this indicates that social media marketing not only directly influences purchase intention but also operates through the enhancement of brand trust. In other words, brand trust serves as a crucial mechanism that bridges the influence of marketing on consumer decisions. Brand trust acts as a mediating variable that explains how social media marketing can influence purchase intention. Effective social media marketing will increase consumer trust, which ultimately drives purchase intention. The implication of these findings is that companies must not only focus on creating engaging marketing content but also pay attention to the aspects of credibility, honesty, and consistency in brand communication to build consumer trust.

6 Conclusion

This study aims to analyze the influence of social media marketing on purchase intention with the mediating role of brand trust among Instagram users in Bandar Lampung. Based on the results of the analysis using the SEM-PLS method, several key findings were obtained. First, social media marketing was found to have a positive and significant influence on brand trust. This indicates that marketing activities conducted via social media such as presenting engaging content, interacting with users, and sharing relevant information can enhance consumers' trust in a brand. Second, social media marketing also has a positive and significant effect on purchase intention. This means that the more effective the marketing strategies implemented via social media, the higher the likelihood that consumers will purchase the products being offered. Third, brand trust has been shown to have a positive and significant influence on purchase intention. This finding confirms that trust is a key factor in driving consumers to make purchasing decisions, particularly in the context of digital transactions, which involve a higher degree of uncertainty.

Fourth, brand trust has been shown to act as a mediating variable in the relationship between social media marketing and purchase intent. The mediating role is partial, indicating that social media marketing can influence purchase intent both directly and through increased brand trust. Overall, the results of this study confirm that the success of social media marketing is determined not only by the appeal of the content but also by a company's ability to build and maintain consumer trust in the brand. Therefore, businesses need to integrate marketing strategies that focus not only on promotion but also on building credibility and fostering long-term relationships with consumers. This study is expected to contribute to the development of marketing science, particularly in the context of digital marketing, and to serve as a reference

for business practitioners in optimally utilizing social media to increase consumer purchase intent.

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THE IMPACT OF DIGITAL MARKETING CAPABILITIES ON CUSTOMER LOYALTY: THE MEDIATING ROLE OF CUSTOMER SATISFACTION AMONG CUSTOMERS OF CULINARY MSMEs IN LAMPUNG PROVINCE

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Abstract

This study aims to analyze the influence of digital marketing capability on customer loyalty with customer satisfaction as a mediating variable among culinary MSME customers in Lampung Province. This study employs a quantitative approach with an explanatory design. Data were collected through an online questionnaire distributed to 151 respondents who are customers of culinary SMEs and have been exposed to digital marketing activities. The data analysis technique used is Structural Equation Modeling based on Partial Least Squares (SEM-PLS) with the assistance of SmartPLS software. The results indicate that digital marketing capability has a positive and significant effect on customer satisfaction and customer loyalty. Additionally, customer satisfaction was found to have a positive and significant effect on customer loyalty. The mediation test results show that customer satisfaction acts as a partial mediator in the relationship between digital marketing capability and customer loyalty. This suggests that strong digital marketing capabilities not only directly enhance customer loyalty but also do so through increased customer satisfaction. The implications of this study underscore the importance for SME practitioners to optimize their digital marketing capabilities, such as leveraging social media, interactive content, and digital communication to create positive customer experiences. Thus, effective digital marketing strategies focused on customer satisfaction can be key to building sustainable customer loyalty.

Keywords: Digital Marketing Capability, Customer Satisfaction, Customer Loyalty, SMEs, Digital Marketing

1. Introduction

The development of digital technology in the modern economic era has driven significant changes in marketing activities, particularly within the Micro, Small, and Medium Enterprises (MSMEs) sector (Sitindaon et al., 2025). This transformation requires SME operators to adopt digital marketing strategies to enhance competitiveness and effectively reach a broader market (Alwie et al., 2025). Digital marketing capability is a critical factor as it reflects a company's ability to leverage technology, social media, and digital platforms to create value for customers (Mulyono & Ramadani, 2026).

In the context of increasingly intense competition, these capabilities not only influence marketing performance but also play a role in building long-term relationships with customers (Karundeng & Suyanto, 2025). One indicator of the success of a digital marketing strategy is the creation of customer loyalty, characterized by customers' commitment to making repeat purchases and recommending products to others (Ancello G. O. Kalaij et al., 2025). Various studies indicate that effective digital marketing implementation such as the use of social media, interactive content, and digital communication can enhance customer engagement and loyalty (Sitindaon et al., 2025). However, the relationship between digital marketing capabilities and

customer loyalty is not always direct; it is influenced by other factors such as customer satisfaction (Anita et al., 2025).

Customer satisfaction is an emotional response that arises after comparing expectations with the perceived performance of a product or service (Misidawati et al., 2023). In many studies, customer satisfaction has proven to be a key variable that can mediate the influence of marketing strategies on customer loyalty (Java, 2023). In fact, recent research indicates that customer satisfaction can amplify the impact of digital marketing capabilities on the performance and success of SME businesses (Mulyono & Ramadani, 2026). This suggests that positive customer experiences are key to optimizing the effectiveness of digital strategies implemented by business owners (Luwiha et al., 2026).

In Indonesia, particularly within the culinary SME sector, the implementation of digital marketing is becoming increasingly important as consumer behavior shifts toward relying on online platforms to seek information and make purchases (Worang & Wenas, 2022). Lampung Province, as one of the regions with rapid SME growth, holds significant potential for digital marketing development, especially in the highly competitive culinary sector (Sitindaon et al., 2025). However, there remains a gap in the optimal utilization of digital marketing capabilities, particularly in linking them to customer satisfaction and loyalty (Mulyono & Ramadani, 2026).

Therefore, this study is important for empirically examining the influence of digital marketing capabilities on customer loyalty, taking into account the mediating role of customer satisfaction among culinary SMEs in Lampung Province. The results of this study are expected to contribute both theoretically and practically to the development of effective digital marketing strategies for SMEs, particularly in enhancing customer satisfaction and loyalty (Karundeng & Suyanto, 2025).

2. Literature Review

2.1. Digital Marketing Capability (DMC)

Digital Marketing Capability (DMC) refers to a company's ability to utilize digital technology to effectively design, manage, and optimize marketing activities (Apasrawirote et al., 2022). This capability encompasses the use of social media, data analytics, SEO, digital content, and e-commerce platforms to reach and interact with customers (Zahara et al., 2023). Digital marketing capability refers to a company's ability to utilize digital technology to effectively design, manage, and optimize marketing activities (Homburg, 2022). This capability reflects the integration of data usage, digital platforms, and marketing strategies to create valuable interactions with customers (Liang, 2025). From a *dynamic capability* perspective, digital marketing capability enables companies to adapt quickly to changes in a dynamic business environment (Figueiredo et al., 2026; Liu et al., 2024).

Additionally, digital marketing capability encompasses the ability to leverage social media, digital analytics, and communication technologies to enhance marketing effectiveness (Morgan, 2020). In the context of SMEs, this capability is a critical factor in enhancing competitiveness and expanding market reach through digital platforms (Purwanti et al., 2022). According to various studies, DMC is a key factor in enhancing a company's competitiveness in the digital era as it enables more personalized, responsive, and data-driven communication (Homburg & Wielgos, 2022). Companies with high digital capabilities tend to understand customer needs more quickly and are able to deliver relevant and consistent experiences. Additionally, DMC plays a role in improving marketing efficiency, expanding market reach, and strengthening customer relationships through continuous interaction.

2.2. Customer Satisfaction (CS)

Customer Satisfaction (CS) is the level of a customer's feelings after comparing their expectations with the performance of the product or service received. If performance exceeds

expectations, the customer will be satisfied; conversely, if it falls short of expectations, the customer will be disappointed (Dam & Dam, 2021). Customer satisfaction is a key indicator in assessing the success of marketing strategies. Factors influencing satisfaction include product quality, service quality, price, ease of access, and the overall customer experience (Yum & Kim, 2024).

In the digital context, customer satisfaction is also influenced by platform usability, response speed, transaction security, and the quality of online interactions. Therefore, effective digital marketing implementation can directly enhance customer satisfaction (Tahir et al., 2024). Customer satisfaction reflects customers' evaluation of their consumption experience after comparing their expectations with the actual performance of a product or service (Siagian, 2020). In a digital environment, customer satisfaction is influenced not only by product quality but also by online interaction experiences, such as ease of accessing information and service speed (Pakarti, 2022). Previous research indicates that high levels of satisfaction can strengthen the relationship between customers and companies, thereby fostering sustained emotional attachment (Williams & Naumann, 2011)(Apria & Parahiyanti, 2023).

2.3. Customer Loyalty (CL)

Customer Loyalty (CL) is a customer's commitment to consistently repurchase a product or service and recommend it to others. Customer loyalty is demonstrated not only through repurchase behavior but also through positive attitudes toward the brand. Loyal customers are more resistant to competitors' influence and hold high long-term value for the company (Manyanga et al., 2022). Key factors influencing customer loyalty include customer satisfaction, trust, service quality, and customer experience. In the digital age, consistent and personalized interactions across various digital channels have also become critical factors in building loyalty (Magatef et al., 2023). Customer loyalty describes a customer's commitment to repeatedly using or purchasing a company's products over the long term (Elina, 2024). Customer loyalty is reflected not only in repeat purchasing behavior but also in customers' tendency to recommend products to others (Primasari & Dwita, 2025). In the culinary SME sector, loyalty is often formed through a combination of product quality, service, and the digital experience provided to customers (Wahyono, 2020).

3. Hypothesis

3.1. The Effect of Digital Marketing Capability on Customer Satisfaction

Digital marketing capabilities play a significant role in enhancing customer satisfaction by providing accurate information and responsive communication (Yusuf, 2023). The use of digital technology enables companies to provide a more personalized and interactive experience to customers, which ultimately enhances positive perceptions of the services provided (Rajab et al., 2025). Thus, the better a business's digital marketing capabilities, the greater the opportunity to achieve high customer satisfaction (Junaedi et al., 2023).

3.2. The Impact of Digital Marketing Capability on Customer Loyalty

In addition to influencing satisfaction, digital marketing capabilities also have a direct relationship with customer loyalty. According to (Rajab et al., 2025), well-designed digital strategies can foster closer relationships between companies and customers. Relevant digital content and consistent communication can increase customer trust, which ultimately leads to increased loyalty (Listiorini, 2025). This indicates that companies capable of optimizing digital marketing will have a competitive edge in retaining customers compared to their competitors (Homburg, 2022).

3.3. *The Influence of Customer Satisfaction on Customer Loyalty*

Customer satisfaction plays a crucial role in shaping customer loyalty (Novitasari et al., 2024). High satisfaction levels indicate that the customer experience has met or even exceeded their expectations, thereby encouraging the desire to make repeat purchases (Iqbal, 2021). Additionally, satisfied customers tend to have stronger emotional bonds and are more willing to recommend products or services to others (Carlianti & Azhmy, 2024). Thus, the higher the level of customer satisfaction, the greater the likelihood of long-term customer loyalty.

3.4. *The Mediating Role of Customer Satisfaction*

Customer satisfaction acts as a mediating variable linking digital marketing capability and customer loyalty (Andriana, 2025). This means that the influence of digital marketing capability on customer loyalty can be strengthened through increased customer satisfaction. Empirical research indicates that satisfied customers tend to exhibit higher levels of loyalty compared to dissatisfied customers (Iqbal, 2021). Consequently, customer satisfaction serves as a crucial mechanism in explaining the relationship between digital strategies and loyal customer behavior, particularly within the context of culinary SMEs (Rajab et al., 2025). Based on these hypotheses, the following research theory model presents all research hypotheses in a single figure

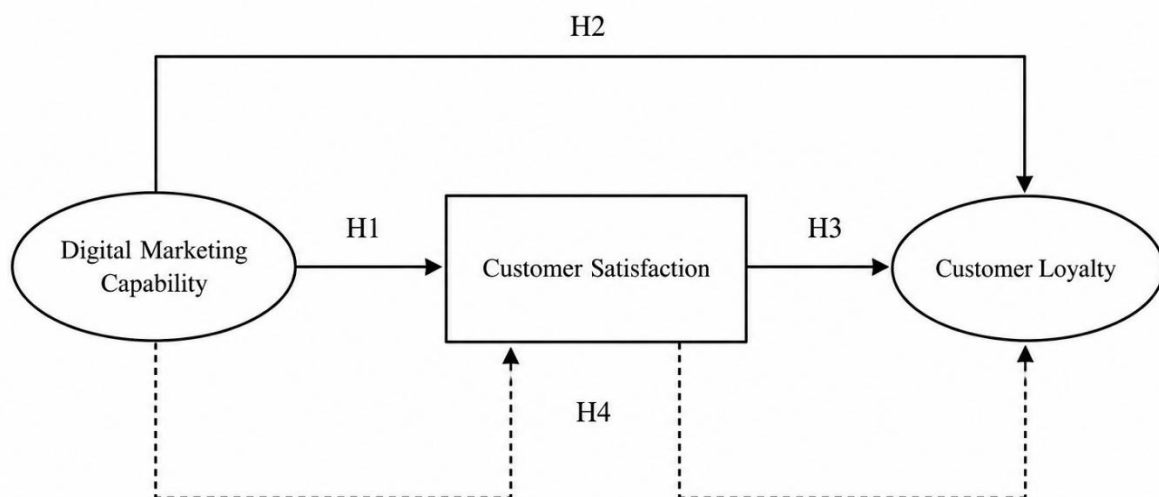


Figure 1. Research Framework

4. Methodology

4.1. *Research Approach and Design*

The approach used in this study is a quantitative approach with an explanatory design aimed at testing the relationships between variables, specifically the influence of digital marketing capability on customer loyalty, both directly and indirectly through customer satisfaction as a mediating variable (Septiano & Defit, 2024).

4.2. *Population and Sample*

The population in this study consists of customers of culinary MSMEs in Lampung Province. The sampling technique employed purposive sampling, with respondents meeting the following criteria: having purchased culinary MSME products, having been exposed to

digital marketing activities such as social media or online platforms, and being at least 17 years of age (Memon, 2025). Based on these criteria, the sample size used in this study comprised 151 respondents.

4.3. Data Collection Method

Data collection was conducted using a structured questionnaire distributed online, such as via Google Forms. The research instrument utilized a five-point Likert scale, ranging from strongly disagree to strongly agree. This questionnaire was designed to measure three main variables: digital marketing capability as the independent variable, customer satisfaction as the mediating variable, and customer loyalty as the dependent variable.

4.4. Indicators and Data Analysis Techniques

Digital marketing capability is measured through several indicators, such as the ability to present relevant digital content, responsiveness in communicating with customers, personalization of marketing messages, and consistency in conducting promotions. Customer satisfaction is measured based on the level of customer satisfaction with the product, the digital service experience, alignment with expectations, and overall satisfaction. Meanwhile, customer loyalty is measured through the intention to repurchase, willingness to recommend to others, tendency not to switch to competitors, and long-term commitment to the product or business.

The data analysis technique used in this study is Partial Least Squares-based Structural Equation Modeling (SEM-PLS) using the SmartPLS software (Sarstedt & Liu, 2024). The analysis was conducted in two main stages: testing the measurement model (outer model) and the structural model (inner model). In the outer model stage, the validity and reliability of the instruments were tested, while in the inner model stage, the relationships between variables were tested, including the R-square value and path coefficients. Hypothesis testing was performed using the bootstrapping technique with a significance level of 5% ($p < 0.05$).

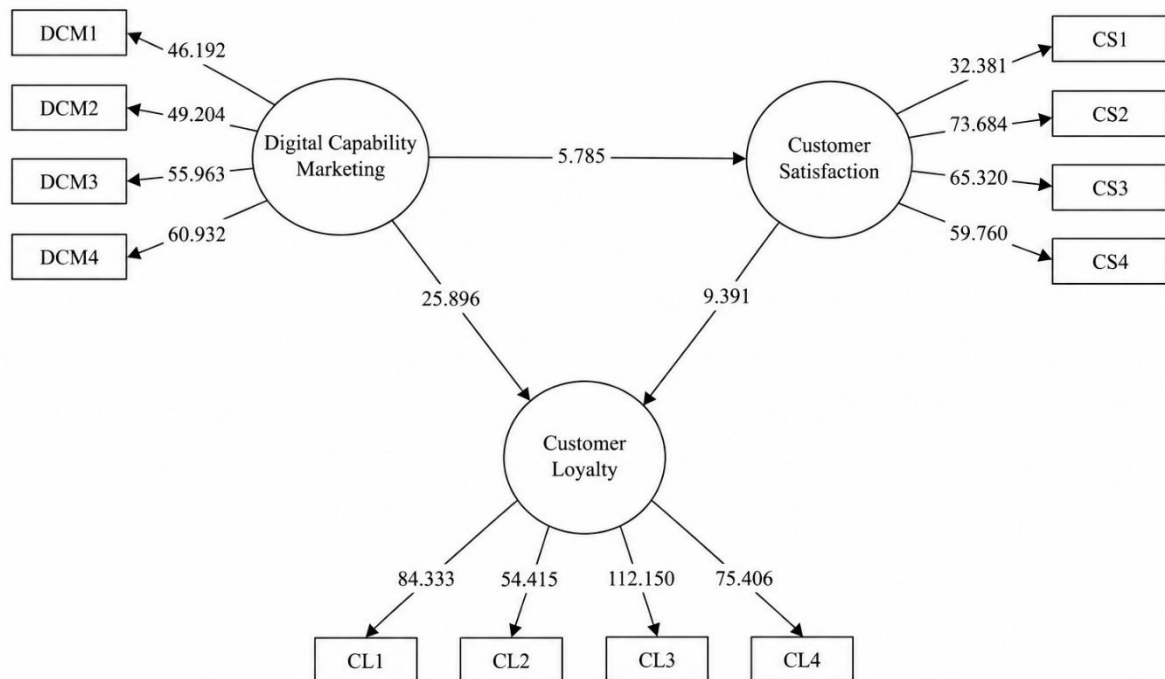
5. Results and Discussion

5.1. Results

Based on the results of data processing using SmartPLS, the measurement model (outer model) was evaluated through tests of convergent validity and construct reliability. Convergent validity was assessed based on factor loadings and Average Variance Extracted (AVE), while reliability was measured using Cronbach's Alpha and Composite Reliability.

Table 1. Validity and Reliability Tests

Variable	Indicator	Factor Loadings	AVE	Cronbach's Alpha	Composite Reliability
DMC	DMC1	0.901	0.822	0.928	0.949
	DMC2	0.904			
	DMC3	0.909			
	DMC4	0.914			
CS	CS1	0.898	0.838	0.936	0.954
	CS2	0.926			
	CS3	0.924			
	CS4	0.914			
CL	CL1	0.940	0.870	0.950	0.964
	CL2	0.907			
	CL3	0.951			
	CL4	0.932			



The analysis results show that all indicators in the Digital Marketing Capability (DMC), Customer Satisfaction (CS), and Customer Loyalty (CL) variables have factor loadings above 0.70. The highest loading value was found in the CL3 indicator at 0.951, while the lowest value was still within an acceptable range, namely CS1 at 0.898. This indicates that all indicators are capable of effectively reflecting the constructs being measured. Furthermore, the AVE values for each variable show excellent results: 0.822 for DMC, 0.838 for CS, and 0.870 for CL. All AVE values are above the minimum threshold of 0.50, so it can be concluded that the constructs possess strong convergent validity. In terms of reliability, the Cronbach's Alpha values for all variables also show high results, namely 0.928 (DMC), 0.936 (CS), and 0.950 (CL). Additionally, the Composite Reliability values for each variable are above 0.90, specifically 0.949 for DMC, 0.954 for CS, and 0.964 for CL. Thus, it can be concluded that all constructs in this study exhibit very high internal consistency and are reliable. After the measurement model was declared valid and reliable, to clarify the results of the structural model testing, the following presents the bootstrapping results using SmartPLS, which show the t-statistic values for each relationship between variables:

The next step is the evaluation of the structural model (inner model) to test the relationships between latent variables. This testing is conducted by examining the path coefficients, t-statistics, p-values, and R-squared values.

Table 2. Path Coefficients, T-Statistics, P-Values, and R-Squares.

Hypothesis	Relationship	Path Coefficient	T-Statistic	P-Value	R-Square
H ₁	DMC → CS	0.356	5.598	0.000	0.744
H ₂	DMC → CL	0.777	24.940	0.000	0.600
H ₃	CS → CL	0.576	9.039	0.000	-

Based on the analysis results, the Digital Marketing Capability (DMC) variable has a positive and significant effect on Customer Satisfaction (CS) with a path coefficient of 0.356, a t-statistic of 5.598, and a p-value of 0.000. Additionally, DMC also has a positive and significant effect on Customer Loyalty (CL) with a coefficient of 0.777, a t-statistic of 24.940, and a p-value of 0.000. Furthermore, Customer Satisfaction (CS) was found to have a positive and significant effect on Customer Loyalty (CL) with a coefficient of 0.576, a t-statistic of 9.039, and a p-value of 0.000. Thus, all hypotheses in this study (H1, H2, and H3) are accepted. In terms of the model's explanatory power, the R-square value for the Customer Satisfaction variable of 0.744 indicates that 74.4% of the variation in customer satisfaction can be explained by Digital Marketing Capability. Meanwhile, the R-square value for Customer Loyalty of 0.600 indicates that 60% of the variation in customer loyalty can be explained by Digital Marketing Capability and Customer Satisfaction.

Next, a mediation effect test was conducted to determine the role of Customer Satisfaction (CS) in mediating the relationship between Digital Marketing Capability (DMC) and Customer Loyalty (CL). This test was performed by examining the direct effect, indirect effect, t-statistic, and p-value.

Table 3. Mediation Test

Mediation Relationship	Direct Effect	Indirect Effect	T-Statistic	P-Value
DMC→ CS→ CL	0.576	0.447	8.706	0.000

Based on the analysis results, the direct effect value was 0.576 and the indirect effect value was 0.447, with a t-statistic of 8.706 and a p-value of 0.000. A p-value smaller than 0.05 indicates that the indirect effect is significant. Thus, it can be concluded that Customer Satisfaction significantly mediates the relationship between Digital Marketing Capability and Customer Loyalty.

5.2. Discussion

5.2.1. Digital Marketing Capability Positively Influences Customer Satisfaction

The findings indicate that Digital Marketing Capability positively influences Customer Satisfaction. This result suggests that organizations with stronger digital marketing capabilities are better able to understand customer needs, provide relevant information, and establish more responsive and personalized interactions with their customers. As a result, customers tend to perceive greater value from their interactions with the company, leading to higher levels of satisfaction.

This finding can be explained through the Resource-Based View (RBV), which posits that organizational capabilities constitute strategic resources that enable firms to create superior value and achieve sustainable competitive advantage (Ozdemir et al., 2023). In the context of digital marketing, capabilities such as data analytics, digital communication management, content personalization, and customer engagement allow firms to deliver more effective and customer-oriented services. Consequently, customers are more likely to perceive that their expectations have been fulfilled, resulting in increased satisfaction.

Furthermore, the findings are consistent with Expectation Confirmation Theory (ECT), which argues that customer satisfaction emerges when perceived performance meets or exceeds prior expectations (AlSokkar et al., 2024). Digital marketing capability enables organizations to communicate product information more accurately, respond to customer inquiries more efficiently, and offer tailored experiences. These factors contribute to the fulfillment of customer expectations and ultimately enhance satisfaction.

The results also support the perspective of Dynamic Capability Theory, which emphasizes an organization's ability to adapt and reconfigure resources in response to changing market conditions (Liu et al., 2022). Through digital marketing capability, firms can continuously monitor customer preferences and market trends, allowing them to adjust their offerings and communication strategies accordingly. Such adaptability contributes to a more satisfying customer experience.

However, previous studies have suggested that the relationship between digital marketing capability and customer satisfaction may not always be significant. One possible explanation is that digital technologies alone do not guarantee positive customer experiences. Customers may become dissatisfied if digital platforms are difficult to use, if communication is perceived as intrusive, or if automated interactions reduce the human element of service delivery. In addition, concerns regarding privacy and data security may weaken the positive impact of digital marketing initiatives. Therefore, the effectiveness of digital marketing capability largely depends on how well technology is integrated with customer needs and service quality.

5.2.2. Digital Marketing Capability Positively Influences Customer Loyalty

The findings further reveal that Digital Marketing Capability positively influences Customer Loyalty. This result implies that organizations with superior digital marketing capabilities are more successful in developing long-term relationships with customers and encouraging repeat purchasing behavior. This finding is consistent with Relationship Marketing Theory, which emphasizes the importance of maintaining enduring relationships with customers rather than focusing solely on transactional exchanges (Sunggara et al., 2024). Through digital channels such as social media platforms, mobile applications, websites, and customer relationship management systems, organizations can maintain continuous interaction with customers and strengthen emotional connections. Such ongoing engagement fosters customer attachment and encourages loyalty over time.

The findings can also be interpreted through the lens of the Commitment-Trust Theory of Relationship Marketing, which proposes that trust and commitment are fundamental determinants of successful long-term relationships (Wistedt, 2024). Effective digital marketing capability enables organizations to provide transparent communication, consistent information, and personalized services. These practices help strengthen customer trust and commitment, which subsequently enhance loyalty.

Moreover, digital marketing capability allows firms to create personalized experiences and maintain customer engagement beyond the point of purchase. Customers who consistently receive relevant information, tailored recommendations, and responsive support are more likely to perceive the organization positively and remain loyal. This perspective aligns with contemporary customer relationship management literature, which highlights the role of technology in fostering customer retention and relationship quality (Jung Karki, 2025).

Nevertheless, some studies have reported weaker relationships between digital marketing capability and customer loyalty. This inconsistency may occur because loyalty is influenced by multiple factors beyond digital interactions. Customers may switch to competitors despite positive digital experiences if competitors offer lower prices, superior products, stronger brand reputations, or greater perceived value. Therefore, while digital marketing capability is an important determinant of loyalty, it should be complemented by broader organizational strategies that address overall customer value creation.

5.2.3. Customer Satisfaction Positively Influences Customer Loyalty

The findings demonstrate that Customer Satisfaction positively influences Customer Loyalty. This result confirms that satisfied customers are more likely to maintain long-term relationships with a company, continue purchasing its products or services, and recommend

the company to others. This finding is consistent with the work of Oliver (1999), who identifies customer satisfaction as one of the primary antecedents of customer loyalty. According to this perspective, customers who experience positive outcomes are more likely to develop favorable attitudes toward a company, which subsequently translate into loyal behaviors. Satisfaction reinforces customers' confidence in the organization and reduces their motivation to seek alternative providers.

The relationship can also be explained through Expectation Confirmation Theory (Hu et al., 2023), which suggests that satisfaction results from the confirmation of customer expectations. When customers perceive that a product or service performs as expected or better than expected, they develop positive evaluations that increase their intention to continue the relationship. Repeated positive experiences strengthen customers' emotional attachment and commitment to the organization, thereby fostering loyalty.

Additionally, the findings align with the conceptual framework proposed by Ngo et al., (2022), which argues that loyalty is shaped by both attitudinal and behavioral components. Customer satisfaction contributes to favorable attitudes toward the company, which in turn influence behavioral intentions such as repurchase decisions and positive word-of-mouth communication. Thus, satisfaction serves as a critical foundation for the development of long-term customer loyalty.

However, satisfaction alone may not always guarantee loyalty. Several scholars have argued that customers who are satisfied may still switch to competitors if alternative offerings provide greater convenience, lower prices, or more attractive benefits (Merdika Mansur, 2025). In highly competitive markets, customers often evaluate multiple options before making purchasing decisions. Consequently, loyalty is influenced not only by satisfaction but also by other factors such as trust, perceived value, commitment, and brand image. This suggests that organizations should view customer satisfaction as a necessary but not sufficient condition for achieving sustainable customer loyalty.

5.3. Conclusion

This study provides empirical evidence that Digital Marketing Capability represents a strategic capability that plays a crucial role in enhancing both Customer Satisfaction and Customer Loyalty. The findings suggest that an organization's ability to leverage digital technologies, manage customer information, and establish effective interactions through various digital channels contributes to superior customer experiences. These positive experiences subsequently facilitate the development of long-term customer loyalty. Furthermore, the study confirms that Customer Satisfaction serves as a key determinant of Customer Loyalty. Customers who perceive positive experiences and receive value that meets their expectations are more likely to maintain long-term relationships with the organization. This finding indicates that customer loyalty is not only directly influenced by digital marketing capability but is also strengthened through enhanced customer satisfaction.

From a theoretical perspective, this study extends the understanding of the Resource-Based View, Dynamic Capability Theory, and Relationship Marketing Theory by demonstrating that Digital Marketing Capability functions as a strategic organizational resource capable of creating customer value and fostering enduring customer relationships. From a managerial perspective, the findings highlight the importance of investing in digital marketing capabilities, customer-centric digital strategies, and technology-enabled relationship management practices to improve customer satisfaction and sustain customer loyalty in an increasingly competitive digital environment.

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RELATIONSHIP MARKETING AND CUSTOMER RETENTION: THE MEDIATING ROLE OF CUSTOMER ENGAGEMENT AMONG HOTEL CUSTOMERS IN BANDAR LAMPUNG, INDONESIA

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Abstract

This study investigates the influence of relationship marketing on customer retention through the mediating role of customer engagement among hotel customers in Bandar Lampung, Indonesia. In an increasingly competitive hospitality industry, maintaining long-term customer relationships has become essential for business sustainability. A quantitative approach was employed using a survey of 93 hotel customers selected through purposive sampling. Data were analyzed using descriptive statistics, validity and reliability tests, regression analysis, and mediation analysis with SPSS. The findings reveal that relationship marketing significantly enhances customer engagement through trust, commitment, communication, and customer satisfaction. Customer retention was also found to have a significant positive effect on customer engagement ($t = 13.227$, $p < 0.001$). Simultaneously, relationship marketing and customer retention explain 69.8% of the variance in customer engagement ($R^2 = 0.698$). Furthermore, customer engagement serves as an important mediating variable that strengthens the relationship between relationship marketing and customer retention. These findings demonstrate that effective relationship marketing strategies combined with strong customer engagement can improve customer loyalty and retention. This study contributes to the hospitality marketing literature by providing empirical evidence on the mediating role of customer engagement and offers practical implications for hotel managers seeking to develop sustainable customer relationship strategies

Keywords: Relationship Marketing, Customer Retention, Customer Engagement, Hospitality Industry, Hotel Customers.

1. Introduction

The hospitality industry is one of the service sectors facing increasingly intense competition, particularly in the current era of globalization and digitalization. Under these conditions, companies are not only required to attract new customers but also to retain existing ones as part of efforts to create sustainable competitive advantage. Customer retention is a strategic aspect because the cost of retaining customers is relatively lower than acquiring new ones, and it significantly contributes to the company's long-term profitability (Hossain, 2026)

One widely used approach to improving customer retention is relationship marketing. Relationship marketing is defined as a company's effort to build, maintain, and develop mutually beneficial long-term relationships with customers through continuous interaction (Alberico Rosario, 2023). This approach emphasizes the importance of trust, commitment, communication, and customer satisfaction as the foundation for creating loyalty and increasing the likelihood of future repeat purchases (Alberico Rosario, 2023).

However, the relationship between relationship marketing and customer retention is not always direct. Several studies indicate that relationship marketing can exert an indirect

influence on customer retention through mediating variables, such as customer satisfaction or customer engagement (Fitrianti & Mujanah, Siti, 2024). In this context, customer engagement is a critical factor as it reflects the level of participation, interaction, and emotional attachment customers have toward the company.

Customer engagement in the hospitality industry plays a strategic role in building long-term relationships between customers and service providers. Customers who are actively engaged tend to exhibit higher levels of loyalty, provide feedback, and demonstrate a tendency to make repeat purchases (Rather & Sharma, 2020). Additionally, customer engagement can strengthen the impact of relationship marketing on customer retention by enhancing the quality of relationships and the overall customer experience (Taleghani et al., 2025).

In the local context, Bandar Lampung City, as one of the business and tourism destinations in Lampung Province, has demonstrated significant growth in the hospitality industry. This has led to increased competition among hotels in attracting and retaining customers. Therefore, a marketing strategy is needed that is not only transaction-oriented but also focused on long-term relationships with customers through an effective relationship marketing approach.

Based on the above, this study is important to further examine the influence of relationship marketing on customer retention by considering the mediating role of customer involvement among hotel customers in Bandar Lampung City. This study is expected to provide theoretical contributions to the development of service marketing literature, particularly regarding the mediating mechanism in the relationship between relationship marketing and customer retention, as well as practical implications for hotel management in designing more effective and customer-oriented marketing strategies.

2. Literature Review

2.1. Relationship Marketing

Relationship marketing is a marketing approach focused on building, maintaining, and developing long-term relationships between a company and its customers. This approach differs from transactional marketing, which is oriented solely toward short-term sales. Relationship marketing emphasizes trust, commitment, communication, and customer satisfaction as key factors in creating sustainable relationships (Rosario Alberico, 2023).

Furthermore, relationship marketing aims to create customer value through continuous interaction so that companies can understand customer needs and expectations more deeply (Hidayat & Idrus, 2023). In the context of the service industry, particularly hospitality, the application of relationship marketing is crucial because direct interaction between customers and service providers significantly shapes the overall customer experience.

Relationship Marketing (RM) is a strategic approach in marketing that focuses on building, maintaining, and strengthening long-term relationships between companies and customers. This concept began to develop as a response to the limitations of transactional marketing approaches that are solely oriented toward short-term sales (Pfajfar et al., 2022).

Relationship marketing emphasizes the creation, maintenance, and enhancement of relationships with customers and other stakeholders to achieve shared goals. Meanwhile, according to Sedalo et al. (2022) in the Commitment-Trust Theory, trust and commitment are two key elements in the success of relationship marketing.

Relationship marketing encompasses various activities such as continuous communication, personalized service, loyalty programs, and customer experience management. This approach is believed to enhance customer lifetime value and create sustainable competitive advantage (Steinhoff et al., 2019). In today's digital context, relationship marketing is also evolving through the use of technologies such as Customer

Relationship Management (CRM), social media, and data analytics to gain a deeper understanding of customer behavior (Jain et al., 2024).

In addition, relationship marketing also encompasses various strategies such as service personalization, loyalty programs, and ongoing communication to improve the quality of customer relationships (Hossain, 2026). Thus, relationship marketing can be viewed as a long-term strategy focused on sustaining customer relationships.

2.2. Customer Retention

Customer retention refers to a company's ability to keep customers using its products or services over a specific period. Customer retention serves as a key indicator of marketing strategy success as it is directly linked to customer loyalty and company profitability. Customer retention refers to a company's ability to retain customers over a specific period. Customer retention serves as a key indicator of marketing strategy success because the cost of retaining existing customers is generally lower than the cost of acquiring new customers (Negassa & Japee, 2023).

Baber (2020) demonstrates that even a small increase in customer retention rates can lead to a significant improvement in a company's profitability. This is driven by several factors, such as increased repeat purchases, lower marketing costs, and the potential for recommendations from loyal customers. Additionally, relationship marketing strategies play a crucial role in enhancing customer retention through the development of long-term emotional bonds and trust. In the digital era, retention is also influenced by omnichannel experiences and the consistency of customer interactions across various platforms (Aityassine, 2022).

Research indicates that relationship marketing has a positive impact on customer retention, where the stronger the relationship built with customers, the higher the customer retention rate (Akbar et al., 2024). Furthermore, customer retention is also influenced by factors such as satisfaction, trust, and commitment formed through long-term interactions between the company and customers (Hossain, 2026). In the hospitality industry, customer retention is crucial because loyal customers tend to return, provide recommendations, and increase customer lifetime value over time. Therefore, hotels need to develop strategies capable of maintaining long-term relationships with customers.

2.3. Customer Engagement

Customer engagement refers to the level of emotional, cognitive, and behavioral involvement customers have toward a brand or company. This engagement is reflected through active customer interactions, such as leaving reviews, participating in company programs, or communicating with service providers. Customer engagement is a concept that describes the level of a customer's cognitive, emotional, and behavioral involvement with a brand or company. Unlike satisfaction or loyalty, which are more passive in nature, engagement reflects active customer participation (So et al., 2024).

According to Harrigan et al. (2017), customer engagement is a psychological state arising from customer interactions with a brand, which influences behaviors such as sharing experiences, providing reviews, and participating in brand communities. In the digital context, engagement is often measured through indicators such as social media interactions, time spent on platforms, and participation in content. High customer engagement can increase loyalty, strengthen customer relationships, and ultimately lead to improved customer retention (Barrett et al., 2025).

In marketing literature, customer engagement is considered a key factor in enhancing customer loyalty and retention. Customers with high engagement tend to have stronger relationships with the company and are more likely to continue using the same services

(Nugrahaningsih & Abdillah, 2024). Furthermore, in the context of the hospitality industry, customer engagement is one of the primary dimensions of customer relationships, alongside commitment and motivation, which directly influence relationship value and company performance (Angrini et al., 2025). Customer engagement also plays a role in creating more meaningful customer experiences, which ultimately enhance customer satisfaction and loyalty.

2.4. The Mediating Role of Customer Engagement

Several studies indicate that relationship-oriented marketing strategies can enhance customer engagement, which subsequently leads to improved customer retention (Lestiyani & Purwanto, 2023). This suggests that customer engagement functions as an intervening variable that bridges the influence of relationship marketing on customer retention. Furthermore, intense and sustained interactions between companies and customers in relationship marketing can foster customer engagement, which ultimately strengthens emotional bonds and increases the likelihood of customers remaining loyal (Hidayat & Idrus, 2023). Thus, customer engagement is not merely an outcome of relationship marketing but also a crucial mechanism in enhancing the effectiveness of such strategies regarding customer retention.

2.5. Relevance to the Hospitality Industry

The implementation of relationship marketing strategies through Customer Relationship Management (CRM) enables hotels to understand customer preferences and provide more personalized services, thereby increasing customer engagement and retention (Fitrianti & Mujanah, Siti, 2024). Additionally, customer relationship dimensions in the hotel industry, such as engagement, commitment, and word of mouth, have a significant impact on business success and the sustainability of relationships with customers (Rather & Sharma, 2020). In the context of Bandar Lampung, which is experiencing rapid growth in the hospitality industry, understanding these relationships is crucial for enhancing hotel competitiveness through customer-centric marketing strategies.

3. Methodology

In this study, the author employed a survey method using a quantitative approach. The quantitative approach was used to determine the population and sample, after which the data were statistically processed and analyzed to test the established hypotheses. The population in this study consists of all hotel customers in Bandar Lampung City who have utilized hotel services within a specific timeframe. Based on data obtained from several hotels that were the subjects of the study, the population size was determined to be 122 customers. The sample size in this study was calculated using the Slovin formula with a 5% margin of error, resulting in a sample size of 93 respondents. The sampling technique used purposive sampling, with the criteria being customers who had stayed at least once, were at least 17 years old, and were willing to complete the questionnaire.

The data collection methods used were questionnaires and documentation. The questionnaires were designed using a 1–5 Likert scale to measure respondents' perceptions of the research variables. In accordance with the research objectives, two forms of analysis were used: descriptive analysis to describe the characteristics of the respondents and the research variables, and inferential analysis to test the hypotheses using linear regression and mediation analysis (Sobel test) with the assistance of SPSS for Windows version 23.0.

3.1. Operationalization of Research Variables

This study covers three types of variables: independent variables, dependent variables, and mediating variables. These variables are as follows:

a. Dependent Variable

The dependent variable in this study is Customer Retention, which is measured using the following indicators (Rosario Alberico, 2023):

- a) Intention to use hotel services again
 - b) Customer loyalty
 - c) Willingness to recommend to others
- b. Independent Variable
- The independent variable in this study is Relationship Marketing, which is measured using the following indicators (Hossain, 2026):
- a) Trust
 - b) Commitment
 - c) Communication
 - d) Satisfaction
- c. Mediating Variable
- The mediating variable in this study is Customer Engagement, which is measured using the following indicators (Angrini et al., 2025):
- a) Customer interaction
 - b) Active participation
 - c) Emotional attachment

3.2. Analysis Method

This study uses a survey method with a descriptive quantitative approach. Descriptive and quantitative studies involve the analysis of numerical data aimed at identifying and explaining existing phenomena as well as discovering relationships between variables to draw conclusions. Quantitative research is based on the philosophy of positivism because it follows scientific principles that are concrete, objective, measurable, rational, and systematic.

4. Results and Discussion

4.1 Descriptive Analysis

Table 4.1 Descriptive Statistics

Descriptive Statistics							
	N	Range	Minimum	Maximum	Mean	Standard Deviation	Variance
Customer Retention	93	23	22	45	31.48	5,012	25,122
Relationship Marketing	93	25	36	61	46.35	4,894	23,949
Customer Engagement	93	25	22	47	33.63	5,103	26,039
Valid N (listwise)	93						

The test results presented above show the three variables observed in this study: customer retention, relationship marketing, and customer engagement. Each variable was measured among the 93 participants who made up the study sample. For the customer retention variable, the range of values is 23, with a minimum value of 22 and a maximum value of 45. The mean for customer retention is 31.48, with a standard deviation of 5.012 and a variance of 25.122. The test results for the relationship marketing variable show a range of values of 25, with a minimum value of 36 and a maximum value of 61. The mean for relationship marketing is 46.35, with a standard deviation of 4.894 and a variance of 24.949. Meanwhile, the results of the test for the customer engagement variable show a range of 25, with a minimum value of 22 and a maximum value of 47. The mean for customer engagement is 33.63, with a standard

deviation of 5.103 and a variance of 26.039. This analysis was conducted using valid (listwise) data from 93 participants to generate the statistics above.

4.2 Validity Test

The basis for decision-making in the product-moment validity test is comparing the calculated R value with the table R value. If the calculated R value > table R value, the questionnaire item is deemed valid. Conversely, if the calculated R value < table R value, the questionnaire item is deemed invalid. The author performed the validity test analysis using SPSS 26 software, conducted a significance test, and compared the calculated r value with the table r value. With $df = 39$ and $\alpha = 0.05$, the table r value is 0.316. If the calculated r value is greater than the table r value and positive, the questionnaire item is considered valid. The validity test results indicate that out of a total of 12 questionnaire items for the customer retention variable, two items (X1.1 and X1.3) are invalid because their calculated r values exceed the table r value (0.316), so these two items were removed. For the relationship marketing variable, out of 15 questionnaire items, two items (X2.11 and X2.14) were deemed invalid because their calculated r values were lower than the table r value, so these two items were also removed. Furthermore, for the customer engagement variable, out of a total of three survey items, two items (Y3.9 and Y3.10) were found to be invalid because their calculated r-values were lower than the table r-value, so these two survey items were also removed.

4.3 Reliability Test

The results of the research instrument reliability test show reliability coefficients for the 33 items. The results of the Reliability Analysis Scale (alpha) using IBM SPSS 20 are as follows: for the social media marketing indicator, an alpha of 0.802 was obtained with $p > 0.05$; for the brand image indicator, an alpha of 0.934 was obtained with $p > 0.05$; and for the purchase decision indicator, an alpha of 0.937 was obtained with $p > 0.05$. This indicates that the measurement tools used in this study are considered reliable.

Table 4.2 Descriptive Statistics

	Descriptive Statistics						
	N	Range	Min	Max	Mean	Standard Deviation	Variance
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maximum value of 47. The mean for customer engagement is 33.63, with a standard deviation of 5.103 and a variance of 26.039. This analysis was conducted using valid (listwise) data from 93 participants to generate the statistics above.

4.4 Normality Test

Table 4.3 One-Sample Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test		Customer Retention	Relationship Marketing	Customer Engagement
N		93	93	93
Normal Parameters ^{a, b}	Mean	31.48	46.35	33.63
	Standard Deviation	5.012	4.894	5.103
Most Extreme Differences	Absolute	.109	.099	.068
	Positive	.109	.099	.061
	Negative	-.083	-.074	-.068
Test Statistic		.109	.099	.068
Asymptotic Significance (2-tailed)		.008 ^c	.026 ^c	.200 ^{c, d}
a. The test distribution is normal.				

Based on the results of the normality test, it is known that the significance value $0.200 > 0.05$; therefore, it can be concluded that the residuals are normally distributed and constitute a good regression model. The basis for decision-making in the reliability test is that if the Alpha value is greater than R Table, then the questionnaire items used are reliable or consistent; conversely, if the Alpha value is less than R Table, then the questionnaire items used are unreliable or inconsistent.

4.5 Regression Results

Table 4.4 Model Summary

Model Summary				
Model	R	R-Square	Adjusted R-Square	Standard Error of the Estimate
1	.835 ^a	.698	.691	2.837
a. Predictors: (Constant), Customer Retention, <i>Relationship Marketing</i>				
b. Dependent Variable: Customer Engagement				

The regression model summary indicates a strong relationship between Customer Retention and Relationship Marketing and the Customer Engagement variable. This model explains approximately 69.8% of the variation in customer engagement using the predictors of customer retention and relationship marketing. These results are indicated by a high R-Square value of 0.698, meaning that most of the variability in customer engagement can be explained by these two predictors. Additionally, the low standard error of the estimate (2.837) indicates that the model has a high level of accuracy in predicting customer engagement values.

Thus, it can be concluded that customer retention and relationship marketing play a significant role in influencing customer engagement based on the results of the regression analysis. A total of 30.2% of the remaining variation in the data is influenced by factors outside the regression equation.

Table 4.5 ANOVA

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1671.205	2	835,603	103,821	.000 ^b
	Residual	724,365	90	8,048		
	Total	2,395,570	92			

a. Dependent Variable: Customer Engagement
b. Predictors: (Constant), Customer Retention, Relationship Marketing

The ANOVA analysis results indicate that the regression model as a whole makes a significant contribution to explaining the customer engagement variable. The significance value (p-value) obtained is 0.000 (less than the significance level of 0.05), indicating that the regression results are not due to chance and have high statistical relevance. The total variation in the data, represented by the total Sum of Squares of 2,395.570, has been successfully broken down into two components: 1,671.205 of the variability is explained by the model (Regression Sum of Squares), and the remaining 724.365 is the variability not explained by the model (Residual Sum of Squares).

The regression model uses two predictors, namely customer retention and relationship marketing, which together make a significant contribution to explaining the purchase decision variable, as indicated by an F-value of 103.821. Therefore, these ANOVA results imply that customer retention and relationship marketing have a strong influence on customer engagement in the context of this regression analysis. The data analysis results show a coefficient of determination (R-squared) of 0.698. This indicates that approximately 69.8% of the variability in customer engagement can be explained by the combination of predictors (customer retention and relationship marketing). A high R-squared value indicates that the regression model has a good ability to explain the variation in the dependent variable. Thus, both independent variables have a positive influence on purchasing decisions.

Table 4.6 Coefficients for Customer Retention and Customer Engagement

Coefficients ^a						
Model		Standardized Coefficients		t	Sig.	
		Beta				
1	(Constant)	7,637	1,990	3,838	0.000	
	X1	0.826	0.062	0.811	13.227	0.000

a. Dependent Variable: Y

The above calculation shows that the calculated t-value for the customer retention variable is 13.227 with a significance level (sig.) of 0.00, while the table t-value with df $n-2 = 93-2 = 91$ and $\alpha = 0.05$ is 1.661. Thus, since the calculated t-value is greater than the table t-value ($13.227 > 1.661$) at a significance level of < 0.05 , H_0 is rejected and H_1 is accepted, meaning that customer retention has a significant effect on customer engagement. Therefore, the research hypothesis states: there is a positive and significant effect of customer retention on customer engagement.

5. Discussion

5.1. The Effect of Relationship Marketing on Customer Engagement

The findings indicate that relationship marketing plays an important role in enhancing customer engagement among hotel customers in Bandar Lampung. This result suggests that customers tend to become more actively involved with a hotel when they perceive the existence of strong relational efforts, such as trust-building, effective communication, commitment, and personalized services. Relationship marketing enables hotels to move beyond transactional interactions and establish long-term relationships that foster emotional connections with customers.

This finding is consistent with the Commitment-Trust Theory proposed by Albérico & Joaquim A, (2023), which emphasizes that trust and commitment are fundamental elements in maintaining successful relational exchanges. When customers trust a service provider and perceive a genuine commitment from the organization, they are more likely to develop positive attitudes and become actively engaged with the brand. In the hospitality sector, relationship marketing contributes to creating memorable experiences that encourage customers to interact more frequently with the hotel and participate in value co-creation activities.

The present finding is also in line with previous studies. Kehinde et al., (2024) found that relationship quality significantly influences customer engagement in service industries, particularly in contexts where customer experiences play a central role. Similarly, Datta et al., (2018) reported that relationship-oriented marketing strategies strengthen customer-brand engagement by encouraging emotional attachment and interactive behaviors. These studies support the argument that relationship marketing serves as a strategic mechanism for fostering deeper customer involvement and strengthening customer-company relationships.

However, the findings also highlight the importance of adapting relationship marketing practices to local customer expectations. Hotel customers in Bandar Lampung may place considerable value on personalized communication, responsiveness, and hospitality, which are critical factors in shaping engagement behaviors. Therefore, hotels should continuously invest in relationship-building activities to maintain meaningful interactions with their customers.

5.2. The Influence of Customer Retention on Customer Engagement

The findings further demonstrate that customer retention positively contributes to customer engagement. Customers who continue to maintain relationships with a hotel over time are more likely to develop stronger emotional bonds and become actively involved with the organization's activities. Retained customers generally possess greater familiarity with hotel services, resulting in increased confidence, satisfaction, and willingness to interact with the brand.

This finding is supported by Relationship Marketing Theory, which argues that long-term customer relationships create opportunities for deeper interactions and stronger relational outcomes (Sugiato et al., 2023). Customers who repeatedly choose the same service provider often develop a sense of belonging and identification with the brand. Such conditions encourage customers to share experiences, provide feedback, recommend services to others, and participate in loyalty programs, all of which represent important dimensions of customer engagement.

The result is also consistent with previous empirical studies. (Q. Bataineh et al., 2015) argued that long-term customer relationships facilitate the development of engagement behaviors because customers become more emotionally connected to the organization. (Wati et al., 2023) emphasized that customer retention provides a foundation for engagement development, particularly in service settings where repeated interactions are common. These

studies suggest that retention should not only be viewed as an outcome of successful marketing efforts but also as a factor that supports the emergence of customer engagement.

In the hotel industry, retained customers often possess extensive knowledge of service quality and organizational values. As a result, they tend to become advocates for the brand and contribute positively to organizational performance through active engagement behaviors. Therefore, hotel managers should focus on maintaining customer loyalty and satisfaction to ensure sustainable engagement over time.

5.3. Relationship Marketing and Customer Retention as Drivers of Customer Engagement

The findings suggest that customer engagement is influenced by both relationship marketing and customer retention. This result reinforces the notion that customer engagement is a multidimensional construct that develops through continuous interactions and long-term relationships between customers and service providers. Relationship marketing creates the relational foundation by fostering trust, commitment, and communication, whereas customer retention reflects the continuity of customer relationships with the organization. When these two elements operate simultaneously, customers are more likely to establish emotional, cognitive, and behavioral connections with the hotel. Consequently, engagement becomes stronger because customers perceive value not only from the services provided but also from the quality of the relationship itself.

This finding supports the conceptual framework proposed by (Shrestha, 2020), who argued that customer engagement emerges through ongoing interactive experiences between customers and organizations. Similarly, (Liao et al., 2024) emphasized that engagement is shaped by customers' cognitive, emotional, and behavioral investments in a brand, which are strengthened through relationship-building efforts and repeated interactions. The current study therefore extends previous hospitality research by demonstrating that both relationship marketing and customer retention are important antecedents of customer engagement among hotel customers in Bandar Lampung. From a managerial perspective, the findings suggest that hotels should not focus solely on acquiring new customers. Instead, greater attention should be directed toward maintaining long-term relationships and retaining existing customers through personalized services, effective communication, and loyalty-enhancing initiatives. Such strategies can strengthen customer engagement and ultimately contribute to sustainable competitive advantage in the hospitality industry.

6. Conclusion

This study examined the influence of relationship marketing and customer retention on customer engagement among hotel customers in Bandar Lampung, Indonesia. The findings indicate that relationship marketing plays an important role in fostering customer engagement by strengthening trust, commitment, communication, and long-term relationships between hotels and their customers. Customers who perceive positive relational efforts from hotels are more likely to develop stronger emotional and behavioral connections with the organization. The study also demonstrates that customer retention contributes to customer engagement. Customers who maintain long-term relationships with hotels tend to become more familiar with the services offered, develop stronger attachment to the brand, and participate more actively in interactions with the organization. These findings suggest that customer retention not only reflects customer loyalty but also serves as a foundation for developing deeper customer engagement.

Furthermore, the results highlight that relationship marketing and customer retention jointly contribute to enhancing customer engagement. In the hospitality industry, customer engagement can be strengthened when hotels consistently implement relationship-building strategies while simultaneously maintaining customer loyalty and retention. Therefore, hotel

managers should prioritize personalized communication, service quality improvement, and customer relationship programs to create meaningful customer experiences and sustain long-term engagement. This study contributes to the relationship marketing and hospitality literature by providing empirical evidence that relationship marketing and customer retention are important antecedents of customer engagement. The findings also offer practical implications for hotel managers seeking to improve customer involvement and strengthen competitive advantage in an increasingly competitive hospitality market.

Despite its contributions, this study has several limitations. The research was conducted only among hotel customers in Bandar Lampung, which may limit the generalizability of the findings to other regions or service industries. Future studies are encouraged to include broader geographical coverage, larger sample sizes, and additional variables such as customer satisfaction, service quality, customer experience, and brand trust to obtain a more comprehensive understanding of customer engagement.

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WHAT DRIVES CUSTOMER LOYALTY? THE ROLES OF SERVICE QUALITY, BRAND IMAGE, AND CUSTOMER SATISFACTION AMONG RESTAURANT CUSTOMERS IN BANDAR LAMPUNG

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Abstract

Customer loyalty has become a crucial determinant of business sustainability in the highly competitive restaurant industry. Understanding the factors that drive customer loyalty is essential for restaurant managers seeking to improve customer retention and achieve long-term competitive advantage. This study examines the roles of service quality, brand image, and customer satisfaction in influencing customer loyalty among restaurant customers in Bandar Lampung, Indonesia. A quantitative research approach was employed using a survey of 100 respondents selected through purposive sampling. Data were collected through a structured questionnaire using a five-point Likert scale and analyzed using multiple linear regression with SPSS version 27. The results revealed that service quality, brand image, and customer satisfaction each had a positive and significant effect on customer loyalty. Simultaneously, the three independent variables significantly explained customer loyalty, with the regression model accounting for 57.2% of the variance ($R^2 = 0.572$). Among the examined factors, customer satisfaction emerged as the strongest predictor of customer loyalty. These findings reinforce the importance of delivering superior service quality, establishing a favorable brand image, and maintaining high customer satisfaction to strengthen customer loyalty. The study contributes to the relationship marketing literature by providing empirical evidence on the combined effects of these three determinants in the context of the restaurant industry in an emerging economy. Practically, the findings offer valuable insights for restaurant managers in designing customer-oriented strategies to improve loyalty and sustain business performance.

Keywords: service quality; brand image; customer satisfaction; customer loyalty; restaurant industry; relationship marketing.

1. Introduction

The culinary industry is one of the service sectors experiencing rapid growth in various regions, including in Bandar Lampung City. This development is marked by an increasing number of restaurants and eateries spread across various parts of the city. This situation indicates that the culinary sector plays a significant role in the local economy while simultaneously creating increasingly intense competition among business operators. Data from the Bandar Lampung City Central Statistics Agency (2025) shows that the number of restaurants continues to grow as part of the community's economic activities. In this context, a restaurant's ability to retain customers is a key factor in business success, one aspect of which is reflected through customer loyalty.

Customer loyalty is a customer's commitment to consistently making repeat purchases and recommending products or services to others. Loyal customers not only provide short-term benefits but also contribute to the long-term sustainability of the business (Chaniago, 2016). In the context of service marketing, customer loyalty is not formed directly but is influenced by various factors related to the customer's experience in using restaurant services (Kurniati et al., 2021).

One of the primary factors influencing customer loyalty is service quality. Service quality reflects a company's ability to meet or even exceed customer expectations through the service provided (Harmawati & Dewanti, 2023). Fast, friendly, responsive, and accurate service enhances customers' positive perceptions of the restaurant. Research indicates that service quality has a significant influence on customer satisfaction and loyalty (Hassan & Salem, 2022). Thus, the better the service quality provided, the higher the level of satisfaction and the greater the likelihood of customers remaining loyal.

In addition to service quality, brand image is also a key factor influencing customer loyalty. Brand image refers to the perception formed in customers' minds regarding a brand based on their experiences, information, and associations (Lolemo & Pandya, 2025). Restaurants with a positive brand image tend to be more easily remembered, trusted, and chosen by customers. Recent research indicates that brand image has a significant influence on customer satisfaction and customer loyalty (Tong, 2022). This suggests that brand image not only influences customers' initial perceptions but also plays a role in fostering long-term relationships with customers.

Although service quality and brand image influence customer loyalty, this relationship often does not occur directly. In many studies, customer satisfaction has been identified as a mediating variable that bridges the relationship between service quality and brand image with customer loyalty. Customer satisfaction is the feeling of pleasure or disappointment that arises after comparing expectations with perceived performance (Agustin Lestari & Rachmawati, 2025). Satisfied customers are more likely to make repeat purchases, recommend the brand to others, and are less likely to switch to competitors. Research by Kona et al., (2025) indicates that customer satisfaction acts as a significant mediator in enhancing customer loyalty.

In the context of restaurants, customer satisfaction is a crucial aspect because the dining experience is immediate and comprehensive, ranging from food quality and service to the ambiance of the venue. Therefore, restaurants must focus not only on service quality but also on the brand image they cultivate to optimally foster customer satisfaction. Previous research also indicates that the combination of service quality and brand image can significantly enhance customer satisfaction and loyalty in the restaurant industry (Wijaya et al., 2023).

The city of Bandar Lampung, as one of the economic hubs in Lampung Province, holds great potential in the culinary sector. The large number of emerging restaurants indicates intense competition, so business operators must be able to create a competitive advantage through excellent service and a strong brand image. However, research specifically examining the relationship between service quality, brand image, customer satisfaction, and customer loyalty in the context of restaurants in Bandar Lampung City remains limited.

Based on the above discussion, it is important to conduct research on the influence of service quality and brand image on customer loyalty through customer satisfaction among restaurant customers in Bandar Lampung. This study is expected to make a theoretical contribution to the development of service marketing management and provide practical benefits for restaurant business owners in formulating strategies to enhance customer satisfaction and loyalty.

2. Literature Review

2.1 Service Quality

Service quality is a key concept in service marketing that describes a company's ability to meet customer expectations. Wahyuni & Ghazali, (2019) explain that service quality is determined by the gap between customer expectations and perceptions of the service received. This concept forms the basis for measuring service quality through the SERVQUAL model.

According to Yulisetiari & Prahasta, (2019), high service quality creates a positive experience for customers and is a key factor in building long-term relationships. In the context of restaurants, service quality encompasses not only the speed and accuracy of service but also employee friendliness, the cleanliness of the premises, and the comfort of the atmosphere. Empirical research indicates that service quality significantly influences customer satisfaction. Kim & Yang, (2025) found that service quality has a positive impact on customer satisfaction and loyalty in the restaurant industry. Additionally, a study by Theodore & Sitinjak, (2024) demonstrated that high-quality service can enhance customer loyalty through enjoyable experiences. Another study by Achmad & Solekah, (2022) also confirms that restaurant service quality is closely related to customer satisfaction and the intention to return.

2.2 Brand Image

Brand image is the perception or mental picture formed in consumers' minds regarding a brand. According to Watson et al., (2024), brand image consists of associations that emerge in consumers' memories related to the brand's attributes, benefits, and attitudes toward it. A strong brand image can enhance customer trust and serve as a differentiating factor in a competitive market. Sahabu et al., (2025) states that a positive brand image influences purchasing decisions and customer loyalty. In the restaurant industry, brand image is shaped by food quality, service, reputation, and the overall customer experience. Recent research indicates that brand image has a significant influence on customer satisfaction and loyalty. Baalbaki, (2024) found that brand image plays a role in enhancing customer loyalty through satisfaction. Additionally, a study by Arianty & Andira, (2021) shows that brand image has a direct effect on customer satisfaction and repurchase intention. Dam & Dam, (2021) also confirm that brand image strengthens the relationship between customer satisfaction and customer loyalty.

2.3 Customer Satisfaction

Customer satisfaction is the customer's emotional response after comparing expectations with perceived performance (Hidayat & Idrus, 2023). Customer satisfaction serves as the primary indicator of a company's success in delivering value to customers. According to Supriyanto et al., (2021), customer satisfaction is the initial stage in the development of customer loyalty. Satisfied customers are more likely to make repeat purchases and maintain a relationship with the company. Research indicates that customer satisfaction acts as a mediating variable in the relationship between service quality and brand image on customer loyalty. A study by Semnani et al., (2015) indicates that customer satisfaction mediates the influence of service quality and brand image on customer loyalty. Additionally, research by (Wijaya & Putra, 2023) also found that customer satisfaction significantly influences customer loyalty in the restaurant industry.

2.4 Customer Loyalty

Customer loyalty is a customer's commitment to consistently continue using a company's products or services in the future. states that customer loyalty can be observed through repeat purchasing behavior, recommendations to others, and resistance to competitors' influence. In the context of service marketing, customer loyalty plays a crucial role in enhancing a company's profitability. Zeithaml et al., (2002) explain that loyal customers tend to provide greater long-term value compared to new customers. Empirical research indicates that customer loyalty is influenced by various factors, including service quality, brand image, and customer satisfaction. A study by (Chinomona & Dubihlela, 2021) indicates that service quality and customer satisfaction have a significant impact on loyalty. Additionally, research by

(Rahayu & Harsono, 2022) found that brand image and service quality collectively enhance customer loyalty in the restaurant industry.

3. Methodology

This study employed a quantitative research design using a cross-sectional survey to examine the effects of service quality, brand image, and customer satisfaction on customer loyalty among restaurant customers in Bandar Lampung, Indonesia. A quantitative approach was considered appropriate because it enables the empirical testing of relationships among variables through statistical analysis (Waruwu, 2023). The target population comprised restaurant customers in Bandar Lampung who had purchased food or beverages at least once. Since the exact population size was unknown, the sample size was determined following the recommendation of Hair et al. (2021), which suggests a minimum sample of five to ten respondents for each observed indicator. Given that this study employed 17 measurement indicators, the minimum required sample ranged from 85 to 170 respondents. A total of 100 respondents participated in this study, satisfying the recommended minimum sample size.

Purposive sampling was adopted to ensure that respondents met the research objectives. The inclusion criteria were: (1) at least 17 years of age, (2) having visited and dined at a restaurant in Bandar Lampung at least once, and (3) willingness to participate voluntarily in the survey. Data were collected using a structured self-administered questionnaire consisting of closed-ended questions measured on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree") (Kusmaryono et al., 2022). The questionnaire consisted of four constructs. Service quality was measured using five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Brand image was measured using four indicators reflecting customers' perceptions of the restaurant's reputation, memorability, positive image, and trustworthiness. Customer satisfaction was assessed through three indicators representing overall satisfaction, fulfillment of expectations, and pleasant dining experiences. Customer loyalty was measured using four indicators, namely revisit intention, willingness to recommend the restaurant, resistance to switching to competitors, and repeat purchase intention.

Prior to hypothesis testing, the measurement instrument was evaluated using validity and reliability analyses. Construct validity was examined through Pearson product-moment correlation, while internal consistency reliability was assessed using Cronbach's alpha. Classical assumption tests, including normality, multicollinearity, and heteroscedasticity tests, were conducted to ensure that the regression model satisfied the assumptions of multiple linear regression. The hypotheses were tested using multiple linear regression analysis with SPSS version 27. Descriptive statistics were first employed to summarize respondents' demographic characteristics and research variables. Subsequently, simultaneous effects were examined using the F-test, while individual effects of each independent variable were assessed using the t-test. The coefficient of determination (R^2) was used to evaluate the explanatory power of the regression model in predicting customer loyalty. Statistical significance was determined at the 5% significance level ($p < 0.05$).

4. Results and Discussion

Table 4.1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Standard Deviation
Service_Quality	100	11	25	17.97	3,506
Brand Image	100	7	19	14.06	2,295

Customer_Satisfaction	100	9	20	14.50	2.325
Customer_Loyalty	100	9	20	15.09	2,450
Valid N (listwise)	100				

Based on the results of a descriptive analysis of 100 respondents, it was found that the Service Quality variable had a minimum value of 11, a maximum value of 25, a mean of 17.97, and a standard deviation of 3.506. This indicates that, in general, respondents gave a fairly positive rating of the restaurant's service quality. The Brand Image variable has a minimum value of 7, a maximum value of 19, a mean of 14.06, and a standard deviation of 2.295. These results show that the restaurant's brand image is rated quite well by the respondents.

Furthermore, the Customer Satisfaction variable has a minimum value of 9, a maximum value of 20, a mean of 14.50, and a standard deviation of 2.325. This indicates that customers tend to be satisfied with their experience when using the restaurant's services. As for the Customer Loyalty variable, it has a minimum value of 9, a maximum value of 20, a mean of 15.09, and a standard deviation of 2.450. These values indicate that the level of customer loyalty falls into the fairly good category, as reflected by the tendency of customers to make repeat purchases and continue choosing the same restaurant.

Overall, the results of the descriptive analysis show that all research variables have relatively high average values, so it can be concluded that respondents hold a positive perception of service quality, brand image, customer satisfaction, and customer loyalty at restaurants in Bandar Lampung.

4.1 Validity

A product-moment validity test was conducted to determine the extent to which the questionnaire items accurately measure the variables under study. The validity test in this study used Pearson correlation by comparing *the corrected item-total correlation* (calculated r) with the table r value at a significance level of 0.05. Based on the validity test results, all statement items for the variables of service quality, brand image, customer satisfaction, and customer loyalty had a *corrected item-total correlation* value greater than the r-table value ($r > 0.30$). Thus, all questionnaire items were deemed valid and suitable for use in the study.

4.2 Reliability

A reliability test was conducted to measure the internal consistency of the research instrument. The reliability test used Cronbach's Alpha, with the criterion that a variable is considered reliable if it has an alpha value greater than 0.70. Based on the reliability test results, the following Cronbach's Alpha values were obtained: Service Quality = 0.893, Brand Image = 0.798, Customer Satisfaction = 0.845, and Customer Loyalty = 0.842. All variables have Cronbach's Alpha values above 0.70, so it can be concluded that the research instrument has a high and consistent level of reliability. Thus, the questionnaire used in this study is deemed reliable and suitable for further analysis.

4.3 Normality

Table 4.2 Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Service_Quality	.103	100	.011	.974	100	.043
Brand Image	.120	100	.001	.971	100	.027
Customer_Satisfaction	.145	100	.000	.972	100	.034
Customer_Loyalty	.115	100	.002	.970	100	.024

Based on the results of the normality test using the One-Sample Kolmogorov-Smirnov method, it was found that all research variables had significance values less than 0.05. The service quality variable had a significance value of 0.011, brand image of 0.001, customer satisfaction of 0.000, and customer loyalty of 0.002. Based on the decision-making criteria, if the significance value is greater than 0.05, the data is normally distributed; whereas if the significance value is less than 0.05, the data is not normally distributed. Thus, it can be concluded that all variables in this study are not statistically normally distributed.

Nevertheless, based on the Normal Q-Q Plot, the data distribution tends to follow a diagonal line, so the deviation from normality is not particularly significant. Additionally, the sample size in this study consists of 100 respondents, so regression analysis can still be conducted due to its robust nature regarding violations of the normality assumption.

4.4 Regression

Table 4.3 The Effect of Service Quality on Customer Satisfaction

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	6.666	.924		7,216	.000
Service Quality	.436	.050	.657	8,638	.000

a. Dependent Variable: Customer_Satisfaction

Based on the results of the regression analysis, the service quality variable has a regression coefficient of 0.436 with a calculated t-value of 8.638 and a significance value of 0.000. Since the significance value is less than 0.05, service quality has a positive and significant effect on customer satisfaction. This means that every improvement in service quality will increase customer satisfaction.

Table 4.4 The Effect of Brand Image on Customer Satisfaction

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	6.117	1,178		5,193	.000
Brand Image	.596	.083	.589	7,210	.000

a. Dependent Variable: Customer_Satisfaction

The regression analysis results show that brand image has a regression coefficient of 0.596 with a calculated t-value of 7.210 and a significance level of 0.000. A significance level smaller than 0.05 indicates that brand image has a positive and significant effect on customer satisfaction. This means that the better the restaurant's brand image, the higher the customer satisfaction.

a. The Effect of Brand Image on Customer Loyalty

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	5.994	1,221		4,908	.000
	Brand Image	.647	.086	.606	7,544	.000

a. Dependent Variable: Customer_Loyalty

Based on the regression results, brand image has a regression coefficient of 0.647, a t-value of 7.544, and a significance level of 0.000. Since the significance level is less than 0.05, brand image has a positive and significant effect on customer loyalty. This indicates that the better the restaurant's brand image, the higher the customer loyalty.

b. The Effect of Customer Satisfaction on Customer Loyalty

		Coefficients ^a			
Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
		B	Beta		
		Std. Error			
1	(Constant)	4.913		4,213	.000
	Customer_Satisfaction	.702	.666	8,838	.000

a. Dependent Variable: Customer_Loyalty

The regression analysis results show that customer satisfaction has a regression coefficient of 0.702 with a calculated t-value of 8.838 and a significance level of 0.000. Since the significance level is less than 0.05, customer satisfaction has a positive and significant effect on customer loyalty. This means that the higher the customer satisfaction, the higher the customer loyalty will be.

c. The Effect of Service Quality, Brand Image, and Customer Satisfaction on Customer Loyalty

		Coefficients ^a				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			Std.			
	B	Error	Beta			
1	(Constant)	2.410	1,156		2,085	.040
	Service_Quality	.227	.063	.324	3,614	.000
	Brand Image	.300	.089	.281	3,361	.001
	Customer Satisfaction	.303	.103	.287	2,954	.004

a. Dependent Variable: Customer_Loyalty

The results indicate that service quality, brand image, and customer satisfaction each have a positive effect on customer loyalty. Service quality has a significance value of 0.000, brand image of 0.001, and customer satisfaction of 0.004. Since all significance values are less than 0.05, these three variables have a significant effect on customer loyalty.

Substantively, these results indicate that customer loyalty at restaurants in Bandar Lampung can be enhanced through improvements in service quality, strengthening of brand image, and increased customer satisfaction. Based on the standard beta values, the greatest influence in the multiple model is shown by service quality (Beta = 0.324), followed by customer satisfaction (Beta = 0.287) and brand image (Beta = 0.281).

Table 4.5. ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	339.829	3	113,276	42,752	.000 ^b
	Residual	254,361	96	2,650		
	Total	594,190	99			

a. Dependent Variable: Customer_Loyalty

b. Predictors: (Constant), Customer_Satisfaction, Brand_Image, Service_Quality

With $df_1 = 3$ and $df_2 = 96$, the F-table value ≈ 2.70 at a significance level of 0.05. From the F-table appendix you sent, for df_2 approaching 96 and $df_1 = 3$, the critical value is around that number. Since the calculated F is $42.752 >$ the table F of 2.70, the result is significant.

4.5 Coefficient of Determination

Table 4.6. Model Summary

Model	R	R-Square	Adjusted R-Square	Standard Error of the Estimate
1	.756 ^a	.572	.559	1.628

a. Predictors: (Constant), Customer_Satisfaction, Brand_Image, Service_Quality

Based on the results of the coefficient of determination analysis, an R-Square (R^2) value of 0.572 was obtained. This indicates that the variables of service quality, brand image, and customer satisfaction are able to explain 57.2% of the variation in the customer loyalty variable. Meanwhile, the remaining 42.8% is influenced by other variables outside the research model that were not examined in this study. The Adjusted R-Square value of 0.559 indicates that after adjusting for the number of independent variables in the model, the ability of the independent variables to explain the dependent variable remains in the fairly strong category. Thus, it can be concluded that this research model has a good ability to explain the relationship between service quality, brand image, customer satisfaction, and customer loyalty.

5. Discussion

5.1. Service Quality Has a Significant Effect on Customer Loyalty

The findings indicate that service quality has a significant positive effect on customer loyalty. This result suggests that higher service quality enhances customers' willingness to maintain long-term relationships with the company. Customers who consistently receive reliable, responsive, and high-quality services are more likely to make repeat purchases, recommend the company to others, and remain loyal despite the availability of competing alternatives. Therefore, service quality can be regarded as a strategic resource for developing sustainable customer loyalty.

The present finding is consistent with the study of (B. Supriyanto & Dahlan, 2024), who reported that service quality is a key determinant of customer loyalty because it strengthens customer relationships through positive service experiences. Likewise, Firmansyah & Mahfudz, (2023) found that superior service quality increases customers' behavioral intentions, including repurchase intentions and positive word-of-mouth, while reducing their likelihood of switching to competitors. Similarly, Syah & Olivia, (2022) demonstrated that service quality positively influences customer loyalty by creating greater perceived value and favorable consumption experiences.

From a theoretical perspective, these findings are supported by the SERVQUAL Theory proposed by Parasuraman et al. (1988). The theory suggests that service quality is reflected in

five dimensions tangibles, reliability, responsiveness, assurance, and empathy which collectively shape customers' evaluations of service performance. When these dimensions meet or exceed customer expectations, favorable perceptions of the company emerge, ultimately strengthening customer loyalty. Furthermore, the findings are aligned with the Expectation Confirmation Theory (Oliver, 1980), which posits that customers develop positive behavioral intentions when actual service performance confirms or exceeds their prior expectations. Overall, these findings reinforce the importance of continuously improving service quality through employee competence, operational efficiency, service responsiveness, and customer-oriented practices to foster long-term customer loyalty.

5.2. Brand Image Has a Significant Effect on Customer Loyalty

The findings reveal that brand image has a significant positive effect on customer loyalty. This indicates that a favorable brand image strengthens customers' confidence in a company's products or services, thereby encouraging repeated patronage and long-term commitment. Customers tend to remain loyal to brands that are perceived as trustworthy, reputable, and capable of delivering consistent value and meaningful experiences.

These findings are consistent with the study conducted by Razzan & Sigit, (2023), which concluded that a positive brand image significantly enhances customer loyalty by increasing customer trust and perceived quality. Similarly, Bimantaka & Muthohar, (2023) found that brand image is one of the most influential factors in developing customer loyalty, particularly in service industries. In addition, Liao et al., (2022) argued that customers who hold favorable perceptions of a brand are less likely to switch to competing brands because strong brand associations reinforce customer commitment.

The findings are theoretically supported by Jacksen et al., (2021) Brand Equity Theory, which identifies brand image as one of the primary components of brand equity that creates added value for customers. A positive brand image enhances perceived quality, strengthens brand associations, and increases customer trust, all of which contribute to stronger customer loyalty. Likewise, Athallah Malik & Muthohar, (2023) Customer-Based Brand Equity Theory explains that customer loyalty develops when consumers establish strong, favorable, and unique associations with a brand. These positive associations encourage repeat purchasing behavior and strengthen long-term relationships between customers and the company. Therefore, organizations should continuously strengthen their brand image through consistent product quality, effective marketing communications, and positive customer experiences to cultivate sustainable customer loyalty.

5.3. Customer Satisfaction Has a Significant Effect on Customer Loyalty

The results demonstrate that customer satisfaction has a significant positive effect on customer loyalty. This finding suggests that satisfied customers are more likely to continue purchasing from the same company, recommend its products or services to others, and maintain long-term relationships with the organization. Customer satisfaction represents customers' positive evaluation of their overall experience, which ultimately influences their future behavioral intentions.

This finding is consistent with Tahir et al., (2024), who identified customer satisfaction as one of the strongest predictors of customer loyalty. Likewise, Jasin et al., (2023) argued that customer satisfaction represents the initial stage in the development of customer loyalty, serving as the foundation for long-term commitment. Similarly, Harlan et al., (2025) found that satisfied customers exhibit stronger commitment and are less likely to switch to competing providers.

From a theoretical perspective, these findings are supported by the Expectation Confirmation Theory (Oliver, 1980), which explains that customer satisfaction arises when the perceived performance of a product or service meets or exceeds prior expectations. Positive

confirmation generates favorable evaluations that encourage customers to continue their relationship with the company. Furthermore, Harlan et al., (2025); Islam, J. U., & Rahman, (2020) Loyalty Theory proposes that customer loyalty develops progressively through cognitive, affective, conative, and action loyalty, with customer satisfaction serving as the essential foundation for this developmental process. These findings imply that organizations should prioritize customer satisfaction by consistently delivering superior products and services that fulfill or exceed customer expectations, thereby fostering long-term customer loyalty.

5.4. Service Quality, Brand Image, and Customer Satisfaction Simultaneously Have a Significant Effect on Customer Loyalty

The findings reveal that service quality, brand image, and customer satisfaction simultaneously have a significant positive effect on customer loyalty. This result indicates that customer loyalty is not shaped by a single factor but rather emerges from the combined influence of excellent service quality, a favorable brand image, and high customer satisfaction. These factors complement one another in creating a comprehensive customer experience that strengthens customers' commitment to maintaining long-term relationships with the company.

The findings are consistent with the study by (B. Supriyanto & Dahlan, 2024), who reported that customer loyalty is influenced by the combined effects of service quality, corporate image, and customer satisfaction. Similarly, Fitriani et al., (2025) demonstrated that service quality and brand image contribute to customer loyalty both directly and indirectly through customer satisfaction. Furthermore, (Wan Nawang et al., 2024) found that service quality, brand image, and customer satisfaction collectively represent the primary determinants of customer loyalty across various service industries.

The findings are theoretically supported by the Commitment-Trust Theory of Relationship Marketing proposed by Morgan & Hunt, (1994). This theory explains that long-term customer loyalty is established through trust, commitment, satisfaction, and high-quality interactions between customers and organizations. In addition, the results align with the Customer Loyalty Model proposed by (Hemais & Rodrigues, 2023), which argues that customer loyalty is a cumulative outcome of customers' evaluations of service quality, brand image, and satisfaction throughout their interactions with a company.

Consequently, organizations seeking to strengthen customer loyalty should adopt an integrated strategy that simultaneously enhances service quality, reinforces brand image, and continuously improves customer satisfaction. Such a holistic approach is expected to strengthen customer relationships, improve competitive advantage, and support sustainable business performance

6. Conclusion

This study aimed to examine the effects of service quality, brand image, and customer satisfaction on customer loyalty. The findings demonstrate that service quality, brand image, and customer satisfaction each have a positive and significant influence on customer loyalty. These results indicate that improving service quality, strengthening brand image, and enhancing customer satisfaction are essential factors in fostering and sustaining customer loyalty.

Furthermore, the study reveals that service quality, brand image, and customer satisfaction jointly exert a significant influence on customer loyalty. This finding suggests that customer loyalty is not determined by a single factor but is the result of the combined effects of customers' evaluations of service quality, perceptions of brand image, and satisfaction with their overall experiences. Therefore, organizations should adopt an integrated strategy that continuously

improves service quality, strengthens brand image, and ensures customer satisfaction in order to cultivate long-term customer loyalty.

This study contributes to the marketing literature by providing additional empirical evidence regarding the integrated roles of service quality, brand image, and customer satisfaction in shaping customer loyalty. From a practical perspective, the findings offer valuable insights for managers in designing effective marketing strategies and customer relationship management initiatives to enhance competitive advantage and achieve sustainable business performance..

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**THE INFLUENCE OF CUSTOMER RELATIONSHIP MANAGEMENT (CRM) AND
CUSTOMER SATISFACTION ON BUILDING MEMBER LOYALTY AT MEET ON
COURT (MOC) TENNIS CLUB IN BOGOR CITY**

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Abstract

This study aims to analyze the effect of Customer Relationship Management (CRM) and customer satisfaction on the loyalty of members of the Meet on Court (MOC) tennis club in Bogor City. This study used a quantitative associative approach with the population of active MOC Bogor members. The sample was determined through purposive sampling of 200 respondents obtained through a Likert-scale questionnaire, and the data were analyzed using Partial Least Square Structural Equation Modeling (SEM-PLS) with SmartPLS 4. The results show that CRM has a positive and significant effect on member loyalty (path coefficient 0.254; t-statistic 3.445; p-value 0.001), and customer satisfaction also has a positive and significant effect on member loyalty (path coefficient 0.422; t-statistic 6.136; p-value 0.000), with an R-Square value of 0.393. Customer satisfaction was found to be the most dominant contributing factor. The implication is that MOC Bogor management needs to strengthen continuity membership programs, accelerate admin responsiveness, and improve communication quality to sustainably maintain and increase member loyalty.

Keywords: Customer Relationship Management; customer satisfaction; customer loyalty; tennis club; SEM-PLS

DETERMINANTS FEAR OF MISSING OUT (FOMO) AND DIGITAL LIFESTYLE ON SPORTSWEAR PRODUCT PURCHASE DECISIONS AMONG STRAVA USERS IN BOGOR CITY

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Abstract

This study aims to analyze the effect of Fear of Missing Out (FoMO) and digital lifestyle on sportswear product purchase decisions among Strava application users in Bogor City. A quantitative approach with an associative method and Structural Equation Modeling-Partial Least Squares (SEM-PLS) analysis was used on a total of 100 respondents who met the research criteria. Findings revealed that FoMO ($\beta = 0.370$; $t = 4.015$; $p = 0.001$) and digital lifestyle ($\beta = 0.305$; $t = 3.447$; $p = 0.000$) have a positive and significant effect on purchase decisions. The R-square value of 0.333 indicates that both variables are able to explain 33.3% of the variation in purchase decisions, while the remaining 66.7% is influenced by other factors outside the model. These findings suggest that the higher the FoMO and the stronger the digital lifestyle, the higher the tendency of users to purchase sportswear products.

Keywords: Fear of Missing Out (FoMO), digital lifestyle, purchase decision, SEM-PLS

1. Introduction

Expanding internet access has reshaped daily life across nearly every sector, and Indonesia shows this shift clearly. By 2025, internet penetration in the country had climbed to 80.66 percent, roughly 229.43 million users, with social media making up the single largest share of connectivity motives at 24.80 percent, a pattern most visible among younger users (Goodstats, 2025; APJII, 2026). Heavy social media use has, in turn, changed how people make purchasing decisions. Sportswear illustrates this well: buying choices here now depend less on functional need and more on social visibility and digital trends, a pattern echoed in projections that the global activewear market will reach USD 677.3 billion by 2030 (Activewear Market, 2026). Keplinger (2022) backs this up, finding that heavier exposure to promotional content on social media tracks closely with higher sportswear consumption.

Community-based fitness applications such as Strava sit at the center of this shift, letting users log, share, and compare their workouts with others. Their growing popularity has produced what might be called social fitness, a condition where physical activity becomes something visible, measurable, and open to comparison rather than a private routine. Dwijayanti et al. (2025) describe this as a digitally mediated experience in which status is increasingly signaled through visible markers of achievement. Sportswear has shifted along with it, moving from purely functional gear toward a marker of identity, health values, and social recognition (Perera et al., 2023).

Two behavioral pressures grow out of this visibility, and both sit at the center of this study. The first is Fear of Missing Out (FoMO), the anxious sense of falling behind other people's social experiences. As digital interaction intensifies, so does this anxiety, pushing individuals toward trending products, sportswear included, just to stay socially relevant. Several studies show that FoMO significantly drives impulsive and compulsive buying, especially once

urgency-based marketing and materialistic tendencies reinforce it (Wulan et al., 2025; Verawati et al., 2025; Charles & Immanuel, 2025). The second pressure is digital lifestyle, the growing integration of digital technology into everyday routines. As that integration deepens, so does exposure to trends and consumption cues, and these shape the perceptions and preferences that eventually carry over into sports-related purchases, now that physical activity itself plays out through digital platforms.

Bogor City offers a clear local example of these dynamics. Community groups such as Bogor Runners show how digital platforms have turned sports activity into a space for both fitness and social interaction, strengthening digital sports culture at the community level (Rachmawaty et al., 2023). Research on FoMO and digital lifestyle as drivers of consumer behavior keeps growing, yet few studies look specifically at how the two combine to shape sportswear purchase decisions in community-based digital sports settings, Strava users in Indonesian cities like Bogor included. This study addresses that gap, analyzing how FoMO and digital lifestyle affect sportswear purchase decisions among Strava application users in Bogor City.

2. Literature review

2.1. FOMO affecting purchase decision

FOMO is defined by Przybylski et al. (2013) as a pervasive apprehension that others may be having rewarding experiences from which one is absent, a condition they linked to unmet psychological needs for competence, autonomy, and relatedness. Building on this, Van Solt et al. (2018) found that purchase intent for experiential products is higher when consumers imagine that people close to them rather than distant acquaintances will be part of an event, suggesting FOMO operates most powerfully through comparison with one's immediate social circle.

Empirically, Ilyas et al. (2022) showed that social media content significantly increases FOMO among consumers, which in turn drives purchase behavior and produces post-purchase satisfaction; they also found that situational cues (perceived favorability, self-relevance) predict FOMO more strongly than personal anxiety traits. In the context of livestream commerce, Nguyen and Nguyen (2025) demonstrated that FOMO triggered by a livestreamer's attractiveness, information quality, and interactivity has a significant positive effect on impulsive buying among young Vietnamese consumers. Similarly, Habib and Almamy (2025) found that FOMO mediates the relationship between social media marketing exposure and purchase intention for lifestyle products among Indian consumers, confirming FOMO's role as an active psychological mechanism rather than a mere by-product of social media use.

2.2. Digital lifestyle affecting consumer behavior

Kushwaha (2021) conceptualized digital lifestyle through five behavioral traits: digital shopping, banking, transacting, learning, and socialization, arguing that these dimensions jointly describe how deeply digital platforms have reshaped daily consumer routines, with digital socialization and digital learning emerging as particularly salient among younger consumers. Consistent with this, Patro (2023) found that dimensions of the digital shopping experience—website aesthetics, accessibility, trust, price offerings, security, delivery, and product quality—are all positively associated with consumers' digital purchase decisions, indicating that a consumer's digital habits directly shape how much influence digital cues exert over their final purchasing choice.

2.3. Determinants of sportswear (athleisure) purchase decisions

Stamoglou et al. (2026), studying 531 Greek consumers, found that fitness-influencer credibility significantly strengthens both brand trust and purchase intention in the activewear

sector, with trust acting as a mediating mechanism. In the Indonesian context, Khairunnisaa et al. (2026) examined Adidas Samba consumers and found that brand awareness but not social media marketing directly significantly increases FOMO, which then positively drives purchase intention, showing that FOMO's role in sportswear purchasing depends on which upstream driver is involved. Complementing this, Barokah and Alfansi (2025), studying the Indonesian apparel brand Erigo, found that social media influencer credibility (expertise, trustworthiness, attractiveness) shapes consumer purchase intention through brand attitude. Together, these studies indicate that sportswear purchase decisions are shaped by an intersection of social validation, influencer-driven trust, and FOMO rather than product functionality alone.

2.4. Strava as a digital sport community and its link to purchase behavior

Strava is a GPS-based fitness tracking and social networking application that enables users to record, monitor, and share physical activities, such as running and cycling, while interacting with a global community of athletes. Russell et al. (2023) based on semi-structured interviews with 18 collegiate club runners in the United States, reported that Strava serves as a psychosocial double-edged sword. Although the platform enhances motivation through social interaction and community support, it simultaneously intensifies social comparison, self-presentation concerns, and perceived pressure to maintain favorable performance records. Consequently, some users engage in selective disclosure or modification of activity data to influence how they are perceived by others. These findings are consistent with the theoretical perspective of FoMO which posits that continuous exposure to others' activities and achievements may evoke feelings of social exclusion and comparison, thereby encouraging individuals to align their consumption behavior with prevailing social norms and expectations (Ilyas et al., 2022; Przybylski et al., 2013).

3. Methodology

This study employed a quantitative approach with an associative research design to examine the effects of FoMO and digital lifestyle on sportswear purchase decisions among Strava users in Bogor City. A purposive sampling technique was used to select 100 respondents who met the predetermined criteria active Strava users aged 15–29 years, residing in Bogor City, and having purchased or used sportswear products. Primary data were collected through an online questionnaire using a five-point Likert scale and analyzed using SEM-PLS with SmartPLS 4. The analysis included descriptive statistics, measurement model evaluation structural model assessment, and hypothesis testing through the bootstrapping procedure.

3.1. Theoretical framework

This study is grounded in the Theory of Planned Behavior (TPB) which explains that an individual's behavior is influenced by behavioral intentions shaped by attitudes, subjective norms, and perceived behavioral control. In the context of digital consumer behavior, TPB provides a theoretical basis for understanding how psychological and social factors influence purchasing decisions. a variance-based structural equation modeling technique suitable for examining complex relationships among latent variables using reflective and formative indicators (Nusrang et al., 2023). Compared with covariance-based SEM, SEM-PLS is more flexible because it does not require multivariate normality and performs well with relatively small sample sizes (Santoso & Indrajaya, 2023). Furthermore, SEM-PLS is widely applied in marketing and consumer behavior research due to its strong predictive capability and effectiveness in testing causal relationships among constructs (Yusuf, 2022).

3.2. Conceptual framework

The conceptual framework of this study illustrates the proposed relationships between FoMO, digital lifestyle, and purchase decision among Strava users in Bogor City. Based on the TPB, FoMO reflects psychological and social influences that encourage consumers to remain engaged with trends and peer activities, while digital lifestyle represents the integration of digital technology into consumers' daily activities, interests, and opinions. These factors are expected to positively influence consumers' purchase decisions regarding sportswear products. Accordingly, FoMO and digital lifestyle are treated as the independent variables, whereas purchase decision serves as the dependent variable. The proposed research framework is presented in Figure 1.

3.3. Instrumentation

A structured questionnaire adapted from established literature was used to collect data from the respondents. The instrument consisted of 39 measurement items, including 12 items for FoMO, 9 items for digital lifestyle, and 18 items for purchase decision. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The measurement model was evaluated using SEM-PLS with SmartPLS 4. The validity and reliability of the instrument were assessed through outer loadings, Average Variance Extracted (AVE), Composite Reliability, and Cronbach's Alpha.

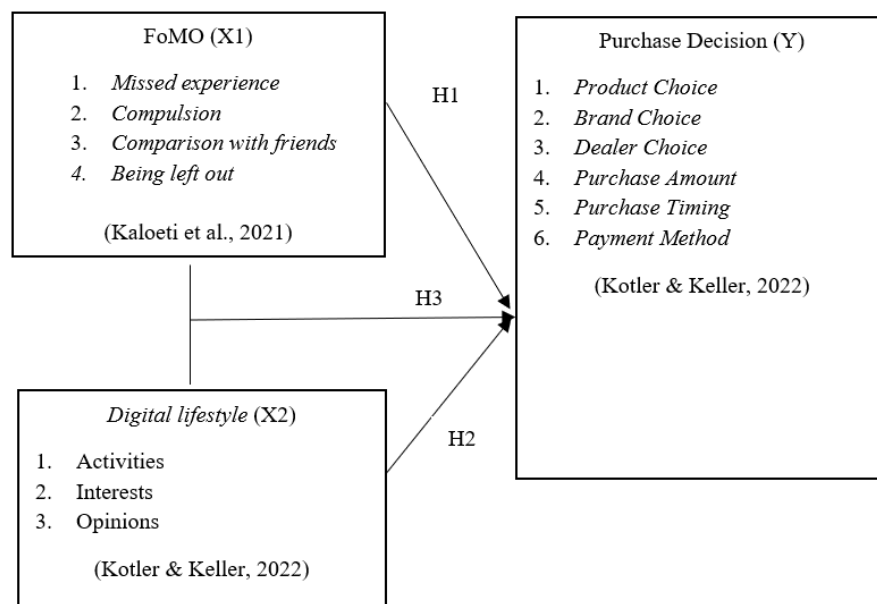


Figure 1. Proposed Research Framework

(Developed by the authors based on the Theory of Planned Behavior Ajzen, 1991)

4. Results and discussions

4.1 Measurement Model Assessment

The measurement model was evaluated to assess the validity and reliability of the research constructs. As presented in Table 1, all constructs achieved Average Variance Extracted (AVE) values above 0.50 and Composite Reliability and Cronbach's Alpha values above 0.70, indicating satisfactory convergent validity and internal consistency. Therefore, all constructs were considered valid and reliable for further structural model evaluation.

Table 1 Instrument Validity and Reliability Test

	<i>Cronbach's Alpha</i>	<i>Composite Reliability</i>
FoMO	0,927	0,934
<i>Digital Lifestyle</i>	0,900	0,909
Purchase Decision	0,945	0,951

4.2 Descriptive Statistics

As shown in Table 2, respondents demonstrated high levels of FoMO, digital lifestyle, and purchase decision. These findings indicate that respondents actively engage with digital platforms and social communities, which may influence their purchasing decisions regarding sportswear products.

Table 2 Descriptive Statistics of the Study Variables

Variable	Dimension	Mean (%)	Interpretation
FoMO	Missed Experience	78.2 %	High
	Compulsion	78.1 %	High
	Comparison with Friends	76.9 %	High
	Being Left Out	78.6 %	High
Digital Lifestyle	Activities	77.6 %	High
	Interests	77 %	High
	Opinions	75.8 %	High
Purchase Decision	Product Selection	79.5 %	High
	Brand Selection	78.4 %	High
	Place of Purchase	78.1 %	High
	Purchase Quantity	78.9 %	High
	Purchase Timing	77.5 %	High
	Payment Method	78.4 %	High

4.3 Structural Model Assessment

Table 3 shows that FoMO has a positive and significant effect on purchase decision ($\beta = 0.370$, $t = 4.015$, $p = 0.001$). Similarly, digital lifestyle positively influences purchase decision ($\beta = 0.305$, $t = 3.447$, $p < 0.001$). Therefore, both proposed hypotheses are supported.

Table 3 Hypothesis Testing Results

	Path Coefficient	t-statistik	p-values	Decision
FoMO → Purchase Decision	0,370	4,015	0,001	Supported
Digital Lifestyle → Purchase Decision	0,305	3,447	0,000	Supported

4.4 Coefficient of Determination

The structural model produced an R^2 value of 0.333 for purchase decision, indicating that FoMO and digital lifestyle jointly explain 33.3% of the variance in purchase decision. The remaining 66.7% is explained by other variables outside the proposed model.

Table 4 Coefficient of Determination (R^2)

	R Square
Purchase Decision	0,333

4.5 Hypothesis Testing Results

	Path Coefficient	t-statistik	p-values	Decision
FoMO → Purchase Decision	0,370	4,015	0,001	Supported
Digital Lifestyle → Purchase Decision	0,305	3,447	0,000	Supported

The results indicate that FoMO has a positive and significant effect on purchase decision ($\beta = 0.370$, $t = 4.015$, $p = 0.001$). Therefore, H1 is supported. This finding suggests that consumers with higher levels of FoMO are more likely to purchase sportswear products because they tend to remain connected with trends, social activities, and peer experiences shared through digital platforms. The result is consistent with the Theory of Planned Behavior, which explains that social influence and behavioral intention play important roles in shaping consumers' purchasing behavior.

Similarly, digital lifestyle has a positive and significant effect on purchase decision ($\beta = 0.305$, $t = 3.447$, $p < 0.001$). Thus, H2 is also supported. This finding indicates that consumers who actively integrate digital technology into their daily activities, interests, and opinions are more likely to make sportswear purchase decisions. The result implies that digital platforms and online interactions have become important determinants of consumer behavior, particularly among Strava users in Bogor City.

5. Conclusion

This study examined the influence of FoMO and digital lifestyle on sportswear purchase decisions among Strava users in Bogor City. The findings revealed that both FoMO and digital lifestyle have positive and significant effects on purchase decision. Furthermore, the structural model showed that these two variables jointly explained 33.3% of the variance in purchase decision, indicating that psychological and digital behavioral factors play an important role in shaping consumers' purchasing behavior. The findings provide practical implications for sportswear companies and marketers. Marketing strategies should leverage digital platforms, online communities, and social engagement to strengthen consumers' purchase intentions. Creating interactive campaigns, collaborating with fitness influencers, and encouraging user-generated content on applications such as Strava may enhance consumer engagement and increase purchase decisions. This study is limited to Strava users in Bogor City and examines only two independent variables. Therefore, future studies are encouraged to investigate broader populations and incorporate additional variables, such as social media marketing, electronic

word-of-mouth, brand image, influencer credibility, or brand trust, to improve the explanatory power of the proposed research model.

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**MARKETING STRATEGY ANALYSIS IN ENHANCING THE
COMPETITIVENESS OF AIR CONDITIONER SERVICE BUSINESSES AT CV.
MAC HOME AC**

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Abstract

The increasing air temperature and the widespread use of air conditioners (AC) have led to a growing demand for AC maintenance and repair services. This condition has encouraged the emergence of similar businesses, resulting in increasingly intense market competition. This study aims to analyze the internal and external factors and formulate appropriate marketing strategies for CV. Mac Home AC. This study employed a descriptive exploratory method. Data were collected through observation, interviews, documentation, and questionnaires distributed to six respondents. The data were analyzed using the Internal Factor Evaluation (IFE) Matrix, External Factor Evaluation (EFE) Matrix, Internal-External (IE) Matrix, and Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis. The results showed that the EFE Matrix obtained a score of 3.1754, while the IFE Matrix obtained a score of 2.864. Based on the IE Matrix, CV. Mac Home AC is positioned in Quadrant II (Growth and Build), indicating that the company is in a growth and development stage. The recommended strategies include strengthening digital marketing promotions and expanding market reach.

Keywords: Marketing Strategy, IFE Matrix, EFE Matrix, IE Matrix, SWOT Analysis.

**THE EFFECT OF CUSTOMER EXPERIENCE, SATISFACTION, AND TRUST ON
GOPAY USER LOYALTY
(A STUDY ON GENERATION Z IN LOWOKWARU DISTRICT, MALANG CITY)**

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Abstract

This study examines the effects of customer experience, satisfaction, and trust on user loyalty toward GoPay, a leading digital wallet within Indonesia's GoTo ecosystem, focusing on Generation Z users in Lowokwaru District, Malang City. The study was motivated by the rapid growth of digital wallet transactions in Indonesia and the increasingly intense competition among e-money providers, which has shifted the central challenge for GoPay from acquiring new users toward retaining the loyalty of its existing user base. A quantitative explanatory research design was applied. Data were collected through an online Likert-scale questionnaire distributed to 85 respondents selected through purposive sampling, with the criteria of being active GoPay users aged 17-28 residing in Lowokwaru District. The collected data were analyzed using multiple linear regression with the assistance of SPSS. The results show that customer experience, satisfaction, and trust simultaneously have a significant effect on GoPay user loyalty. Partially, customer experience, satisfaction, and trust each have a positive and significant effect on GoPay user loyalty, with customer experience showing the strongest influence. These findings suggest that GoPay and similar digital wallet providers should continue to enhance the ease, speed, and comfort of the transaction experience, maintain high levels of user satisfaction, and strengthen the security and reliability of the platform in order to build sustainable user loyalty, particularly among Generation Z.

Keywords: Customer Experience, Satisfaction, Trust, User Loyalty, Digital Wallet, GoPay.

1. Introduction

The rapid advancement of science and technology has brought remarkable changes to almost every aspect of human life, including the way people access information, communicate, and conduct financial transactions. The widespread use of information technology, supported by increasingly reliable internet infrastructure, has made it easier for people to fulfil their daily needs, particularly in carrying out financial transactions. This technological progress, combined with a growing user base, has generated both opportunities and challenges for financial service providers and e-commerce platforms.

The emergence of financial technology (fintech), particularly in the form of digital wallets (e-wallets), has introduced greater convenience and efficiency into the payment system. According to Bank Indonesia (2024), the volume of electronic money transactions increased by more than 25% compared to the previous year, indicating a significant shift from conventional transactions toward digital payment systems. One of the major players in this industry is GoPay, part of the GoTo ecosystem (Gojek and Tokopedia), which plays an important role in strengthening integrated digital services in Indonesia. In 2023, GoPay recorded approximately 30 million users since its launch. This number grew to around 40 million users in 2024 as a result of feature enhancements and increasing application popularity. In 2025, more specific data indicated 22.4 million monthly transacting users, and by 2026 the

platform recorded roughly 26 million active users with a transaction volume of 600 million transactions per month, reflecting strong and active user penetration.

GoPay was selected as the object of this study because it operates a broad ecosystem covering transportation payments, food purchases, mobile credit top-ups, household needs, and boarding-house payments, and is also integrated with various external platforms such as Shopee and other bill-payment services.

The chart below illustrates the significant growth in the number of GoPay users from 2023 to its peak in 2024, followed by a focus on active transacting users in 2026, which serves as a strong indicator of user loyalty and sustained usage activity.

Figure 1. Growth of GoPay Users in Indonesia

Source: Indopremier (2023); GoTo Annual Report data, processed.

The increasingly intense competition in the e-money sector, particularly within the digital payment services business, requires providers to operate more efficiently and effectively in building their payment systems. Digital wallet providers therefore need to pay close attention to consumer behaviour and the factors that influence user loyalty within their marketing strategies, as this represents one of the key means of achieving corporate objectives through understanding consumer needs and preferences.

The growing use of digital wallet services such as GoPay among younger generations, particularly Generation Z in urban areas such as Lowokwaru District in Malang City, reflects a generation that relies heavily on digital technology in daily life and tends to seek transaction experiences that are easy, fast, and secure. As one of the largest digital wallets in Indonesia, the main challenge faced by GoPay is no longer merely attracting new users, but rather retaining the loyalty of its existing users.

User loyalty is a critical element that determines the sustainability of a fintech business. Loyalty does not only reflect how frequently a user engages with a product, but also the extent to which the user has developed an emotional attachment and trust toward the brand (Kotler & Keller, 2016). Previous studies indicate that user loyalty is strongly influenced by three main factors: customer experience, customer satisfaction, and customer trust (Parasuraman et al., 2005; Rahmawati & Kusumastuti, 2022).

Customer experience has become a crucial factor in achieving sustainable competitive advantage in highly competitive markets (Bhattacharya et al., 2019). A positive customer experience creates long-term user satisfaction and loyalty intentions; moreover, customer experience represents a direct or indirect internal and subjective response of the user toward a company (Mbama et al., 2018). Consumer experience is also an important factor influencing the level of product consumption, as it underlies the choices consumers make when selecting a particular product to express their identity or self-image; positive consumer behaviour tends to strengthen the relationship between the consumer and the brand (Ramadhan et al., 2023).

User loyalty is also strongly influenced by user satisfaction, which encompasses aspects such as service quality, trust, ease of use, and brand image. Studies show that the service quality of digital wallets, including GoPay, has a significant effect on user satisfaction, which in turn affects loyalty and the intention to continue using the service (Hendayani, 2024).

In addition to customer experience and satisfaction, user trust is a key determinant of success in achieving user loyalty (Jogiyanto, 2019); trust is formed through a process in which individuals gather and evaluate information, and trust in online transactions provides users with a sense of security regarding the fulfilment of obligations by other parties involved.

Previous research on the relationship between customer experience, satisfaction, and trust with user loyalty has generally shown consistent positive results, yet most prior studies have examined these variables partially or in different digital wallet contexts (e.g., ShopeePay, DANA, or GoPay in other cities), leaving a gap regarding the combined effect of these three variables specifically among Generation Z users of GoPay in Malang City. Hanif (2022) found that user experience did not directly affect loyalty toward ShopeePay but operated indirectly through trust, whereas Saputra et al. (2025) found that customer experience had a direct and significant effect on Gojek user loyalty. Similarly, while several studies confirm that satisfaction positively affects GoPay user loyalty (Rasya et al., 2023; Andini & Winarno, 2023; Zam & Hendayani, 2024), and that trust positively affects loyalty toward digital wallets (Ginting, 2024; Khabibah & Refaliana, 2025), these studies were largely conducted in other cities or on other e-wallet platforms. This inconsistency and contextual gap justify the need for further research examining these three variables together, specifically among Generation Z digital wallet users in Malang City.

Generation Z was selected as the focus of this study because of its characteristics as digital natives, a generation that has grown up alongside the advancement of digital technology. Generation Z is known to be highly active in using digital financial services for various purposes, ranging from daily transactions to access to financing, and national surveys consistently show that this generation exhibits the highest adoption rate of digital wallets, making their behaviour highly relevant to study in the context of GoPay loyalty. This study was conducted in Lowokwaru District, Malang City, an area well known as a centre of student and youth activity. The district has a substantial productive-age population, supported by a large number of universities and boarding houses, making its community closely connected to financial technology innovation and an ideal location for examining Generation Z behaviour in utilising fintech services, particularly GoPay.

Based on this background, this study seeks to examine how customer experience, satisfaction, and trust influence GoPay user loyalty among Generation Z in Lowokwaru District, Malang City. Accordingly, this study aims to determine and analyse: (1) the simultaneous effect of customer experience, satisfaction, and trust on GoPay user loyalty; (2) the effect of customer experience on GoPay user loyalty; (3) the effect of satisfaction on GoPay user loyalty; and (4) the effect of trust on GoPay user loyalty.

2. Literature review

2.1 User Loyalty

Customer loyalty, or user loyalty, refers to users who remain committed to a particular service or product and consistently engage in repeat purchases; the indicators commonly used include repeat purchases, habitual brand consumption, and recommending the brand to others (Sangadji & Sopiah, 2013). Rivai and Wahyudi (2017) define user loyalty as the behaviour exhibited when a person makes repeated purchases and builds allegiance toward a product or service over an extended period through a recurring purchasing process; a loyal user is a satisfied consumer who continues the purchasing relationship, reflecting the degree of closeness between the consumer and a brand. Griffin (in Bricci, 2016) further argues that loyalty can reduce marketing

costs, since sales should not be viewed as the final goal of the marketing process but rather as the beginning of a lifelong relationship with the user; consumers who are satisfied with an initial purchase are more likely to make repeat purchases, which is why consumer loyalty is regarded as crucial for the long-term profitability of a business.

According to Aregawi (2018), consumer loyalty can be shaped by five factors: (1) perceived service quality, (2) consumer satisfaction, (3) handling of consumer complaints, (4) the manner in which a company manages complaints, and (5) commitment, defined as the consumer's intention to maintain a relationship with the company. This study adopts the user loyalty indicators proposed by Biswas et al. (2022), namely: (1) repurchase intention, (2) recommendation intention, and (3) resistance to switching.

2.2 Customer Experience

Customer experience refers to the overall impression created through a purchasing experience, representing a blend of a company's rational performance and the emotions it evokes, which can be intuitively measured against user expectations at every touchpoint (Lyna et al., 2021). Udayana (2022) describes customer experience as the overall depiction of what users go through during the process of using a service, noting that the impressions formed through this experience are of great importance to a company. Rahayu et al. (2022) explain that customer experience arises from the interaction and relationship a user has with a product, as well as the bond formed between the user and the company or product, while Asri et al. (2022) view customer experience as a subjective interpretation of a consumer's total experience in interacting with a brand, whether directly or indirectly.

Tamadesha (2018) identifies eight dimensions of customer experience: accessibility, competence, customer recognition, helpfulness, personalisation, problem solving, promise fulfilment, and value for time. This study adopts the customer experience indicators developed by Pebrila et al. (2019), covering five aspects, namely: sense, feel, think, relate, and act.

2.3 Satisfaction

User satisfaction is a key concept in modern marketing and serves as a primary indicator of a company's success in delivering value to its customers. Kotler and Keller (2020) define user satisfaction as the level of perceived performance or outcome compared with the expectations held by the user; when performance exceeds expectations, satisfaction rises significantly, and vice versa. Tjiptono (2020) adds that user satisfaction is not solely the result of purchasing a product or service, but also encompasses the user's overall consumption experience, meaning that satisfaction reflects the interaction between pre-consumption expectations and post-consumption performance perceptions.

According to Berry et al. (1988), consumer satisfaction can be influenced by several factors, including tangible evidence such as facilities and communication equipment, reliability in service delivery, responsiveness, assurance of security, and empathy in understanding consumer needs. This study adopts the satisfaction indicators proposed by Zeithaml, Bitner, and Gremler (2020), namely: expectation confirmation, service quality, perceived value, repurchase intention, and word of mouth.

2.4 Trust

User trust is one of the essential elements in building a long-term relationship between a company and its customers. Kotler and Keller (2020) define trust as the willingness of a user

to rely on a company or brand based on the belief that the company will act in accordance with the user's expectations and interests; trust encompasses not only confidence in product or service quality but also perceptions of the company's integrity, honesty, and behavioural consistency. Firmansyah (2020) similarly describes consumer trust as the consumer's confidence in a company's ability to provide reliable products or services that meet expectations, which is shaped by factors such as security, privacy, reliability, integrity, and competence.

This study adopts the trust indicators developed by Picaully (in Pane, 2021), namely: (1) security, referring to the protection of confidential information and business transactions from risk; (2) privacy, referring to users' confidence in the environment in which transactions are conducted; and (3) company reliability, referring to a company's expertise in strengthening the trust of both the company and its consumers.

2.5 Relationships between Variables

Wongso (2020) explains that experience is an important aspect for any business, including within the fintech industry, and is obtained through interaction in an appropriate usage context, encompassing seeing, touching, and thinking about a system or product, including impressions formed even before physical interaction takes place. Yudarmawan et al. (2020) describe user experience as an experience related to user traits such as behaviour, reactions, thoughts, emotions, and perceptions while using a system, while Singh et al. (2019) emphasise that user experience reflects how users perceive their interaction with a product, which can be assessed through the ease with which users obtain what they seek from the product. Prior research by Saputra et al. (2025) found that customer experience has a significant positive effect on customer loyalty toward GoPay, a finding echoed by Wongso (2020), who reports that user experience significantly affects customer loyalty, and by Melisa et al. (2023), who found that user experience, trust, and customer loyalty are all positively and significantly related.

Satisfaction is a state experienced by an individual, whether pleasant or unpleasant, arising from a comparison between actual outcomes and prior expectations (Kotler, 2009); Oliver (1980) similarly describes satisfaction as a consumer's positive response to a product or service used, while Sumarwan (2011) explains satisfaction (or dissatisfaction) as a consumer's reaction after comparing pre-purchase and post-purchase conditions. Tjiptono and Diana (2019) further note that satisfaction is a feeling of pleasure or disappointment that arises when a person compares perceived product performance with expectations: when performance falls short of expectations the user is dissatisfied, when performance matches expectations the user is satisfied, and when performance exceeds expectations the user feels delighted. Prior research by Andini and Winarno (2023) found that satisfaction has a significant positive effect on GoPay customer loyalty, a finding corroborated by Zam and Hendayani (2024), who report that satisfaction significantly affects GoPay user loyalty.

Trust reflects the strength of the knowledge a consumer holds, together with all conclusions drawn regarding the beneficial attributes of a product (Simangunsong, 2021); trust also carries specific evaluative and service value that can shape positive perceptions contributing to user satisfaction, and is a crucial element for service providers, grounded in reliability and integrity, that gives buyers the confidence to build long-term relationships (Fajarini & Meria, 2020). Nursani (2023) describes user trust as the confidence users place in an organisation or brand, including the expectation that the organisation will fulfil its promises and deliver products or services that meet user expectations, while Leninkumar (2017) defines trust as the mental and behavioural attitude that arises when users believe that a service or product provider meets their

expectations and desires. Prior research by Khabibah and Refaliana (2025) found that trust has a significant positive effect on GoPay user loyalty, and this finding is further supported by Nibra and Siregar (2025), who also report a significant effect of trust on user loyalty.

3. Methodology

This study applies a quantitative approach using an explanatory research design to examine the causal relationships between customer experience, satisfaction, and trust as independent variables and GoPay user loyalty as the dependent variable. The study was conducted among Generation Z GoPay users in Lowokwaru District, Malang City, between March and July 2026. Primary data were collected through an online questionnaire distributed via Google Forms, using a five-point Likert scale.

The population of this study consists of Generation Z individuals in Lowokwaru District who actively use GoPay. Since the exact size of this population is unknown and not officially recorded, the sample was determined using non-probability sampling with a purposive sampling technique, in accordance with Roscoe's guideline (in Sugiyono, 2017) that a feasible sample size for a study ranges between 30 and 500 respondents, with a minimum of ten times the number of variables analysed for multivariate analysis. Based on this guideline, a sample of 85 respondents was used, which falls within the recommended range and is considered adequate for the multiple linear regression analysis applied in this study. Respondents were selected based on the following criteria: (a) using GoPay at least three times a month for various needs, such as ride-hailing payments or mobile credit top-ups; (b) residing in Lowokwaru District, Malang City; (c) aged 17-28 years; and (d) being a university student, high-school/vocational student, or young working professional.

3.1 Theoretical Framework

This study is grounded in the relationship marketing and expectancy-disconfirmation perspectives on consumer behaviour. Under the commitment-trust theory of relationship marketing (Morgan & Hunt, 1994), trust and commitment are viewed as central mediators that enable long-term, cooperative relationships between service providers and their customers; a customer who trusts a service provider is more likely to remain committed and loyal to that provider. Complementing this, the expectancy-disconfirmation framework (Oliver, 1980) explains that satisfaction is formed through the comparison between a customer's pre-consumption expectations and the actual performance experienced, and that this evaluative process, together with the overall quality of interactions that make up the customer experience, ultimately shapes the customer's willingness to continue the relationship, i.e., loyalty. In the context of this study, customer experience represents the cumulative, moment-to-moment quality of a user's interactions with the GoPay platform, satisfaction reflects the evaluative outcome of comparing this experience against expectations, and trust reflects the user's confidence in the security, privacy, and reliability of the platform; together, these three constructs are hypothesised to determine the extent to which Generation Z users remain loyal to GoPay.

3.2 Conceptual Framework and Hypotheses

Building on this theoretical foundation, the conceptual framework of this study positions Customer Experience (X1), Satisfaction (X2), and Trust (X3) as independent variables that are hypothesised to influence GoPay User Loyalty (Y), both simultaneously and partially, as presented in Figure 2.

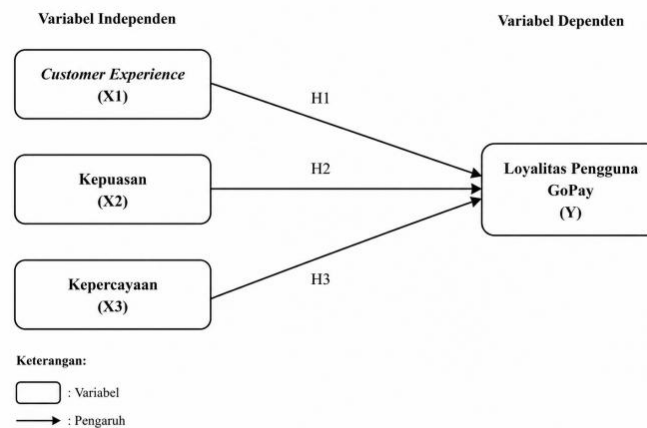


Figure 2. Research Model

Based on the theoretical foundation and previous research reviewed above, the following hypotheses are proposed:

H1: Customer experience, satisfaction, and trust simultaneously affect GoPay user loyalty among Generation Z in Lowokwaru District, Malang City.

H2: Customer experience affects GoPay user loyalty among Generation Z in Lowokwaru District, Malang City.

H3: Satisfaction affects GoPay user loyalty among Generation Z in Lowokwaru District, Malang City.

H4: Trust affects GoPay user loyalty among Generation Z in Lowokwaru District, Malang City.

3.3 Instrumentation

Data were collected using a researcher-developed questionnaire based on a five-point Likert scale, covering four variables: GoPay User Loyalty (measured through 3 indicators - repurchase intention, recommendation intention, and resistance to switching, adapted from Biswas et al., 2022), Customer Experience (5 indicators - sense, feel, think, relate, and act, adapted from Pebrila et al., 2019), Satisfaction (5 indicators - expectation confirmation, service quality, perceived value, repurchase intention, and word of mouth, adapted from Zeithaml et al., 2020), and Trust (3 indicators - security, privacy, and company reliability, adapted from Picaully in Pane, 2021). Prior to the main analysis, all instrument items were tested for validity using the corrected item-total correlation (r-count compared against the r-table value of 0.2133 for 85 respondents) and for reliability using Cronbach's Alpha, with results reported in Section 4.

3.4 Data Analysis Method

Data were analysed inferentially using SPSS software through multiple linear regression analysis. Prior to the regression analysis, classical assumption tests were performed, comprising a normality test using the one-sample Kolmogorov-Smirnov test, a multicollinearity test based on tolerance and Variance Inflation Factor (VIF) values, and a heteroscedasticity test using the Glejser method. An autocorrelation test was not applied, as the data used in this study are cross-sectional, collected through a questionnaire rather than derived from time-series secondary data.

The multiple linear regression equation used in this study is formulated as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e$$

where Y denotes GoPay user loyalty; a is the constant; b₁, b₂, and b₃ are the regression coefficients; X₁, X₂, and X₃ are customer experience, satisfaction, and trust, respectively; and e is the error term.

Hypothesis testing was conducted through the F-test, to examine the simultaneous effect of the independent variables on the dependent variable, and the t-test, to examine the partial effect of each independent variable, both at a 5% significance level. The coefficient of determination (Adjusted R²) was used to assess the proportion of variance in GoPay user loyalty explained by the independent variables.

4. Results and discussion

4.1 Respondent Profile

A total of 85 valid responses were obtained from Generation Z GoPay users in Lowokwaru District, Malang City. Based on age, respondents were dominated by the 20-23 year age group (49 respondents, 57.65%), followed by the 16-19 year age group (28 respondents, 32.94%) and the 24-28 year age group (8 respondents, 9.41%). This distribution indicates that most respondents are university students or young adults at an early productive age, a group characterised by high levels of digital activity and strong reliance on non-cash payment applications such as GoPay (Bank Indonesia, 2023). Based on gender, respondents were dominated by females (52 respondents, 61.18%), while male respondents accounted for 33 respondents (38.82%), suggesting that female Generation Z users are comparatively more active in using GoPay for daily non-cash transactions, likely encouraged by the application's ease of use, attractive interface, and frequent promotions or cashback offers.

4.2 Descriptive Statistics of Research Variables

Respondents' answers to the questionnaire items were averaged for each variable to obtain an overall descriptive picture, as summarised in Table 1.

Variable	Mean Score	Category
GoPay User Loyalty (Y)	3.05	Fairly good
Customer Experience (X1)	3.76	Good
Satisfaction (X2)	3.55	Good
Trust (X3)	3.40	Fairly good

Source: Data processed by the researcher, 2026

Table 1 shows that, among the three independent variables, customer experience recorded the highest mean score (3.76), followed by satisfaction (3.55) and trust (3.40), while the dependent variable, user loyalty, recorded the lowest overall mean (3.05), indicating that although respondents generally perceive their experience with GoPay positively, this has not yet fully translated into strong loyalty, as many respondents remain neutral regarding making GoPay their primary choice compared with other digital wallets.

4.3 Validity and Reliability Tests

Validity testing was carried out by comparing the calculated r-value (r-count) of each item against the r-table value for 85 respondents (0.2133); an item is considered valid if r-count > r-table. The results, summarised in Table 2, show that all item r-count values exceeded the r-table value, confirming that every instrument item used in this study is valid.

Variable	Range of r-count	r-table	Information
User Loyalty (Y)	0.898 - 0.939	0.2133	Valid
Customer Experience (X1)	0.932 - 0.966	0.2133	Valid
Satisfaction (X2)	0.907 - 0.928	0.2133	Valid
Trust (X3)	0.910 - 0.947	0.2133	Valid

Source: Data processed using SPSS, 2026

Reliability testing was conducted using Cronbach's Alpha, with a threshold value of 0.60. As shown in Table 3, all variables achieved Cronbach's Alpha values well above the threshold, indicating that all research instruments are reliable.

Variable	Cronbach's Alpha	Threshold	Information
User Loyalty (Y)	0.908	0.60	Reliable
Customer Experience (X1)	0.970	0.60	Reliable
Satisfaction (X2)	0.954	0.60	Reliable
Trust (X3)	0.925	0.60	Reliable

Source: Data processed using SPSS, 2026

4.4 Normality and Classical Assumption Tests

The normality test, using the one-sample Kolmogorov-Smirnov test, produced an Asymp. Sig. (2-tailed) value of 0.070, which is greater than 0.05, indicating that the residual data are normally distributed.

The multicollinearity test showed tolerance values of 0.991, 0.982, and 0.988 and VIF values of 1.009, 1.018, and 1.012 for customer experience, satisfaction, and trust respectively (Table 4), all of which are within the acceptable range (tolerance > 0.10; VIF < 10), indicating that the regression model is free from multicollinearity problems.

Variable	Tolerance	VIF	Information
Customer Experience (X1)	0.991	1.009	No multicollinearity
Satisfaction (X2)	0.982	1.018	No multicollinearity

Variable	Tolerance	VIF	Information
Trust (X3)	0.988	1.012	No multicollinearity

Source: Data processed using SPSS, 2026

The heteroscedasticity test, conducted using the Glejser method, produced significance values of 0.358, 0.332, and 0.351 for customer experience, satisfaction, and trust respectively, all of which are above 0.05, indicating that the regression model is free from heteroscedasticity problems.

4.5 Multiple Linear Regression Analysis

Multiple linear regression analysis was performed to determine the extent to which customer experience, satisfaction, and trust affect GoPay user loyalty. The results are presented in Table 5.

Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.209	0.740	-	2.985	0.004
Customer Experience (X1)	0.219	0.022	0.673	9.788	0.000
Satisfaction (X2)	0.126	0.025	0.349	5.052	0.000
Trust (X3)	0.085	0.041	0.144	2.083	0.040

Source: Data processed using SPSS, 2026

Based on Table 5, the multiple linear regression equation obtained is:

$$Y = 2.209 + 0.219X_1 + 0.126X_2 + 0.085X_3$$

The constant value of 2.209 indicates that if customer experience, satisfaction, and trust are held at zero, GoPay user loyalty would be 2.209. The regression coefficient for customer experience (0.219, sig. 0.000 < 0.05) indicates a positive and significant effect on user loyalty; the coefficient for satisfaction (0.126, sig. 0.000 < 0.05) likewise indicates a positive and significant effect; and the coefficient for trust (0.085, sig. 0.040 < 0.05) also indicates a positive and significant effect on GoPay user loyalty.

4.6 Hypothesis Testing

The F-test was conducted to determine whether the independent variables jointly affect the dependent variable, using a significance level of 0.05 and an F-table value of 2.72. As shown in Table 6, the calculated F-value of 44.039 exceeds the F-table value of 2.72, with a significance value of 0.000 < 0.05, indicating that customer experience, satisfaction, and trust simultaneously have a significant effect on GoPay user loyalty. Hypothesis H1 is therefore accepted.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	66.340	3	22.113	44.039	0.000

Model	Sum of Squares	df	Mean Square	F	Sig.
Residual	40.672	81	0.502	-	-
Total	107.012	84	-	-	-

Source: Data processed using SPSS, 2026

The t-test was conducted to determine the partial effect of each independent variable on the dependent variable, using a significance level of 0.05 and a t-table value of 1.989 (see Table 5 above for the coefficients). The results indicate that: (a) customer experience has a t-value of 9.788 with a significance of $0.000 < 0.05$, so H2 is accepted; (b) satisfaction has a t-value of 5.052 with a significance of $0.000 < 0.05$, so H3 is accepted; and (c) trust has a t-value of 2.083 with a significance of $0.040 < 0.05$, so H4 is accepted. All three independent variables therefore have a positive and significant partial effect on GoPay user loyalty.

4.7 Coefficient of Determination (Adjusted R²)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.787	0.620	0.606	0.709

Source: Data processed using SPSS, 2026

Table 7 shows an Adjusted R Square value of 0.606, or 60.6%, indicating that customer experience, satisfaction, and trust jointly explain 60.6% of the variance in GoPay user loyalty, while the remaining 39.4% is explained by other variables not examined in this study.

4.8 Discussion

The Effect of Customer Experience, Satisfaction, and Trust on GoPay User Loyalty

The results of this study show that customer experience, satisfaction, and trust jointly and partially have a positive and significant effect on GoPay user loyalty, indicating that GoPay user loyalty is not shaped by a single factor but rather by several interrelated factors. Descriptive analysis reveals that customer experience recorded the highest mean score among the three independent variables, suggesting that it exerts the strongest influence on user loyalty; users tend to rely on GoPay in their daily activities because the service is regarded as practical, easy to use, and capable of facilitating transactions, and a positive usage experience tends to encourage continued and loyal use of the platform. Respondents also rated satisfaction and trust favourably, suggesting that users feel adequately satisfied with the benefits provided by GoPay and are confident that the platform can deliver secure and reliable digital transaction services. When positive usage experience, satisfaction, and trust are all present, users are more inclined to continue using and to recommend GoPay to others. These findings are consistent with previous studies indicating that customer experience, satisfaction, and trust are key factors shaping loyalty toward e-wallet services (Saputra et al., 2025; Rasya et al., 2023; Khabibah & Refaliana, 2025), confirming that when users experience a pleasant interaction, feel satisfied, and trust a service, they tend to remain loyal to that service over the long term.

The Effect of Customer Experience on GoPay User Loyalty

The results show that customer experience has a positive and significant effect on GoPay user loyalty among Generation Z in Lowokwaru District, Malang City, meaning that the experience

users perceive while using GoPay can enhance their loyalty toward the service. Users who perceive ease of use, fast transaction processes, and comfort while transacting tend to display a stronger tendency to remain loyal, suggesting that the quality of the user experience plays a central role in shaping loyalty: the better the perceived experience, in terms of ease of use, transaction speed, security, and comfort, the higher the tendency of users to remain loyal to the service. This result is consistent with Hanif (2022), who found that customer experience has a positive and significant effect on user loyalty, and with Saputra et al. (2025), who report that customer experience has a proven positive and significant effect on user loyalty toward Gojek, a related platform within the same digital ecosystem.

The Effect of Satisfaction on GoPay User Loyalty

The results show that satisfaction has a positive and significant effect on GoPay user loyalty among Generation Z in Lowokwaru District, Malang City, indicating that the higher the level of satisfaction users feel toward GoPay's services, the higher their loyalty in continuing to use the service. Satisfaction is an important factor in shaping loyalty, as satisfied users tend to continue using a service in the future; descriptive analysis reveals that most users consider GoPay's services to have met their expectations, and services aligned with user needs and expectations generate a sense of satisfaction in digital transactions, which in turn makes users feel comfortable and confident in continuing to use GoPay in their daily activities. This result is consistent with Asikin and Nurshyfa (2023), who found that satisfaction has a positive and significant effect on user loyalty, and with Rasya et al. (2023), who similarly report that satisfaction has a positive and significant effect on user loyalty.

The Effect of Trust on GoPay User Loyalty

The results show that trust has a positive and significant effect on GoPay user loyalty among Generation Z in Lowokwaru District, Malang City, meaning that the higher the level of user trust in the security and reliability of GoPay's services, the higher their loyalty in using the service. Trust is a particularly important factor for technology-based services, especially electronic payment systems, since users cannot directly observe the fund-management process or the security systems in place, making trust in the service provider a primary determinant of continued use. Descriptive analysis shows that most users hold a fairly good level of trust in GoPay's security system and feel that GoPay is able to protect their personal data and digital transactions; this sense of security makes users more comfortable and confident in continuing to use GoPay for their everyday transaction activities, and the higher the trust in the platform's security and reliability, the greater the tendency of users to remain loyal to GoPay. This result is consistent with Ginting (2024), who found that trust has a positive and significant effect on user loyalty, and with Khabibah and Refaliana (2025), who similarly report that trust has a positive and significant effect on user loyalty.

5. Conclusion

Based on the results of the analysis and discussion presented above, this study concludes that customer experience, satisfaction, and trust simultaneously affect GoPay user loyalty among Generation Z in Lowokwaru District, Malang City, indicating that GoPay user loyalty is shaped by a combination of usage experience, satisfaction, and trust, which together enhance user loyalty. Partially, customer experience has a positive and significant effect on GoPay user loyalty, showing that the better users perceive their experience, such as ease of transaction, application interface, and comfort while transacting, the higher their loyalty toward GoPay. Satisfaction likewise has a positive and significant effect on GoPay user loyalty, indicating that

a high level of satisfaction, resulting from the fulfilment of user expectations regarding the service, encourages users to continue using GoPay on a sustained basis. Trust also has a positive and significant effect on GoPay user loyalty, indicating that the higher the level of user trust in the security, reliability, and credibility of GoPay's services, the higher the level of user loyalty in using the service.

It can be assumed that GoPay user loyalty among Generation Z is not determined by a single dominant factor but by the interplay between a smooth and enjoyable usage experience, consistent satisfaction with the benefits received, and confidence in the platform's security and reliability. As the digital wallet industry continues to grow and competition among providers intensifies, it is likely that customer experience, satisfaction, and trust will remain central determinants of user retention, underscoring the importance of continuous investment in service quality, transaction security, and responsive customer support.

This study has several limitations. First, it was conducted only among GoPay users who had transacted at least once a month, with a sample size limited to 85 respondents. Second, the object of the study was limited to GoPay user loyalty and did not extend to other digital wallet platforms. Third, the variables examined were limited to customer experience, satisfaction, and trust, without considering other potentially relevant factors. Fourth, the data were obtained through a self-administered questionnaire, which is inherently subjective. Fifth, the study employed a cross-sectional design, capturing conditions at a single point in time.

For future researchers, this study may serve as a comparative reference for further studies examining the effect of customer experience, satisfaction, and trust on GoPay user loyalty. Future studies are encouraged to incorporate additional variables not covered in this study, such as price, digital promotion, or specific application features, and to employ more diverse research instruments and data collection methods to obtain more comprehensive and in-depth findings, potentially including a longitudinal design to observe how these relationships evolve over time.

For practitioners in digital marketing and financial services, the findings of this study may serve as a consideration in designing more effective strategies to enhance GoPay user loyalty, particularly among Generation Z in Lowokwaru District, Malang City. Practitioners are encouraged to pay closer attention to the factors proven to influence user loyalty, namely customer experience, satisfaction, and trust, by designing services and communication that deliver a positive experience, a sense of satisfaction, and confidence in the security and reliability of the service, while continuing to monitor the evolving behaviour of digital consumers, particularly Generation Z, to ensure that the strategies applied remain relevant and capable of sustaining long-term relationships with users.

For GoPay and similar digital wallet providers, the findings suggest a continued need to enhance the quality of customer experience delivered, whether in terms of ease of application use, transaction speed, or system security that fosters user trust. Providers should also ensure that user satisfaction remains high by offering responsive service, attractive promotions, and features tailored to the needs of Generation Z, and should periodically evaluate their service strategies and trust-management practices to remain aligned with the preferences and behaviour of digital consumers, particularly in sustaining user loyalty in Lowokwaru District, Malang City.

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THE EFFECT OF WORKLOAD AND WORK FLEXIBILITY ON EMPLOYEE PERFORMANCE WITH WORK-LIFE BALANCE AS A MEDIATING VARIABLE
(Study on the Digital Creative Industry in Malang City)

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Abstract

This study examines the effects of workload and work flexibility on employee performance by incorporating work-life balance as a mediating variable in the digital creative industry in Malang City. The research was conducted in response to the rapid expansion of the digital creative sector, which has increased work demands while emphasizing the need for flexible work arrangements and a balanced integration of employees' professional and personal lives. A quantitative explanatory research design was employed. The study targeted employees working in the digital creative industry in Malang City, with 65 respondents selected through purposive sampling. Primary data were collected using Likert-scale questionnaires and analyzed using the Structural Equation Modeling–Partial Least Squares (SEM-PLS) approach with SmartPLS 4 software. The findings indicate that both workload and work flexibility have positive and significant effects on work-life balance. In contrast, workload does not significantly influence employee performance, whereas work flexibility and work-life balance positively and significantly affect employee performance. Furthermore, work-life balance significantly mediates the relationship between workload and employee performance but does not mediate the effect of work flexibility on employee performance. These findings suggest that organizations should manage employee workloads appropriately while adopting flexible work policies that promote work-life balance to achieve better employee performance in the digital creative industry.

Keywords: Workload, Work Flexibility, Work-life balance, Employee Performance, Digital Creative Industry.

1. Introduction

The digital creative industry in Indonesia is growing rapidly in tandem with advances in information and communication technology. This industry encompasses various business sectors based on creativity and digital technology, such as digital marketing, graphic design, app and website development, creative content production, multimedia, and social media management. The rapid growth of this sector has been accompanied by an increase in the demands placed on employees, in terms of task complexity, deadlines, and the number of projects that must be completed simultaneously.

To provide a more contextual picture of this phenomenon, the following data illustrates the growth trend of the digital creative industry in Malang City, which forms the empirical background of this research.

Table 1. Projection of Creative Economy Growth in Malang City

Sub-sectors	2019	2020	2021	2022	2023	Average Growth (%)
Visual Communication Design	5.34	5.72	6.15	6.63	7.17	7.6
Product Design	42.61	44.27	46.13	48.22	50.57	4.4

Movies, Animations, and Videos	19.01	20.44	22.02	23.77	25.70	8.0
Photography	21.27	22.74	24.38	26.21	28.26	7.5
App & Game Developer	70.23	75.39	81.05	87.25	94.04	7.9
Advertising	20.26	21.85	23.56	25.45	27.50	7.8

Source: (Rukayah, 2020)

The table above shows the average growth of various creative industry subsectors in Malang City from 2019 to 2023. The data illustrates that subsectors such as App & Game Developer, Film, Animation, and Video, and Visual Communication Design experienced the highest growth (above 7–8% per year). This trend shows that activities in the digital creative industry are increasing, so the demand for creative, innovative, and flexible labor is also increasing. With increasing project intensity, tight deadlines, and the need for new ideas, employee workloads tend to increase. On the other hand, the work patterns in this sector also demand a high level of flexibility as most jobs are project-based and often done online. Therefore, this table is preliminary evidence (contextual empirical data) that the growth of the digital creative industry in Malang City has the potential to pose human resource challenges, such as workload management, work flexibility, and efforts to maintain work-life balance so that employee performance remains optimal.

Workload can be defined as one of the factors that can influence employee performance, particularly in the digital creative industry, which is characterized by dynamic and demanding work. Workload includes tasks such as content creation, visual design, editing, and communication with clients, all of which must be completed on time and in accordance with quality standards. An excessively high workload can lead to stress, fatigue, and decreased motivation, thereby affecting productivity and work quality (Fani & Permana, 2024). Conversely, too light a workload can lead to boredom and a lack of engagement, which also results in poor performance (Anwar & Fadli, 2024). Therefore, maintaining a balanced workload is essential to support employee performance and the company's operational sustainability.

In addition to workload, work flexibility is also one of the key variables that impact employee performance. Work flexibility refers to the leeway granted by company management for employees to arrange their work schedules, locations, and hours, whether formally or informally (Muhtazib et al., 2023). Research by Pohan & Yosepha (2025) shows that work flexibility can boost productivity because employees can work when they feel most focused and energetic. However, if not properly managed, flexibility can actually make employees feel as though they are constantly working without clear time limits, so it needs to be managed through well defined organizational policies.

Before workload and work flexibility affect performance, work-life balance typically emerges first as a balancing factor between the demands of work and an employee's personal life. Work-life balance refers to a state in which an individual is able to manage and distribute their time, energy, and attention in a balanced manner among work responsibilities, family life, and personal needs (Lumunon et al., 2019). Maintaining work-life balance is crucial for employees in the digital creative industry who face tight deadlines, high demands for creativity, and dynamic workloads, as an imbalance can lead to stress, burnout, and decreased productivity (Ramadhan et al., 2024).

Previous research on the relationship between workload and work flexibility and employee performance has yielded inconsistent findings. Siahaan and Wahyudi (2025) found that workload has a positive and significant effect on employee performance. In contrast, a study

by Taufik et al. (2023) indicated that workload does not have a significant effect on employee performance. These differing results suggest that the effect of workload on employee performance requires further study, taking into account other factors that may play a role in this relationship. A similar pattern was observed regarding the work flexibility variable, where Hamdani & Saleh (2024) and Abdi et al. (2025) state that work flexibility has a positive effect on performance, whereas Siskayanti & Sanica (2022) report that work flexibility does not have a significant effect on employee performance. The inconsistency of these findings suggests that the effects of these two variables are contextual and require further testing, particularly in the digital creative industry, which has unique and dynamic work characteristics.

2. Literature review

2.1 Employee Performance

Performance is the output or results of work produced by individuals or groups based on the execution of their duties, authority, and responsibilities in order to effectively achieve organizational goals (Simamora, 2002). Performance refers to an employee's work achievements, which are evaluated based on both quality and quantity in carrying out their assigned responsibilities (Mangkunegara, 2013). Performance is the result of the execution of job functions by an individual or group within an organization over a specific period of time, indicating the extent to which job requirements are met and organizational goals are achieved (Nasri & Muhidin, 2024). This study uses the employee performance indicators proposed by Mathis (2009), namely: (1) Quantity, (2) Quality, (3) Utilization of work time, and (4) Teamwork.

2.2 Workload

Workload refers to the set of tasks or activities that an individual or a specific unit within an organization is responsible for completing within a certain period of time (Sunarso & Kusdi, 2010). Workload is the accumulation of activities that must be completed, encompassing the intensity of working hours, significant professional pressure, and the demands of responsibility (Mar'ih, 2017). A high workload has the potential to trigger stress, fatigue, and a decline in individual motivation, which in turn negatively impacts productivity and the quality of work output (Fani & Permana, 2024). This study uses the workload indicators proposed by Soejipto (2016), namely: (1) Targets to be achieved, (2) Working conditions, and (3) Work standards.

2.3 Work Flexibility

Workplace flexibility is a strategic policy developed by the human resources management team, whether through formal regulations or informal arrangements, that pertains to the implementation of flexibility within an organization (Carlson et al., 2010). Work flexibility refers to employees' ability to manage their working hours and choose work locations outside the office, allowing them to align their work schedules with the organization's needs (Shagvaliyeva & Yazdanifard, 2014). Work flexibility refers to regulations established by a company that govern its employees' work schedules, locations, and hours, whether formal or informal (Muhtazib et al., 2023). This study uses the indicators of work flexibility according to Wicaksono (2019), namely: (1) Time flexibility, (2) Timing flexibility, and (3) Place flexibility.

2.4 Work-Life Balance

Work-life balance is understood as a condition in which employees have the freedom to take advantage of flexible working hours, enabling them to balance the demands of their jobs

with various other commitments outside of work, such as family, hobbies, the arts, and education (Frame & Hartog, 2003). Work-life balance is a state in which individuals are able to allocate their time and energy proportionally among their professional lives, family lives, and personal interests (Lumunon et al., 2019). Achieving work-life balance is crucial for employees in the digital creative industry who face tight deadlines and high demands for creativity, as an imbalance can lead to stress, burnout, and decreased productivity (Ramadhan et al., 2024). This study uses the work-life balance indicators proposed by McDonald et al. (2005), namely: (1) Time balance, (2) Involvement balance, and (3) Satisfaction balance.

3. Methodology

A quantitative approach using explanatory research methods was applied in this study to examine the causal relationship between workload and work flexibility on employee performance, with work-life balance serving as a mediating variable. The study was conducted among employees in the digital creative industry in Malang, with primary data collected via an online questionnaire using Google Forms. The sampling technique used non probability sampling with a purposive sampling approach. The criteria for respondents were: (1) having at least 1 year of work experience in the digital creative industry, (2) being at least 18 years old, and (3) working in the Malang City area. The sample size was determined based on Malhotra's formula (the number of indicators multiplied by five); with 13 indicators, this resulted in 65 respondents (13×5).

3.1 Theoretical Framework

This study is grounded in the Job Demands-Resources (JD-R) model, an occupational stress framework which asserts that employee well-being and performance are shaped by the balance between the demands placed on individuals and the resources available to help them meet those demands (Bakker & Demerouti, 2001). In the context of this study, workload represents a job demand an aspect of work that requires physical and psychological effort and carries a certain cost to the employee while work flexibility represents a job resource that helps employees manage those demands and reduce strain. According to the JD-R model, when job demands are high and resources are insufficient, employees experience increased strain, which can manifest as reduced work-life balance and diminished performance. Conversely, when adequate resources such as work flexibility are available, employees are better able to sustain motivation, achieve a healthy work-life balance, and maintain optimal performance. This theoretical foundation underlies the hypothesized relationships among workload, work flexibility, work-life balance, and employee performance examined in this study.

3.2 Conceptual Framework

Building on this theoretical foundation, the conceptual framework of this study positions Workload (X1) and Work Flexibility (X2) as independent variables, Work-Life Balance (Z) as a mediating variable, and Employee Performance (Y) as the dependent variable. Workload and Work Flexibility are hypothesized to influence Work-Life Balance (H1, H2), while Work-Life Balance in turn is hypothesized to influence Employee Performance (H5). In addition, Workload and Work Flexibility are also hypothesized to have a direct effect on Employee Performance (H3, H4), as well as an indirect effect mediated through Work-Life Balance (H6, H7). This framework illustrates how the demands and resources faced by employees in the digital creative industry jointly shape their work-life balance and, ultimately, their performance, as presented in Figure 1.

3.3 Instrumentations

Data were collected using a researcher developed questionnaire based on a five point Likert scale, covering four variables: Employee Performance (measured through 4 indicators; quantity, quality, utilization of work time, and teamwork, adapted from Mathis, 2009), Workload (3 indicators; targets to be achieved, working conditions, and work standards, adapted from Soejipto, 2016), Work Flexibility (3 indicators; time flexibility, timing flexibility, and place flexibility, adapted from Wicaksono, 2019), and Work-Life Balance (3 indicators; time balance, involvement balance, and satisfaction balance, adapted from McDonald et al., 2005). The instrument was tested for validity and reliability using SmartPLS 4. Findings revealed that all indicator items produced outer loading values above 0.6, and Composite Reliability and Cronbach's Alpha values above 0.7, indicating that all items in the survey instrument are valid and reliable for use in this study.

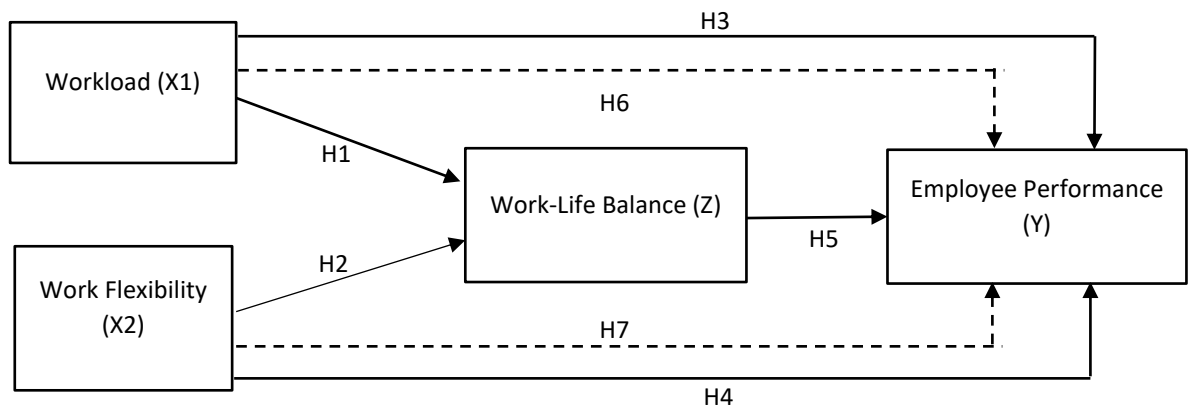


Figure 1. Research Model

4. Results and discussion

In this study, data analysis was conducted using the Partial Least Squares based Structural Equation Modeling (SEM-PLS) method, implemented using SmartPLS 4 software. The results of the data analysis are presented in the following SEM-PLS model, which illustrates the relationships among the variables of workload, work flexibility, work-life balance, and employee performance.

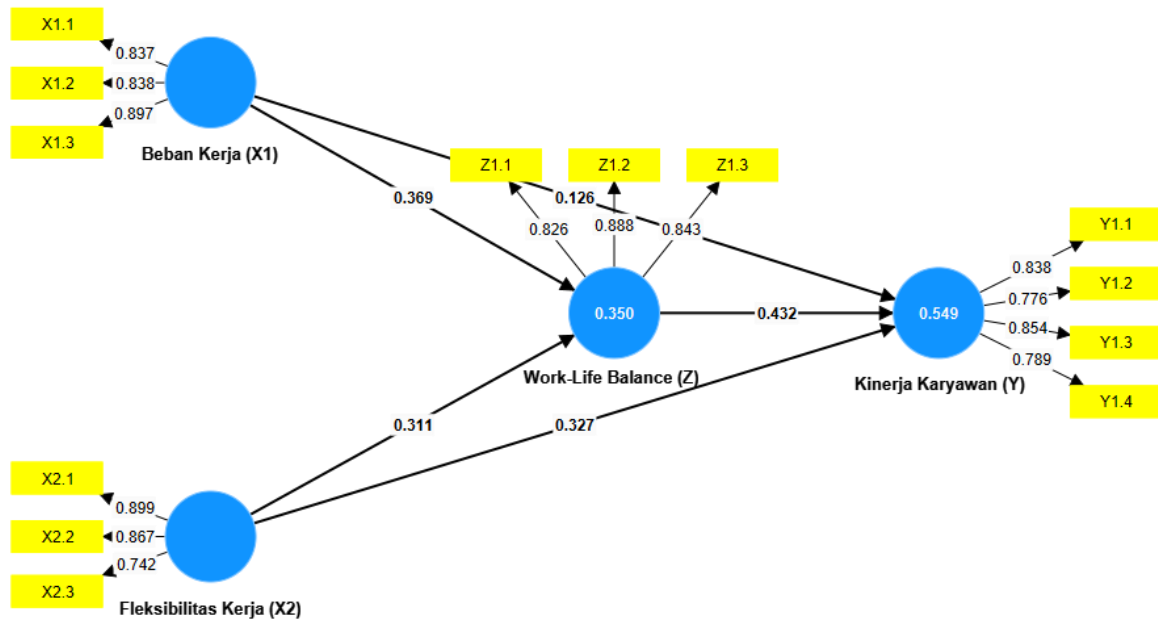


Figure 2. SEM-PLS analysis results

Outer Model (Measurement Model)

Convergent Validity

Convergent validity was analyzed by examining each indicator item measured through its outer loading value. An indicator is considered valid if it has a factor loading value greater than 0.6 and an Average Variance Extracted (AVE) value greater than 0.5 (Hair et al., 2014).

Table 2. Outer Loadings

Variable	Indicator	Outer Loading	Information
Employee Performance (Y)	Y.1	0.838	Valid
	Y.2	0.776	Valid
	Y.3	0.854	Valid
	Y.4	0.789	Valid
Workload (X1)	X1.1	0.837	Valid
	X1.2	0.838	Valid
	X1.3	0.897	Valid
Work Flexibility (X2)	X2.1	0.899	Valid
	X2.2	0.867	Valid
	X2.3	0.742	Valid
Work-life balance (W)	Z.1	0.826	Valid
	Z.2	0.888	Valid
	Z.3	0.843	Valid

Source: Data processed, 2026

Based on the results of data analysis using SmartPLS 4, as shown in Table 2, all indicators met the criteria for convergent validity because their outer loadings were > 0.6 , resulting in valid findings.

Table 3. Average Variance Extracted (AVE)

Variable	AVE	Information
Workload	0.736	Valid

Work Flexibility	0.704	Valid
Employee Performance	0.664	Valid
Work-life balance	0.727	Valid

Source: Data processed, 2026

Based on Table 3, all variables used in this study indicate an Average Variance Extracted (AVE) value greater than 0.5. The AVE values for the variables are as follows: workload at 0.736, work flexibility at 0.704, employee performance at 0.664, and work-life balance at 0.727. Thus, it can be concluded that all variables have met the criteria for convergent validity, allowing the analysis to proceed.

Discriminant Validity

Discriminant validity was tested through cross-factor loading analysis, which involves comparing the loading values of each indicator on the construct it represents with the loading values of that indicator on other constructs. Discriminant validity is considered to be met if each indicator has the highest loading value on its original construct compared to other constructs, indicating that the indicator is able to adequately distinguish the construct being measured (Bougie & Sekaran, 2016).

Table 4. Results of Discriminant Validity Analysis

Indicator	Workload	Work Flexibility	Employee Performance	Work-Life Balance
X1.1	0.837	0.409	0.404	0.409
X1.2	0.838	0.445	0.376	0.385
X1.3	0.897	0.455	0.533	0.555
X2.1	0.430	0.899	0.631	0.597
X2.2	0.393	0.867	0.461	0.335
X2.3	0.495	0.742	0.368	0.239
Y.1	0.466	0.525	0.838	0.558
Y.2	0.435	0.433	0.776	0.498
Y.3	0.381	0.460	0.854	0.531
Y.4	0.409	0.547	0.789	0.537
Z.1	0.343	0.304	0.607	0.826
Z.2	0.480	0.491	0.576	0.888
Z.3	0.517	0.469	0.515	0.843

Source: Data processed, 2026

Based on the table, it can be seen that there are no issues with the discriminant validity test. This is evident from the cross-loading values for each indicator, which are highest within their respective constructs compared to other constructs.

Composite Reliability

Table 5. Composite Reliability Analysis Results

Variable	Composite Reliability (rho c)	Rule of Thumb	Information
Workload	0.893	0.7	Reliable
Work Flexibility	0.876	0.7	Reliable
Employee Performance	0.888	0.7	Reliable
Work-Life Balance	0.889	0.7	Reliable

Source: Data processed, 2026

The table above shows a Composite Reliability value of 0.893 for the workload variable, indicating a value > 0.7; for the work flexibility variable, the value is 0.876, also indicating a

value > 0.7; for the employee performance variable, the value is 0.888, also indicating a value > 0.7; and for the work-life balance variable, the value is 0.889, which is also > 0.7. This indicates that the Composite Reliability values for all of the above variables are greater than 0.7, so all research variables can be considered reliable.

Inner Structural Model (Structural Model)

R-Square

The R-squared coefficient measures the extent to which an exogenous construct can explain the variation in an endogenous construct. Ghazali and Latan (2015) classify this level of determination into three categories: strong (0.75), moderate (0.50), and weak (0.25).

Table 6. Determination Test Analysis Results (R²)

Variable	R-square	R-square adjusted
Employee Performance	0.549	0.527
Work-Life Balance	0.350	0.329

Source: Data processed, 2026

In Table 6, the adjusted R-squared value for the employee performance variable is 0.527, which means that workload, work flexibility, and work-life balance account for 52.7% of the variation in employee performance. The remaining 47.3% is explained by other variables outside the model. According to the criteria established by Ghazali and Latan (2015), this value indicates that the model's predictive ability falls into the moderate category. On the other hand, the adjusted R-Square value for the work-life balance variable is 0.329, meaning that 32.9% of the variation in this variable is explained by workload and work flexibility, while the remaining 67.1% is influenced by other factors. This value places the model's predictive ability in the weak-to-moderate category, thereby opening opportunities for future research to include new variables to improve the model's coefficient of determination.

Effect Size (F²)

Effect size testing was conducted to determine the magnitude of the influence between variables in the structural model. The criteria for assessing effect size are based on the stipulation that a value of 0.02 indicates a small effect, a value of 0.15 indicates a moderate effect, and a value of 0.35 indicates a large effect (Ghozali & Latan, 2015).

Table 7. Effect Size (F²) Analysis Results

Relationship	Employee Performance	Work-life balance
Work-life balance	0.269	—
Workload	0.023	0.260
Work Flexibility	0.151	0.094

Source: Data processed, 2026

Based on the results of the effect size (F²) analysis in Table 7, each independent variable has a different level of influence on the dependent variable in the research model. The effect size value of workload on employee performance is 0.023 (small category), indicating that workload's contribution to explaining the variation in employee performance is relatively low. The effect size of work flexibility on employee performance is 0.151 (moderate category), while that of work-life balance on employee performance is 0.269 (moderate category), indicating that both play a fairly significant role in influencing employee performance.

With work-life balance as the dependent variable, the effect size for workload was 0.260 (moderate category), while that for work flexibility was 0.094 (small category). Based on the

analysis results, the relationship between workload and work-life balance, as well as the relationship between work-life balance and employee performance, are the pathways that exert the most dominant influence in the research model. However, the magnitude of the influence demonstrated by these two relationships remains in the moderate category; thus, although they have a relatively greater contribution compared to other relationships, there are still other factors that influence the variables under study.

Direct Effect Hypothesis Test

Table 8. Direct Hypothesis Testing Results

Hypothesis	Relationships	Original Sample	T-Statistics	P-Values	Information
H1	BK → WLB	0.369	2.865	0.004	Significant
H2	FK → WLB	0.311	2.263	0.024	Significant
H3	BK → KP	0.126	1.204	0.229	Insignificant
H4	FK → KP	0.327	2.197	0.028	Significant
H5	WLB → KP	0.432	2.941	0.003	Significant

Source: Data processed, 2026. Notes: BK = Workload, FK = Work Flexibility, WLB = Work-Life Balance, KP = Employee Performance.

1. The effect of workload (X1) on work-life balance (Z) shows a t-statistic value of 2.865, which is > 1.96 , and a p-value of $0.004 < 0.05$. These results indicate that workload has a positive and significant effect on work-life balance. Thus, H0 is rejected and Ha is accepted.
2. The effect of work flexibility (X2) on work-life balance (Z) yielded a t-statistic of 2.263, which is greater than 1.96, and a p-value of 0.024, which is less than 0.05. These results indicate that work flexibility has a positive and significant effect on work-life balance. Therefore, H0 is rejected and Ha is accepted.
3. Based on the model test results, the relationship between workload and employee performance yielded a t-statistic of 1.204 with a p-value of 0.229. A t-statistic lower than 1.96 and a p-value greater than 0.05 indicate that the effect of workload on employee performance is not statistically significant. Therefore, the hypothesis stating that workload affects employee performance cannot be accepted; consequently, H0 is accepted and Ha is rejected.
4. Hypothesis testing showed that the relationship between work flexibility and employee performance yielded a t-statistic of 2.197 with a p-value of 0.028. These results meet the significance criteria because the t-statistic exceeds 1.96 and the p-value is below 0.05. Thus, work flexibility is proven to have a positive effect on improving employee performance; therefore, H0 is rejected and Ha is accepted.
5. The results of the test examining the relationship between work-life balance and employee performance showed a t-statistic of 2.941 and a p-value of 0.003. These values indicate that the relationship between the two variables is statistically significant because it meets the test criteria, namely a t-statistic greater than 1.96 and a p-value less than 0.05. Therefore, work-life balance has been proven to have a positive effect on employee performance. Consequently, H0 is rejected, while Ha is accepted.

Test of the Indirect Effect Hypothesis

Table 9. Indirect Hypothesis Testing Results

Hypothesis	Relationships	Original Sample	T-Statistics	P-Values	Information
H6	BK → WLB → KP	0.159	2.009	0.045	Significant

H7	FK → WLB → KP	0.134	1.515	0.130	Insignificant

Source: Data processed, 2026

1. Based on the results of the indirect effect test, the relationship between workload and employee performance, mediated by work-life balance, yielded a t-statistic of 2.009 with a p-value of 0.045. These values meet the significance criteria because the t-statistic is greater than 1.96 and the p-value is less than 0.05. This indicates that work-life balance acts as a mediating variable in the relationship between workload and employee performance. Therefore, H₀ is rejected, while H_a is accepted.
2. The results of the indirect path analysis indicate that the relationship between work flexibility and employee performance via work-life balance yielded a t-statistic of 1.515 and a p-value of 0.130. These values do not meet the significance criteria because the t-statistic is less than 1.96 and the p-value exceeds 0.05. Thus, work-life balance was not proven to act as a mediating variable in the relationship between work flexibility and employee performance. Therefore, H₀ is accepted and H_a is rejected.

Workload and Its Impact on Work-Life Balance

This study found that workload has a positive and significant effect on employees' work-life balance in the digital creative industry in Malang. The results indicate that the workload experienced by employees is related to how they manage and balance the demands of work and their lives outside of work. Thus, workload is one of the factors that must be considered in efforts to create a good work-life balance for employees. The tasks and responsibilities assigned to employees during a specific work period reflect their workload. If the volume or demands of the work assigned are inappropriate or excessive, this can lead to psychological stress, physical exhaustion, and a negative impact on the quality of employees' personal lives (Fani & Permana, 2024).

In the digital creative industry, workloads are generally dynamic and project-oriented, so managing workloads appropriately can be a crucial factor in maintaining employees' work-life balance. The findings of this study are consistent with Wirawan's (2022) research, which shows that workload has a significant positive effect on work-life balance. A heavy workload tends to cause employees to allocate more time to work, thereby reducing the time available for their personal lives. Therefore, effective workload management is essential to maintaining a healthy work-life balance.

Work Flexibility and Its Impact on Work-Life Balance

This study found that work flexibility has a positive and significant effect on employee work-life balance. Thus, it can be concluded that the provision of work flexibility by companies is able to support employees in balancing work and personal life more optimally. The implementation of flexible work provides an opportunity for employees to manage their own work patterns, both related to schedules, work locations, and techniques in completing tasks for which they are responsible (Muhtazib et al., 2023).

In the context of the digital creative industry, work flexibility has become very relevant because of the characteristics of work that tend to be dynamic, creativity-based, and not always tied to rigid work times and workplaces. These findings are consistent with research by Triyanto et al. (2024) which shows that work flexibility has a positive effect on employee work-life balance. The existence of work flexibility makes employees better able to reduce work pressure, so that their level of welfare becomes higher.

Workload and Its Impact on Employee Performance

The results of this study found that workload does not have a significant effect on the performance of employees in the digital creative industry in Malang. This indicates that the amount of work assigned to employees is not directly related to an increase or decrease in their performance. This finding demonstrates that the level of workload is not the only factor influencing work outcomes, as other factors also play a role in determining the results achieved (Khasanah & Purnomo, 2026).

In the context of the digital creative industry, workload is not always perceived as a negative pressure, but rather as part of the challenges of the job that can spur creativity and innovation. Employees in this sector generally have the freedom to determine how to complete their work, so that workload can be managed more flexibly to suit each individual's abilities and work strategies. The findings of this study align with the research by Taufik et al. (2023), which confirms that workload does not always have a direct impact on employee performance.

Work Flexibility and Its Impact on Employee Performance

This study found that work flexibility has a positive and significant effect on employee performance. This indicates that the level of work flexibility provided by a company can significantly improve employee performance. Granting employees flexibility in their work arrangements has been shown to help them work more effectively, resulting in more optimal work outcomes in terms of both quantity and quality (Virgiawan & Kusmayadi, 2024).

In the context of the digital creative industry, work flexibility is crucial because the work tends to require creativity, innovation, and critical thinking skills that cannot always be forced under rigid working conditions. The results of this study align with the research by Hamdani & Saleh (2024), which shows that work flexibility has a positive impact on employee performance. With the effective implementation of work flexibility, employees tend to feel more comfortable, motivated, and able to work more productively.

Work-Life Balance and Its Impact on Employee Performance

Based on the research findings, it is evident that work-life balance has a positive and significant impact on employee performance. From these findings, it can be concluded that an individual's ability to balance professional responsibilities and personal matters plays a significant role in improving performance. Employees who are able to maintain stability in both these areas of life tend to work more effectively and achieve optimal performance (Zannah & Nasution, 2025).

In the context of the digital creative industry, work-life balance is becoming increasingly crucial due to the flexible nature of the work, which is often accompanied by high pressure to meet targets and deadlines. The findings of this study align with the results of a study by Mezaluna et al. (2024), which shows that work-life balance influences employee performance. The ability to balance professional and personal life can encourage employees to feel more loyal, take greater responsibility, and play an active role in supporting the achievement of organizational goals.

Work-Life Balance as a Mediator between Workload and Employee Performance

The results of the study show that work-life balance serves as a significant mediating variable in the relationship between workload and employee performance. This suggests that workload does not directly affect performance but rather exerts its influence through work-life balance. Thus, the relationship between workload and performance is influenced by employees' ability to balance the demands of work with their lives outside of work. If this balance can be

maintained, the impact of workload on performance tends to be more positive (Triana et al., 2025).

When employees are able to maintain a work-life balance, the stress from their workload can be better managed, thereby preventing it from negatively impacting their performance. Conversely, if work-life balance is not maintained, a heavy workload has the potential to reduce employee performance (Ramadhan et al., 2024). The results of this study are consistent with the research by Nurwahyuni (2019), which revealed that work-life balance mediates the effect of workload on employee performance. This indicates that workload management will be more effective in improving performance when supported by a good work-life balance.

Work-Life Balance as a Mediator between Work Flexibility and Employee Performance

The findings of this study indicate that work-life balance does not function as a mediating variable in the relationship between work flexibility and employee performance. The test results indicate that the indirect effect of work flexibility on employee performance through work-life balance is not significant. These findings suggest that increased work flexibility provided by companies does not automatically improve employee performance by leveraging improved work-life balance.

The results of this study indicate that employees perceive the benefits of work flexibility more directly in terms of their job performance than through an improvement in work-life balance. This finding is inconsistent with the study by Wilyningsih et al. (2025), which states that work-life balance mediates the effect of work flexibility on job satisfaction. This discrepancy in results may be due to differences in respondent characteristics, industry type, or the dependent variables used. There are likely other factors beyond work-life balance that play a greater role in explaining the relationship between work flexibility and employee performance, such as work motivation, organizational commitment, job satisfaction, work environment, and individual competencies.

5. Conclusion

It can be assumed that workload alone is not the primary determinant of employee performance in the digital creative industry, since employees in this sector tend to perceive workload as part of the creative challenge of the job rather than as a purely negative burden, allowing them to manage it flexibly according to their own working style. By connecting the relationships among workload, work flexibility, work-life balance, and employee performance, it can also be concluded that when companies provide adequate work flexibility and support a healthy work-life balance, employees are better able to sustain their performance despite the dynamic and deadline-driven nature of creative work. Despite the fact that many employees are accustomed to managing project-based pressure, sustaining performance without the support of flexible work arrangements and a balanced personal life is a completely different situation. As a result of insufficient work-life balance, employees are more likely to experience stress and reduced productivity, particularly when a heavy workload is not accompanied by the resources needed to manage it, which underscores the mediating role that work-life balance plays between workload and performance. Furthermore, even as the digital creative industry continues to grow and project-based, remote friendly work arrangements become increasingly common, it is likely that companies will continue to rely on flexible working models, emphasizing the importance of developing more effective work-life balance policies. Companies can take a number of steps to strengthen employee performance in this context, including managing workloads more proportionally, expanding flexible working arrangements,

establishing clear boundaries between working hours and personal time, and providing support systems that help employees maintain a healthy balance between their professional and personal lives.

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**THE EFFECT OF KEY OPINION CONSUMERS ON PURCHASE INTENTION
TOWARD LOCAL SKINCARE PRODUCTS THROUGH THE TRUST INDEX: A
STUDY OF GENERATION Z TIKTOK USERS IN BOGOR CITY**

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Abstract

This study aims to analyze the influence of Key Opinion Consumers (KOCs) on purchase intention toward local skincare products through the Trust Index among Generation Z TikTok users in Bogor City. This research employs a quantitative approach using an explanatory survey method. A purposive sampling technique was applied, and the data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The findings indicate that the credibility, expertise, and closeness of KOCs to their audience significantly enhance consumer trust, which ultimately increases consumers' purchase intention toward local skincare products.

Keywords: Key Opinion Consumers, Trust Index, Purchase Intention

INTEGRATED MARKETING COMMUNICATION AND BRAND EQUITY: THE MEDIATING ROLE OF BRAND AWARENESS AMONG CONSUMERS OF COSMETIC PRODUCTS IN INDONESIA

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Abstract

This study aims to analyse the influence of integrated marketing communication on brand equity, with brand awareness as a mediating variable, among consumers of cosmetic products in Indonesia. The background to this study is based on the rapid growth of the cosmetics industry and increasing competition between brands, which requires companies to implement effective marketing strategies to build brand strength. Integrated marketing communication is a key strategy capable of conveying messages consistently across various channels, thereby potentially enhancing brand awareness and brand value in consumers' minds. This study employs a quantitative approach using a survey method involving 250 respondents who are consumers of cosmetic products. The data analysis technique used is Structural Equation Modelling-Partial Least Squares (SEM-PLS) to test the relationships between variables. The results of the study indicate that integrated marketing communication has a positive and significant effect on brand awareness. Furthermore, brand awareness was also found to have a positive and significant effect on brand equity. Additionally, brand awareness was found to mediate the effect of integrated marketing communication on brand equity. These findings indicate that integrated and consistent marketing communication can enhance brand awareness, which ultimately strengthens brand equity. This study makes a theoretical contribution to the development of marketing literature, particularly regarding the relationship between integrated marketing communication, brand awareness, and brand equity. In practical terms, the results of this study can serve as a reference for cosmetics companies in designing effective marketing strategies to enhance competitiveness in the market.

Keywords: *Integrated Marketing Communication, Brand Equity, Brand Awareness, Cosmetics Industry*

1. Introduction

The cosmetics industry in Indonesia is experiencing rapid growth in line with increasing public awareness of personal care and appearance. This development is supported by the latest data indicating that the value of the Indonesian cosmetics market is expected to reach approximately Rp35.6 trillion by 2025 and is projected to continue growing by around 4.7% annually (Katadata, 2025). Furthermore, the total value of the cosmetics and personal care market in Indonesia is estimated to exceed USD 9 billion by 2025, highlighting the market's immense potential (Dreamlab Indonesia, 2025). This situation reflects rising consumer demand for cosmetic products and reinforces the industry's position as a strategic sector within the national economy.

Growth in the cosmetics industry is also driven by the development of digitalisation and e-commerce. The latest data indicates that the beauty sector is the primary driver of e-commerce growth in Indonesia, with an increase of over 200% since 2022 (SWA Online, 2026). Furthermore, over 50% of consumers purchase beauty products online, indicating a shift in consumer behaviour towards digital channels (SWA Online, 2025). This phenomenon is reinforced by high levels of social media activity, where thousands of conversations about

cosmetic products take place daily and influence consumer purchasing decisions (Insight.id, 2025).

In recent years, key issues have emerged, such as the growing role of influencers, the trend towards halal cosmetics, and increased awareness regarding product safety and ingredients. Indonesia has even become one of the world's largest consumers of halal cosmetic products, indicating a shift in consumer preferences towards safer and more values-aligned products (Dirjen IMKA, 2025). Competition among cosmetic brands has also intensified, from both local and global brands, meaning companies need to develop effective marketing strategies.

These developments in digital technology have also transformed communication patterns between companies and consumers. Marketing communication is no longer one-way but has evolved to be interactive and participatory. Consumers now act not only as recipients of information but also as creators and disseminators of content via social media (Trisnawati et al., 2025). This situation demands that companies design marketing communication strategies that are more adaptive and capable of fostering consumer engagement. In recent years, various strategic issues have emerged in the cosmetics industry, such as the growing role of influencers, the trend towards halal cosmetics, and increasing awareness regarding product safety and ingredients. This phenomenon indicates a shift in consumer preferences, with consumers becoming increasingly selective and critical when choosing products (Nursyabani & Nurwahidin, 2025). Competition among cosmetic brands has also intensified, involving both local and global brands, meaning companies need to develop effective marketing strategies to maintain their competitive edge.

One key strategy for addressing this competition is integrated marketing communication. This strategy integrates various communication elements such as advertising, sales promotion, digital marketing, social media, and public relations to convey a consistent message to consumers (Kotler & Keller, 2016). This consistency of message is key to shaping perceptions, enhancing recall, and strengthening the relationship between consumers and the brand (Estaswara et al., 2023). However, the high intensity of marketing communication in the digital age also presents the challenge of information overload, where consumers become more selective in receiving marketing messages. This situation can reduce the effectiveness of communication if not managed properly (Jehalut et al., 2025). Therefore, companies need to ensure that the communication they undertake is not only intensive but also relevant and valuable to consumers.

In this context, brand awareness is a crucial factor as it constitutes the initial stage in the process of forming consumers' perceptions of a brand. Brand awareness reflects consumers' ability to recognise or recall a brand within a specific product category (Utama et al., 2023). The higher the level of brand awareness, the greater the likelihood that the brand will be considered in the purchase decision-making process. Furthermore, brand awareness plays a vital role in the formation of brand equity. Brand equity is the added value a brand provides to a product, as reflected in consumers' perceptions, experiences, and loyalty (Sya'idah, 2020). High brand equity provides a competitive advantage for the company and enhances consumer loyalty (Pandiangan et al., 2021).

Nevertheless, previous research has shown inconsistent findings regarding the relationship between integrated marketing communication, brand awareness, and brand equity. Some studies have found a direct effect, whilst others have indicated a mediating role (Pandiangan et al., 2021). This highlights a research gap that warrants further investigation, particularly within the context of the cosmetics industry in Indonesia. Based on these phenomena, industry developments, and the research gap, this study aims to analyse the influence of integrated marketing communication on brand equity, with brand awareness as a mediating variable, among consumers of cosmetic products in Indonesia

2. Literature Review

4.1. Integrated Marketing Communication

Integrated Marketing Communication (IMC) is a concept that integrates various marketing communication channels to convey consistent and effective messages to consumers (Herrington, 2005). This approach aims to create synergy between communication media so as to enhance the effectiveness of the messages conveyed. In practice, integrated marketing communication encompasses various elements such as advertising, sales promotions, digital marketing, social media, and public relations. Through effective integration, companies can build stronger relationships with consumers and enhance trust in the brand. Integrated marketing communication also plays a role in shaping consumers' perceptions of a product (Kusuma Wardana et al., 2024). Consistent and repeated messages will improve consumer recall and reinforce the brand image in their minds.

Furthermore, integrated marketing communication emphasises the importance of message consistency across all touchpoints with consumers. This encompasses the consumer experience both offline and online, ranging from mass media advertising to interactions via social media and customer service. This consistency helps create a consistent brand experience and boosts consumer trust in the brand. In the digital age, integrated marketing communication is evolving further through the use of information technology. Companies can now utilise consumer data to develop more personalised and relevant communication strategies. The use of big data and artificial intelligence enables companies to target consumers more precisely and effectively (Priansa. J.D, 2017).

The role of social media in integrated marketing communication is also becoming increasingly dominant. Platforms such as Instagram, TikTok, and YouTube have become the primary channels for conveying marketing messages, particularly for the younger generation (Julianti1 et al., 2023). Visual and interactive content presented via social media can boost engagement and strengthen the emotional bond between consumers and the brand. In addition to social media, the use of influencers has also become a vital component of integrated marketing communication strategies. Influencers are perceived as having credibility and a close connection with their audience, enabling them to influence consumers' perceptions and purchasing decisions. This makes influencers one of the most effective communication tools for building brand image.

Integrated marketing communication also plays a role in creating brand differentiation amidst increasingly fierce competition. With the right communication strategy, companies can highlight product strengths and build a strong positioning in consumers' minds. This differentiation is key to winning the market competition (Taryana & Retnowardhani, 2023). Furthermore, the success of integrated marketing communication depends heavily on message consistency and coordination between departments within the company. Without good coordination, the messages conveyed to consumers may become inconsistent and potentially cause confusion. Therefore, internal integration is a crucial factor in the implementation of IMC.

In the context of consumer behaviour, integrated marketing communication is capable of influencing the stages of the purchase decision-making process (Schiffman et al., 2008). From the stage of recognising a need, through information search, evaluation of alternatives, to the purchase decision and post-purchase, all can be influenced by the company's integrated communication efforts. Overall, integrated marketing communication is a strategy that serves not only to convey information but also to build long-term relationships with consumers.

Through an integrated and consumer-oriented approach, companies can enhance marketing effectiveness whilst strengthening the brand's position in the market (Chrismardani, 2014).

H1: The effect of integrated marketing communication on brand awareness among consumers of cosmetic products in Indonesia.

4.2. Brand Awareness

Brand awareness is the ability of consumers to recognise or recall a brand within a specific product category. Brand awareness is the initial stage in the purchase decision-making process. A high level of brand awareness indicates that the brand is easily remembered and recognised by consumers. This can increase the likelihood of consumers choosing that product over other brands. In the context of marketing communication, brand awareness is often a direct result of promotional activities carried out by the company (Christin & Riofita, 2024).

The more intense and consistent the marketing communication, the higher the resulting brand awareness. Brand awareness is not only related to the ability to recognise a brand's name or logo, but also encompasses the depth of consumers' memories regarding that brand. In marketing literature, brand awareness is divided into several levels, namely brand recognition and brand recall. The higher the level of brand awareness, the greater the likelihood that the brand will feature in consumers' considerations when making a purchase (Selly & Sutrisna, 2022).

Furthermore, brand awareness plays a crucial role in shaping consumer trust in a product. Consumers tend to prefer brands they are already familiar with over unfamiliar ones, as they are perceived as safer and of more assured quality. This indicates that brand awareness can reduce the perceived risk for consumers during the purchasing process. In today's digital age, the development of brand awareness is increasingly influenced by consumer interactions on social media (Azizah et al., 2021). Engaging, interactive, and shareable content can significantly boost brand exposure. Furthermore, consumer reviews and user-generated content also play a vital role in strengthening brand awareness, as they are perceived as more authentic and trustworthy by consumers. Consequently, brand awareness has become a key element in modern marketing strategies. Companies need to consistently build and maintain brand awareness through various communication channels to remain relevant in consumers' minds. Strong brand awareness will serve as the foundation for building sustainable brand equity.

H2: Brand awareness and brand equity among consumers of cosmetic products in Indonesia.

4.3. Brand Equity

Brand equity is the added value that a brand brings to a product. Brand equity reflects consumers' perceptions, experiences, and emotional connections to a brand (Wiastuti & Kimberlee, 2018). Brand equity comprises several dimensions, such as brand loyalty, perceived quality, brand associations, and brand awareness (Sudayo & Saefuloh, 2019). Brands with high brand equity tend to be more trusted and chosen by consumers. Brand equity plays a strategic role in enhancing a company's competitiveness in the market (Litto & Selamat, 2022). Brands with high equity are not only able to attract new consumers but also retain existing customers through the loyalty they have built. This brand loyalty will ultimately lead to increased sales and long-term business sustainability.

Furthermore, brand equity also influences price perception (Nisa Fadilatul Khusna et al., 2025). Consumers tend to be willing to pay more for products from brands with an established reputation compared to unknown products. This demonstrates that brand equity can provide significant added value for companies, not only from a marketing perspective but also in terms of profitability (Litto & Selamat, 2022). In the context of modern marketing, the development of brand equity is inseparable from the overall consumer experience. Consumer interactions

with a brand whether through products, services, or marketing communications shape perceptions and foster strong emotional bonds. Positive experiences reinforce brand equity, whilst negative experiences can undermine it (Sudayo & Saefuloh, 2019).

In the digital age, brand equity is also significantly influenced by online activities, such as customer reviews, product ratings, and interactions on social media. Information that spreads widely and rapidly means a brand's image can be formed in a short time. Therefore, companies need to manage brand communication and reputation consistently to ensure brand equity is maintained and developed (Bunga & Aziz, 2025).

H3: The effect of integrated marketing communication on brand equity through the mediation of brand awareness among consumers of cosmetic products in Indonesia.

3. Methodology

3.1. Research Design

This study employs a quantitative correlational design using the Structural Equation Modelling (SEM) approach to examine the relationship between integrated marketing communication, brand awareness, and brand equity among consumers of cosmetic products in Indonesia (John W. Creswell & Cheryl N. Poth, 2019). SEM was chosen because it is capable of analysing causal relationships between latent variables simultaneously, including both direct and indirect effects via mediating variables. In this study, brand awareness is positioned as a mediating variable that bridges the influence of integrated marketing communication on brand equity. Thus, the SEM approach allows for comprehensive testing of the conceptual model through path analysis, resulting in more accurate relationship estimates compared to simple regression analysis.

3.2. Research Setting

This study was conducted in Indonesia, focusing on consumers of cosmetic products who actively use various marketing communication media, both digital and conventional. The Indonesian context was chosen because the cosmetics industry is experiencing rapid growth, supported by the development of social media, influencer marketing, and increased consumer brand awareness. Furthermore, the characteristics of Indonesian consumers, who tend to be responsive to promotions and integrated marketing communications, make this context relevant for examining brand awareness formation and its impact on brand equity.

3.3. Unit of Analysis

The unit of analysis in this study comprises 120 consumers of cosmetic products in Indonesia who have been exposed to marketing communications from a cosmetic brand. This sample size meets the minimum criteria for SEM analysis, namely 5–10 times the number of indicators used in the research model. The sampling technique employed purposive sampling, with respondents meeting the following criteria: having used cosmetic products within the last 6 months; having seen or been exposed to advertisements/promotions for cosmetic products; and being aged 17 years or older. A sample size of 250 respondents was deemed sufficient to produce a stable model estimate and to test the relationships between variables in a Partial Least Squares (PLS)-based SEM (Latan et al., 2023).

3.4. Research Instrument

The research instrument used was a questionnaire employing a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The variables and indicators utilised were Integrated Marketing Communication (IMC), measured through the indicators of message consistency,

media integration, communication frequency, and message appeal (Kotler & Keller, 2016). Brand Awareness. Measured through brand recognition, brand recall, and top-of-mind awareness (David A. Aaker, 2009). Brand Equity. Measured through the dimensions of perceived quality, brand loyalty, brand associations, and brand value. Each indicator is formulated as a closed-ended statement to measure respondents' perceptions of each research variable.

3.5. Data and Data Collection Techniques

The data used in this study are primary data obtained through the distribution of an online questionnaire to respondents. Validity testing was conducted using Confirmatory Factor Analysis (CFA) to ensure that each indicator adequately reflects the construct being measured. Meanwhile, reliability testing was conducted using Cronbach's Alpha and Composite Reliability with a minimum value of ≥ 0.70 (Nunnally & Bernstein, 1994). Data analysis was performed using Partial Least Squares (PLS)-based Structural Equation Modelling (SEM) with the aid of SmartPLS software. Model evaluation was carried out in two stages: the Outer Model (Measurement Model) tested convergent validity, discriminant validity, and construct reliability. Inner Model (Structural Model): testing the relationships between variables through path coefficients, R-squared values, and significance tests (bootstrapping). Additionally, a mediation analysis of brand awareness was conducted to determine whether this variable significantly mediates the relationship between integrated marketing communication and brand equity.

4. Results

4.1 Discriminant Validity

The AVE (Average Variance Extracted) values for each construct are greater than 0.5 (e.g., Integrated Marketing Communication = 0.843; Brand Awareness = 0.861; Brand Equity = 0.848). This indicates that the indicators used are valid in measuring their respective constructs. As shown in Table 4.1.

Table 4.1 Discriminant validity.

	Integrated Marketing Communication	Brand Awareness	Brand Equity
Integrated Marketing Communication	0.843		
Brand Awareness	0.513	0.861	
Brand Equity	0.239	0.496	0.848

4.2 Loadings and Cross-Loading.

The cross-loading results indicate that each indicator has a higher loading value on the construct it measures compared to other constructs. For example: indicator X1 is higher on Integrated Marketing Communication (0.827) compared to Brand Awareness (0.612) and Brand Equity (0.481). This confirms that discriminant validity has been met.

Table 4.2 Loadings and Cross-Loadings.

	Integrated Marketing Communication	Brand Awareness	Brand Equity
X1	0.842	0.383	0.130
X2	0.819	0.385	0.195

X3	0.844	0.438	0.230
X4	0.851	0.443	0.186
X5	0.844	0.486	0.258
X6	0.870	0.481	0.228
X7	0.850	0.427	0.170
X8	0.824	0.391	0.189
Y1	0.478	0.862	0.418
Y2	0.478	0.862	0.433
Y3	0.448	0.878	0.426
Y4	0.428	0.847	0.413
Y5	0.415	0.861	0.456
Y6	0.444	0.860	0.427
Y7	0.419	0.849	0.416
Z1	0.189	0.381	0.822
Z2	0.163	0.438	0.851
Z3	0.206	0.431	0.867
Z4	0.227	0.428	0.848
Z5	0.223	0.458	0.852
Z6	0.205	0.379	0.846

4.3 Path Coefficients.

Table 4.3 Path Coefficients.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic(O/STDEV)	P Values
H1	0.418	0.420	0.047	8.922	0.000
H2	0.239	0.246	0.061	3.952	0.000
H3	0.396	0.399	0.047	8.382	0.000

H1: Integrated Marketing Communication on Brand Awareness: $\beta = 0.420$; $T = 8.922$; $P = 0.000$.

H2: Brand Awareness on Brand Equity: $\beta = 0.246$; $T = 3.952$; $P = 0.000$

H3: The effect of Integrated Marketing Communication on Brand Equity via the mediating role of brand awareness: $\beta = 0.399$; $T = 8.382$; $P = 0.000$

All paths show significant results ($P < 0.05$).

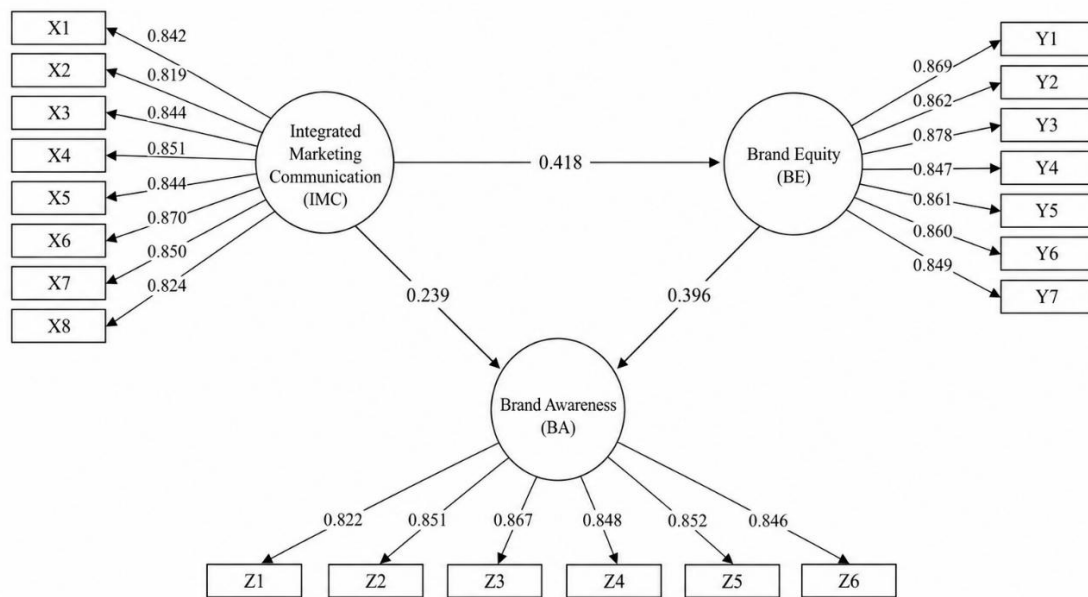


Figure 4.1 Measurement Model Assessment.

5. Discussion

Based on the results of the analysis using PLS-based SEM, this study shows that all proposed hypotheses are accepted and have a significant influence. This confirms that integrated marketing communication and brand awareness play an important role in shaping brand equity among consumers of cosmetic products in Indonesia.

5.1. Integrated marketing communication on brand awareness among consumers of cosmetic products in Indonesia.

The results of the study show that integrated marketing communication has a positive and significant effect on brand awareness. This finding aligns with the concept of Integrated Marketing Communication proposed by Philip Kotler and Kevin Lane Keller (2016), who state that the integration of marketing communication can enhance the effectiveness of messages and strengthen brand awareness. Furthermore, these findings are supported by research (Lecuyer et al., 2017), which found that integrated marketing communication has a significant influence on increasing brand awareness, particularly through the consistency of message delivery across various communication channels. This consistency allows consumers to receive uniform and repeated information, thereby strengthening recall, improving brand recognition, and building stronger associations with a brand in consumers' minds.

However, there is a differing perspective from (Schlittgen et al., 2016), who state that excessive marketing communication, particularly via social media, has the potential to cause information overload among consumers. This situation can lead consumers to feel overwhelmed or even ignore the messages conveyed, thereby reducing the effectiveness of marketing communication in enhancing brand awareness. Consequently, poorly managed communication intensity can be counterproductive to the marketing objectives sought. Based on this synthesis, the results of this study confirm that integrated marketing communication has a significant effect on brand awareness, but its effectiveness is highly dependent on message quality, content relevance, and the company's ability to manage communication intensity to prevent it from becoming excessive.

5.2. Brand awareness and brand equity among consumers of cosmetic products in Indonesia.

The research results indicate that brand awareness has a positive and significant effect on brand equity. This finding aligns with the theory (David A. Aaker, 2009) stating that brand awareness is one of the key dimensions in the formation of brand equity. These results are also supported by research (Yoo & Donthu, 2001), which found that brand awareness has a significant influence on brand equity, particularly through increased perceptions of quality and consumer loyalty. When consumers have a high level of awareness of a brand, they tend to recognise and remember it more easily, thereby forming positive perceptions that ultimately foster trust and long-term commitment to the brand.

However, there is an alternative perspective from (Pyper et al., 2022) which emphasises that brand awareness alone is insufficient to build strong brand equity. According to them, brand equity is a more complex construct that does not merely depend on the level of brand recognition, but must also be supported by a positive brand image, satisfying consumer experiences, and consistent product quality. Thus, whilst brand awareness serves as an important initial step, success in building brand equity still requires the integration of various factors capable of strengthening the emotional and rational bonds between consumers and the brand. A synthesis of these findings indicates that brand awareness in this study serves as the initial foundation for the formation of brand equity, but must be supported by other factors to yield optimal brand equity.

5.3. Integrated marketing communication on brand equity through the mediation of brand awareness among consumers of cosmetic products in Indonesia.

The results of the study indicate that integrated marketing communication has a significant effect on brand equity through brand awareness. This finding is consistent with research (Bruhn et al., 2012) which states that marketing communication has an indirect influence on brand equity through variables such as brand awareness and brand image. Furthermore, research (Latif, 2022) also explains, through the customer-based brand equity model, that the process of brand equity formation occurs in stages, beginning with brand awareness as the initial cognitive stage, then developing into the stage of association and brand image formation, and finally reaching consumer loyalty. In this model, brand awareness serves as the primary foundation enabling consumers to recognise and recall a brand before building a deeper relationship; thus, without strong awareness, the process of brand equity formation will struggle to occur optimally.

However, research by (Hutter et al., 2013) presents a different perspective, particularly in the context of social media, where marketing communication can directly influence brand equity through consumer engagement levels without necessarily having to go through a strong brand awareness stage first. This is due to the interactive nature of social media, which allows consumers to directly experience emotional engagement, interact with content, and receive recommendations from other users or influencers, thereby shaping brand perceptions and values more quickly and directly. A synthesis of these two perspectives indicates that whilst a direct pathway is possible, the findings of this study confirm that the mediated pathway via brand awareness is more dominant. This suggests that, in the context of cosmetic consumers in Indonesia, the process of brand equity formation still follows cognitive stages before progressing to the affective and conative stages.

6. Conclusion

Based on the results of the research conducted, conclusions can be formulated in accordance with each hypothesis as follows: Integrated marketing communication has been proven to have a positive and significant effect on brand awareness among consumers of cosmetic products in Indonesia. This indicates that the better the integration and consistency of

the company's marketing communication, the higher the level of consumer awareness of the brand. Thus, an integrated marketing communication strategy is a key factor in enhancing brand awareness. Brand awareness has been shown to have a positive and significant effect on brand equity. This indicates that consumers with a high level of awareness of a brand tend to have a more positive perception, greater trust, and loyalty towards that brand. In other words, brand awareness is the main foundation for the formation of brand equity.

Integrated marketing communication has been shown to have a positive effect on brand equity through the mediation of brand awareness. This indicates that brand awareness acts as an intervening variable that strengthens the relationship between integrated marketing communication and brand equity. Thus, integrated marketing communication has an impact not only directly but also indirectly through increased brand awareness. Overall, this study demonstrates that integrated marketing communication and brand awareness are key factors in building brand equity within the cosmetics industry. Consequently, companies are advised to optimise their integrated marketing communication strategies in a sustainable manner to enhance brand awareness and strengthen the brand's position in the market.

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ADVERTISING CREATIVITY AND CONSUMER PURCHASE INTENTION: THE MEDIATING ROLE OF BRAND ATTITUDE AMONG SOCIAL MEDIA USERS IN INDONESIA

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Abstract

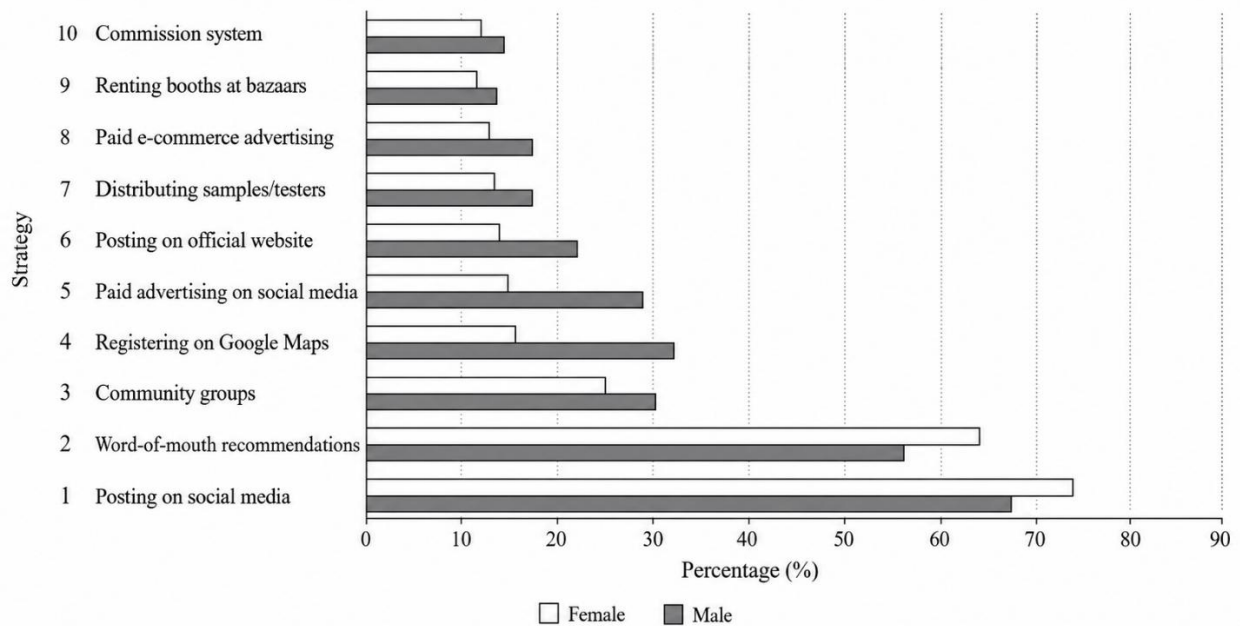
This study aims to analyse the influence of advertising creativity on purchase intention, taking into account the mediating role of brand attitude among social media users in Indonesia. The background to this study is based on the increasing use of social media as a marketing platform and the importance of creativity in attracting consumer attention amidst fierce digital competition. This study employs a quantitative approach using Structural Equation Modelling (SEM-PLS). Data were collected via an online questionnaire from 250 respondents who were active social media users and had been exposed to advertisements. The results indicate that advertising creativity has a positive and significant effect on brand attitude. Furthermore, brand attitude was also found to have a positive effect on purchase intention. Additionally, the mediation test results show that brand attitude significantly mediates the relationship between advertising creativity and purchase intention. These findings indicate that the influence of advertising creativity on consumer purchase intention occurs through the formation of a positive attitude towards the brand. This study makes a theoretical contribution to the development of consumer behaviour models in the digital era, as well as providing practical implications for businesses in designing more effective advertising strategies. Advertising creativity that is capable of building emotional engagement and positive perceptions of the brand is key to increasing consumer purchase intention.

Keywords: *Advertising Creativity, Brand Attitude, Purchase Intention, Social Media Marketing, Consumer Behavior*

1. Introduction

Advances in digital technology have brought about significant changes in consumer behaviour, particularly in the use of social media as a means of communication and marketing. In Indonesia, internet and social media penetration continues to rise year on year, with over 70% of the population actively using the internet and the majority accessing social media platforms such as Instagram, TikTok and Facebook (S. Singh et al., 2022). This situation has made social media the primary channel for businesses to reach consumers widely and effectively. In this context, digital advertising is no longer merely about conveying information, but must be able to capture attention through creativity to compete with the flood of information users receive every day (West et al., 2019).

Figure 1. Social Media as a Marketing Strategy



Source: (Goodstats, 2026)

Marketing strategies are key for businesses looking to grow, particularly amidst increasingly fierce competition in the digital age, which demands rapid adaptation to changes in consumer behaviour (Saputra et al., 2023). Currently, the marketing approaches used tend to focus on channels that are more organic, interactive, and capable of building direct rapport with consumers, one of which is through the use of social media (Baladrón-Pazos et al., 2024). This is supported by the results of a survey of 442 business owners, which showed that social media remains the most dominant marketing strategy, with 73% of business owners actively using it to promote their products. When examined by gender, there is a difference in usage rates, with 77% of female business owners using social media as a marketing strategy, a higher figure compared to male business owners at 68%. This phenomenon indicates that social media plays a highly significant role in supporting modern marketing activities; therefore, it is important to conduct further research to understand its effectiveness and influence on business development (Lestari et al., 2024).

Creativity in advertising is a key factor in the success of modern marketing strategies. Creative advertisements not only have the ability to attract attention but also leave a lasting impression on consumers' minds (Windy Aprilia & Krisnawati, 2023). Such creativity can take the form of unique imagery, engaging messages, and storytelling approaches that resonate with the audience. In the dynamic and fast-paced environment of social media, consumers tend to respond more quickly to distinctive and creative content. However, not all creative advertisements have the ability to directly drive purchase intent. Therefore, it is necessary to better understand the psychological mechanisms that mediate this relationship (Wisker, 2023).

One key factor that can influence the effect of advertising creativity on purchase intention is brand attitude (Sarilgan et al., 2022). Brand attitude reflects consumers' evaluations of a brand, encompassing cognitive, affective, and emotional dimensions (Darley & Lim, 2023). Creative advertising can enhance positive brand perceptions, which ultimately encourages consumers to make a purchase. Therefore, the mediating role of brand attitude is crucial in explaining how and why advertising creativity influences consumer behaviour, particularly within the highly competitive context of social media usage in Indonesia (Setijanto et al., 2023).

The main challenge facing this sector is the intense competition between brands to capture consumers' attention on social media. Many businesses have invested significant budgets in digital advertising campaigns, yet not all have succeeded in achieving optimal sales conversions. This indicates a gap between ad exposure and consumer response. Furthermore, rapidly changing consumer preferences and increasing scepticism towards advertising pose challenges for marketers. Therefore, research is needed to explain the factors influencing advertising effectiveness more comprehensively (Vakratsas & Wang, 2020).

Previous studies have shown that advertising creativity has a positive influence on brand attitude and purchase intention. However, most of these studies still focus on traditional media or do not specifically consider the social media landscape in Indonesia. Furthermore, there are discrepancies in research findings regarding the strength of the direct influence of advertising creativity on purchase intention, suggesting that other variables act as mediators. Another limitation is the lack of quantitative methods to test the relationships between variables simultaneously within a comprehensive research model (Paredes et al., 2023).

Based on these gaps, this study aims to analyse the influence of advertising creativity on consumer purchase intention by examining the mediating role of brand attitude among social media users in Indonesia. We hope this study can make a theoretical contribution to the development of marketing management, particularly regarding consumer behaviour in the digital age. Specifically, the results of this study can serve as a reference for companies in designing more effective and targeted advertising strategies, in order to enhance competitiveness and marketing effectiveness within the context of an increasingly dynamic market.

2. Literature Review

4.4. Advertising Creativity

In modern marketing literature, advertising creativity is one of the key factors in capturing consumers' attention amidst the high volume of digital information (Habib, 2025). Some important subtopics frequently discussed in related research include: (1) dimensions of advertising creativity (originality and relevance), (2) emotional appeal and storytelling, (3) technology-based creativity such as AI and augmented reality, (4) the influence of creativity on brand awareness and brand attitude, (5) the alignment of the message with the target audience, and (6) the effectiveness of creativity across various media platforms (Rosengren et al., 2020). Research Jayasingh et al., (2025) indicates that advertising creativity can enhance attention, recall, emotional engagement, and brand attitude as crucial factors in the success of marketing communication.

Over the past five years, research trends have shown a significant shift towards the utilization of digital technology in advertising creativity. For instance, the use of AI-generated content, augmented reality (AR), and immersive experiences such as XR has become a key focus in enhancing consumer engagement (Kamaruddin et al., 2023). Recent studies indicate that this technology-based creativity not only enhances the appeal of advertisements but also builds trust and a perception of 'humanity' that influences consumer responses (Kim et al., 2025). Furthermore, creativity in the form of AR filters on social media has been shown to increase brand awareness and brand image, which ultimately influences consumer behavioral intent. This underscores that creativity is no longer merely about aesthetics but also an interactive experience that influences consumers' cognitive and affective processes (Y. Li & Chen, 2025).

However, a major issue in the relevant literature is the lack of consistent findings regarding the extent of the direct influence of advertising creativity on purchasing behavior. Some studies suggest that creativity exerts a stronger influence on psychological aspects such as attention

and attitudes than on concrete actions such as purchase intent or purchasing decisions. Furthermore, the effectiveness of creativity is highly dependent on context, such as product type, culture, and the media used. Another gap lies in the limited number of studies that comprehensively integrate mediating variables to explain the relationship between advertising creativity and consumer behavioral outcomes.

4.5. Consumer Purchase Intention

Consumer purchase intention is one of the key variables in consumer behaviour studies, describing an individual's tendency to purchase a product or service (Xing et al., 2025). Key subtopics in this study include (1) psychological factors such as perception, attitude, and trust, (2) the influence of social media and digital advertising, (3) the role of brand image and brand awareness, (4) consumer experience and perceived value, (5) trust in technology and digital platforms, and (6) mediating variables such as attitudes towards the brand and emotions (Liu, 2025). Research indicates that purchase intention is not formed directly, but rather through a complex psychological process involving various intervening variables (Langit & Asikin, 2025).

Research trends over the past five years indicate that mediation model approaches are increasingly being used to explain relationships between variables. For example, advertising creativity has been shown to influence purchase intention through variables such as brand awareness and advertising value (Liu & Chelliah, 2025). Furthermore, in the context of social media, advertising value and consumer engagement also play a role in driving purchase intention through the process of co-creation of value (Wan et al., 2025). Recent research even suggests that emotional factors such as empathy in immersive advertising experiences can act as a key mediator in enhancing purchase intention. This underscores that linear approaches are no longer sufficient, necessitating more complex models to understand consumer behaviour (Dahhan & Arenkov, 2025).

Nevertheless, significant research gaps remain. Firstly, most studies have been conducted outside the Indonesian context or in developed countries, thus failing to adequately reflect local consumer characteristics. Secondly, the mediating variables used are still limited to cognitive aspects such as brand awareness, while the role of affective variables such as brand attitude has not been explored in depth. Thirdly, there is still little research that tests the relationship between advertising creativity, brand attitude, and purchase intention simultaneously within a single integrated quantitative model. Therefore, further research is needed to address these gaps by developing more comprehensive and context-specific models, particularly for social media users in Indonesia.

4.6. Purchase Intention

Purchase intention refers to a consumer's tendency or desire to purchase a product or service in the future. According to Philip Kotler dan Kevin Lane Keller (2016), purchase intention is part of the consumer decision-making process that indicates the probability of a purchase occurring. Purchase intention is an important indicator in marketing research as it can be used to predict actual consumer behaviour. The higher the purchase intention, the greater the likelihood that the consumer will make a purchase.

Purchase intention is influenced by various factors such as product perception, brand attitude, trust, and social influence. Within the framework of the Theory of Planned Behaviour proposed by Ajzen (1991), intention is the primary predictor of actual behaviour. In the digital age, purchase intention is increasingly influenced by exposure to advertisements on social media, interaction with content, and recommendations from other users. This indicates that digital-based marketing strategies play a significant role in shaping consumers' purchase intentions.

3. Methodology

3.1. Research Design

This study employs a quantitative correlational approach using Structural Equation Modelling (SEM) to examine the relationship between advertising creativity, brand attitude, and purchase intention among social media users in Indonesia. Referring (John W. Creswell & Cheryl N. Poth, 2019), SEM is used because it is capable of analyzing direct and indirect relationships between latent variables simultaneously, with brand attitude acting as a mediating variable.

3.2. Research Setting

This study was conducted in Indonesia, focusing on active social media users of platforms such as Instagram, TikTok, and YouTube. The choice of location was based on the high usage of social media and its relevance as a medium for delivering creative advertisements that influence consumer behaviour.

3.3. Unit Analysis

The unit of analysis for this study comprises 250 social media users who have viewed product advertisements. The sampling technique employed was purposive sampling, with criteria including being aged 17 or over, active on social media, and having been exposed to advertisements. This sample size meets the SEM criteria according to Latan.

3.4.1 Research Instruments

The research instrument utilized a 1–5 Likert scale questionnaire. The variable ‘advertising creativity’ was measured using 10 indicators, ‘brand attitude’ using 8 indicators, and ‘purchase intention’ using 8 indicators, based on the concepts of Terence A. Shimp, Kevin Lane Keller, and Philip Kotler (Latan et al., 2023).

3.5. Data Collection Techniques

The research data consists of primary data collected via an online questionnaire. Analysis was conducted using SEM-PLS with SmartPLS software through evaluation of the outer model (validity and reliability) and the inner model (testing relationships between variables). A mediation test was conducted to examine the role of brand attitude in mediating the relationship between advertising creativity and purchase intention, based on Nunnally (Sari et al., 2025).

4. Result

4.1. Discrimination Validity

The AVE (Average Variance Extracted) value for each construct is greater than 0.5 (for example: Advertising Creativity = 0.843; Brand Attitude = 0.861; Purchase Intention = 0.848). This indicates that the indicators used are valid in measuring their respective constructs. As shown in Table 4.1.

Table 4.1 Discrimination validity.

	Advertising Creativity	Brand Attitude	Purchase Intention
Advertising Creativity	0.843		
Brand Attitude	0.513	0.861	
Purchase Intention	0.239	0.496	0.848

4.2. Loadings and Cross-Loading

The cross-loading results show that each indicator has a higher loading value for the construct it measures than for other constructs. For example: indicator X1 has a higher loading for Study Time Management (0.827) than for Academic Consistency (0.612) and Self-Regulated Learning (0.481). This confirms that discriminant validity has been met.

Table 4.2 Loadings and Cross-Loading.

	Advertising Creativity	Brand Attitude	Purchase Intention
X1	0.842	0.383	0.130
X2	0.819	0.385	0.195
X3	0.844	0.438	0.230
X4	0.851	0.443	0.186
X5	0.844	0.486	0.258
X6	0.870	0.481	0.228
X7	0.850	0.427	0.170
X8	0.824	0.391	0.189
X9	0.415	0.878	0.438
X10	0.443	0.428	0.443
Y1	0.478	0.862	0.418
Y2	0.478	0.862	0.433
Y3	0.448	0.878	0.426
Y4	0.428	0.847	0.413
Y5	0.415	0.861	0.189
Y6	0.444	0.860	0.427
Y7	0.419	0.849	0.416
Y8	0.443	0.428	0.385
Z1	0.189	0.381	0.822
Z2	0.163	0.438	0.851
Z3	0.206	0.431	0.867
Z4	0.227	0.428	0.848
Z5	0.223	0.458	0.852
Z6	0.205	0.379	0.846
Z7	0.433	0.189	0.824
Z8	0.163	0.481	0.415

4.3. Path Coefficients

Table 4.3 Path Coefficients.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic(O/STDEV)	P Values
H1	0.440	0.420	0.047	8.922	0.000
H2	0.251	0.246	0.061	3.952	0.000
H3	0.397	0.399	0.047	8.382	0.000

H1: Advertising Creativity on Brand Attitude: $\beta = 0.420$; $T = 8.922$; $P = 0.000$

H2: Brand Attitude on Purchase Intention: $\beta = 0.246$; $T = 3.952$; $P = 0.000$

H3: Advertising Creativity on Purchase Intention via the mediating effect of Brand Attitude: $\beta = 0.399$; $T = 8.382$; $P = 0.000$

All paths showed significant results ($P < 0.05$).

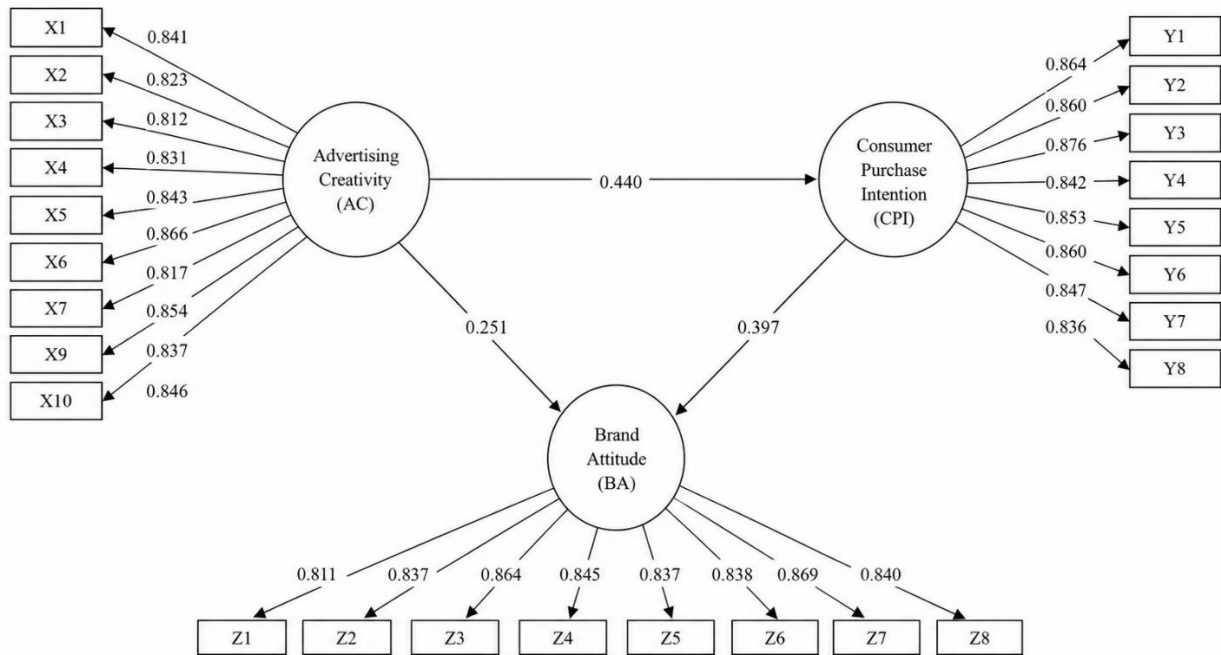


Figure 4.1 Measurement Model Assessment.

5. Discussion

5.1. The Effect of Advertising Creativity on Brand Attitude

The results of the hypothesis testing indicate that advertising creativity exerts a positive and statistically significant effect on brand attitude. Accordingly, the first hypothesis (H1) is accepted. These findings suggest that a higher level of creativity in advertising leads to a more favorable consumer attitude toward the advertised brand. Advertising creativity, encompassing elements such as originality, message uniqueness, and effective storytelling, has been shown to successfully capture consumer attention amid the overwhelming flow of information on social media platforms. In this context, creativity functions not merely as a communication tool, but also as a strategic mechanism for shaping consumers' perceptions and emotional responses toward a brand (Akbar & Irawati, 2023).

From a theoretical perspective, these findings are consistent with the notion that creative advertising appeal enhances consumers' affective evaluations of a brand. Creative advertisements tend to be more memorable and capable of generating stronger emotional engagement, thereby reinforcing positive brand attitudes (Zhang et al., 2025). Furthermore, the findings corroborate previous studies demonstrating that advertising creativity plays a substantial role in the formation of brand attitude, particularly within highly competitive digital environments. From a practical standpoint, these findings imply that businesses should invest in the development of innovative and audience-relevant advertising content. In the absence of sufficient creativity, advertisements are more likely to be overlooked by consumers, thereby limiting their effectiveness in fostering favorable brand perceptions.

5.2. The Effect of Brand Attitude on Purchase Intention

The results of the analysis reveal that brand attitude has a positive and statistically significant effect on purchase intention. Therefore, the second hypothesis (H2) is accepted. These findings indicate that consumers' positive attitudes toward a brand enhance their propensity to make a purchase. Brand attitude reflects consumers' overall evaluation of a brand, encompassing cognitive, affective, and emotional dimensions. When consumers hold favorable perceptions of a brand, they are more likely to develop higher levels of trust and preference, which subsequently increase their intention to purchase.

The findings are consistent with the Theory of Planned Behavior, which posits that attitude is a primary determinant in shaping behavioral intention (Fu et al., 2025; Na et al., 2025). Within the context of digital marketing, brand attitude serves as a crucial intermediary factor linking advertising exposure to purchasing decisions. Consumers do not necessarily engage in purchasing behavior solely because they are exposed to advertisements; rather, they undergo an evaluative process that forms a particular attitude toward the brand.

From a practical perspective, these findings emphasize that companies should not focus exclusively on increasing advertising exposure, but must also ensure that the communicated messages are capable of fostering positive brand perceptions. Strong and consistent branding strategies play a vital role in enhancing consumers' purchase intentions.

5.3. The Effect of Advertising Creativity on Purchase Intention through the Mediating Role of Brand Attitude

The results of the hypothesis testing demonstrate that advertising creativity has a positive and statistically significant effect on purchase intention through brand attitude as a mediating variable. Therefore, the third hypothesis (H3) is accepted. These findings confirm that the relationship between advertising creativity and purchase intention is not purely direct, but rather operates through a psychological mechanism involving the formation of consumers' attitudes toward the brand. In other words, advertising creativity first influences how consumers perceive and emotionally respond to a brand, which subsequently affects their purchasing decisions (Lu et al., 2025).

The findings further indicate that brand attitude serves as a crucial mediating variable in explaining how and why advertising creativity influences purchase intention. Without the presence of a favorable brand attitude, advertising creativity may merely succeed in attracting consumer attention without ultimately generating purchase conversion.

From a theoretical standpoint, these findings reinforce consumer behavior models that emphasize the importance of affective variables as intermediaries between marketing stimuli and behavioral responses (Edrees, 2025; Fangwei Wang, 2025). Moreover, the results contribute to addressing inconsistencies in previous studies regarding the direct effect of advertising creativity on purchase intention. From a practical perspective, the primary implication of these findings is that companies should design advertisements that are not only visually creative but also capable of cultivating a positive brand image and favorable consumer perceptions. Consequently, effective advertising strategies should integrate creative elements with efforts to strengthen brand attitude in order to achieve optimal outcomes in enhancing consumers' purchase intentions.

5. Conclusion

This study aims to analyze the effect of advertising creativity on purchase intention, with brand attitude serving as a mediating variable among social media users in Indonesia. Based on the results of the analysis using SEM-PLS, it can be concluded that advertising creativity has a positive and significant effect on brand attitude, while brand attitude also exerts a positive influence on purchase intention. Furthermore, brand attitude was found to significantly mediate

the relationship between advertising creativity and purchase intention. These findings indicate that advertising creativity does not directly stimulate consumers' purchase intention; rather, its influence operates through the development of positive attitudes toward the brand. Therefore, the success of digital advertising strategies largely depends on the ability to create advertisements that are not only creative, but also capable of fostering positive consumer perceptions and emotional connections with the brand.

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THE INFLUENCE OF E-SERVICE QUALITY ON PURCHASE INTENTION: THE MEDIATING ROLE OF CUSTOMER TRUST AMONG E-COMMERCE PLATFORM USERS IN INDONESIA

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Abstract

This study aims to analyse the effect of e-service quality on purchase intention, taking into account the mediating role of customer trust among users of e-commerce platforms in Indonesia. A quantitative approach was adopted, employing an associative research design. Data were collected via an online questionnaire using a 5-point Likert scale from 150 respondents selected using purposive sampling. Data analysis was conducted using Partial Least Squares-based Structural Equation Modelling (SEM-PLS) with the aid of SmartPLS software. The results indicate that e-service quality has a positive and significant effect on customer trust. Furthermore, customer trust was also found to have a positive and significant influence on purchase intention. Meanwhile, the direct influence of e-service quality on purchase intention was relatively weaker compared to the indirect influence via customer trust. This indicates that customer trust acts as an important mediating variable in the relationship between e-service quality and purchase intention. The R-Square value indicates that the model has strong explanatory power, with 64.1% of the variation in trust explained by e-service quality, and 74.7% of the variation in purchase intention explained by e-service quality and trust. Consequently, improving the quality of electronic services, coupled with building customer trust, can be an effective strategy for boosting purchase intent on e-commerce platforms.

Keywords: *e-service quality, customer trust, purchase intention, e-commerce*

1. Introduction

Advances in digital technology have not only transformed the way consumers make purchases, but have also shaped new mindsets and expectations regarding the services they receive. Today, consumers increasingly seek fast, convenient and transparent processes, from searching for product information to completing payment and delivery. Features such as customer reviews, recommendation systems, and digital customer service are increasingly enriching the online shopping experience. Consequently, consumers have become more critical and selective in choosing e-commerce platforms that can deliver the best value to meet their needs.

On the other hand, these high consumer expectations are driving companies to focus not only on the products they offer but also on the quality of the electronic services provided. The quality of electronic services is a key element in creating customer satisfaction and loyalty, as it reflects how well a platform can consistently meet users' needs. Companies that are able to provide responsive, secure, and user-friendly services will have a competitive advantage over their rivals. Consequently, improving the quality of electronic services is no longer an option but a necessity for maintaining a foothold amidst increasingly fierce e-commerce competition (Purnamasari & Suryandari, 2023).

When it comes to consumer behaviour, e-service quality encompasses not only technical convenience but also influences consumers' perceptions and beliefs regarding an e-commerce platform. When consumers perceive that a platform offers high-quality services such as a user-

friendly interface, fast transaction processes, secure payment systems, and responsive customer support this results in a positive shopping experience.

This positive experience subsequently impacts consumers' cognitive and emotional evaluations. From a cognitive perspective, consumers will assess the platform as efficient and trustworthy. From an emotional perspective, consumers will feel comfortable and confident when making transactions. The combination of these two aspects will encourage the intention to make a purchase, as consumers feel that the risks they may face are minimised (Salim et al., 2023).

In online transactions, consumers cannot view products directly, do not interact with sellers, and have no full guarantee regarding the outcome of the transaction. This situation leads to uncertainty and a sense of risk, such as concerns about product suitability, the threat of fraud, or the misuse of personal information. This is where the role of trust becomes crucial (Luwiha et al., 2024). Good quality e-services such as secure systems, clear product information, a professional app interface, and responsive customer service will gradually build trust. Consumers begin to feel that the platform is reliable and has high credibility. Thus, service quality does not directly influence consumers' purchasing decisions, but first fosters a sense of trust (Ginting & Yusriadi, 2023).

Various recent studies indicate that the quality of electronic services not only has a direct impact on purchase intent but also through an indirect process, namely by first building customer trust. In other words, when the quality of electronic services improves, the primary effect is not merely to encourage consumers to make a purchase but also to enhance their trust in the platform (Junianingrum et al., 2023). Although numerous studies have examined the relationship between the quality of electronic services, trust, and purchase intention, there remain gaps in the research, particularly within the context of Indonesia's rapidly evolving e-commerce platform user base, characterised by a constantly changing consumer demographic. Therefore, this study aims to analyse the influence of the quality of electronic services on purchase intention, whilst considering the mediating role of customer trust amongst e-commerce platform users in Indonesia. It is hoped that the findings of this study will provide theoretical insights and practical implications for the development of more efficient digital marketing strategies.

2. Literature Review

4.7. E-Service Quality

E-service quality is an evolution of conventional service quality adapted to the digital age, in which all interactions between companies and customers take place via electronic systems. In this context, e-service quality emphasises not only the final outcome of the service, but also the process of delivering the service online, from initial access through to the completion of the transaction. Electronic service quality refers to the ability of e-commerce platforms to provide services that are effective, efficient, secure, and user-friendly, thereby meeting customer expectations (Fadli et al., 2024).

In practice, e-service quality encompasses several key dimensions. Usability relates to the extent to which an application or website is easy and intuitive for customers to use. System reliability refers to the platform's ability to operate consistently without disruptions, such as errors or downtime. Security is a crucial aspect as it relates to the protection of customers' personal data and financial transactions. Meanwhile, responsiveness reflects the speed and accuracy with which the platform responds to customers' queries, complaints and needs (A. N. Prasetyo & Yusran, 2022).

In the context of e-commerce, the importance of the quality of electronic services is increasing because consumers do not have direct physical interaction with sellers or products. This makes consumers highly dependent on the quality of the systems and services provided

by the platform. If the services provided are fast, secure, and reliable, consumers will feel comfortable and confident when making transactions.

Furthermore, high-quality e-commerce services create a positive shopping experience. This experience not only boosts customer satisfaction but also builds trust in the platform. When customers feel satisfied and confident, they are more likely to maintain a positive outlook, which in turn can encourage the intention to make a purchase and repeat purchases. Consequently, the quality of e-commerce services is one of the key factors in determining the success of an e-commerce platform in attracting and retaining customers (Perwira et al., 2024).

2.2 Purchase Intention

Purchase intention is an indicator that shows the extent to which a consumer has the desire and readiness to make a purchase after going through a process of seeking information and evaluating a particular product or service. In the context of e-commerce, purchase intention does not arise suddenly, but is the result of various considerations, both rational and emotional (D. B. Prasetyo & Mulyanto, 2024).

From a rational perspective, consumers generally consider the benefits of a product, its price, the ease of use of the platform, and the quality of the service offered. For example, if a platform has a user-friendly interface, provides comprehensive product information, and processes transactions quickly, consumers will perceive it as efficient and worth using. This perception will increase their likelihood of making a purchase (Aswin et al., 2024).

However, in the digital context, rational factors alone are not sufficient. Consumers are also heavily influenced by psychological aspects, such as feelings of safety, comfort, and trust when making transactions. Due to the absence of direct interaction with the seller or the product, consumers are typically more cautious. Therefore, when a platform can provide a sense of security for instance, through a trusted payment system, honest customer reviews, and consumer protection policies consumers will feel more at ease and confident in making purchasing decisions (Kasumi, 2010).

Furthermore, purchase intention is also influenced by previous experiences. Consumers who have had positive experiences, such as timely delivery or products matching the description, tend to have a higher intention to make repeat purchases. Conversely, negative experiences can significantly reduce purchase intention (Purnamasari & Suryandari, 2023).

2.3 Customer Trust

Customer trust is built through consumers' ongoing experiences and interactions with an e-commerce platform. When a platform is able to provide consistent service, accurate information and a secure system, consumers will begin to perceive it as reliable and trustworthy. This process does not happen overnight, but develops over time through positive experiences, such as successful transactions, timely deliveries, and products matching their descriptions. The more frequently consumers have satisfying experiences, the stronger the trust that is formed (Azhari & Soepatini, 2024).

Furthermore, customer trust also serves as a factor that strengthens the long-term relationship between consumers and the platform. Consumers who have developed trust tend to be more loyal, less likely to switch to other platforms, and more tolerant of minor errors that may occur. Indeed, they may even recommend the platform to others. Therefore, building and maintaining customer trust is a crucial strategy for e-commerce companies, as it not only drives purchasing decisions but also fosters loyalty and ensures the long-term sustainability of the business (Syacroni et al., 2023).

2.4 The Relationship Between E-Service Quality and Purchase Intention

The positive impact of e-service quality on purchase intention can be explained by consumers' assessment of their experience when using e-commerce platforms. When a platform provides a service that is fast, easily accessible and free from disruptions, consumers perceive the shopping process as more efficient and enjoyable (Asaithambi et al., 2024). Ease of product search, clarity of information, and smoothness during payment are elements that reinforce this positive perception. This satisfying experience directly encourages the desire to make a purchase, as consumers feel they encounter no significant difficulties during the transaction process (Halim, 2023).

Furthermore, the quality of e-commerce services also serves to create a sense of security and reduce the uncertainty that often arises in online transactions. When a platform can guarantee data security, provide a reliable payment system, and offer responsive customer support, consumers will feel more comfortable making decisions. This sense of security is crucial as it can dispel the doubts that often act as the main barrier to online purchases. Therefore, the higher the perceived quality of service, the greater the likelihood that consumers will have the intention to purchase and even make repeat purchases in the future (Salim et al., 2023).

2.5 The Mediating Role of Customer Trust

Customer trust acts as a mediating variable in the relationship between e-service quality and purchase intention. This means that the influence of e-service quality on purchase intention occurs not only directly but also via customer trust (Putri & Hadi, 2024). According to (Purnamasari & Suryandari, 2023) electronic service quality can enhance customer trust, which in turn can increase purchase intention. In other words, trust is a crucial mechanism that explains how electronic service quality influences consumer behaviour. According to (Putu et al., 2024), mediating variables such as trust and customer satisfaction strengthen the relationship between the quality of electronic services and purchasing behaviour. Therefore, companies must focus not only on improving service quality but also on building customer trust.

3. Methodology

3.1 Research Design and Approach

This study employs a quantitative approach of an associative nature, as it aims to investigate the relationship between the variables of e-service quality, customer trust, and purchase intention among users of e-commerce platforms in Indonesia. This approach is used to test hypotheses and statistically analyse both direct and indirect (mediation) effects between the variables. Data processing was carried out using the Partial Least Squares (PLS)-based Structural Equation Modelling (SEM) method with the aid of SmartPLS software, thereby enabling the research model to be tested simultaneously and comprehensively (Sugiyono, 2021).

3.2 Population dan Sample

The population for this study comprises all users of e-commerce platforms in Indonesia who have ever made an online purchase. In this study, the respondents were limited to individuals aged between 17 and 45, as this age group falls within the category of active e-commerce users who demonstrate a high level of technology adoption and significant engagement in digital transactions.

The sample in this study was selected using purposive sampling, i.e. the selection of respondents based on specific criteria, such as having made at least one online purchase and actively using e-commerce platforms. The sample size used in this study was 150 respondents,

who were deemed to meet the criteria for analysis using the SEM-PLS (SmartPLS) method, as this method is optimally suited for small to medium sample sizes and is capable of analysing relationships between variables simultaneously.

3.3 Data Collection Techniques

Data for this study was collected via an online questionnaire distributed through various digital platforms such as WhatsApp, Instagram, and other social media platforms relevant to e-commerce users. The questionnaire was designed using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) to measure respondents' perceptions of the variables e-service quality, customer trust, and purchase intention (John W. Creswell & Cheryl N. Poth, 2019). The type of data used in this study is primary data, namely data obtained directly from respondents. This data consists of respondents' responses regarding their experiences in using e-commerce platforms, their level of trust in the platforms, and their propensity to make online purchases. This data was then analysed to determine the relationships between the variables in the study (Sugiyono., 2021).

4. Results

An evaluation of the measurement model (outer model) was carried out to test the validity and reliability of the constructs used in this study. The aim of this testing was to ensure that each indicator could represent the latent variables accurately and consistently. In this study, the evaluation of the outer model was conducted using the Partial Least Squares Structural Equation Modelling (PLS-SEM) method via the SmartPLS application.

Convergent validity testing was carried out by examining the outer loading values and Average Variance Extracted (AVE). An indicator is considered valid if it has an outer loading value of more than 0.70, whilst a construct is deemed to meet convergent validity if the AVE value is above 0.50. Furthermore, construct reliability testing was carried out by analysing the Composite Reliability and Cronbach's Alpha values, whereby a variable is considered reliable if the value obtained exceeds 0.70.

The results of the external model test in this study include the external loading values for each indicator, as well as the AVE, Composite Reliability, and Cronbach's Alpha values for each variable. In general, the test results indicate that the indicators used have met the established standards. Furthermore, the complete results of the measurement model evaluation can be seen in Table 1 below.

Table 1. Results of the Convergent Validity Test and Reliability Test.

Variable	Indicator	Outer Loading	AVE	Composite Reliability	Cronbach's Alpha
E-Service Quality	ESQ1	0,862	0,724	0,929	0,905
	ESQ2	0,817			
	ESQ3	0,854			
	ESQ4	0,855			
	ESQ5	0,85			
Trust	TR1	0,877	0,783	0,935	0,907
	TR2	0,878			
	TR3	0,893			
	TR4	0,904			
Purchase Intention	PI1	0,908	0,796	0,94	0,914
	PI2	0,895			

PI3	0,872
PI4	0,901

Based on Table 1, the results of the measurement model evaluation show that all indicators have outer loading values above 0.70, thereby meeting the criteria for convergent validity (Hair et al. , 2019). The indicator with the highest loading value is PI1, which reaches 0.908, whilst the lowest value is for the ESQ2 indicator at 0.817, though this remains above the set minimum threshold. Furthermore, the Average Variance Extracted (AVE) values for each variable were above 0.50, namely 0.724 for E-Service Quality, 0.783 for Trust, and 0.796 for Purchase Intention. This indicates that each construct explains more than 50% of the variance in its respective indicators, thereby meeting the criteria for convergent validity.

Furthermore, the results of the reliability tests show that the Composite Reliability values for all variables are above 0.70, namely 0.929, 0.935 and 0.940 respectively. Cronbach's Alpha values also recorded figures above 0.70, namely 0.905, 0.907, and 0.914, indicating that all constructs possess a good level of internal consistency. Once the measurement model was found to meet the criteria for convergent validity and reliability, the next step was to conduct a discriminant validity test. This test aims to ensure that each construct in the research model has clear distinctions and does not overlap with one another.

In this study, the discriminant validity test was conducted using the Fornell-Larcker criterion approach, which involves comparing the square root of the Average Variance Extracted (AVE) value of each construct with the inter-construct correlation values. A construct is said to meet discriminant validity if the AVE value is greater than the correlation values between other constructs (Fornell dan Larcker, 1981).

Table 2. Discrimination validity.

Variable	E-Service Quality	Trust	Purchase Intention
E-Service Quality	0,851		
Trust	0,801	0,885	
Purchase Intention	0,693	0,702	0,892

Based on Table 2, the results of the discriminant validity test using the Fornell-Larcker criteria show that the root mean square of the average variance extracted (AVE) for each construct is higher than the correlation coefficients between the other constructs. The AVE value for the e-service quality variable is 0.851, which is higher than its correlation with the Trust variable (0.801) and Purchase Intention (0.693). Furthermore, the Trust variable has a AVE value of 0.885, which is higher than its correlation with E-Service Quality (0.801) and Purchase Intention (0.702). Similarly, the Purchase Intention variable records a AVE value of 0.892, which is higher than its correlation with the other variables.

Referring to the criteria proposed by Fornell and Larcker (1981), a construct can be considered to have good discriminant validity if its AVE value is higher than the correlations between constructs. Once the measurement model has met the criteria for convergent validity and discriminant validity, the next step is to evaluate the structural model (internal model). This evaluation aims to assess the strength of the relationships between latent variables and the model's ability to explain the endogenous variables.

At this stage, the analysis was conducted by examining the R-Square (R^2) value and the path coefficients obtained from the data processing results using SmartPLS. The R-Square value is used to measure the extent to which exogenous variables can explain the endogenous

variables in the research model. Meanwhile, the path coefficients indicate the direction and strength of the influence between latent variables. The analysis results show that the Trust variable has an R-Square value of 0.641, meaning that 64.1% of the variability in Trust can be explained by the E-Service Quality variable. Furthermore, the Purchase Intention variable has an R-Square value of 0.747, indicating that 74.7% of the variability in purchase intention can be explained by the E-Service Quality and Trust variables. These values indicate that the research model possesses a sufficiently strong explanatory power.

Furthermore, the path coefficients indicate that E-Service Quality has a positive influence on Trust of 0.801, Trust has a positive influence on Purchase Intention of 0.702, and E-Service Quality has a direct influence on Purchase Intention of 0.193. This indicates that all relationships between variables in the model are positive, although the direct effect of E-Service Quality on Purchase Intention is relatively weaker than the indirect effect via Trust. The complete results of the structural model in this study are presented in Figure 1 below.

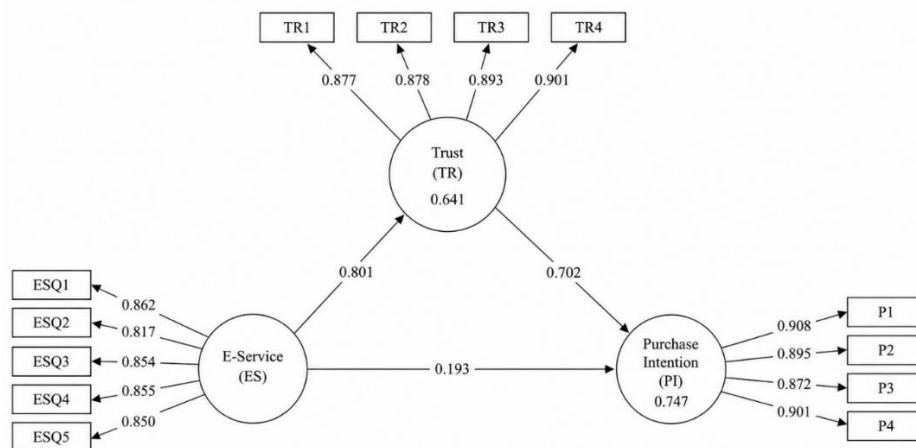


Figure 4.1 Measurement Model Assessment.

5. Discussion

5.1 The Influence of E-Service Quality on Customer Trust

The research findings indicate that e-service quality has a positive and significant effect on customer trust. This is evidenced by a path coefficient of 0.801, which suggests that an improvement in the quality of electronic services directly increases the level of consumer trust in e-commerce platforms. This finding reinforces the concept that in a digital environment full of uncertainty, service quality is the cornerstone of building trust (Isalman et al., 2025). Konsumen tidak memiliki kesempatan untuk berinteraksi secara langsung dengan penjual maupun Consumers do not have the opportunity to interact directly with sellers or products, so they are heavily reliant on the quality of the systems provided. Aspects such as transaction security, system reliability, ease of navigation, and customer service responsiveness are key indicators in shaping perceptions of trust.

Theoretically, these results are consistent with research stating that e-service quality is a key determinant in the formation of customer trust, as service quality reflects the credibility and professionalism of the platform (Ginting et al., 2023). Thus, it can be concluded that the first hypothesis (H1) is accepted, whereby e-service quality is proven to play a significant role in building customer trust in the context of e-commerce.

5.2 The Influence of Customer Trust on Purchase Intention

The research findings indicate that customer trust has a positive and significant influence on purchase intention, with a path coefficient of 0.702. This suggests that the higher the level of consumer trust in an e-commerce platform, the greater their tendency to make a purchase. This finding reinforces the notion that trust is a crucial psychological factor in the consumer decision-making process, particularly in online transactions which carry a higher level of risk compared to offline transactions. Trust serves to reduce perceived risks, such as concerns regarding fraud, product mismatches, or the misuse of personal data (Gefen et al., 2003).

These research results are consistent with findings stating that trust has a significant influence on purchase intention as it functions as a risk-reduction mechanism in digital transactions. Furthermore, research also confirms that consumers with high levels of trust tend to be more confident and comfortable when making online purchases (Umayya et al., 2021). Furthermore, trust not only influences the initial purchase decision but also contributes to repeat purchases and customer loyalty. Consumers who have developed trust are more risk-tolerant and tend to continue using the same platform. Consequently, the second hypothesis (H2) in this study is accepted, as customer trust has been shown to have a significant influence on purchase intention.

5.3 The Influence of E-Service Quality on Purchase Intention via Customer Trust

The research findings indicate that e-service quality influences purchase intention both directly and indirectly via customer trust. However, the direct influence of e-service quality on purchase intention is relatively small, at 0.193, compared to the indirect influence via trust. This finding indicates that customer trust acts as a significant mediating variable in the relationship between e-service quality and purchase intention. This means that electronic service quality does not directly encourage consumers to make a purchase, but rather first builds trust, which then influences purchase intention (Hadining et al., 2020).

Theoretically, these findings support the mediation model in digital consumer behaviour, which posits that service quality influences consumers' psychological responses before leading to actual behaviour. In this context, trust acts as a bridge between service experience and purchasing decisions. This study aligns with Purnamasari and (Widiantari et al., 2025) found that e-service quality influences repurchase intention via e-trust as a mediating variable. Furthermore, Putu et al. (2024) also state that mediating variables such as trust and customer satisfaction strengthen the relationship between electronic service quality and purchasing behaviour.

Thus, the third hypothesis (H3) is accepted, wherein customer trust is proven to mediate the influence of e-service quality on purchase intention. This mediating role is partial, as e-service quality retains a direct influence, yet the indirect influence via trust is more dominant. Overall, the results of this study reinforce the theoretical framework stating that, in the context of e-commerce, e-service quality not only has a direct impact on consumer behaviour but also operates through the psychological mechanism of trust. Therefore, strategies to improve service quality must be accompanied by sustained efforts to build customer trust in order to generate optimal purchase intention.

6. Conclusion

Based on the research findings and discussion, it can be concluded that e-service quality has a positive and significant influence on customer trust among users of e-commerce platforms in Indonesia. This indicates that good electronic service quality is capable of increasing consumer confidence in the platform when conducting online transactions. Furthermore, customer trust has been shown to have a positive and significant influence on purchase

intention. Trust is a key factor driving consumers to make purchases, particularly in digital transaction scenarios characterized by high levels of uncertainty.

Meanwhile, the direct influence of e-service quality on purchase intention is relatively weaker compared to the indirect influence via customer trust. Consequently, customer trust has been shown to act as a significant mediating variable in the relationship between e-service quality and purchase intention. The research model also demonstrates strong explanatory power, wherein the e-service quality variable is able to explain customer trust significantly, and the combination of e-service quality and trust is able to explain the majority of the variation in purchase intention.

In practical terms, the findings of this study suggest that e-commerce companies need to prioritise improving the quality of their electronic services, focusing on security, ease of use and responsiveness, whilst simultaneously building customer trust to boost purchase intent. A trust-oriented strategy will be key to success in winning the battle against the growing competition in the e-commerce industry.

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SERVICE QUALITY AND PROMOTION STRATEGIES ON CUSTOMER LOYALTY THROUGH CUSTOMER SATISFACTION AT MINIMARKETS IN BANDAR LAMPUNG

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Abstract

This study aims to analyse the influence of service quality and promotion strategies on customer loyalty through customer satisfaction as a mediating variable in minimarkets in Bandar Lampung. This study employs a quantitative approach using a survey method involving 120 respondents selected via purposive sampling. Data were collected using a questionnaire with a Likert scale and analysed using multiple linear regression with the aid of SPSS 26. The results indicate that service quality and promotional strategies have a significant effect on customer satisfaction. Furthermore, service quality, promotion strategies, and customer satisfaction simultaneously have a significant effect on customer loyalty. Customer satisfaction was also found to act as a mediating variable that strengthens the relationship between service quality and promotional strategies on customer loyalty. These findings suggest that consistent improvements in service quality, coupled with the implementation of effective promotional strategies, can foster customer satisfaction, which ultimately drives the development of customer loyalty. Consequently, minimarket operators need to integrate these two aspects on an ongoing basis to retain customers and enhance competitiveness amidst increasingly fierce retail competition.

Keywords: *service quality, promotion strategies, customer satisfaction, customer loyalty, stores*

1. Introduction

The modern retail industry in Indonesia has experienced rapid growth in recent years, particularly in the minimarket sector (Meliana et al., 2025). The presence of minimarkets such as Indomaret and Alfamart has become an integral part of people's daily lives due to their ease of access, comprehensive product range and the convenience they offer. This situation has fuelled increased competition among retail businesses, meaning companies are required to devise effective strategies to retain customers amidst the multitude of available options (Ekawati & Sha, 2019).

In facing this competition, service quality has become one of the key factors determining the success of a retail business. Service quality reflects a company's ability to meet customer expectations through fast, friendly, and responsive service. Good service creates a positive experience for customers, which ultimately enhances their satisfaction. Satisfied customers are more likely to return to shop and build long-term relationships with the company (Fitriani et al., 2023).

In addition to service quality, promotional strategies also play a key role in attracting and retaining customers. In practice, convenience stores often employ various forms of promotion, such as price discounts, cashback offers, product bundling, and the use of digital media. Effective promotional strategies not only boost sales in the short term but also reinforce customers' positive perceptions of the company and foster long-term relationships (Kotler & Keller, 2016).

However, customer loyalty is not formed directly through service quality and promotional strategies alone. Customer satisfaction acts as a key variable that bridges this relationship. Customer satisfaction is the result of a comparison between expectations and the performance perceived by consumers. When customers feel that the service and promotions provided meet or exceed their expectations, they are more likely to exhibit loyal behaviour, such as making repeat purchases and recommending the business to others (Ardian Susanto & Christina, 2020). In Bandar Lampung, the rapid growth of minimarkets has created a highly competitive environment. The abundance of minimarkets means that customers are likely to switch if they do not have a satisfactory shopping experience. This presents a challenge for retailers, who must not only attract new customers but also retain existing ones through improved service quality and effective promotional strategies.

Furthermore, there are several current issues influencing consumer behaviour within the retail industry. Changes in consumer behaviour following the COVID-19 pandemic indicate that consumers have become more selective and price-sensitive, yet they continue to prioritise convenience and service quality when shopping (Muhammad Fauzi et al., 2025). On the other hand, developments in digital technology have also raised customer expectations regarding fast, efficient, and integrated services, such as the use of digital payments and app-based loyalty programmes. This indicates that the overall customer experience has become a key factor in shaping customer satisfaction and loyalty (Wiranto et al., 2024).

Although various studies have examined the relationship between service quality, promotional strategies, satisfaction, and customer loyalty, there remain several research gaps. Firstly, most previous studies have focused primarily on the influence of service quality on customer satisfaction, without integrating promotional strategies into a comprehensive research model (Lestari & Ratnasari, 2022). Secondly, there is inconsistency in research findings regarding the influence of promotional strategies on customer loyalty, with some studies indicating a direct influence, whilst others suggest that the influence is indirect via customer satisfaction as a mediating variable (Devina & Yanuar, 2023). Thirdly, research in the physical retail sector, such as minimarkets, particularly in areas like Bandar Lampung City, remains relatively limited compared to research in the digital or e-commerce sector (Sudin et al., 2025). Based on this background, this study aims to analyse the influence of service quality and promotional strategies on customer loyalty, with customer satisfaction as a mediating variable, in minimarkets in Bandar Lampung City. It is hoped that this study will contribute both theoretically and practically to the development of more effective retail marketing strategies for enhancing customer loyalty.

2. Literature Review

4.8. Service Quality

Service quality refers to the level of excellence in service provided by a company to meet the needs and expectations of its customers. Service quality is typically measured across dimensions such as reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman, 1988; Tjiptono, 2019). These dimensions serve as a benchmark for assessing the extent to which a company is able to provide optimal service to customers. In the context of a minimarket, service quality can be realised through the speed of checkout service, staff friendliness, product availability, as well as the cleanliness and comfort of the shop. Consistent and professional service will provide a pleasant shopping experience for customers.

This is important because direct interaction between customers and staff is one of the key determinants of perceived service quality. Good service quality creates a positive experience for customers, thereby increasing their satisfaction. The higher the perceived service quality, the greater the likelihood that customers will return to shop and establish a long-term

relationship with the company (Kotler & Keller, 2016). Therefore, companies need to ensure that service standards are consistently maintained and continuously improved. Furthermore, service quality also plays a role in building customer trust in the company. Customers who feel they have been well served will have a positive perception and are likely to remain loyal to the company. Thus, service quality not only impacts satisfaction but also serves as a strategic factor in creating a competitive advantage within the retail industry (Lupiyoadi, 2018).

4.9. Promotion Strategy

Promotional strategies are a company's efforts to communicate its products to consumers in order to attract attention and encourage purchases. Promotion is one element of the marketing mix, which encompasses various activities such as advertising, sales promotion, public relations, and direct marketing (Kotler & Keller, 2016). The primary objective of promotion is to convey information and influence consumer decisions.

In practice, promotion can be carried out in various ways, such as price discounts, vouchers, cashback, loyalty programs, and promotion via social media. The development of digital technology has expanded the scope of promotion, enabling companies to reach consumers more effectively and efficiently. This makes promotion a vital tool in enhancing a company's competitiveness. In the minimarket business, promotional strategies are frequently used to increase customer purchase frequency. Attractive promotions can provide added value for customers, thereby enhancing positive perceptions of the company. Customers tend to be drawn to offers that provide economic benefits, such as lower prices or product bonuses (Aulia Farrel El Amien, 2025).

4.10. Customer Satisfaction

Customer satisfaction is the feeling of pleasure or disappointment that arises after comparing expectations with the performance of a product or service received. This concept is based on the expectation-disconfirmation theory, which states that satisfaction occurs when performance exceeds customer expectations (Oliver, 2014). Satisfaction is a key indicator in assessing a company's success in meeting consumer needs. In the context of minimarket retail, customer satisfaction is influenced by various factors such as service quality, price, product availability, and shopping convenience. When customers feel that their shopping experience meets their expectations, a sense of satisfaction arises. Conversely, if expectations are not met, customers will feel disappointed (Puspasari & Hadithya, 2023). Customer satisfaction is a key factor in building long-term relationships between companies and customers. Satisfied customers tend to have trust in the company and are more likely to make repeat purchases (Tjiptono, 2019). This indicates that satisfaction impacts not only short-term transactions but also business sustainability.

4.11. Service Loyalty

Customer loyalty is a customer's commitment to consistently using a company's products or services over a specific period of time (Putri, 2017). Loyalty is demonstrated through repeat purchases, recommendations to others, and resistance to competitors' influence (Yum & Yoo, 2023). Loyalty is one of the indicators of the success of a company's marketing strategy. In the retail industry, customer loyalty is particularly important because loyal customers tend to contribute to more stable revenue. Furthermore, loyal customers typically incur lower service costs compared to new customers. This makes loyalty a strategic asset for the company. Customer loyalty is not formed instantly, but rather through a process of repeated and consistent experiences. Customers will become loyal if they feel satisfied and trust the company. Therefore, companies need to maintain service quality and provide added value on an ongoing basis (Oliver, 2014).

3. Methodology

This study employs a quantitative approach using a survey design to examine the relationship between service quality, promotional strategies, customer satisfaction, and customer loyalty at minimarkets in Bandar Lampung. This approach was chosen as it enables the objective measurement of the relationships between variables through statistical analysis (Sugiyono, 2021). The research population consists of minimarket customers in Bandar Lampung City, with a sample size of 120 respondents selected using purposive sampling, i.e. based on the criterion of customers who have previously shopped there and therefore have experience in assessing the research variables (Sekaran, 2016). Data were collected via a questionnaire using a 5-point Likert scale to measure respondents' perceptions of service quality, promotional strategies, customer satisfaction, and customer loyalty.

Prior to analysis, validity and reliability tests were conducted to ensure the research instrument was suitable for use. The validity test was used to measure the accuracy of the instrument, whilst the reliability test was used to determine the consistency of the measurement results (Ghozali, 2018). Subsequently, normality and homogeneity tests were carried out as part of the classical assumption tests. Data analysis was conducted using multiple linear regression to determine the effect of service quality and promotional strategies on customer satisfaction and loyalty. Hypothesis testing was conducted using the t-test to examine partial effects and the F-test to examine simultaneous effects, with a significance level of 0.05 (Ghozali, 2018). Furthermore, the coefficient of determination (R^2) was used to assess the model's ability to explain the dependent variable.

4. Results

4.1. Instrument Validation Results

The validity test results indicate that all items within the variables of service quality, promotional strategies, customer satisfaction, and customer loyalty have correlation values greater than the table r , and are therefore deemed valid. Based on the results of the instrument validity test for the variables of service quality, promotional strategies, customer satisfaction, and customer loyalty, it was found that out of 100 items, 90 were valid.

4.2. Instrument Reliability Test

Based on the results of the instrument reliability test for the variables of service quality, promotional strategies, customer satisfaction, and customer loyalty, reliability coefficients were obtained. The results of the Scale Reliability Analysis (Alpha) using SPSS 26 output were found to be reliable. Based on these results, it can be concluded that the instrument used by the researcher has met the requirements for validity and reliability satisfactorily.

Table 1. Validity Test

	Reliability Statistics	
	Cronbach's Alpha	N of Items
Service Quality	.850	25
Promotion Strategy	.760	20
Customer Satisfaction	.870	25
Customer Loyalty	.780	20

Source: Data analysis results for 2026 using SPSS 26 software

4.3. Normality Test

The results of the normality test indicate that the research data for the variables of service quality, promotional strategies, customer satisfaction and customer loyalty are normally distributed, as evidenced by significance values greater than 0.05. Furthermore, the results of the homogeneity test indicate that the data variances are homogeneous, thus meeting the requirements for linear regression analysis. The results of the normality calculation using the One-Sample Kolmogorov-Smirnov test are presented in the following table:

Table 2. Normality Test

		One-Sample Kolmogorov-Smirnov Test			
		X1	X2	Y1	Y2
N		120	120	120	120
Normal Parametersa	Mean	1.296	1.233	1.165	1.235
	Std. Deviation	1.838	1.649	1.341	1.113
Most Extreme Differences	Absolute	.170	.144	.118	.018
	Positive	.170	.144	.115	.123
	Negative	-.113	-.111	-.118	-.110
Kolmogorov-Smirnov Z		1.507	1.507	1.284	1.185
Asymp. Sig. (2-tailed)		.100	.150	.174	.125
a. Test distribution is Normal.					

Source: Data analysis results for 2026 using SPSS 26 software

The results of the Homogeneity of Variances test indicate that the variances of the data for the Service Quality and Promotion Strategy instruments are homogeneous with respect to Customer Loyalty via Customer Satisfaction. This is demonstrated by significance values that exceed the required threshold, meaning that the assumption of homogeneity of variances is met. Consequently, the data can be analysed further using parametric statistical methods that require this assumption. For greater clarity, please refer to the following table:

Table 3. Homogeneity Test

Test of Homogeneity of Variances				
Variabel	Levene Statistic	df1	df2	Sig.
Service Quality on Customer Satisfaction	1.210	50	.220	0.284
Promotion Strategy on Customer Satisfaction	1.145	50	.220	0.318
Service Quality on Customer Loyalty	1.095	50	.220	0.352
Promotional Strategy on Customer Loyalty	1.132	50	.220	0.301

Source: Data analysis results for 2026 using SPSS 26 software

Table 4. Anova Analysis Output (Model 1)

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1520.245	2	760.122	45.320	.000 ^b
Residual	1960.755	117	16.759		
Total	3481.000	119			
a. Dependent Variable: Kepuasan Pelanggan (Y1)					
b. Predictors: (Constant), Kualitas Layanan (X1), Strategi Promosi (X2)					

Source: Data analysis results for 2026 using SPSS 26 software

Table 5. Anova Analysis Output (Model 2)

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1685.372	3	561.791	52.684	.000 ^b
Residual	1237.628	116	10.669		
Total	2923.000	119			
a. Dependent Variable: Loyalitas Pelanggan (Y2)					
b. Predictors: (Constant), Kualitas Layanan (X1), Strategi Promosi (X2), Kepuasan Pelanggan (Y1)					

Source: Data analysis results for 2026 using SPSS 26 software

Based on the results of the ANOVA test, a significance value of $0.000 < 0.05$ was obtained for both models. This indicates that the variables of service quality and promotional strategy simultaneously have a significant effect on customer satisfaction. Furthermore, in the second model, service quality, promotional strategy, and customer satisfaction simultaneously have a significant effect on customer loyalty. Thus, the regression model used in this study is deemed suitable for explaining the relationships between the variables.

5. Discussion

5.1. The Influence of Service Quality on Customer Satisfaction

The research findings indicate that service quality has a significant impact on customer satisfaction. This suggests that the better the service quality provided by a minimarket, the higher the level of customer satisfaction experienced. In the context of minimarkets, service quality is reflected in various aspects such as the speed of service at the till, the friendliness of staff, product availability, and the cleanliness and comfort of the shop environment.

Customers tend to evaluate the overall shopping experience, so every interaction that occurs during the purchasing process plays a crucial role in shaping satisfaction. This phenomenon occurs because customers have certain expectations before making a purchase. These expectations generally relate to convenience, speed, and comfort whilst shopping. When the service provided meets these expectations, customers will feel satisfied. Conversely, if the service does not meet expectations, customers will feel disappointed. This demonstrates that service quality plays a crucial role in determining customers' perceptions of the company.

In theory, this can be explained by the expectation-disconfirmation theory (Oliver, 2014), which states that customer satisfaction is formed when service performance meets or exceeds customer expectations. In the minimarket retail industry, customers generally have relatively simple expectations, such as fast service and a comprehensive product range. Therefore, when a minimarket is able to consistently meet these expectations, customer satisfaction will increase significantly.

These findings are also supported by recent research such as (Fazio et al., 2021) and (Kim et al., 2020) which demonstrate that service quality has a significant influence on customer satisfaction. These results reinforce the notion that service quality is a key factor in creating a positive customer experience. Consequently, minimarkets need to continuously improve service quality as a primary strategy for enhancing customer satisfaction and maintaining competitiveness in the market.

5.2. The Influence of Promotion Strategies on Customer Satisfaction

Research findings indicate that promotional strategies have a significant impact on customer satisfaction. This suggests that promotions not only serve to attract customers' attention but are also capable of enhancing satisfaction by providing added value. In practice, promotions offered by convenience stores such as price discounts, cashback, and product bundling provide direct benefits that customers can feel. This occurs because customers tend to consider the value they derive from a transaction. When customers feel they are gaining an advantage, such as a lower price or additional products, they experience higher levels of satisfaction. Furthermore, promotions that are communicated clearly and attractively can also enhance positive perceptions of the company, thereby strengthening the customer's shopping experience.

Theoretically, this can be explained through the concept of perceived value, whereby customer satisfaction is influenced by the comparison between the benefits received and the sacrifices made (Kotler & Keller, 2016). In the increasingly fierce competition among minimarkets, promotional strategies serve as an effective tool for enhancing customers' perceived value, thereby directly increasing satisfaction. This finding is supported by research Correction to Nguyen et al. (2020), which shows that promotional strategies have a significant influence on customer satisfaction. These results confirm that well-designed promotions not only lead to increased sales but also to increased customer satisfaction. Therefore, minimarkets need to design relevant and sustainable promotional strategies.

5.3. The Influence of Service Quality on Customer Loyalty

The research findings indicate that service quality has a significant impact on customer loyalty. This suggests that good service not only affects satisfaction but also fosters customer loyalty to the minimarket. Customers who receive good service will have a positive experience that encourages them to return to shop. This phenomenon occurs because customers tend to seek convenience and certainty when shopping. When they find a minimarket that is able to provide consistent, high-quality service, they will prefer to continue shopping there rather than trying other alternatives. This demonstrates that service quality can reduce uncertainty and increase customer trust.

The trust formed from these positive experiences will develop into customer loyalty. Loyal customers not only make repeat purchases but also tend to recommend the business to others. Thus, service quality serves as the primary foundation for building long-term relationships between customers and the company. These findings are consistent with research Adtria et al., (2021) which shows that service quality has a direct impact on customer loyalty. These results confirm that, in the retail industry, service quality is a strategic factor that must be prioritized in order to retain customers amidst increasingly fierce competition.

5.4. The Influence of Promotion Strategies on Customer Loyalty

Research findings indicate that promotional strategies have a significant impact on customer loyalty. This suggests that promotions can encourage customers to make repeat purchases, particularly when they feel they are benefiting from the programmes offered by the convenience store. Promotions such as discounts, reward points and loyalty schemes are effective in increasing the frequency of customer visits. Customers who feel they benefit from promotions are more likely to return to take advantage of the available offers. This indicates that promotions play a crucial role in retaining customers in the short term.

However, loyalty formed through promotions tends to be temporary. Price-sensitive customers will easily switch to other minimarkets offering more attractive promotions. Therefore, promotions alone are insufficient to create long-term loyalty without being supported by good service quality. This finding is supported by research Leite et al., (2020)

which shows that promotions do influence loyalty, but their effects are more short-term in nature. Consequently, promotional strategies need to be combined with improvements in service quality in order to foster stronger and more sustainable customer loyalty.

5.5. The Influence of Satisfaction on Customer Loyalty

Research findings indicate that customer satisfaction has a significant impact on customer loyalty. This suggests that satisfaction is a key factor in fostering customer loyalty. Satisfied customers are more likely to make repeat purchases and maintain their relationship with the company. Customer satisfaction reflects the overall experience customers have whilst interacting with the company. When customers are consistently satisfied, strong trust and emotional attachment are formed. This makes it more difficult for customers to switch to competitors, even when there are many alternative options available. Furthermore, satisfied customers are also more likely to recommend the company to others. This indicates that satisfaction not only impacts repeat purchasing behaviour but also drives word-of-mouth promotion, which can increase the number of new customers. These findings are supported by research Settimini, (2021) which states that customer satisfaction has a significant influence on customer loyalty. Consequently, customer satisfaction is a key factor in creating long-term relationships and enhancing the sustainability of the minimarket business.

6. Conclusion

Based on the research findings, it can be concluded that service quality and promotional strategies have a significant influence on customer satisfaction and customer loyalty at minimarkets in Bandar Lampung. Good service quality enhances customer satisfaction through a positive shopping experience, whilst attractive promotional strategies provide added value that further strengthens customer satisfaction. Furthermore, both service quality and promotional strategies have been shown to have a direct impact on customer loyalty. In this study, customer satisfaction acts as a mediating variable that strengthens the relationship between service quality and promotional strategies on customer loyalty. Thus, customer loyalty is not only formed directly but also through the satisfaction consistently felt by customers. Therefore, minimarket operators need to integrate continuous improvements in service quality and promotional strategies to create optimal satisfaction and maintain customer loyalty in the long term.

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**BUILDING GENERATION Z WORK COMMITMENT THROUGH A SOCIAL
CAPITAL APPROACH AND WORK CULTURE INNOVATION AT
PT.PROFESIONAL TELEKOMUNIKASI INDONESIA**

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This study, entitled Building Work Commitment of Generation Z Employees through a Social Capital and Innovative Work Culture Approach at PT Profesional Telekomunikasi Indonesia, aims to analyze the role of social capital and innovative work culture in shaping the work commitment of Generation Z employees at PT Profesional Telekomunikasi Indonesia (Protelindo), in response to the high turnover phenomenon among Generation Z employees in Indonesia. This research employs a qualitative approach with an ethnographic method through in-depth interviews with Generation Z employees and the Human Resources Department (HRD), supported by direct observation in the company's work environment. The results show that social capital plays a fundamental role in forming the work commitment of Generation Z employees. Social support from work teams, open communication, harmonious working relationships, and trust between employees and supervisors create a sense of comfort, security, and emotional attachment to the organization. Furthermore, the innovative work culture implemented by the company, such as work flexibility, opportunities for creativity, and work-life balance, provides a positive work experience that aligns with the characteristics of Generation Z. The synergy between social capital and innovative work culture strengthens the work commitment of Generation Z employees, both emotionally and behaviorally, thereby encouraging their intention to remain and contribute sustainably to the organization. This study is expected to serve as a reference for organizations in managing Generation Z human resources and for future research on work commitment in modern organizational settings.

Keywords: Work Commitment; Generation Z; Social Capital; Innovative Work Culture.

**ESG CONTRACTING AND ESG OUTCOMES: A CONCEPTUAL FRAMEWORK
ON THE MODERATING ROLE OF BOARD GENDER DIVERSITY AND
COMPENSATION COMMITTEE IN GCC BANKS**

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Abstract

The incorporation of environmental, social, and governance (ESG) factors into financial institutions has gained significant prominence in recent years, attracting considerable attention from both academic researchers and industry practitioners. This study develops a conceptual framework examining the relationship between ESG contracting and ESG outcomes in Gulf Cooperation Council (GCC) banks. ESG Contracting, defined as the integration of ESG criteria into executive compensation systems, is increasingly adopted as a governance mechanism to align managerial behaviour with sustainability targets. However, its effectiveness in improving ESG performance and mitigating ESG controversies remains contingent on internal governance structures. This study proposes that board gender diversity and compensation board committee play a critical moderating role in strengthening the effectiveness of ESG contracting. Drawing on Agency Theory, Stakeholder Theory, and Upper Echelons Theory, the paper develops a theoretical model explaining how governance mechanisms influence the translation of ESG-linked incentives into sustainability outcomes. The proposed framework contributes to the existing literature by integrating ESG-linked compensation design with board governance mechanisms within the underexplored context of GCC banks. By examining how governance structures influence the effectiveness of ESG contracting in enhancing ESG performance and alleviating ESG misconduct, the framework provides valuable insights for regulators, policymakers, boards of directors, and financial institutions seeking to strengthen ESG governance and enhance sustainability outcomes.

Keywords: ESG contracting, ESG performance, ESG controversies, board gender diversity, compensation board committee, GCC banks.

THE INFLUENCE OF THE MARKETING MIX (7P) ON CONSUMER REPURCHASE INTENTION AT THE MR. BENGKAYANG DIY STORE

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Abstract

The rapid development of the modern retail industry has intensified competition and encouraged retailers to develop effective marketing strategies to maintain consumers and encourage repeat purchases. This study aims to examine the influence of the 7P marketing mix, consisting of product, price, place, promotion, people, process, and physical evidence, on consumers' repurchase intention at MR. DIY Bengkayang. This study employed a quantitative approach with an associative research design. Data were collected through questionnaires from 150 consumers selected using purposive sampling and analyzed using multiple linear regression with IBM SPSS. The results show that the marketing mix simultaneously has a significant effect on repurchase intention, with an F-value of 52.655 and a significance value of 0.000. Partially, promotion, people, process, and physical evidence have positive and significant effects on repurchase intention, while product, price, and place do not have significant effects. The coefficient of determination (R^2) of 0.722 indicates that the seven marketing mix dimensions explain 72.2% of the variation in consumers' repurchase intention. These findings indicate that service- and experience-related aspects play an important role in encouraging repeat purchases in the modern retail context. The study provides practical implications for MR. DIY Bengkayang to strengthen promotional activities, employee service, shopping processes, and the physical shopping environment.

Keywords: Marketing Mix (7P), Repurchase Intention, Modern Retail, Customer Loyalty, MR. DIY.

1. Introduction

The development of the modern retail industry has significantly changed the competitive environment in the retail sector. Retailers are no longer required to compete only through product availability and price, but also through their ability to provide a satisfactory shopping experience. Increasing consumer selectivity has encouraged retailers to develop marketing strategies that can attract consumers and maintain their intention to purchase from the same retailer. In this context, repurchase intention is an important indicator because it reflects consumers' willingness to return and make purchases based on their previous shopping experience.

Repurchase intention refers to a consumer's tendency or willingness to repurchase products from the same retailer after having previous purchasing experience. Consumers who have a positive shopping experience are more likely to return, make repeated purchases, and recommend the retailer to others. Therefore, understanding the factors that encourage

repurchase intention is important for modern retail businesses, particularly amid increasing competition between modern retailers and local stores.

One approach that can be used to understand consumer purchasing behavior is the marketing mix. The 7P marketing mix consists of product, price, place, promotion, people, process, and physical evidence. These seven elements provide a broader framework for evaluating marketing activities because they cover not only product-related factors but also service and shopping experience. In the modern retail context, consumers may consider product availability, price, store location, promotional activities, employee service, shopping processes, and the physical condition of the store when evaluating their overall shopping experience. Therefore, the implementation of the 7P marketing mix is considered relevant for analyzing factors that may influence consumers' repurchase intention.

The application of the 7P marketing mix is particularly relevant in the retail sector because consumers interact directly with the retail environment during the purchasing process. Product represents the goods offered to meet consumer needs, while price reflects the value that consumers exchange for those products. Place relates to the accessibility of the store, and promotion communicates information regarding products and promotional offers. Meanwhile, people refers to employees who interact with consumers, process concerns the procedures experienced during shopping and transactions, and physical evidence represents the tangible aspects of the retail environment. The combination of these elements can shape consumers' perceptions and experiences during their visits to a retail store.

The modern retail industry in Bengkayang has its own characteristics. The number of modern retail stores in the area is still relatively limited, while competition also comes from local stores that provide similar products. This condition creates competition in terms of product offerings, pricing, promotional activities, service, and shopping convenience. As a result, retailers need to understand which marketing factors are most relevant to encourage consumers to return and make repeat purchases.

MR. DIY Bengkayang provides an appropriate setting for examining this issue. As a modern retail store, MR. DIY offers various products for household and lifestyle needs. The store operates in Bengkayang, an area located within the Indonesia–Malaysia border region. This geographical context provides a distinctive setting for examining consumer behavior because purchasing patterns may be influenced by the characteristics of the local market and the presence of competition from local retailers. Understanding the role of the 7P marketing mix in this context can therefore provide useful empirical evidence regarding consumer repurchase intention in a modern retail environment.

Previous studies have shown that the marketing mix can influence consumer purchasing behavior and repurchase intention. Christine & Budiawan, (2017) found that the 7P marketing mix influenced consumers' repurchase intention at House of Moo Semarang. Pradita *et al.*, (2023) also found a positive influence of the 7P marketing mix on repurchase intention at Gramedia Bookstore Pangkalpinang. Furthermore, Az-zahra & Aprianingsih (2023) found that the marketing mix and service quality influenced repurchase intention through customer

satisfaction as an intervening variable. These findings indicate that the marketing mix can play an important role in encouraging consumers to return to a business.

However, the influence of each element of the marketing mix may differ depending on the characteristics of the business and its consumers. Previous studies have also been conducted in different business contexts, including food services, bookstores, and other service-oriented businesses. Therefore, further examination is needed to understand whether the same marketing mix dimensions influence repurchase intention in modern retail, particularly in a border-area context such as Bengkayang.

Based on this research context, this study examines the influence of the seven elements of the marketing mix product, price, place, promotion, people, process, and physical evidence on consumers' repurchase intention at MR. DIY Bengkayang. The study seeks to determine whether all elements of the 7P marketing mix influence consumers' repurchase intention. By examining these relationships, the study is expected to provide empirical evidence regarding the role of the 7P marketing mix in shaping consumer repurchase intention at MR. DIY Bengkayang and contribute to a better understanding of marketing strategies in the modern retail sector.

2. Literature Review

2.1 Marketing Mix (7P)

The marketing mix is one of the fundamental concepts in marketing that is used to develop strategies for meeting consumer needs while achieving organizational objectives. The traditional marketing mix consists of four elements, namely product, price, place, and promotion. As marketing practices developed, particularly in service-oriented businesses, the concept was expanded into the 7P marketing mix by adding people, process, and physical evidence. The seven elements provide a broader framework for examining marketing activities because they include both product-related factors and service-related aspects that shape the consumer experience.

In the context of modern retail, the 7P marketing mix is relevant because consumers evaluate more than the products offered by a retailer (Kotler & Keller, 2021). The overall shopping experience can also be influenced by the price of products, store accessibility, promotional activities, employee interactions, transaction processes, and the physical condition of the store. Therefore, each element of the marketing mix can contribute to consumers' perceptions of the retailer and their subsequent purchasing behavior.

Product refers to the goods offered by a retailer to meet consumers' needs and wants. In modern retail, product-related considerations may include product variety, availability, quality, and suitability for consumer needs. A retailer that provides products according to consumer expectations can create a positive perception of the shopping experience.

Price represents the amount of value exchanged by consumers to obtain a product. Consumers may consider whether the price offered is appropriate in relation to the products they receive. Competitive and reasonable pricing can influence consumers' perceptions and purchasing decisions.

Place relates to the location and accessibility of a retailer. A store that is easy to reach can provide convenience for consumers during the shopping process. Accessibility is therefore one of the factors that can shape consumers' perceptions of a retail store.

Promotion refers to marketing activities used to communicate information about products and offers to consumers. Discounts, special offers, and other promotional activities can attract consumers' attention and encourage purchasing behavior. Effective promotion can also remind consumers about the retailer and encourage them to return.

People refers to individuals involved in delivering services to consumers, particularly employees who interact directly with customers. Employee friendliness, responsiveness, and professionalism can influence consumers' shopping experiences. Positive interactions between employees and consumers can contribute to satisfaction and encourage consumers to revisit the retailer.

Process refers to the procedures and activities experienced by consumers during the shopping and transaction process. Efficient product arrangements, convenient shopping procedures, and smooth payment processes can reduce the effort required by consumers and create a more comfortable shopping experience.

Physical evidence refers to the tangible aspects of the retail environment that consumers can observe. These include store cleanliness, layout, lighting, product displays, and supporting facilities. A clean, organized, and comfortable physical environment can create a positive impression and support a favorable shopping experience.

The seven elements are interconnected in shaping the overall consumer experience. Therefore, the implementation of the 7P marketing mix provides a comprehensive framework for examining how different marketing elements may influence consumer behavior in modern retail.

2.2 Repurchase Intention

Repurchase intention refers to consumers' willingness or tendency to purchase products again from the same retailer after experiencing a previous purchase. It represents a behavioral intention that indicates the possibility of consumers returning to the same business for future purchases (Kotler & Keller, 2016). Repurchase intention is important for retail businesses because repeated purchases can contribute to customer retention and the continuity of business relationships.

Consumers' repurchase intention can be influenced by their previous shopping experiences. When consumers perceive that their expectations have been met and that the overall purchasing experience is satisfactory, they may be more willing to return to the same retailer. Conversely, an unsatisfactory experience may reduce consumers' willingness to make future purchases from the same retailer.

In modern retail, repurchase intention is closely related to the overall shopping experience. Consumers may consider not only the products they purchase but also promotional

activities, employee service, transaction procedures, and the physical environment of the store. Therefore, retailers need to pay attention to the factors that can create positive experiences and encourage consumers to return.

2.3 Relationship between Marketing Mix (7P) and Repurchase Intention

Theoretically, the elements of the 7P marketing mix can influence consumer purchasing behavior and subsequent behavioral intentions. Product can influence consumers through the availability and suitability of products, while price can shape consumers' perceptions of the value they receive. Place can provide convenience through accessibility, and promotion can communicate information and offers that encourage consumers to make purchases.

The three additional elements of the 7P marketing mix are also relevant to consumer repurchase intention. People concerns the quality of interaction between employees and consumers. Friendly, responsive, and professional employees can create positive shopping experiences. Process concerns the efficiency and convenience of the procedures experienced by consumers during shopping and transactions. A simple and smooth process can reduce consumers' effort and increase their comfort. Physical evidence concerns the tangible environment of the retailer, including cleanliness, store layout, facilities, and overall shopping conditions, which can influence consumers' perceptions of the quality of their shopping experience.

Previous studies have demonstrated that the marketing mix can influence repurchase intention, although the influence of individual elements may vary across different business contexts. Christine and Budiawan (2017) found that the 7P marketing mix influenced consumers' repurchase intention at House of Moo Semarang. Pradita et al. (2023) also found that the marketing mix had a positive influence on repurchase intention at Gramedia Bookstore Pangkalpinang. In addition, Az-Zahra and Aprianingsih (2023) found that the marketing mix and service quality influenced repurchase intention through customer satisfaction as an intervening variable.

These findings indicate that the implementation of the marketing mix can contribute to consumers' intention to repurchase. However, differences in business characteristics, consumer characteristics, and market environments may result in differences in the influence of each marketing mix element. Therefore, examining all seven elements in the context of modern retail at MR. DIY Bengkayang is important for understanding which marketing factors are associated with consumers' repurchase intention.

3. Metodology

This study employed a quantitative research approach using an associative research design to examine the influence of the 7P marketing mix on consumers' repurchase intention at MR. DIY Bengkayang. The quantitative approach was selected because it enables the measurement of relationships among variables through statistical analysis and hypothesis testing. The study examined the effects of seven independent variables, namely product, price, place, promotion, people, process, and physical evidence, on the dependent variable, namely repurchase intention.

The research was conducted at the MR. DIY Bengkayang Store, located on Jalan Sanggau Ledo, Bengkayang, West Kalimantan, Indonesia. The population consisted of all

consumers of the MR. DIY Bengkayang Store. The sample consisted of 150 respondents who had previously purchased products at the store. Primary data were collected through consumer questionnaires, while secondary data were obtained from books, academic journals, and other relevant literature.

The sampling technique used in this study was purposive sampling. Respondents were selected based on predetermined criteria, namely consumers who had purchased products at MR. DIY Bengkayang and were willing to participate in the research. A total of 150 respondents were included in the study and their responses were used for further analysis.

Data were collected using a structured questionnaire. The questionnaire measured the seven dimensions of the marketing mix, namely product, price, place, promotion, people, process, and physical evidence, as well as the repurchase intention variable. The questionnaire used a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Before hypothesis testing, the research instrument was evaluated through validity and reliability tests. The validity test was conducted to determine whether each questionnaire item was able to measure the intended variable, while the reliability test was used to determine the consistency of the measurement instrument. The results showed that all questionnaire items were valid, with the calculated correlation values exceeding the table value of 0.160. The reliability test also showed that all variables met the reliability criteria, with Cronbach's Alpha values ranging from 0.71 to 0.90.

Data analysis was conducted using IBM SPSS. The analysis procedure included descriptive analysis, validity and reliability testing, classical assumption testing, and multiple linear regression analysis. Classical assumption testing included normality and multicollinearity tests. Hypothesis testing was conducted using the t-test to examine the partial effect of each independent variable on repurchase intention. The F-test was used to examine the simultaneous effect of the marketing mix variables, while the coefficient of determination (R^2) was used to determine the explanatory ability of the regression model.

4. Results and Discussion

4.1 Instrument Test Results

A total of 150 respondents participated in this study. Before hypothesis testing was conducted, the research instrument was evaluated through validity and reliability tests to ensure that the questionnaire items were appropriate for measuring each research variable. The validity test was conducted by comparing the calculated correlation value (r count) with the table value (r table). With 150 respondents, the r table value was 0.160. The results showed that all questionnaire items had r count values greater than 0.160, indicating that all items were valid.

Table 1. Validity Test Results

Variabel	Kode Indikator	R hitung	R tabel	Keterangan
Product	P1	0,827	0.160	Valid
	P2	0,901	0.160	Valid
	P3	0,871	0.160	Valid

Price	H1	0,834	0.160	Valid
	H2	0,81	0.160	Valid
	H3	0,752	0.160	Valid
Place	T1	0,866	0.160	Valid
	T2	0,861	0.160	Valid
	T3	0,775	0.160	Valid
Promotion	Pr1	0,881	0.160	Valid
	Pr2	0,871	0.160	Valid
	Pr3	0,875	0.160	Valid
People	O1	0,868	0.160	Valid
	O2	0,904	0.160	Valid
	O3	0,824	0.160	Valid

The reliability test was conducted using Cronbach's Alpha. The results showed that all variables had Cronbach's Alpha values above 0.70. Therefore, all variables were considered reliable.

Table 2. Reliability Test Results

Variable	Number of Items	Cronbach's Alpha	Description
Product	3	0.82	Reliable
Price	3	0.71	Reliable
Place	3	0.78	Reliable
Promotion	3	0.83	Reliable
People	3	0.83	Reliable
Process	3	0.87	Reliable
Physical Evidence	3	0.82	Reliable
Repurchase Intention	4	0.90	Reliable

These results indicate that all questionnaire items were valid and the measurement instruments demonstrated acceptable internal consistency. Therefore, the instrument was considered appropriate for further analysis.

4.2 Classical Assumption Test Results

The classical assumption tests consisted of normality and multicollinearity tests. The normality test was conducted using the One-Sample Kolmogorov–Smirnov test. The test was performed on 150 standardized residual observations and produced a test statistic of 0.108 with an Asymp. Sig. (2-tailed) value of 0.000.

Although the significance value was below 0.05, the study considered the residual distribution to be approximately normal based on the Central Limit Theorem given the sample size of 150 respondents. The multicollinearity test was assessed using tolerance and Variance Inflation Factor (VIF) values.

Table 3. Multicollinearity Test Results

Variable	Tolerance	VIF
Product	0.618	1.619
Price	0.663	1.509

Place	0.609	1.642
Promotion	0.513	1.949
People	0.375	2.665
Process	0.324	3.090
Physical Evidence	0.379	2.642

All independent variables had tolerance values greater than 0.10 and VIF values below 10. These results indicate that the regression model did not experience multicollinearity among the independent variables.

4.3 Multiple Linear Regression and Partial Hypothesis Testing

Multiple linear regression analysis was conducted to determine the effect of the seven marketing mix dimensions on consumers' repurchase intention. The partial effect of each independent variable was examined using the *t*-test.

Table 4. Multiple Linear Regression and t-Test Results

Variable	B	Std. Error	Beta	t	Sig.
Constant	0.136	0.961	–	0.142	0.888
Product	0.070	0.066	0.059	1.055	0.293
Price	0.043	0.075	0.032	0.580	0.563
Place	-0.032	0.074	-0.025	-0.434	0.665
Promotion	0.336	0.079	0.263	4.260	0.000
People	0.384	0.093	0.229	4.133	0.000
Process	0.265	0.107	0.192	2.474	0.015
Physical Evidence	0.269	0.098	0.199	2.761	0.007

The regression results show that product, price, and place do not have significant effects on repurchase intention because their significance values are greater than 0.05. In contrast, promotion, people, process, and physical evidence have positive and significant effects because their significance values are below 0.05. The regression equation can be expressed as:

Repurchase Intention = 0.136 + 0.070 Product + 0.043 Price – 0.032 Place + 0.336 Promotion + 0.384 People + 0.265 Process + 0.269 Physical Evidence

4.4 Simultaneous Test (F-Test)

The F-test was conducted to determine whether the seven marketing mix variables simultaneously influence consumers' repurchase intention.

Table 5. Simultaneous Test Results (F-Test)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	693.920	7	99.131	52.655	0.000
Residual	267.340	142	1.883		
Total	961.260	149			

The results show an F-value of 52.655 with a significance value of 0.000, which is below 0.05. Therefore, the regression model is statistically significant, indicating that product, price, place, promotion, people, process, and physical evidence simultaneously have a significant effect on consumers' repurchase intention at MR. DIY Bengkayang.

This finding confirms that the seven elements of the marketing mix collectively contribute to explaining consumers' intention to repurchase, even though the individual effects of the seven dimensions differ.

4.5 Coefficient of Determination

The coefficient of determination (R^2) was used to determine the extent to which the independent variables explain variations in consumers' repurchase intention.

Table 6. Coefficient of Determination (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.850	0.722	0.708	137.211

The results show an R value of 0.850, indicating a strong relationship between the seven marketing mix variables and repurchase intention. The R Square value of 0.722 indicates that the seven independent variables jointly explain 72.2% of the variation in consumers' repurchase intention.

Meanwhile, the Adjusted R Square value of 0.708 indicates that after adjustment for the number of independent variables included in the model, approximately 70.8% of the variation in repurchase intention can be explained by the marketing mix variables. The remaining 29.2% is explained by other factors that are not included in this research model.

4.6 Hypothesis Testing Results.

The results of the partial and simultaneous hypothesis testing are summarized in Table.7

Table 7. Summary of Hypothesis Testing

Hypothesis	Relationship	Sig.	Result
H1	Product → Repurchase Intention	0.293	Not Supported
H2	Price → Repurchase Intention	0.563	Not Supported
H3	Place → Repurchase Intention	0.665	Not Supported
H4	Promotion → Repurchase Intention	0.000	Supported
H5	People → Repurchase Intention	0.000	Supported
H6	Process → Repurchase Intention	0.015	Supported
H7	Physical Evidence → Repurchase Intention	0.007	Supported

The results indicate that H1, H2, and H3 are not supported, while H4, H5, H6, and H7 are supported. Furthermore, the F-test confirms that the seven marketing mix dimensions simultaneously have a significant effect on repurchase intention.

4.2 Discussion

The findings show that the seven dimensions of the marketing mix do not have an equal influence on consumers' repurchase intention at MR. DIY Bengkayang. Product, price, and place were found to have no significant partial effects, with significance values of 0.293, 0.563, and 0.665, respectively. This indicates that product variety, pricing, and store accessibility are not the primary factors determining consumers' intention to repurchase. In the context of MR. DIY Bengkayang, consumers may perceive product availability and price as relatively common characteristics among modern retailers, while the store location may already provide sufficient accessibility. Therefore, these factors may have less influence when consumers evaluate whether to return to the store.

In contrast, promotion, people, process, and physical evidence were found to have positive and significant effects on repurchase intention. Promotion had a significance value of 0.000, people 0.000, process 0.015, and physical evidence 0.007. These findings indicate that consumers are more likely to return when they receive attractive promotional offers, positive interactions with employees, convenient shopping and payment processes, and a comfortable physical environment. Among these variables, people had the largest regression coefficient ($B = 0.384$), followed by promotion ($B = 0.336$), physical evidence ($B = 0.269$), and process ($B = 0.265$), indicating the relatively important role of service- and experience-related factors in encouraging repeat purchases.

The simultaneous test further confirms the importance of the marketing mix as an integrated strategy. The F-test produced a value of 52.655 with a significance value of 0.000, indicating that product, price, place, promotion, people, process, and physical evidence collectively have a significant effect on repurchase intention. Furthermore, the R Square value of 0.722 indicates that the seven marketing mix dimensions explain 72.2% of the variation in consumers' repurchase intention, while the remaining 27.8% is explained by factors outside the research model. These results demonstrate that although several dimensions do not have significant individual effects, the marketing mix as a whole remains relevant in explaining consumers' repurchase intention.

Overall, the findings suggest that service quality and shopping experience are more influential than product-related factors in encouraging repeat purchases at MR. DIY Bengkayang. This result supports previous research by Christine and Budiawan (2017), Pradita et al. (2023), and Az-Zahra and Aprianingsih (2023), which demonstrated the relevance of the marketing mix in influencing repurchase intention. However, the present findings provide a different emphasis by showing that the influence of individual 7P dimensions varies according to the retail context. Therefore, MR. DIY Bengkayang should maintain an integrated marketing strategy while giving greater attention to promotional activities, employee service, efficient processes, and a comfortable physical shopping environment to strengthen consumers' intention to repurchase.

5. Conclusion

This study examined the influence of the 7P marketing mix on consumers' repurchase intention at MR. DIY Bengkayang. The results show that the marketing mix simultaneously has a significant effect on repurchase intention. However, the influence of each dimension varies. Product, price, and place do not have significant effects on repurchase intention, while promotion, people, process, and physical evidence have positive and significant effects.

The findings indicate that consumers' intention to repurchase at MR. DIY Bengkayang is more strongly associated with promotional activities, employee service, shopping processes, and the physical shopping environment than with product, price, or location individually. The R Square value of 0.722 further indicates that the seven marketing mix dimensions explain 72.2% of the variation in repurchase intention.

From a practical perspective, MR. DIY Bengkayang should strengthen promotional programs, maintain good employee service, improve the efficiency of shopping and transaction processes, and maintain a clean, organized, and comfortable store environment. These efforts can contribute to a more positive shopping experience and encourage consumers to make repeat purchases. The findings also contribute empirical evidence regarding the application of the 7P

marketing mix in a modern retail context, particularly in the Bengkulu border region.

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**THE INFLUENCE OF ADVERTISING DISPLAY DESIGN AND BRAND IMAGE
ON CONSUMER PURCHASE INTENTION TOWARD EIGER PRODUCTS IN
BENGKAYANG REGENCY**

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Abstract

This study aims to analyze and evaluate the effect of advertising display design and brand image on consumer buying interest in Eiger products in Bengkayang Regency for the period 2026. The variables used in this research are advertising display design and brand image as independent variables, and consumer buying interest as the dependent variable. The data used is primary data obtained from questionnaires distributed directly to respondents. The sampling technique used was purposive sampling, with a total sample of 100 consumers of Eiger products in Bengkayang Regency. The analysis technique used is multiple linear regression. The research results partially show that the variables of advertising display design and brand image each have a positive and significant effect on consumer buying interest. Simultaneously, the variables of advertising display design and brand image have a significant effect on consumer buying interest in Eiger products in Bengkayang Regency..

Keywords: Advertising Display Design; Brand Image; Buying Interest; Eiger

**THE EFFECT OF JOB SATISFACTION AND WORK MOTIVATION ON
ORGANIZATIONAL CITIZENSHIP BEHAVIOR IN SOCIAL SERVICE, WOMEN'S
EMPOWERMENT, AND CHILD PROTECTION EMPLOYEES IN BENGKAYANG
REGENCY**

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Abstract

This study aims to find out and analyze the influence of job satisfaction and work motivation on Organizational Citizenship Behavior (OCB) in employees of the Social Service, Women's Empowerment, and Child Protection (DINSOSP3A) of Bengkayang Regency. The type of research used is a quantitative method with a causal analysis design to test the cause-effect relationship between variables. The population in this study is 37 people which includes all employees in the agency, both those who are State Civil Apparatus (ASN) and contract employees. Using saturated sampling techniques, all members of the population were used as samples in the study. Data collection was carried out through the distribution of a Likert-scale questionnaire which was then processed through a series of tests, including validity tests, reliability tests, classical assumption tests, multiple linear regression analysis, and hypothesis testing. The results of the study show that job satisfaction has a positive and significant effect on the Organizational Citizenship Behavior (OCB) of employees partially. Similarly, work motivation was found to have a positive and significant influence on OCB partially. Simultaneously, job satisfaction and work motivation have been proven to have a positive and significant effect in shaping and improving the behavior of OCB employees at the Bengkayang Regency Social Service, Women's Empowerment, and Child Protection.

Keywords: Adv Job Satisfaction, Work Motivation, Organizational Citizenship Behavior

ANALYSIS OF WORK MOTIVATION ON EMPLOYEE WORK DISCIPLINE AND PRODUCTIVITY AT PT. X.

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Abstract

This study aims to analyze work motivation and its impact on employee discipline and productivity at PT. X This research employed a qualitative method with data collected through interviews, observations, and documentation. The results indicate that employee work motivation has not been optimal. Intrinsic factors include job boredom, lack of appreciation, and limited opportunities for self-development. Extrinsic factors include compensation that is not fully aligned with workload, as well as less effective company policies, work relationships, work environment, and supervision. These conditions affect employee discipline, as reflected in tardiness, work delays, and non-compliance with company regulations. In addition, employee productivity has not reached an optimal level, as indicated by decreased work enthusiasm, reduced focus, and the inability to achieve work targets effectively. The study concludes that both intrinsic and extrinsic work motivation play an important role in improving employee discipline and productivity. Therefore, the company should enhance factors that support employee motivation to achieve better work performance.

Keywords: Work Motivation, Work Discipline, Work Productivity

THE ROLE OF VILLAGE HEAD LEADERSHIP IN COMMUNITY PARTICIPATION IN THE DEVELOPMENT OF TAPEN VILLAGE

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Abstract

This study aims to examine the role of village head leadership in fostering community participation in the development of Tapen Village, Suti Semarang District, Bengkayang Regency, West Kalimantan. Tapen Village, despite its remote geographical location with limited road access, has experienced significant and continuous development under the leadership of the current village head over the past five years. Using a qualitative case study approach, data were collected through participatory observation, in-depth interviews with seven participants, and documentation. Data analysis employed open coding, axial coding, and selective coding techniques, with triangulation applied to ensure data validity. The findings reveal that the village head performed six key leadership roles: as motivator, facilitator, mobilizer, communicator, coordinator, and supervisor. These roles were manifested through direct field involvement, provision of facilities and logistical support, transparent communication via WhatsApp groups and community meetings, structured task delegation, and ongoing monitoring and evaluation of development programs. Community participation was evident across all development stages, including planning through village deliberations, implementation through cooperative work, supervision, and utilization of development outcomes. The tangible results of this leadership include the construction of concrete paths, suspension bridges, clean water dams, posyandu health facilities, PAUD early education buildings, rural roads, primary school renovation, and a village transportation boat. This study demonstrates that participatory, communicative, and exemplary leadership is a key determinant of successful village development, particularly in isolated and underserved areas. Keywords: village head leadership, community participation, village development, qualitative case study

THE INFLUENCE OF BRAND IMAGE AND PRODUCT QUALITY ON PURCHASE INTENTION FOR SKINTIFIC SKINCARE IN BENGKAYANG REGENCY

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Abstract

This study aims to analyze the influence of brand image and product quality on purchase intention for Skintific skincare products in Bengkayang Regency. The research employs a quantitative approach with a causal method. The study sample consists of 100 respondents selected using non-probability sampling technique. Data were collected through questionnaire distribution and analyzed using multiple linear regression analysis, t-test, and F-test. The results indicate that partially, brand image has no significant effect on consumer purchase intention for Skintific skincare products in Bengkayang Regency. In contrast, product quality has a positive and significant effect on consumer purchase intention. Simultaneously, brand image and product quality have a significant effect on consumer purchase intention.

Keywords: *Brand Image, Product Quality, And Purchase Intention*

1. Introduction

In the modern era, the development of the business sector in Indonesia has grown extremely rapidly. Many shifts have taken place in people's lifestyles, especially within the expanding beauty industry, where various skincare products compete to capture consumers' attention. According to Apriliani et al. (2025), beauty products have now become one of the essential needs, particularly for women today; women are increasingly aware of the importance of caring for their skin and have made skincare part of their daily routines. According to (Damayanti & Alexandrina 2023), Skintific applies the 4P marketing method adapted to meet the needs of the Indonesian market. In terms of products, this brand prioritizes science-based skincare and features formulations that have undergone clinical testing. The brand has also obtained distribution permits from Indonesia's National Agency of Drug and Food Control (BPOM) and halal certification, ensuring safe and high-quality products.

This brand originates from Canada and was first launched in Indonesia in August 2021. The name Skintific itself is a combination of the words "Skin" and "Scientific". Skintific products are highly popular among women aged 17 to 28, as they are designed to effectively address various facial skin concerns while providing hydration, soothing the skin, and maintaining and protecting the skin barrier Apriliani et al., (2025). According to data from Kompas Market Insight (2024), in the first quarter of 2024, Skintific recorded total revenue of Rp71 billion, of which Rp64 billion came from official store sales and Rp7 billion from unofficial stores. This figure placed Skintific in the top position as the highest-selling brand, outperforming competitors such as Ms Glow with Rp59 billion, The Originote with Rp33 billion, Daviena with Rp30 billion, and Bening's with Rp13 billion. This demonstrates that Skintific delivered outstanding sales performance and dominated the beauty product segment on online platforms in Indonesia during that period.

According to information obtained from Kompas Dashboard, the period from April to June 2022 showed interesting results. According to Supriyadi (2024), this Canadian skincare brand

ranked second among leading facial care brands with total sales reaching Rp 44.4 billion. The brand is known for its slogan "Advanced Scientific Formula for Fast and Safe Beauty", and its products are well known for containing ceramides. Skintific, a skincare brand launched at the end of 2021, quickly became one of the most popular brands in Indonesia.

Research by Sara et al. (2025) proves that product quality has a positive influence on purchasing decisions for Wardah skincare in Bengkayang Regency. According to Tjiptono (2017), product quality that meets consumer expectations creates satisfaction and the intention to repurchase. Meanwhile, Arnita (2025) and Karyadi et al. (2024) find that a positive brand image built from product quality, marketing strategies, and corporate reputation strengthens consumer trust and repurchase intention. As public awareness of skincare grows, consumers are advised to be more careful in choosing products based on quality and brand reputation to ensure safety and optimal results.

2. Literature review

4.12. Definition of Brand Image

According to Apriliani et al. (2025), brand image is the impression or identity of a product that comes to consumers' minds when they recall a specific brand. Meanwhile, Dewangga & Santoso (2025) state that brand image is the form of identity of a product or service, presented through a name, symbol, design, or certain distinctive features that set it apart from competing products. According to Rahmawati et al. (2024), brand image is the views and beliefs held by consumers, which can be seen in associations embedded in their memory that always come to mind first when hearing the brand's related slogan. According to Armi et al. (2025), brand image is the overall representation of all views held about a brand, formed from various experiences and previously obtained information about that brand. A person's view of a brand relates to their attitude, which includes beliefs and preferences toward that specific brand; individuals with a positive impression of a brand are more likely to choose it when making a purchase. Brand image can convey positive knowledge and trust to consumers about a product or service, and is shaped by consumers' experiences and evaluations of the brand.

Brand image is formed when such information is received by the public. It is a collection of associations related to a brand that are firmly embedded in consumers' memory. Brand image can be shaped based on customers' assessments or opinions of the brand relative to other similar brands. It can also be evaluated by how easily the brand name and logo are remembered and pronounced. Names and logos are designed as effectively and attractively as possible to possess characteristics that help the public easily recognize the brand. According to Yunaida (2018), the elements that contribute to the formation of brand image are as follows: favorability of brand associations, strength of brand associations, and uniqueness of brand associations.

4.13. Definition Product Quality

Quality is a set of characteristics possessed by a product or service that can influence the extent to which it is able to meet various customer needs, both identifiable and unidentifiable (Kotler and Keller, 2012:143). According to Satria et al. (2017), product quality can be understood as how well a product is able to perform its functions effectively. This includes product durability, reliability level, accuracy, ease of use, ease of repair, and various other elements that can deliver customer satisfaction.

Based on Mesita and Wahyudi (2024), product quality is defined as a condition related to a product's ability to meet or even exceed consumer expectations. Quality relates not only to the

product itself, but also covers services, human resources, processes, and the environment, all of which undergo continuous change and development. In this regard, Skintific skincare products are considered to have good quality as they are formulated with natural ingredients and free from harmful substances that could cause unwanted skin reactions. Furthermore, Skintific is known for its commitment to ongoing innovation and the use of natural ingredients, making it one of the most popular skincare brands among the Indonesian public in a relatively short period. Skintific products are also viewed as meeting high quality standards, as they deliver effective results without side effects and are priced appropriately relative to the benefits consumers receive. According to Febrianti et al. (2023), there are several aspects that influence product quality, including Performance, Feature, Reliability, Durability, and Design.

4.14. Definition Purchase Intention

Purchase intention is a combination of two words, namely intention and purchase. According to the Great Dictionary of the Indonesian Language, intention means a feeling of interest or a strong desire for something, while purchase is the act of obtaining goods by paying for them. According to Sari (2020), purchase intention arises after a person considers and decides whether or not to buy the product. The intention to buy does not appear suddenly, but is influenced by several factors, such as needs, experience using the product, advertising, product quality, price, and impression of the brand. The more confident consumers are about the product, the greater their desire to buy it. In the context of skincare products, purchase intention is generally influenced by consumers' belief in the product's benefits, the safety of the ingredients used, and trust in the chosen brand.

According to Tambunan & Tobing (2024), intention is one of the most important psychological factors in guiding a person's behavior. The intention to buy begins when a person feels influenced by a product or service, and this marks the start of the process that prompts them to consider making a purchase. This stimulus can come from various sources, such as information, advertising, or experiences that capture consumers' attention.

5. Methodology

This study employs a causal quantitative method, as this approach allows researchers to objectively identify and measure the impact of independent variables on the dependent variable based on numerical data. Through statistical analysis, the cause-and-effect relationship between variables can be empirically tested. This research was conducted in Bengkayang Regency, West Kalimantan Province. The type of data used in this study is quantitative data, namely data in numerical form obtained from questionnaire responses provided by participants. The data sources applied in this study include both primary and secondary data. The target population of this study consists of existing users and potential buyers. The sampling method used is non-probability sampling with a purposive sampling approach. In this study, the sample size is set at 100 respondents based on the formula proposed by Hair et al.

6. Results and discussions

Validity Test

Table1. Validity Test Results of Brand Image, Product Quality, and Purchase Intention

Variables	Correlation	Threshold Value	Conclusion

Brand Image X1.1	0.527	0.196	Valid
Brand Image X1.2	0.611	0.196	Valid
Brand Image X1.3	0.579	0.196	Valid
Brand Image X1.4	0.411	0.196	Valid
Brand Image X1.5	0.512	0.196	Valid
Variables	Correlation	Threshold Value	Conclusion
Product Quality X2.1	0.772	0.196	Valid
Product Quality X2.2	0.811	0.196	Valid
Product Quality X2.3	0.858	0.196	Valid
Product Quality X2.4	0.826	0.196	Valid
Product Quality X2.5	0.661	0.196	Valid
Variables	Correlation	Threshold Value	Conclusion
Purchase Intention Y.1	0.808	0.196	Valid
Purchase Intention Y.2	0.783	0.196	Valid
Purchase Intention Y.3	0.907	0.196	Valid
Purchase Intention Y.4	0.848	0.196	Valid
Purchase Intention Y.5	0.792	0.196	Valid

Validity testing is used as a tool to measure or assess whether a questionnaire is legitimate or valid (Sanaky et al., 2021). In this study, validity was tested using the Pearson Product Moment correlation technique, which relates the score of each item to the total score of the corresponding variable. Based on the table presenting the validity test results for the variables of Brand Image, Product Quality, and Purchase Intention, it is shown that all statement items have a correlation value greater than the threshold value of 0.196.

Reliability Test

Table 2. Results of Reliability Test for Research Variables

Research Variables	Cronbach's Alpha N of	Items
Brand Image	0,823	5
Product Quality	0,843	5
Purchase Intention	0,879	5

The results of the reliability test show that all research variables have a Cronbach's Alpha value exceeding 0.60. The value for the Brand Image variable is 0.823, Product Quality is 0.843, and Purchase Intention is 0.879, with each variable consisting of 5 statement items. Therefore, it can be concluded that all variables in this study have met the reliability criteria, meaning the instrument used is consistent and reliable for measuring each research variable.

One-Sample Kolmogorov-Smirnov Normality Test

Table 3. One-Sample Kolmogorov-Smirnov Normality Test

Variables	One-Sample Kolmogorov Smirnov	Df (N)	Sig.
Brand Image	196	100	.001
Product Quality	147	100	.001
Purchase Intention	148	100	.001

Based on the results of the normality test using the One-Sample Kolmogorov-Smirnov method, the Brand Image variable has a significance value of $0.196 > 0.05$. Meanwhile, the Product Quality variable obtains a significance value of $0.147 < 0.05$ and the Purchase Intention variable is $0.148 < 0.05$. Based on the results of the normality test using the One-Sample Kolmogorov-Smirnov method on the residual values, it is known that this study involves 100 respondents as the research sample. The test results show an Asymp. Sig. (2-tailed) value of < 0.001 . Although the normality analysis indicates that the data do not follow a normal distribution, this is still acceptable in social studies that use data from Likert scale questionnaires. Data in social research usually come from the views and opinions of participants, so deviations from normal distribution are common.

Multicollinearity Test

Table 4. Multicollinearity Test Results

Variables	Unstandardized	Coefficiens	Collinearity Statistics	
	B	Std. Error	Tolerance	VIF
(Constant)	1.576	1.358		
Brand Image X1	0.021	0.063	0.714	1.401
Product Quality X2	0.929	0.077	0.714	1.401

Based on the multicollinearity analysis, it is found that the Tolerance values for the Brand Image (X1) and Product Quality (X2) variables are both 0.714, which exceeds the specified minimum value of 0.10. Additionally, the Variance Inflation Factor (VIF) values obtained for both variables are 1.401, which remains below the established maximum value of 10. Based on these findings, it can be concluded that there is no indication of multicollinearity among the independent variables in the regression model used.

Partial t-Test

Table 5. Partial t-Test Results

Variables	Unstandardized	Std. Error	Standardized	T	Sig.
	Coefficients		Coefficients		
	B		Beta		

(Constant)	1.576	1.358		1.161	.249
Brand Image	.021	.063	.023	-.338	.736
Product Quality	.929	.077	.833	12.115	<.001

Based on the results of the t-test in the table, the brand image variable has a calculated t-value of -0.338 with a significance value of 0.736. When compared to the t-table value of 0.1984, the calculated t-value is smaller than the t-table value ($-0.338 < 0.1984$) and the significance value is greater than 0.05 ($0.736 > 0.05$). Therefore, it can be concluded that the brand image variable does not have a significant effect on the purchase intention variable. Product Quality (X2) has a calculated t-value of 12.115. When compared to the t-table value of 0.1984, the calculated t-value is greater than the t-table value ($12.115 > 0.1984$) and has a significance value of < 0.001 , which is smaller than 0.05. Therefore, it can be concluded that partially, the Product Quality variable has a positive and significant effect on the Purchase Intention variable.

F-Test (Simultaneous)

Table 6. F-Test (Simultaneous) Results

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	654.066	2	327.033	99.842	<.001 ^b
Residual	317.724	97	3.276		
Total	917.790	99			

Based on the ANOVA table above, the calculated F value is $99.842 > 2.70$ with a significance level of < 0.001 . Since the significance value is smaller than 0.05, it can be concluded that brand image and product quality together have a significant effect on the purchase intention of Skintific skincare products in Bengkayang Regency.

Coefficient of Determination (R²) Test

Table 7. Coefficient of Determination (R²) Test Results

Model	R	R square	Adjusted square	R Std. Error of the Estimate
1	.820a	.673	.666	1.80983

Based on the analysis results, the Adjusted R Square value obtained is 0.666. This figure indicates that approximately 66.6% of the variation in the dependent variable can be explained by the changes in the independent variables used in the model, while the remaining 33.4% is influenced by other factors not included in the variables of this study.

5. Conclusion

The results of this study show that the brand image variable does not have a significant influence on purchase intention for Skintific skincare in Bengkayang Regency. This means that brand image is not yet a primary consideration for consumers when deciding whether to buy Skintific skincare products. Consumers focus more on other factors such as product quality, how well the product suits their skin condition, the benefits felt after use, and their personal experience while using the product. Therefore, even though Skintific is quite well known and has a good brand image among the public, consumers still prioritize effectiveness and tangible results from the product rather than only looking at the brand's name or reputation.

The findings also indicate that product quality has a positive impact on consumers' interest in purchasing Skintific skincare. This means that when consumers perceive better product quality, they become more motivated to buy the product. Product quality is one of the key elements consumers consider before making a purchase, especially for skincare items related to skin care and health. Therefore, skincare that can deliver benefits, is safe to use, and produces results that match consumer expectations will more easily increase public purchase intention toward Skintific products. Furthermore, this study shows that brand image and product quality together have a significant effect on interest in buying Skintific skincare in Bengkayang Regency. This demonstrates that buyer intention will increase when a product has both a positive brand image and quality that meets buyers' expectations and needs.

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THE INFLUENCE OF PRODUCT QUALITY AND PRICE ON CONSUMER SATISFACTION OF HANASUI PRODUCTS IN BENGKAYANG REGENCY

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Abstract

The development of the cosmetics industry in Indonesia has experienced rapid growth along with changes in consumer behavior and increasing public awareness regarding the importance of maintaining appearance and skin health. This condition has made competition within the cosmetics industry increasingly competitive, both among local products and with imported products. Cosmetic companies are required to be capable of producing high-quality products while offering prices that align with the value perceived by consumers. Bengkayang Regency, as one of Indonesia's border areas with Malaysia, possesses unique market characteristics because the community has access to various choices of cosmetic products from both domestic and international markets. This leads consumers to have more complex considerations before deciding on the products they will use. This study aims to analyze the influence of product quality and price on consumer satisfaction of Hanasui products in Bengkayang Regency. This study utilizes a quantitative approach with a survey method. The research sample consisted of 140 respondents who are users of Hanasui products, selected using a purposive sampling technique. Data collection was conducted through the distribution of questionnaires utilizing a five-point Likert scale. Data analysis was performed using multiple linear regression assisted by the SPSS program. The results showed that product quality has a positive and significant influence on consumer satisfaction, with a regression coefficient value of 0.472 and a significance level of 0.000. The price variable also demonstrated a positive and significant influence on consumer satisfaction, with a regression coefficient value of 0.503 and a significance level of 0.000. Simultaneous test results indicated that product quality and price together have a significant effect on consumer satisfaction, with an F value of 133.384 and significance <0.001. The Adjusted R (Square) value of 0.656 indicates that the two independent variables can explain 65.6% of the variance in consumer satisfaction, while the remaining portion is influenced by other factors outside this study.

Keywords: product quality, price, consumer satisfaction, Hanasui, local cosmetics.

1. Introduction

The cosmetic industry is one of the business sectors that has experienced significant development in recent years. Lifestyle changes in society, which increasingly pay attention to skin health aspects and appearance, have become one of the main drivers for the rising demand for cosmetic products. This phenomenon is stimulated by changes in public perceptions and awareness, which currently position self-care and aesthetic appearance as essential needs rather than mere lifestyle complements (Arnita & Kristianto, 2025). Cosmetic products today are not only used as tools to beautify oneself but have also become part of daily needs related to a person's self-confidence, self-image, and lifestyle. The development of digital technology has also exerted a major influence on the growth of the cosmetic industry. The presence of social media, e-commerce platforms, and increasing digital marketing activities make it easier for consumers to obtain information regarding various beauty products. Consumers can read reviews, compare products, understand other users' experiences, and consider quality before making a purchase. These behavioral changes require cosmetic companies to better understand

consumer needs to create competitive products and expand their market share by providing quality products at relatively affordable prices (Kristianto & Manggu, 2025).

The high potential in the cosmetics industry has also led to intensifying competition among companies. Various local cosmetic brands have begun to thrive and strive to capture consumer attention through product innovation, diverse choices, promotional strategies, and competitive pricing. On the other hand, imported cosmetic products also pose strong competition as they possess pre-established brand images and markets. This condition forces local cosmetic companies to implement appropriate strategies to maintain their product presence. One local cosmetic brand that has experienced relatively good development is Hanasui. As an Indonesian cosmetic brand, Hanasui endeavors to meet consumer needs through various beauty products tailored to the characteristics of Indonesian people. Hanasui products have a fairly wide variety, ranging from skincare products to decorative cosmetics. Besides offering product innovation, Hanasui also implements a relatively affordable pricing strategy so that it can reach consumers from various social groups.

Bengkayang Regency has an interesting market condition to study because this area directly borders Malaysia. This geographical location gives the community access to various foreign products, including cosmetic products. The border area in Bengkayang Regency, particularly in Jagoi Babang District, is known as one of the entry and exit points for trade activities between Indonesia and Sarawak (BPS Bengkayang, 2025). The availability of imported products provides more choices for consumers, thereby increasing the level of inter-product competition. Under these conditions, consumers have the opportunity to compare products based on various aspects, such as quality, price, benefits, and user experience. The flow of goods movement and vibrant economic interactions in this region make Jagoi Babang an important node in the trade dynamics of border communities (Yuniarti, 2019). High cross-border trade activities allow the entry of various consumer goods from Malaysia, through both official and unofficial channels (Awang et al., 2025). The competition occurring in the border area presents its own challenges for local cosmetic products like Hanasui.

2. Research Method

This study utilizes a quantitative approach with an associative research design. The quantitative approach was chosen because this study is associative in nature; therefore, hypothesis testing needs to be conducted, one of which is the associative hypothesis test (Sugiyono, 2015), to measure the relationship and influence of the independent variables on the dependent variable based on data obtained from respondents. Associative research is used to determine whether there is an influence of product quality and price as independent variables on consumer satisfaction as the dependent variable. The object of this study is consumers who use Hanasui products in Bengkayang Regency. The selection of the research object is based on the market conditions of Bengkayang, which has unique characteristics as a border area. The community in this region has access to various cosmetic products, both local and foreign, making it interesting to study how product quality and price factors influence the level of consumer satisfaction with local products like Hanasui.

The population in this study comprises all consumers who have used Hanasui products in Bengkayang Regency. Since the exact population size of Hanasui product users is unknown, sampling was conducted using a purposive sampling technique. This technique was used because the researchers determined specific criteria so that the selected respondents perfectly aligned with the research objectives. The criteria for respondents in this study were individuals residing in Bengkayang Regency, who had used Hanasui products, and possessed experience

in evaluating the quality and price of these products. Based on these criteria, the sample size used in this study was 140 respondents. Data collection was carried out by distributing questionnaires to respondents. The questionnaire was structured based on indicators of each research variable, namely product quality, price, and consumer satisfaction. Each statement in the questionnaire was measured using a five-point Likert scale. A score of 1 indicates the strongly disagree category, a score of 2 indicates disagree, a score of 3 indicates moderately agree, a score of 4 indicates agree, and a score of 5 indicates strongly agree. The use of the Likert scale aims to convert respondents' perceptions or opinions into numerical data that can be analyzed statistically. Through this scale, researchers can determine the level of consumer evaluation of Hanasui's product quality, perceptions of the offered prices, and the level of satisfaction after using the products. Before proceeding to further analysis, the research instrument was first tested through validity and reliability tests.

3. Results and Discussion

Prior to testing the relationships between variables, this study first conducted instrument testing. This stage was performed to ensure that all statements in the questionnaire were capable of measuring the research variables accurately and consistently. Instrument testing consisted of a validity test and a reliability test.

Validity Test

The validity test is used to determine whether each question item in the questionnaire is able to measure the studied variable accurately. An indicator is declared valid if the calculated r value is greater than the critical r table value. In this study, the number of respondents was 140 people, so the r table value used was 0.166. The validity test was conducted to determine the accuracy level of each indicator in measuring the studied variable. A statement item can be considered valid if the correlation value between the item score and the total score has an greater than the. In this study, the number of respondents used was 140 people, so the value used was 0.166. The test results showed that all indicators for the variables of product quality, price, and consumer satisfaction had values above the. Thus, all statements used in the questionnaire were declared valid and capable of representing the research variables. For the product quality variable, all indicators showed results that met the validity criteria. The first indicator obtained an value of 0.792, the second indicator was 0.776, the third indicator was 0.745, the fourth indicator was 0.276, and the fifth indicator was 0.792. Although there were differences in correlation values among indicators, all of these values remained above the predetermined minimum limit.

These results indicate that the product quality indicators used in the study are capable of reflecting consumer perceptions of Hanasui's product quality. Consumers can evaluate product quality through various aspects, such as product benefits, comfort of use, suitability to needs, and the results obtained after use. For the price variable X_2 , all indicators were also declared valid. The value for the first price indicator was 0.826, the second indicator was 0.792, the third indicator was 0.791, and the fourth indicator was 0.743. These results show that the statements regarding price are capable of reflecting consumer perceptions regarding the suitability of price with the quality and benefits of the product. Meanwhile, the consumer satisfaction variable (Y) also showed valid results. The value for the first satisfaction indicator was 0.763, the second indicator was 0.730, the third indicator was 0.788, the fourth indicator was 0.753, and the fifth indicator was 0.786. This indicates that the indicators used have been able to measure the level of consumer satisfaction with Hanasui products. Based on these results, it can be concluded

that all research instruments met the validity requirements. Therefore, the data obtained from the questionnaire can be utilized for the next stage of analysis.

Reliability Test

In addition to conducting the validity test, this study also performed a reliability test to determine the consistency level of the research instrument. A reliable instrument indicates that the statements used are capable of producing stable and trustworthy measurements. The reliability test was conducted using the Cronbach's Alpha value, with the provision that a variable is considered reliable if it has a value greater than 0.60. The reliability test results showed that all research variables had Cronbach's Alpha values above the specified minimum limit. The product quality variable obtained a Cronbach's Alpha value of 0.823, the price variable obtained a value of 0.798, while the consumer satisfaction variable obtained a value of 0.821. These results indicate that all research variables possess a good level of reliability. This means that each indicator in the questionnaire has consistency in measuring the studied variables. Thus, the research instrument can be used as a data collection tool because it is capable of providing stable measurement results.

Classical Assumption Test

This testing aims to ensure that the regression model used has met statistical requirements so that the analysis results can be trusted. Classical assumption tests in this study include normality tests and multilinearity tests. Before conducting multiple linear regression analysis, this study carried out classical assumption tests. This testing aims to ensure that the regression model used meets statistical requirements so that the analysis results can provide an accurate picture of the relationships between variables. This test aims to examine whether the data meets the basic requirements of regression analysis, such as normal distribution, the absence of excessive relationships between independent variables, as well as the stability of variance and residuals (Rambe & Aslami, 2022).

Normality Test

The normality test is an important step in statistical analysis that functions to determine whether the research data is normally distributed or not, as many statistical methods require this condition (Akbar, 2018). The normality test determines whether the residual data in the regression model has a normal distribution. A good regression model is expected to have normally distributed residual data. Normality testing was conducted using the One-Sample Kolmogorov-Smirnov Test method by looking at the significance value. Based on the test results, a significance value of <0.001 was obtained. This value indicates that the residual data statistically does not meet the assumption of normality because the significance value is below 0.05. However, this condition does not directly render the research unusable. The main consideration in this study is that the sample size used was 140 respondents, where this number fulfills the requirement for a sufficiently large sample size. Based on the Central Limit Theorem concept, the distribution of regression parameter estimates in large sample sizes will theoretically approach a normal distribution.

With a sample size exceeding 30 respondents, the regression estimation results can still be used considering the characteristics of the research data. Therefore, the regression analysis was continued because it was supported by an adequate sample size as well as other statistical test results.

Multicollinearity Test

The multicollinearity test is one of the important steps in regression analysis that aims to detect the presence of excessively strong relationships between independent variables within the research model (Azizah et al., 2021). This test determines whether there is an excessively strong relationship between independent variables in the research model. This testing is performed by looking at the Tolerance and Variance Inflation Factor (VIF) values. A regression model is said to be free from multicollinearity problems if the tolerance value is greater than 0.10 and the VIF value is less than 10. The multicollinearity test was conducted to determine whether there is an excessively strong relationship between independent variables in the regression model. If high correlation occurs between independent variables, it can cause the regression analysis results to be less accurate. Multicollinearity testing was conducted by looking at the Tolerance and Variance Inflation Factor (VIF) values. The test results showed that the product quality variable had a tolerance value of 0.559 and a VIF value of 1.788. The price variable also had a tolerance value of 0.559 and a VIF value of 1.788. The tolerance values for both variables are greater than 0.10, and the VIF values are below 10. Thus, it can be concluded that the research model does not experience multicollinearity problems. This means that the product quality and price variables can be used together in the regression model because they do not have an excessively strong relationship with one another.

Multiple Linear Regression Analysis

Multiple linear regression analysis is a statistical method used to measure and explain the influence of more than one independent variable on one dependent variable (Putri & Fairuz, 2023). This method was used because the study has more than one independent variable suspected of influencing the dependent variable. Through multiple linear regression analysis, researchers can determine the direction of the relationship as well as the magnitude of the influence of product quality and price on consumer satisfaction. The regression equation in this study is used to determine changes in the level of consumer satisfaction based on changes in product quality and price. The regression model used is:

$$Y = a + b_1X_1 + b_2X_2 + e$$

Based on this equation, it can be explained that the constant value of 2.646 indicates that if the product quality and price variables are assumed to experience no changes, then the level of consumer satisfaction still has a base value of 2.646. The regression coefficient for product quality of 0.472 indicates that every increase in consumer perception of product quality will increase consumer satisfaction by 0.472, assuming other variables remain constant. This result shows that product quality plays an important role in building positive consumer experiences. Meanwhile, the price regression coefficient of 0.503 indicates that an increase in positive perception toward price will increase consumer satisfaction by 0.503. This value indicates that price makes a fairly large contribution to influencing consumer satisfaction.

Based on these results, it can be known that both independent variables have a positive direction of influence. This means that the better the product quality and the more appropriate the price provided, the higher the level of consumer satisfaction with Hanasui products.

t Test

In addition to multiple linear regression, this study also utilizes the t test to determine the partial influence of each independent variable on the dependent variable. This test helps researchers understand which variable truly makes a significant contribution to the research results (Ghozi & Hermansyah, 2018). Through the t test, it can be determined whether product quality individually influences consumer satisfaction and whether price individually influences

consumer satisfaction. Based on the t test results, the price variable also showed a positive and significant influence on consumer satisfaction with Hanasui products. The analysis results showed that the price variable had a significance value of 0.000, so it can be concluded that price has an influence on the level of consumer satisfaction. The price regression coefficient of 0.503 indicates that price provides a large contribution to changes in consumer satisfaction. This shows that consumers do not only evaluate a product based on quality but also consider whether the price paid aligns with the benefits received.

F Test

Next, an F test was conducted to determine the simultaneous influence of product quality and price variables on consumer satisfaction. This test provides a comprehensive overview of the strength of the relationship between independent and dependent variables within a research model (Putra & Haryadi, 2022). If the significance value of the F test is smaller than 0.05, it can be concluded that the independent variables simultaneously have a significant influence on the dependent variable. The F test results showed a calculated F value F of 133.384 with a significance level of <0.001. This value is smaller than the significance threshold of 0.05, so it can be concluded that the product quality and price variables simultaneously are capable of influencing consumer satisfaction.

Coefficient of Determination R^2

The final stage is testing the coefficient of determination R^2 . This testing aims to determine how much the ability of product quality and price variables can explain the changes that occur in consumer satisfaction. The R^2 value indicates how strong the relationship is between the two variables and how much influence is exerted by the independent variables on the observed results (Saputra & Zulmaulida, 2020). A larger R^2 value indicates that the independent variables have a stronger ability to explain the dependent variable. Based on the results of the coefficient of determination, an Adjusted R value of 0.656 was obtained. This value indicates that product quality and price are able to explain 65.6% of the variance in consumer satisfaction. Meanwhile, the remaining 34.4% is influenced by other factors not examined in this study. Other factors that could potentially influence consumer satisfaction include brand image, promotion, service quality, ease of obtaining products, brand trust, as well as previous user experience. This indicates that companies need to pay attention to comprehensive marketing strategies instead of solely focusing on quality and price.

4. Conclusion

This study concludes that product quality and price have a positive and significant influence on consumer satisfaction of Hanasui products in Bengkayang Regency. Consumers will provide a better evaluation when products possess quality that meets their needs and prices that are comparable to the benefits received. These results confirm that maintaining quality and setting appropriate prices are crucial steps for Hanasui in sustaining consumer satisfaction and facing the ever-growing cosmetics market competition. Therefore, the company is advised to continually maintain product quality consistency and establish competitive pricing to be able to survive and thrive amidst market competition, particularly in border areas.

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CUSTOMER LOYALTY DETERMINATION: ASPECTS OF SERVICE QUALITY AND USER SATISFACTION OF SHOPEE IN BENGKAYANG REGENCY

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Abstract

Customer loyalty is a crucial factor determining the success of e-commerce companies in maintaining competitiveness amidst the rapid development of digital commerce. This study aims to analyze the influence of consumer satisfaction and service quality on Shopee's customer loyalty in Bengkayang Regency. This study utilizes a quantitative approach with an associative research design to examine the relationships between variables. Data collection was conducted by distributing questionnaires to 120 respondents who are Shopee users in Bengkayang Regency. The research sample was selected using a purposive sampling technique as part of the non-probability sampling method. The obtained data were analyzed using multiple linear regression with the assistance of SPSS version 16 software.

The analysis results indicate that, partially, consumer satisfaction exerts a positive and significant influence on customer loyalty, with a significance value of $0.013 < 0.05$. Service quality is also proven to have a positive and significant influence on customer loyalty, with a significance value of $0.000 < 0.05$. Furthermore, simultaneous testing results demonstrate that consumer satisfaction and service quality jointly have a significant effect on Shopee's customer loyalty in Bengkayang Regency, with a significance value of $0.000 < 0.05$.

The research findings indicate that a consistent increase in service quality, accompanied by efforts to maintain consumer satisfaction, can strengthen customer loyalty. Therefore, Shopee needs to continuously optimize its service quality to retain customers while enhancing competitiveness amid increasingly intense competition among e-commerce platforms.

Keywords: Consumer Satisfaction, Service Quality, Customer Loyalty, Shopee.

1. Introduction

The development of information technology has brought massive changes to public life, particularly regarding consumer behavior during shopping activities. Advancements in digital technology enable various community needs to be met more quickly, easily, and efficiently, including in the buying and selling transaction process. This condition has also driven shifts in marketing strategies, which now increasingly utilize digital media as the primary means to reach consumers (Ratnaningtyas & Wulandari, 2025)

In today's digital era, technological innovation not only alters the form of services provided by companies but also changes how those services are delivered to customers. One form of this development is the emergence of e-commerce, an internet-based trading platform that allows sellers and buyers to transact without having to meet face-to-face. Through applications and websites, consumers can search for product information, make payments, and monitor the shipping process more practically (Firdaus & Astuti, 2024)

The growth of the e-commerce industry in Indonesia shows remarkably rapid development. The increasing use of the internet across various regions is one of the main factors driving people to switch from conventional shopping patterns to online shopping. This condition has rendered competition among marketplace platforms increasingly competitive. Therefore,

companies are not only required to attract new customers but must also retain existing customers to remain loyal to the platform used (Sandika et al., 2025)

Based on GoodStats data, Shopee is the most frequently used marketplace by the Indonesian public with a percentage of 53.22%, followed by TikTok Shop (27.37%), Tokopedia (9.57%), Lazada (9.09%), Blibli (0.29%), Facebook Marketplace (0.25%), and other platforms (0.21%).

Shopee was first introduced in Singapore in 2015 and subsequently expanded its operations to various countries in Southeast Asia, including Indonesia (Manihuruk, 2023). Although the number of Shopee users continues to increase, maintaining customer loyalty remains a challenging task. Increasingly fierce competition provides consumers with many options, allowing them to easily switch to other platforms if they feel dissatisfied with the services or shopping experiences they receive (Kristianto & Manggu, 2025).

Several complaints frequently voiced by users include delayed delivery of goods, product quality not matching descriptions, and customer service that is deemed less responsive. These conditions can affect consumer satisfaction levels, which ultimately impact customer loyalty toward using a platform (Sandika et al., 2025).

Consumer satisfaction is a vital factor capable of building long-term relationships between companies and customers (Patmawati et al., 2025). Consumers will feel satisfied if the products or services received match or even exceed their expectations. Conversely, if the experience obtained fails to meet expectations, the likelihood of customers switching to another platform will increase. Therefore, the level of customer satisfaction serves as an important indicator in maintaining consumer loyalty. Previous research findings also indicate that consumer satisfaction exerts a positive and significant influence on customer loyalty (Arnita & Kristianto, 2025).

In addition to consumer satisfaction, service quality also plays a critical role in shaping customer loyalty. Fast, accurate, responsive, friendly service that offers solutions to customer problems will create a positive shopping experience. When customers receive quality service, they tend to have higher trust in the company, thereby encouraging repeat purchases and long-term platform retention (Dewi et al., 2023). A study by Ngantung et al (2022) also proves that service quality exerts a positive and significant influence on customer loyalty. This finding is further reinforced by research from (Ayuni & Kristianto, 2025), which states that customers who receive good service tend to have higher levels of loyalty.

In the context of e-commerce, service quality relates not only to the interaction between customers and the company but also encompasses application usability, transaction processing speed, payment security, delivery accuracy, and the capability of customer service to resolve user complaints. Therefore, Shopee needs to continuously improve its service quality to align with consumer needs and expectations, thereby creating a satisfying shopping experience (Afiah & Prabowo, 2023).

Customer loyalty is a highly valuable asset for companies because loyal customers not only make repeat purchases but are also willing to recommend products or services to others (Anggraeni et al., 2016). Customers who have experienced satisfaction with a product or service tend to continue using it in the long run and recommend it to others (Ettah & Pondaag, 2019). In the e-commerce industry, customer loyalty becomes one of the primary factors determining business sustainability amidst increasingly competitive digital rivalries (Sandika et al., 2025).

The development of internet access in West Kalimantan Province also shows an increasing trend. Based on data from the Central Bureau of Statistics (2025), as many as 71.57% of West Kalimantan's population accessed the internet in 2024. This increase indicates that digital technology has become an essential part of public activities, both for obtaining information and conducting online transactions.

A similar condition is observed in Bengkayang Regency. The development of telecommunication infrastructure through the addition of Base Transceiver Stations (BTS) across various sub-districts has enhanced the quality of public internet access. This development provides convenience for the people of Bengkayang to utilize various digital services, including using e-commerce applications as a means of shopping (Dedi, 2022).

The increasing ease of internet access has shifted public consumption patterns from face-to-face transactions to digital-based transactions (Amory et al., 2025). This phenomenon demonstrates that the community in Bengkayang Regency is becoming more capable of adapting to advancements in information technology and is increasingly active in utilizing digital services in their daily lives.

Based on this phenomenon, this study was conducted to analyze the influence of consumer satisfaction and service quality on Shopee's customer loyalty in Bengkayang Regency. This research is expected to provide information regarding the factors affecting customer loyalty, serving as consideration for Shopee to improve service quality and retain customers amidst increasingly competitive e-commerce industry rivalries.

2. Research Methods

This study utilizes a quantitative approach with an associative research design. The quantitative approach was chosen because the research focuses on collecting data in the form of numbers, which are subsequently analyzed using statistical methods to test the formulated hypotheses. According to (Sugiyono, 2020), quantitative research is a research method based on the philosophy of positivism, used to examine specific populations or samples through data collection using research instruments. Meanwhile, associative research aims to determine the relationship or influence between two or more variables (Sugiyono, 2022).

The population in this study comprises all Shopee application users residing in Bengkayang Regency. Respondents selected as samples had to meet several criteria: being at least 17 years old and having conducted purchase transactions through Shopee at least twice within the last three months. These criteria were established to ensure respondents truly had experience using Shopee services to provide answers corresponding to the research objectives.

The sampling technique employed non-probability sampling, a method where not all population members have an equal opportunity to be selected as respondents (Sugiyono, 2023). The specific technique chosen was purposive sampling, which determines samples based on specific considerations or characteristics set by the researcher in accordance with research needs (Sugiyono, 2023). This technique was selected because not all members of the population possess experience relevant to the variables under study.

The sample size in this study was 120 respondents. The determination of this number refers to the opinion of (Hair et al., 2010), which states that the research sample size can be determined as five to ten times the number of indicators used. Thus, the number of respondents used is considered to have met the requirements for statistical analysis.

The data sources in this study consist of primary data and secondary data. Primary data were obtained directly through the distribution of questionnaires to respondents, while secondary data originated from various references, such as books, scientific journals, articles, and other sources related to the research topic. The research instrument utilized a five-point Likert scale, where a score of 1 indicates strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree. This scale was used to measure respondents' perceptions of each indicator across the research variables.

The collected data were then analyzed using multiple linear regression analysis with the assistance of the SPSS version 16 software. This analysis aims to determine the extent of the influence of the consumer satisfaction variable (X_1) and service quality variable (X_2) on customer loyalty (Y).

Before hypothesis testing was carried out, the quality of the research instruments was first evaluated through validity and reliability testing. Validity testing aims to ensure that each question item is capable of accurately measuring the variable under study, while reliability testing is conducted to determine the consistency level of the instrument in generating research data.

Subsequently, classical assumption tests were conducted, including normality and multicollinearity tests. The normality test aims to determine whether the residual data are normally distributed, while the multicollinearity test is used to ensure that no high correlation exists among the independent variables in the regression model. This testing is required so that the regression model meets basic assumptions and produces accurate estimates.

The final stage of the research is hypothesis testing, which is conducted through the t-test, F-test, and the coefficient of determination (R^2). The t-test is used to determine the partial influence of each independent variable on the dependent variable. The F-test is used to test the simultaneous influence of all independent variables on the dependent variable. Meanwhile, the coefficient of determination (R^2) is used to measure the capacity of consumer satisfaction and service quality variables in explaining the variation in Shopee's customer loyalty in Bengkulu Regency.

3. Results and Discussion

Validity and Reliability Testing

According to Sugiyono, (2019), validity testing is used to assess whether a research instrument in the form of a questionnaire is truly capable of measuring the variable being studied. This test is crucial to ensure that each question item is suitable for use in research because it has been proven capable of representing the measured concept. An item is declared valid if the calculated r-value (r-count) is greater than the table r-value (r-table), whereas if it is smaller, the item is considered invalid.

Based on the validity testing results, all statement items for the variables of consumer satisfaction, service quality, and customer loyalty were declared valid. This is evidenced by the r-count values, all of which were greater than the r-table value of 0.179. For the consumer satisfaction variable, the r-count values ranged from 0.770 to 0.890. The service quality variable had values between 0.714 and 0.849, while the customer loyalty variable ranged from 0.749 to 0.817. Thus, all instruments used met the validity criteria.

Next, reliability testing was performed to determine the level of instrument consistency in measuring research variables. According to Sugiyono, (2019), an instrument is said to be reliable if it can provide consistent results over time. The test results showed that all variables had a Cronbach's Alpha value above 0.60, thus declaring them reliable.

In detail, the consumer satisfaction variable, consisting of 3 items, had a Cronbach's Alpha of 0.784. The service quality variable with 5 items obtained a value of 0.860, while the customer loyalty variable with 4 items had a value of 0.803. Based on these results, it can be concluded that all research indicators possess a good level of consistency and are dependable for further analysis.

Classical Assumption Tests

Classical assumption tests were conducted prior to multiple linear regression analysis to ensure that the model used met statistical requirements so that the estimation results could be trusted. This testing includes normality and multicollinearity tests.

Normality Test

According to Ghozali, (2018), the normality test aims to determine whether the residual data are normally distributed or not. In this study, the Kolmogorov-Smirnov method was applied, with the provision that a significance value greater than 0.05 indicates normally distributed data.

The test results showed an Asymp. Sig. (2-tailed) value of 0.003, which is smaller than 0.05. Consequently, the residual data are not normally distributed. Nevertheless, the study can still proceed because the sample size used is sufficiently large, namely more than 100 respondents, so it is still considered to meet analysis requirements Ghozali, (2018).

Multicollinearity Test

The multicollinearity test is used to detect the presence or absence of a correlation among independent variables in the regression model Ghozali, (2021). The test was performed by observing tolerance and VIF values, where multicollinearity does not occur if tolerance > 0.10 and VIF < 10.

The test results indicated that the consumer satisfaction variable had a tolerance value of 0.393 and a VIF of 2.543. The service quality variable also had a tolerance value of 0.393 and a VIF of 2.543. Since all values met the criteria, it can be concluded that there are no symptoms of multicollinearity among the independent variables.

Multiple Linear Regression Test

Multiple linear regression analysis was utilized to determine the influence of the consumer satisfaction variable (X_1) and service quality variable (X_2) on customer loyalty (Y). Based on the data processing results, the following equation was obtained:

$$Y = 4.149 + 0.308X_1 + 0.399X_2 + e$$

These results can be explained as follows. The constant value of 4.149 indicates that if the variables of consumer satisfaction and service quality are considered constant, customer loyalty remains at that value, reflecting baseline loyalty from customers.

The consumer satisfaction coefficient of 0.308 indicates that every increase in consumer satisfaction will increase customer loyalty. Meanwhile, the service quality coefficient of 0.399 shows a stronger positive influence compared to consumer satisfaction, meaning that better service quality will lead to higher customer loyalty.

t-Test (Partial)

The t-test is used to observe the individual influence of each independent variable on the dependent variable Ghozali, (2018). The test results showed that:

- a. Consumer satisfaction has a t-value of 2.530 with a significance of 0.013 (< 0.05), thereby exerting a significant influence on customer loyalty.
- b. Service quality has a t-value of 5.131 with a significance of 0.000 (< 0.05), which also indicates a significant influence on customer loyalty.

Thus, both independent variables are partially proven to have a significant influence on customer loyalty.

F-Test (Simultaneous)

The F-test is used to determine the joint influence of the independent variables on the dependent variable. The test results showed an F-value of 67.324 with a significance of 0.000, which is smaller than 0.05. This indicates that consumer satisfaction and service quality simultaneously have a significant effect on customer loyalty.

Coefficient of Determination (R^2)

The coefficient of determination is used to measure the capability of independent variables to explain variations in the dependent variable (Ghozali, 2018). The research results showed an Adjusted R Square value of 0.527.

This means that 52.7% of the variation in customer loyalty can be explained by consumer satisfaction and service quality. The remaining 47.3% is influenced by other factors such as price, brand image, promotion, trust, and customer experience, which were not examined in this study.

Discussion of Research Findings

The research results show that consumer satisfaction has a positive and significant influence on customer loyalty. This indicates that the higher the level of satisfaction perceived, the greater the likelihood of customers continuing to use Shopee services. This finding aligns with previous research stating that consumer satisfaction is an important factor in forming customer loyalty.

In addition, service quality is also proven to have a significant influence on customer loyalty. Fast, responsive, and expected service can enhance customer comfort, thereby driving the creation of long-term loyalty.

Overall, both variables play an essential role in increasing Shopee's customer loyalty in Bengkayang Regency. Therefore, improving consumer satisfaction and service quality becomes a primary strategy that needs continuous attention from the company.

Conclusion

Based on the analysis results, it can be concluded that consumer satisfaction and service quality significantly affect Shopee's customer loyalty in Bengkayang Regency, both partially and simultaneously. The research model is able to explain 52.7% of the variation in customer loyalty, while the remainder is influenced by other factors outside the scope of this study. Thus, enhancing service quality and consumer satisfaction is an important factor in maintaining customer loyalty.

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CASE STUDY ON CORRUPTION IN THE MANAGEMENT OF GOVERNMENT GOODS/SERVICES PROCUREMENT IN INDONESIA FOR THE 2024-2025 PERIOD

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Abstract

Background, government procurement of goods/services in Indonesia is the sector most vulnerable to corruption. Even though during the 2024-2025 period the government has pushed for digitalization of the system through the expansion of the latest version of the e-Catalog and updated the regulatory framework through Presidential Regulation Number 46 of 2025, corruption modus operandi continues to evolve. The pattern of irregularities has shifted from conventional methods to digital-based manipulation (cyber-bribes), tender arrangements at the planning level (budget-fixing), and splitting procurement packages to avoid open tenders. Research objective, this study aims to map out the various corruption modus operandi in government goods/services procurement management in Indonesia during the 2024-2025 period, analyze the factors causing budget leaks, and formulate adaptive risk mitigation strategies. Research method, this study uses a qualitative approach with a descriptive-analytical case study method. The data comes from analysis of legal documents of court decisions on corruption crimes throughout 2024-2025, reports on enforcement trends from law enforcement agencies (the Corruption Eradication Commission, the Prosecutor's Office, and the Police), audit reports from the Audit Board, as well as secondary literature related to public sector governance. Research and study results show that corruption in goods/services procurement during the 2024-2025 period is dominated by three main schemes: (1) collusion between service providers and certain internal officials of the Goods/Services Procurement Unit by exploiting technical feature loopholes in the e-Catalog; (2) manipulation of self-estimated prices that are inflated from the budget planning stage; and (3) weak post-contract supervision (vulnerability in contract management). The main factors that facilitate this corruption include local political conflicts of interest, low functional independence of the Goods/Services Procurement Unit, and a procurement data integration system that is not fully connected with real-time banking oversight. Conclusion: Digitalizing procurement has proven unable to be a silver bullet in eradicating corruption in goods/services procurement during the 2024-2025 period without also strengthening human resource integrity and complete transparency in the pre- and post-procurement phases. It's recommended to accelerate the implementation of AI-driven fraud detection and to strengthen protections for whistleblowers within the bureaucracy. The novelty of this research lies in offering scientific innovation by exploring the 'New Wave of Procurement Corruption' that occurred throughout the 2024-2025 period. The uniqueness of this study is in the critical analysis of irregularities happening within the integrated digital ecosystem (the latest version of the e-Catalog) and how actors exploit algorithm gaps and e-purchasing features.

Keywords: *Procurement Corruption, Government Goods/Services Procurement Management, E-Catalog, Risk Mitigation, Government Governance*

1. Introduction

Government procurement of goods and services is one of the sectors most vulnerable to corruption practices in Indonesia. The period from 2024 to 2025 is crucial because it coincides

with the national leadership transition from President Joko Widodo to President Prabowo Subianto, as well as a leadership transition within the Corruption Eradication Commission, now led by Setyo Budiyo. The phase of changes in governance in Indonesia must be accompanied by a commitment to uphold transparency and accountability, which is increasingly being tested in a real and open way. This vulnerability is also reinforced by the 2025 Integrity Assessment Survey results released by the Corruption Eradication Commission. In the measurement of the National Integrity Index, the management sector of government procurement of goods and services was highlighted as an area with high corruption risk, triggered by conflicts of interest and interventions from both internal and external government parties.

Based on the 2024-2025 Integrity Assessment Survey data released by the Corruption Eradication Commission, the goods/services procurement sector is still the main hotspot for corruption. The survey findings highlight that familial ties and collusion often continue to influence the procurement process. Nepotism in goods/services procurement undermines basic principles like fairness, efficiency, and professionalism in bureaucracy. Even in the private sector, there are records of high vulnerability to corruption cases stemming from bribery, gratuities, and misappropriation in government and local government procurement projects. Based on previous case studies, the corruption situation in government procurement is becoming more sophisticated in its modus operandi. The Corruption Eradication Commission continues to analyze the patterns, risks, and effectiveness of corruption prevention in the management of government goods/services procurement for the 2024-2025 period so that it can carry out more massive and targeted supervision for better corruption prevention in Indonesia.

Government procurement of goods and services is one of the crucial tools in carrying out national development and providing public services in Indonesia. Through the allocation of the State Budget and Regional Budget, which amounts to hundreds of trillions of rupiah each year, the procurement sector ideally has the potential to drive the economy. In practice, however, the large sums of money circulating through the procurement process actually make government procurement one of the areas most vulnerable to corruption. Weaknesses in procurement management, from planning, determining specifications, tender processes, to contract execution, are often exploited by certain individuals to collude for personal or group gain. Fenomena ini tercermin jelas dalam dinamika penegakan hukum tidak pidana korupsi di Indonesia dalam beberapa tahun terakhir khususnya 2024-2025. This phenomenon is clearly reflected in the dynamics of law enforcement regarding non-criminal corruption in Indonesia over the past few years, especially 2024-2025.

2. Literature review

2.1 Electronic Distribution Channel

The use of information technology has drastically transformed business processes. E-commerce has become a popular business model, and self-service technologies—such as internet banking and online ticketing—have become increasingly common applications that allow customers to conduct business transactions without the assistance of service providers' employees (Alfansi, 2016). Furthermore, Coelho & Easingwood, (2008) propose a model that explains changes in financial service distribution channels triggered by various drivers of change, such as market drivers (rapidly changing consumer needs, the complexity of the target market, and product sophistication), environmental drivers (environmental conflicts and changes in competitor strategies), and firm drivers (economic scope and company size). They specifically conclude that changes in financial service distribution channels are driven by

rapidly changing consumer needs, the complexity of target markets, product sophistication, environmental conflicts, changes in competitor strategies, economies of scope, and firm size.

The model of the antecedents of multiple-channel usage according to Coelho & Easingwood, (2008) is shown in Figure 2.1 as follows:

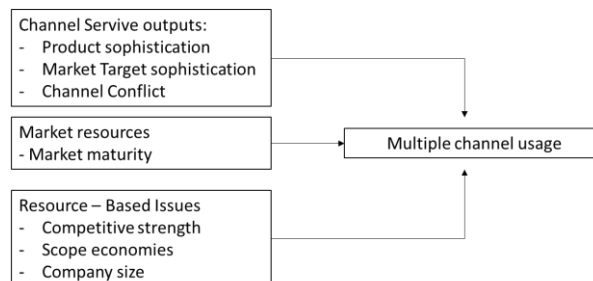


Figure 2.1
Model of The Antecedents of Multiple Channel Usage

Channel service output consists of product sophistication, target market sophistication, and channel conflict. Furthermore, market resources consist of market maturity, and resource-based issues consist of competitive strength, scope economies, and company size.

2.2 Corruption

Caiden, (2014b) explains that: “1) Corruption has been found in all political systems, at every level of government, and in the provision of all scarce public goods and services. 2) Corruption varies in terms of its origins, incidence, and significance across different geographic regions, sovereign states, political cultures, economic systems, and administrative governance structures. 3) Corruption is facilitated or hindered by the social context (including international and transnational influences) in which public power is exercised. 4) Corruption has diverse causes, takes various patterns and forms, and cannot be accurately measured due to its often uncertain and conspiratorial nature. 5) Corruption is deeply rooted, destructive, contagious, and impossible to eradicate because efforts to control it tend to be formalistic, superficial, temporary, and even counterproductive. 6) Corruption targets real power, key decision-making points, and discretionary authority. Corruption demands rewards both for access to decision-makers and for influence in the decision-making process.”

In general, it is explained that corruption has many causes and can manifest in various patterns within the context of social systems. More specifically, corruption is also described as a social ill that is difficult to eradicate. Furthermore, Caiden, (2014b) elaborates that “Corruption is facilitated by unstable political systems, uncertain economies, the unequal distribution of wealth, unrepresentative government, entrepreneurial ambitions, the privatization of public resources, factionalism, personalism, and dependency. Corruption favors the haves over the have-nots, illegal enterprises, underground economies, and organized crime. Corruption persists substantially as long as its perpetrators can coerce participation, public attitudes toward it vary widely, and it greatly benefits a privileged few at the expense of the disadvantaged masses. Corruption can be contained within acceptable limits through political will, a democratic ethos, fragmented countervailing power, legal and rational administrative norms, the inculcation of personal honesty and integrity, and the effective enforcement of public ethics, although its complete elimination remains beyond human capability”.

Corruption, in essence, has occurred in all political systems, and is a reality at nearly every level of government. Furthermore, Caiden, (2014b) explains the etymology of the word, stating

that “the word ‘corruption’ means: something sound that has been made defective, debased, and tainted; something that has been pushed off course into a worse or inferior form.” In a broader sense, corruption is equated with something that has been pushed off course into a worse or inferior form. A person who has committed corruption is considered to have strayed from the right path onto a worse or inferior path in society.

Alatas, (1987) identifies seven types of corruption, including: 1) Transactive corruption, which refers to a reciprocal agreement between the giver and the recipient for the mutual benefit of both parties; 2) Extortive corruption, which refers to the coercion of the giver into paying a bribe to prevent a loss that threatens the giver, their interests, or things they value, 3) Investive corruption, which is the provision of goods or services without a direct link to a specific benefit, other than a benefit that is expected to be obtained in the future, 4) Nepotistic corruption involves the improper appointment of friends or relatives to government positions, or actions that grant preferential treatment contrary to applicable norms and regulations, 5) Defensive corruption occurs when a victim of extortion engages in corrupt acts. This corruption is committed for the purpose of self-defense; 6) Autogenic corruption is corruption committed by an individual acting alone; 7) Supportive corruption is corruption committed to reinforce existing corruption.

2.3 Implementation of e-Procurement

The implementation of e-procurement has been extensively studied, including by Hui et al., (2014), who reported that one of the common complaints raised by contractors in the procurement process is the prevalence of interference from outside parties and cronyism, which influence the awarding of contracts. Procurement officers are blamed for malpractice and non-compliance with procurement system policies and procedures. Furthermore, research by Ibem, Aduwo, Uwakonye, Tunji-Olayeni, & Ayo-Vaughan, (2018) explains that varying levels of e-procurement technology usage, barriers to adoption, and factors influencing the adoption of e-procurement by industrial organizations significantly impact the success of procurement implementation in organizations within the Nigerian construction industry. Research on industrial organizations differs in scope from research on e-procurement in the public sector. The study by Altayyar & Beaumont-Kerridge, (2016) presents findings based on different dimensions, specifically related to nine external factors relevant to the adoption of e-procurement among Saudi Arabian SMEs, namely : “Government support, access to postal addresses and delivery services, the availability of secure and trustworthy online payment options, low-cost and high-speed internet connections, IT-related educational programs, suppliers’ willingness and readiness to participate or exert pressure, competitive pressure, policies and regulations, and the country’s business and national culture”.

Another study on e-procurement was conducted by Daoud & Ibrahim, (2017), which explains that e-procurement applications are assumed to be influenced by the technological context (relative advantages, compatibility, and complexity), the organizational context (organizational readiness, support from top management and the information systems committee), and the environmental context (competitive and regulatory pressures). Furthermore, the findings of a study by Antonio Aguiar Costa et al indicate that an entity’s administrative level influences the implementation of e-procurement, which is also influenced by the innovation adoption process Costa, Arantes, & Valadares Tavares, (2013). Sambasivan, Wemyss, & Rose, (2010) provide insights from their research showing that perceived usefulness, perceived ease of use, service guarantees by service providers, service provider responsiveness, facilitating conditions, and web design (service quality) are strongly associated with the intention to use an electronic procurement system. Another function of e-procurement implementation is its positive and significant relationship with the concepts of usefulness, ease

of use, and trust when democratic governments in developing countries seek to combat corruption in public procurement (Neupane et al., 2012).

Research Erridge Ruth Fee & McIlroy, (1998) indicates that government intervention in e-commerce should be minimal, and generally, according to Teo, Lin, & Lai, (2009), their study shows that firm size, top management support, perceived indirect benefits, and business partner influence are positively and significantly associated with the adoption of e-procurement. Non-transparent procurement processes for goods and services create a potential for corruption that is difficult to control. Research by Liao et al., (2003) explains that in the government sector, procurement is sometimes a source of corruption, scandals, and misuse of public resources. In addition to unqualified personnel, a lack of transparency in the procurement environment is another source of problems in procurement procedures; e-procurement helps minimize the risk of corruption in the procurement process.

One study that focuses on Indonesia is the research conducted by Choi et al., (2016), which recommends improving the implementation of e-Procurement by modifying the e-Government roadmap to bridge the gap between design and reality, thereby achieving e-Government objectives and realizing the full benefits of a mature e-Government system in Indonesia. Angappa Gunasekaran, Ronald E. McGaughey, Eric W.T. Ngai c, (2009) focused on research findings that revealed that, in essence, e-procurement centers on the acquisition of resources—particularly maintenance, repair, and operation goods—as well as an increasing number of materials and components. Research that has progressed to the implementation stage of e-Procurement includes a study by Junqi Liu et al., which examined green public procurement—an important environmental policy tool for sustainability Junqi Liu, Benshan Shia, Jinjie Xue, (2018), and even more uniquely, research conducted in the United States by Dawn H. Percy, Delvon B. Parker, (2008), which focuses more on the finding that the most important benefit of e-procurement is its ability to facilitate integration within the company and across the entire supply chain. One study that explains how to make government procurement more efficient, transparent, non-discriminatory, and accountable is the study conducted by T.S. Liao, M.T. Wang, (2002), which focuses on the role of legislation in the implementation of e-procurement in Taiwan.

Hermawati & Mas, (2006) focus more on explaining e-procurement in their research from the perspective of public procurement procedures, which are primarily governed by two laws: the Public Procurement Law and the Public Procurement Contracts Law. Hermawati & Mas, (2006) emphasize public procurement from a legal perspective and its application to procurement contracts law. The study by Hermawati & Mas, (2006) aims to provide comprehensive information that the procurement of goods and services at the national level must be supported by regulations at the level of law in order to impose strict sanctions for violations in the procurement of government goods and services in the public sector. In general, procurement regulations at the level of a law serve as the foundation for strict implementation because the law contains the core provisions governing sanctions for procedural violations committed by those involved in government procurement of goods and services. The comprehensive implementation of e-procurement is transforming the way businesses purchase goods; since the majority of products and services are acquired through electronic data exchange and the internet, the adoption of e-procurement is inevitable in both manufacturing and services (Gunasekaran & Ngai, 2008).

3. Methodology

This study employs a qualitative method, which emphasizes the exploratory process to understand the meaning of individual or group behavior and to describe social or humanitarian issues (Creswell, 2009). The case study selected by the researcher is a holistic single-case study. According to Yin, (2009), a holistic single-case study is a research approach that focuses

exclusively on a single major case analyzed in its entirety. The criteria used in selecting informants for this study include: informants with detailed knowledge of the procurement of goods and services—from the investigative phase through to efforts to provide the best data input regarding the concept of developing an e-Procurement implementation model in Indonesia—from the Corruption Eradication Commission of the Republic of Indonesia; and informants with detailed knowledge of procurement regulations, ranging from the planning stages of the e-Procurement system from the Government Goods and Services Procurement Policy Agency; informants competent in the field of goods and services procurement from procurement units in 9 (nine) provinces, regencies, and cities in Indonesia; informants serving as procurement analysts who, through their academic background or professional expertise, have closely followed the evolution of government goods and services procurement technology from its inception; and other parties who, based on information from the initial informants, were deemed relevant to the case studies on goods and services procurement in Indonesia, bringing the total number of informants to 79.

3.3. Theoretical Framework

The Diffusion of Innovations Theory can serve as a foundation for understanding the assimilation of e-procurement. Since the adoption of e-procurement is viewed as an innovation that creates uncertainty, procurement organizations must be aware of the relative benefits and risks associated with implementing e-procurement innovations. Different public sector institutions with varying degrees of assimilation may interpret the characteristics of e-procurement technology differently (Pani & Agrabari, 2007). According to Everett M. Rogers, (1995), there are five characteristics of the Diffusion of Innovation, namely: 1) relative advantage, 2) compatibility, 3) complexity, 4) trialability, and 5) observability. The dominant characteristic of the Diffusion of Innovations in e-Procurement studies is complexity, because in the case of goods and services procurement implementation in Indonesia, not all e-Procurement methods possess the compatibility that directly aims to minimize the risk of corruption in the application of e-Procurement.

An analysis of e-procurement from the perspective of “complexity”—a characteristic of the Diffusion of Innovations theory—can provide a general overview that e-procurement in Indonesia is currently being implemented with the same objective: to minimize the risk of corruption. E-procurement is deemed unsuccessful by some procurement practitioners if its function in reducing the risk of corruption cannot be effectively realized, as the process of digitizing procurement requires transparency, accountability, and a structured internal oversight system. The need for accountability in the procurement of goods and services is a crucial element that serves as a benchmark for the success of e-procurement implementation. Transparency in the procurement of goods and services is also essential for the oversight process to effectively mitigate corruption risks. E-procurement is a system designed to enable procurement that can be effectively monitored by stakeholders.

The application of information technology in several methods of procuring goods and services through the implementation of e-Procurement still has some operational weaknesses. These operational weaknesses are then addressed through other methods, with the primary goal of reducing the likelihood of corruption. One such method is e-Purchasing, which utilizes an e-Catalog mechanism. This set of mechanisms carries the lowest risk of fraud at every stage and in every process of management, because the entire list of purchases to be processed through the procurement of goods and services is registered in the e-Catalog, which is compiled in its entirety by a working group of the Government Goods and Services Procurement Policy Agency.

3.4. Conceptual Framework

Conceptual support from previous studies by several experts concludes that the implementation of e-purchasing methods using an e-catalog mechanism can limit opportunities for corruption. This finding is also consistent with the results of a study by Thomas Luijken and Maira Martini, (2014) titled “The Role of Technology in Reducing Corruption in Public Procurement,” which explains that the e-Catalog mechanism—through standardization and automation in procurement—poses the lowest risk of fraud in the procurement of government goods and services. The implementation of e-Procurement using the e-Purchasing method with the e-Catalog mechanism can directly prevent a series of activities involving self-imposed price markups, since the unit price list for procurement is already registered in the price catalog displayed on the national portal of the Government Goods and Services Procurement Policy Agency. This situation is also supported by the research of Lee, Mi Jung and Lee, (1996), which provides a specific illustration that procurement is part of the transparency process through Government-to-Business channels by prioritizing more efficient stages and processes, one of which is procurement spending using the e-Catalog mechanism, instrumentation.

3.5. Instrumentation

The instrument developed by the researcher to gather information from informants was an in-depth case study based on the Fraud Triangle approach (Cressey, 1953). The findings indicate that all three (3) components of the Fraud Triangle approach used in this study yielded consistent qualitative results relevant to the research objectives: mapping the various modus operandi of corruption in the management of government goods and services procurement in Indonesia during the 2024–2025 period, analyzing the factors causing budget leakage, and formulating adaptive risk mitigation strategies. Informants were selected using the approach proposed by YVonna S. Lincoln and Egon G.Guba, (1985) with a purposive sampling technique. This means that all items in the informant selection instrument are reliable for use in this qualitative study. The instrumental approaches used to support this research are as follows:

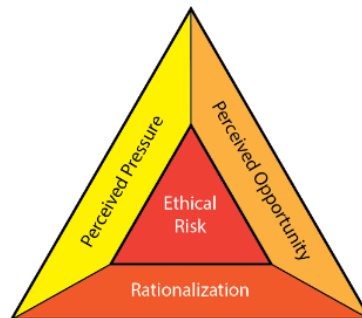


Figure 1. Research Paradigm : Fraud Heptagon

Based From Cressey, D. R. (1953) *Other People's Money: A Study in the Social Psychology of Embezzlement*. USA: Glencoe.

5. Results and discussions

4.1 Discussion: Corruption in the Procurement of Goods and Services within the Framework of the Fraud Triangle

4.1.1 Pressure: Political Goals and Debts

The first element in the corruption triangle is pressure, which in most cases takes the form of financial pressure. In the context of goods and services procurement, this pressure often stems from two sources: growth targets and political financing. Pressure to meet regional economic growth targets or infrastructure development targets is often a trigger. However,

what is more prevalent in the findings of the Corruption Eradication Commission is the pressure to recoup political capital. A number of cases reveal the existence of “project kickbacks” and demands for “investment money” before the procurement process even begins, which are used to pay off campaign debts.

The bribery case involving a project in Ogan Komering Ulu Regency in March 2025 serves as a classic example. In this case, members of the Regional People’s Representative Council demanded a share of the “basic ideas” funds, which were converted into physical projects worth Rp35 billion, with a commission for the Regional People’s Representative Council amounting to 20 percent (Rp7 billion). A similar pattern was also found in Pamekasan Regency, where the budget allocation for the Regional People’s Representative Council’s “Pokir” initiatives reached Rp106 billion in 2024 and Rp55 billion in 2025, with procurement contracts predominantly awarded to the same supplier. In Situbondo, the former regent demanded “investment money” amounting to 10 percent of the project value from prospective contractors. Findings by the Indonesian Corruption Eradication Commission even revealed that in the Riau governor’s extortion case, the practice of “gangster kickbacks” was used to pay off campaign debts that are currently undergoing legal proceedings

4.1.2 Opportunity : Weak Internal Controls and Collusion

Opportunity is the second element and serves as the primary gateway to fraud. This opportunity arises from weaknesses in internal controls and uncontrolled access to information. Opportunities in the procurement of goods and services in Indonesia stem from structural weaknesses that are collective and systematic in nature. Cases of corruption in the procurement of goods and services are generally not committed by a single individual, but rather collectively by the Authorizing Officer, the goods and services provider, and the working group. The collusion that forms is often referred to as a “criminal conspiracy” that rigs the process from the very beginning. Some identified forms of opportunity include:

1. **Tender Manipulation and Nepotism:** A case in Magelang City revealed that a civil servant rigged a fire extinguisher tender to ensure his wife’s company won, with price markups that resulted in a state loss of Rp430 million. Similarly, in Pamekasan, large-scale direct procurement (Rp356 billion) continues to be dominated by the same supplier.
2. **Price and Quantity Markups:** This scheme is very common. In the case of rice aid in Roomo Village, Gresik, there was a price markup from Rp11,500 to Rp13,100 per kg and a quantity markup from 11 metric tons to 11.5 metric tons. The Ministry of Education and Culture’s Chromebook case, resulting in a state loss of Rp1.98 trillion, is also an example of large-scale markups.
3. **Systemic Weaknesses and Oversight:** The results of the 2024 Integrity Assessment Survey (SPI) noted that 71 percent of respondents acknowledged the existence of nepotism, 49 percent stated that winning vendors were predetermined, and 46 percent admitted to receiving gratuities from vendors to government officials. These weaknesses are exacerbated by the minimal role of the Government Internal Oversight Agency and inspectorates in detecting irregularities at an early stage.

4.1.3 Rationalization: Self-Justification and the Culture of Rationalization

The third element is rationalization, which is the perpetrator’s self-justification for their actions. Cressey refers to this as a conscious decision to prioritize one’s own needs over those of others. In cases of corruption involving the procurement of goods and services, rationalization often takes the form of “justifications” such as:

1. “Recouping Political Capital”: Perpetrators believe that corruption is a legitimate way to recoup political investments they have made, as in the case of the Riau governor who used project funds to pay off campaign debts.
 2. “Sharing the Spoils”: The practice of paying “fees” or commissions (10–20 percent) to members of the Regional People’s Representative Council and commitment-making officials is normalized as part of a “profit-sharing” culture.
 3. “Petty Corruption”: Acts such as illegal levies and gratuities are often considered “normal” and not serious offenses.
 4. “Saving the Organization”: In the case of corporations such as PT Timah, management rationalizes corrupt actions as a means to achieve corporate targets and safeguard the organization’s interests amid market pressures.
- 4.2. Mapping the Various Modus Operandi of Corruption in the Management of Government Goods and Services Procurement in Indonesia for the 2024–2025 Period.**

The pressures, rationalizations, and opportunities that lead to corruption in government procurement of goods and services in Indonesia are reinforced by research findings showing that perpetrators use a “shifting responsibility” strategy to justify their actions. This is further underscored by the fact that corruption in the procurement of goods and services during the 2024–2025 period was dominated by three main methods: (1) collusion between service providers and corrupt officials within the Goods and Services Procurement Unit through the exploitation of loopholes in the technical features of the e-Catalog; (2) manipulation of self-estimated prices that are inflated as early as the budget planning stage; and (3) weak post-contract oversight (vulnerabilities in contract management). The key factors enabling this corruption include local political conflicts of interest, the low functional independence of the Goods and Services Procurement Unit, and a procurement data integration system that is not yet fully connected to real-time banking oversight. Based on research findings, the E-Catalog is currently unable to fully prevent acts of corruption in government goods and services procurement in Indonesia for the 2024–2025 period; in fact, the modus operandi is becoming increasingly “sophisticated” and widespread.

Budget leakage in the goods and services procurement sector for the 2024–2025 period, based on information from research informants, is caused by three main factors: weaknesses in regulations and internal control systems, the normalization of collusive practices within the bureaucracy and politics, and the ongoing manipulation of procedures. Digitalization efforts, including expanding procurement access through e-Kalog, have not been sufficiently effective because perpetrators are able to circumvent the information system. An adaptive mitigation strategy requires an integrated approach: regulatory reform, strengthening digitalization and transparency, multisectoral oversight, bureaucratic reform, and improving public literacy and participation. The success of this strategy requires strong political commitment from all stakeholders, as emphasized by Finance Minister Purbaya: without governance reforms, all development programs will continue to face leaks along the way. Data from the Corruption Eradication Commission shows that nearly 90% of corruption cases tried throughout 2024 were related to the procurement of goods and services. Specifically, from 2004 through January 2025, the Corruption Eradication Commission has handled 1,512 corruption cases, with 339 occurring in the goods and services procurement sector, making it the second-most common category after bribery cases.

6. Conclusion

The digitization of procurement—including the e-Catalog—has proven unable to serve as a panacea for eradicating corruption in the procurement of goods and services during the 2024–

2025 period without being accompanied by strengthened human resource integrity and comprehensive transparency in both the pre- and post-procurement phases. It is recommended that the implementation of AI-driven fraud detection be accelerated and that protections for whistleblowers within the bureaucracy be strengthened. Procurement of goods and services during the 2024–2025 period is dominated by three primary schemes: (1) collusion between service providers and corrupt officials within the Goods and Services Procurement Unit through the exploitation of loopholes in the e-Catalog's technical features; (2) manipulation of inflated estimated prices starting from the budget planning stage; and (3) weak post-contract oversight (vulnerabilities in contract management). Adaptive mitigation strategies require an integrated approach: regulatory reform, enhanced digitalization and transparency, multisectoral oversight, bureaucratic reform, and increased public literacy and participation. Budget leakage in the goods and services procurement sector for the 2024–2025 period, based on information from research informants, is caused by three main factors: 1) weaknesses in regulations and internal control systems, 2) the normalization of collusive practices within the bureaucracy and politics, and 3) the ongoing manipulation of procedures.

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TOURISM RECOVERY AND MACROECONOMIC RESILIENCE IN INDONESIA AND MALAYSIA: A COMPARATIVE DESCRIPTIVE ANALYSIS OF TOURIST MOBILITY, HOTEL OCCUPANCY, AND ECONOMIC CONTRIBUTION

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Abstract

This study examines tourism recovery and macroeconomic resilience in Indonesia and Malaysia using a comparative descriptive approach during 2016–2025. Annual secondary data were analyzed across seven indicators: international tourist arrivals, domestic tourist trips, hotel room occupancy rate, tourism receipts per tourist arrival, tourism direct GDP contribution, tourism employment contribution, and real GDP growth. The findings reveal that both countries experienced a severe tourism contraction during the COVID-19 pandemic, especially in 2020–2021, followed by a strong but uneven recovery. Indonesia's international tourist arrivals fell from 16.11 million in 2019 to 1.56 million in 2021 and recovered to 15.39 million in 2025. Malaysia declined more sharply, from 26.10 million in 2019 to 0.13 million in 2021, but rebounded to 26.61 million in 2025. Domestic tourism became a key recovery buffer, particularly in Indonesia, where domestic trips reached 1,200.28 million in 2025 compared with 332.22 million in Malaysia. Hotel occupancy also improved, reaching 49.26% in Indonesia and 56.80% in Malaysia. Tourism receipts per tourist arrival reached US\$1,27 in Indonesia and RM4,16 in Malaysia, while tourism direct GDP contribution reached 3.97% and 6.80%, respectively. Tourism employment contribution remained significant at 17.68% in Indonesia and 21.60% in Malaysia. Real GDP growth also returned to positive levels, reaching 5.11% and 5.20%, respectively. Overall, Indonesia's recovery was more domestically driven, whereas Malaysia's recovery was more strongly supported by international tourist mobility, hotel performance, and tourism economic contribution. These findings provide comparative insights for strengthening post-pandemic tourism strategies and macroeconomic resilience in Southeast Asia.

Keywords: *Tourism Recovery; Macroeconomic Resilience; Tourist Mobility; Hotel Occupancy Rate; Tourism Economic Contribution.*

1. Introduction

Tourism is a strategic sector in national economic development because it contributes to economic growth, foreign exchange earnings, employment, investment, regional development, and supporting industries such as transportation, accommodation, food services, and the creative economy. International tourism also functions as an invisible export that generates foreign currency inflows, stimulates investment, strengthens intersectoral linkages, and creates employment opportunities, particularly in developing and emerging economies (Alsabhan et al., 2025). In Southeast Asia, tourism has been shown to positively affect GDP and employment, supporting regional economic performance (Aini, 2024). Globally, travel and tourism contributed US\$11.6 trillion to GDP and supported 366 million jobs in 2025, confirming its role as a driver of output and employment (WTTC, 2026). Moreover, the COVID-19 crisis showed that tourism is closely linked to macroeconomic resilience, as its decline and recovery directly affected GDP, employment, and local economic activities

(OECD, 2022; Okafor et al., 2022). Therefore, examining tourism recovery and its contribution to macroeconomic resilience is relevant for Indonesia and Malaysia as major tourism destinations in Southeast Asia.

The COVID-19 pandemic created a major shock to the tourism sector in Indonesia and Malaysia through border closures, mobility restrictions, declining tourist confidence, and disruptions to accommodation, transportation, and supporting services. Previous studies show that the pandemic significantly affected tourist arrivals, tourism investment, and tourism-sector growth in Indonesia, while hotels faced serious uncertainty and survival challenges (Mursalina et al., 2022; Japutra et al., 2021). In Malaysia, movement control orders and international travel restrictions also reduced visitor flows and tourism-related business activities (Foo et al., 2021). The data used in this study confirm this contraction: Indonesia's international tourist arrivals declined from 16.11 million in 2019 to 1.56 million in 2021, while Malaysia fell more sharply from 26.10 million to only 0.13 million. This evidence indicates that the pandemic was not only a mobility crisis, but also a major test of tourism resilience, hotel performance, tourism income, employment, and macroeconomic stability in both countries.

The post-pandemic recovery of tourism in Indonesia and Malaysia showed different patterns due to differences in market structure, tourism demand, and recovery capacity. Tourism recovery depends not only on border reopening, but also on resilience, policy response, domestic market strength, and the ability to restore travel confidence (Khalid et al., 2022). In Indonesia, recovery was strongly supported by domestic tourism, with domestic tourist trips increasing from 722.16 million in 2019 to 1,200.28 million in 2025. This shows that Indonesia's large domestic market became an important buffer when international tourism had not fully returned to pre-pandemic levels. Firdausy (2023) also emphasizes that Indonesia's tourism recovery required country-specific policy initiatives. In contrast, Malaysia showed a stronger rebound in international tourist arrivals, increasing from 0.13 million in 2021 to 26.61 million in 2025, slightly exceeding its 2019 level of 26.10 million. This comparison indicates that Indonesia's recovery was more domestically driven, while Malaysia's recovery was more strongly reflected in international tourist mobility.

Beyond tourist mobility, tourism recovery should also be assessed through hotel performance and economic contribution indicators. Hotel room occupancy reflects the recovery of accommodation demand, while tourism receipts per tourist arrival indicate the economic value generated by each visitor. Tourism direct GDP contribution and tourism employment contribution further show how tourism recovery is transmitted into national output and labor absorption. Previous studies emphasize that domestic tourism and hotel demand are closely related to short-term resilience after COVID-19 (Boto-García, 2022), while the hotel industry is directly linked to economic activity and employment through changes in tourism demand (Zulkarnain et al., 2022). Globally, travel and tourism remain major contributors to GDP and employment, confirming their strategic role in economic recovery (WTTC, 2026). In 2025, hotel occupancy reached 49.26% in Indonesia and 56.80% in Malaysia, tourism receipts per tourist arrival reached US\$1,267 and RM4,156, tourism direct GDP contribution reached 3.97% and 6.80%, and tourism employment contribution accounted for 17.68% and 21.60% of total employment, respectively. These indicators provide a broader picture of tourism recovery beyond tourist arrivals.

Although tourism recovery after COVID-19 has been widely discussed, comparative studies that simultaneously examine tourist mobility, hotel performance, tourism economic contribution, employment, and macroeconomic resilience in Indonesia and Malaysia remain limited. Tourism recovery is influenced not only by economic stimulus, but also by national resilience and the tourism sector's ability to adapt after a crisis (Okafor et al., 2022). The OECD also notes that tourism recovery in Emerging Asia has been uneven, requiring country-specific

analysis to understand different recovery patterns and policy challenges (OECD, 2023). Therefore, this study addresses this gap by comparing Indonesia and Malaysia using annual data from 2016 to 2025, covering international tourist arrivals, domestic tourist trips, hotel occupancy, tourism receipts per tourist arrival, tourism direct GDP contribution, tourism employment contribution, and real GDP growth. This study is expected to provide comparative insights into how tourism recovery contributes to macroeconomic resilience and offer practical implications for strengthening tourism recovery strategies, hotel performance, tourism spending, GDP contribution, and employment.

2. Literature Review

2.1 Tourism-Led Growth Hypothesis

The Tourism-Led Growth Hypothesis explains that tourism can act as an engine of economic growth through foreign exchange earnings, tourist expenditure, investment, employment creation, and multiplier effects across related sectors. Balaguer and Cantavella-Jordá (2002) confirmed this hypothesis by showing that international tourism contributed to Spain's long-run economic growth through cointegration and causality mechanisms. Lee and Chang (2008) further argued that tourism development and economic growth are closely connected, particularly in non-OECD countries, where tourism receipts and international tourist arrivals can significantly stimulate economic activity.

In the context of Southeast Asia, this hypothesis is relevant because tourism has become an important source of income, employment, and sectoral linkages for many ASEAN economies. Alsabhan et al. (2025) found that international tourism contributed positively to economic growth in ASEAN countries, indicating that tourism remains an important driver of long-run economic performance. Therefore, this study uses the Tourism-Led Growth Hypothesis as a theoretical basis to explain how tourist mobility, hotel occupancy, tourism receipts, tourism direct GDP contribution, and tourism employment contribution are related to macroeconomic resilience in Indonesia and Malaysia.

2.2 Economic Resilience and Tourism Recovery

Economic resilience refers to the ability of an economy to withstand, absorb, and recover from external shocks. Briguglio et al. (2009) define economic resilience as the policy-induced capacity of an economy to withstand or recover from the effects of shocks, while Martin (2012) explains resilience as the capacity of regional economies to respond to and recover from recessionary disturbances. In the context of tourism, this concept is highly relevant because tourism is vulnerable to crises such as pandemics, mobility restrictions, and global uncertainty, but it can also become a driver of recovery when tourist mobility, hotel demand, and tourism spending begin to improve.

Tourism recovery after COVID-19 is closely related to macroeconomic resilience because the recovery of tourism activities can support GDP, employment, investment, and local economic activity. Okafor et al. (2022) found that tourism recovery from the COVID-19 pandemic was influenced not only by economic stimulus, but also by the resilience capacity of each country. Therefore, countries with stronger institutional capacity, policy responses, and adaptive tourism sectors are more likely to recover faster. In this study, economic resilience and tourism recovery are examined through the recovery of international tourist arrivals, domestic tourist trips, hotel occupancy, tourism receipts, tourism direct GDP contribution, tourism employment contribution, and real GDP growth in Indonesia and Malaysia.

2.3 Tourist Mobility and Hotel Occupancy

Tourist mobility is one of the main indicators of tourism demand and recovery, as it reflects the movement of visitors across destinations through international tourist arrivals and domestic tourist trips. During crisis periods, such as the COVID-19 pandemic, tourist mobility becomes highly sensitive to border closures, mobility restrictions, and changes in travel confidence. Foo et al. (2021) showed that the pandemic strongly affected Malaysia's tourism industry, especially the airline and hotel businesses. In this context, the recovery of international and domestic tourist mobility is important for understanding how tourism demand returned after the pandemic shock.

Hotel occupancy is also a key indicator of tourism sector performance because it reflects accommodation demand and the utilization of tourism infrastructure. Boto-García (2022) explains that domestic tourism contributed to the short-term resilience of hotel demand during the reopening phase after COVID-19. Similarly, Japutra and Situmorang (2021) found that hotels in Indonesia faced major uncertainty and operational challenges during the pandemic, indicating that hotel occupancy is closely linked to tourism mobility and crisis recovery. Therefore, this study uses international tourist arrivals, domestic tourist trips, and hotel room occupancy rate to compare the recovery patterns of tourism demand and accommodation performance in Indonesia and Malaysia.

2.4 Tourism Economic Contribution

Tourism economic contribution refers to the role of tourism in generating income, output, employment, and wider economic activity. This contribution can be measured through tourism receipts, tourism direct GDP contribution, and tourism employment contribution. The Tourism Satellite Account provides a standardized framework for measuring the direct economic impact of tourism, including its contribution to value added, GDP, and employment (UN Tourism, 2008; BPS, 2026). At the global level, the World Travel & Tourism Council reported that travel and tourism contributed US\$11.6 trillion to global GDP and supported 366 million jobs in 2025, confirming the importance of tourism as a major driver of economic activity and employment (WTTC, 2026).

In this study, tourism economic contribution is examined through tourism receipts per tourist arrival, tourism direct GDP contribution, tourism employment contribution, and real GDP growth. These indicators are important because they show that tourism recovery is not only reflected in the increase of tourist arrivals, but also in the economic value generated by each visitor, the sector's direct contribution to national output, and its capacity to absorb labor. Empirical studies in Southeast Asia also show that tourism contributes positively to GDP and employment, indicating that the sector plays an important role in supporting economic performance and recovery (Aini, 2024; Alsabhan et al., 2025). Therefore, tourism economic contribution is relevant for explaining how tourism recovery supports macroeconomic resilience in Indonesia and Malaysia.

3. Methodology

This study uses a quantitative descriptive comparative approach to examine tourism recovery and macroeconomic resilience in Indonesia and Malaysia during 2016–2025. The analysis compares both countries based on tourist mobility, hotel performance, tourism economic contribution, and macroeconomic conditions. Annual secondary data are used, covering international tourist arrivals, domestic tourist trips, hotel room occupancy rate, tourism receipts per tourist arrival, tourism direct GDP contribution, tourism employment contribution, and real GDP growth.

3.1. Theoretical framework

This study is grounded in the Tourism-Led Growth Hypothesis and Economic Resilience Theory. The Tourism-Led Growth Hypothesis explains that tourism can stimulate economic growth through tourist expenditure, foreign exchange earnings, investment, employment creation, and multiplier effects across related sectors. This theory is relevant because tourism recovery can influence accommodation, transportation, food services, creative economy, GDP contribution, and labor absorption. Meanwhile, Economic Resilience Theory explains the ability of an economy to withstand, adapt to, and recover from external shocks. In this study, the COVID-19 pandemic is treated as the major shock, while the recovery of tourism indicators and real GDP growth reflects the macroeconomic resilience of Indonesia and Malaysia.

3.2. Conceptual framework

The conceptual framework of this study links tourism recovery indicators with macroeconomic resilience. Tourism recovery is represented by three dimensions: tourist mobility, hotel performance, and tourism economic contribution. Tourist mobility is measured by international tourist arrivals and domestic tourist trips. Hotel performance is measured by hotel room occupancy rate. Tourism economic contribution is measured by tourism receipts per tourist arrival, tourism direct GDP contribution, and tourism employment contribution. Macroeconomic resilience is reflected through real GDP growth and the ability of each country to recover after the pandemic shock. The comparison is conducted across three periods: pre-pandemic period (2016–2019), pandemic period (2020–2021), and recovery period (2022–2025). This framework allows the study to explain differences and similarities in tourism recovery patterns between Indonesia and Malaysia.

4. Result and Discussion

4.1 Tourism Mobility Recovery

Tourism mobility is one of the main indicators used to assess the recovery of the tourism sector after the COVID-19 pandemic. In this study, tourism mobility is represented by two indicators: international tourist arrivals and domestic tourist trips. Consistent with the Tourism-Led Growth Hypothesis and the concept of economic resilience discussed in the literature review, the recovery of tourist mobility reflects the restoration of travel demand, tourism expenditure, accommodation demand, transportation services, and broader tourism-related economic activities. Figure 1 presents the trends of tourism mobility in Indonesia and Malaysia during 2016–2025, covering the pre-pandemic period, pandemic contraction, and post-pandemic recovery phase.

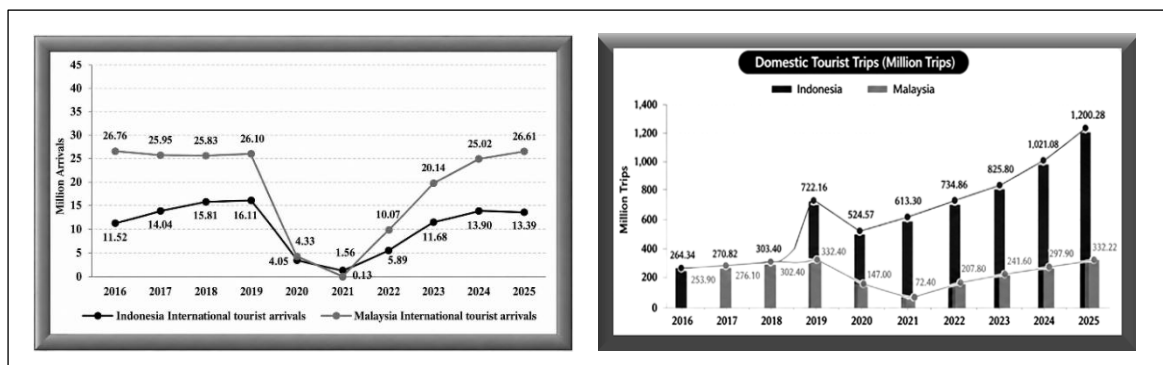


Figure 1. Tourism Mobility Recovery in Indonesia and Malaysia, 2016–2025

Note: International tourist arrivals and domestic tourist trips are measured in million arrivals/trips.

As shown in Figure 1, both Indonesia and Malaysia experienced a sharp decline in international tourist arrivals during the COVID-19 pandemic. Indonesia's international tourist arrivals decreased from 16.11 million in 2019 to 1.56 million in 2021, while Malaysia experienced a deeper contraction from 26.10 million in 2019 to only 0.13 million in 2021. This sharp decline indicates that international tourism was highly vulnerable to border closures, travel restrictions, and declining tourist confidence during the pandemic.

After the pandemic, both countries showed a strong recovery in international tourist arrivals. Indonesia's arrivals increased to 15.39 million in 2025, approaching its pre-pandemic level. Malaysia recovered more strongly, reaching 26.61 million in 2025, slightly exceeding its 2019 level of 26.10 million. This indicates that Malaysia experienced a faster rebound in international tourism mobility, while Indonesia showed a gradual but steady recovery.

Domestic tourist trips show a different recovery pattern. Indonesia's domestic tourist trips increased from 722.16 million in 2019 to 1,200.28 million in 2025. This finding indicates that Indonesia's large domestic tourism market became an important buffer during the recovery period, especially when international tourism had not fully returned to its pre-pandemic level. Meanwhile, Malaysia's domestic tourist trips declined sharply from 332.40 million in 2019 to 72.40 million in 2021, before recovering to 332.22 million in 2025, nearly returning to its pre-pandemic level.

Overall, the findings indicate that Indonesia and Malaysia followed different tourism mobility recovery patterns. Indonesia's recovery was mainly supported by the expansion of domestic tourism, while Malaysia's recovery was more strongly reflected in the rebound of international tourist arrivals. This comparison confirms that tourism recovery is not uniform across countries, but depends on market structure, domestic demand capacity, travel openness, and national recovery capacity.

4.2 Hotel Occupancy and Tourism Receipts

Hotel occupancy and tourism receipts are important indicators for assessing tourism recovery beyond tourist mobility. From the perspective of the Tourism-Led Growth Hypothesis, tourism recovery is not only reflected in the number of tourist arrivals, but also in the extent to which tourism activities generate demand for accommodation services and visitor spending. In addition, based on the concept of economic resilience, the recovery of hotel occupancy and tourism receipts reflects the ability of the tourism sector to adapt and recover after the COVID-19 shock. Figure 2 presents the trends of hotel room occupancy rate and tourism receipts per tourist arrival in Indonesia and Malaysia during 2016–2025.

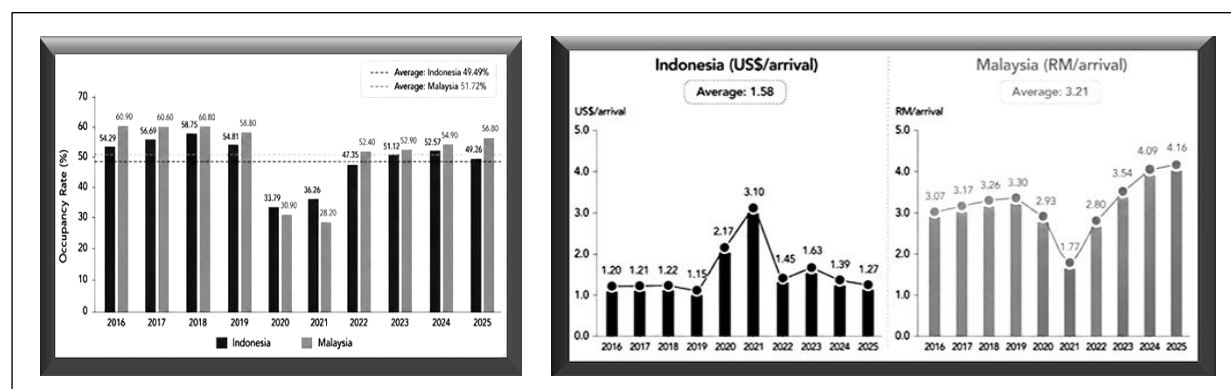


Figure 2. Hotel Occupancy and Tourism Receipts in Indonesia and Malaysia, 2016–2025
Note: Hotel room occupancy is measured in percent (%), while tourism receipts per tourist

arrival are measured in different currencies: Indonesia in US\$/tourist arrival and Malaysia in RM/tourist arrival.

As shown in the left-side graph of Figure 2, hotel room occupancy in both countries was relatively high before the pandemic. Indonesia's occupancy rate reached 54.81% in 2019, while Malaysia recorded a higher rate of 58.80%. During the pandemic, hotel occupancy declined sharply in both countries. Indonesia fell to 33.79% in 2020 and 36.26% in 2021, while Malaysia declined to 30.90% in 2020 and 28.20% in 2021. This decline confirms that the accommodation sector was highly vulnerable to mobility restrictions and weakening tourism demand. After the pandemic, both countries showed recovery, but Malaysia recovered more strongly, reaching 56.80% in 2025, compared with Indonesia at 49.26%. On average, Malaysia also recorded a higher occupancy rate during 2016–2025, at 51.72%, compared with Indonesia at 49.49%.

The right-side graph of Figure 2 shows different patterns in tourism receipts per tourist arrival. In Indonesia, receipts were relatively stable before the pandemic, ranging from 1.15 to 1.22 during 2016–2019. The value increased sharply during the pandemic, reaching 3.10 in 2021, but this should be interpreted carefully because it occurred when tourist arrivals were very low. After the pandemic, Indonesia's receipts normalized to 1.27 in 2025. In contrast, Malaysia's receipts declined to 1.77 in 2021 but recovered strongly afterward, reaching 4.16 in 2025, exceeding its pre-pandemic level.

Overall, Figure 2 indicates that tourism recovery in both countries was reflected not only in accommodation demand but also in visitor spending. In line with the Tourism-Led Growth Hypothesis, the recovery of hotel occupancy and tourism receipts shows that tourism contributes to economic activity through accommodation services, visitor expenditure, and related business activities. Malaysia showed stronger recovery in hotel occupancy and tourism receipts per arrival, while Indonesia experienced a more moderate recovery pattern. This suggests that Malaysia's tourism sector demonstrated stronger post-pandemic service utilization and spending recovery, whereas Indonesia's recovery was more gradual.

4.3 Tourism GDP and Employment Contribution

Tourism GDP and employment contribution are important indicators for evaluating the economic role of the tourism sector in national development. In line with the Tourism-Led Growth Hypothesis, tourism recovery is expected to contribute not only to visitor mobility and accommodation demand, but also to national output and labor absorption. Tourism direct GDP contribution reflects the extent to which tourism activities generate value added to the economy, while tourism employment contribution shows the sector's role in supporting job creation. Figure 3 presents the trends of tourism direct GDP contribution and tourism employment contribution in Indonesia and Malaysia during 2016–2025.

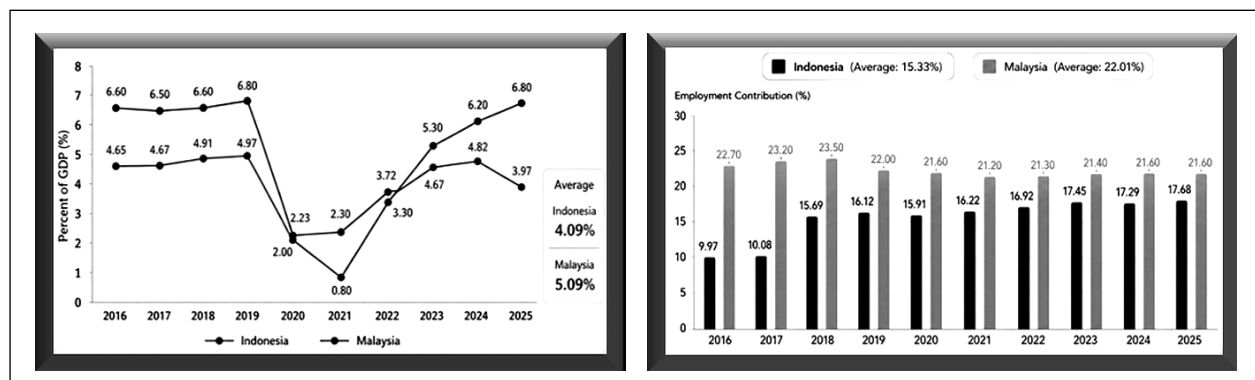


Figure 3. Tourism Direct GDP and Employment Contribution in Indonesia and Malaysia, 2016–2025

Note: Tourism direct GDP contribution and tourism employment contribution are measured in percent (%).

As shown in the left-side graph of Figure 3, tourism direct GDP contribution in both countries declined sharply during the pandemic. In Indonesia, tourism direct GDP contribution decreased from 4.97% in 2019 to 2.23% in 2020, while Malaysia experienced a deeper contraction from 6.80% in 2019 to 2.00% in 2020 and only 0.80% in 2021. This decline indicates that the COVID-19 pandemic not only reduced tourist mobility, but also weakened the direct economic value generated by the tourism sector.

After the pandemic, tourism direct GDP contribution began to recover in both countries. Indonesia increased from 2.30% in 2021 to 4.82% in 2024, although it declined to 3.97% in 2025. Malaysia showed a stronger rebound, increasing from 0.80% in 2021 to 6.80% in 2025, returning to its pre-pandemic level. On average, Malaysia recorded a higher tourism direct GDP contribution during 2016–2025, at 5.09%, compared with Indonesia at 4.09%. This finding shows that Malaysia's tourism sector contributed more strongly to national output than Indonesia during the study period.

The right-side graph of Figure 3 shows that tourism employment contribution remained significant in both countries. Indonesia's tourism employment contribution increased from 9.97% in 2016 to 17.68% in 2025, indicating a gradual strengthening of tourism's role in labor absorption. Malaysia recorded a higher but relatively stable employment contribution, ranging from around 21% to 23%, with an average of 22.01%, compared with Indonesia's average of 15.33%. This suggests that Malaysia had a stronger tourism labor base, while Indonesia showed a more progressive increase over time.

These findings are consistent with the Tourism-Led Growth Hypothesis, which explains that tourism contributes to economic growth through value added, employment creation, and linkages with supporting sectors. The recovery of tourism GDP and employment contribution also reflects the concept of economic resilience, as both countries were able to restore part of tourism's economic role after the pandemic shock. Overall, Malaysia showed stronger recovery in tourism direct GDP contribution, while Indonesia demonstrated steady improvement in tourism employment contribution.

4.4 Real GDP Growth and Macroeconomic Resilience

Real GDP growth is used to describe the macroeconomic resilience of Indonesia and Malaysia during 2016–2025. In this study, macroeconomic resilience refers to the ability of each economy to withstand the COVID-19 shock and return to a stable growth path after the crisis. Real GDP growth is relevant because it reflects the overall performance of the economy, including the recovery of tourism-related sectors such as accommodation, transportation, trade, food services, and other supporting industries. Figure 4 presents the trend of real GDP growth in Indonesia and Malaysia, showing the pre-pandemic growth pattern, the economic contraction during the pandemic, and the recovery phase after 2020.

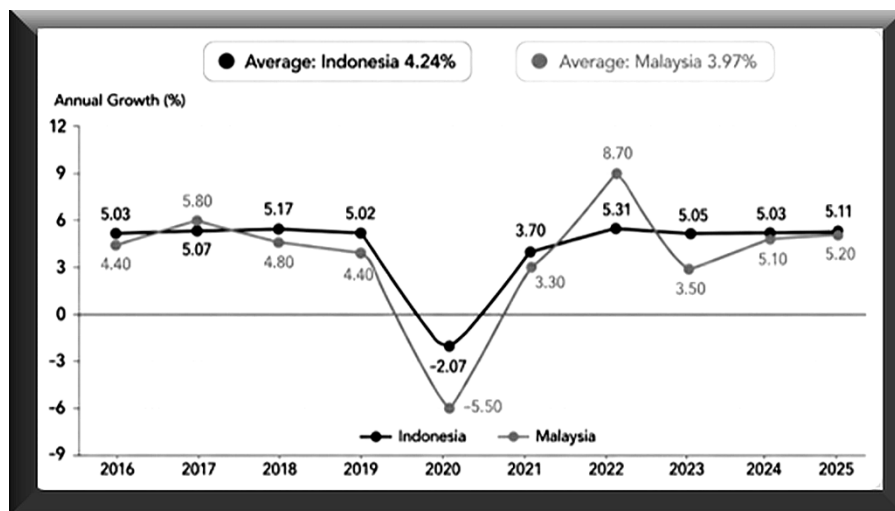


Figure 4. Real GDP Growth in Indonesia and Malaysia, 2016–2025
Note: Real GDP growth is measured in annual percent (%).

As shown in Figure 4, real GDP growth in Indonesia and Malaysia was relatively stable before the pandemic. During 2016–2019, Indonesia’s real GDP growth remained around 5%, while Malaysia also showed positive growth, ranging from 4.40% to 5.80%. This indicates that both economies had a relatively stable macroeconomic performance before the COVID-19 shock.

The pandemic caused a sharp contraction in 2020. Indonesia’s real GDP growth declined to -2.07%, while Malaysia experienced a deeper contraction of -5.50%. This shows that Malaysia’s economy was more severely affected in the initial phase of the pandemic. The contraction reflects the broad impact of mobility restrictions, declining demand, disrupted business activities, and weakening tourism-related sectors such as accommodation, transportation, trade, and services.

After 2020, both countries returned to positive growth, indicating macroeconomic recovery. Indonesia recovered to 3.70% in 2021 and remained relatively stable at around 5% during 2022–2025. Malaysia also recovered, but with a more fluctuating pattern. Its growth increased sharply to 8.70% in 2022, then moderated to 3.50% in 2023 before stabilizing at 5.10% in 2024 and 5.20% in 2025. On average, Indonesia recorded slightly higher real GDP growth during 2016–2025 at 4.24%, compared with Malaysia at 3.97%.

From the perspective of macroeconomic resilience, the findings indicate that both Indonesia and Malaysia were able to absorb the pandemic shock and return to a positive growth path. However, the recovery pattern differed between the two countries. Indonesia demonstrated a more stable and gradual recovery, while Malaysia experienced a deeper contraction but a stronger short-term rebound in 2022. This pattern is consistent with the concept of economic resilience, which emphasizes an economy’s ability to withstand shocks, recover from disruption, and regain growth momentum after a crisis.

The trend in Figure 4 also supports the broader argument of this study that tourism recovery is closely related to macroeconomic recovery. Although real GDP growth is influenced by many sectors, the improvement in tourist mobility, hotel occupancy, tourism receipts, tourism GDP contribution, and employment contribution suggests that the recovery of tourism-related activities contributed to the restoration of economic performance in both countries. Therefore, the post-pandemic recovery of real GDP growth strengthens the evidence

that tourism recovery and macroeconomic resilience are interconnected in Indonesia and Malaysia.

4.5 Comparative Discussion Between Indonesia and Malaysia

The comparative findings show that Indonesia and Malaysia experienced similar pandemic shocks but followed different tourism recovery patterns. Both countries recorded a sharp decline in international tourist arrivals, hotel occupancy, tourism direct GDP contribution, and real GDP growth during the COVID-19 pandemic. However, the recovery phase after 2021 indicates that the two countries relied on different sources of resilience. Indonesia's recovery was more strongly supported by the expansion of domestic tourism, while Malaysia's recovery was more clearly reflected in the rebound of international tourist arrivals, hotel occupancy, tourism receipts, and tourism direct GDP contribution.

From the perspective of the Tourism-Led Growth Hypothesis, tourism recovery contributes to economic performance through tourist mobility, accommodation demand, visitor spending, employment creation, and value added in tourism-related sectors. In this context, Malaysia showed stronger recovery in several tourism economic indicators. By 2025, Malaysia's international tourist arrivals reached 26.61 million, slightly exceeding its 2019 level, while Indonesia reached 15.39 million and had not fully returned to its 2019 level. Malaysia also recorded higher hotel occupancy in 2025 at 56.80%, compared with Indonesia at 49.26%. In addition, Malaysia's tourism receipts per tourist arrival increased to RM4.16 in 2025, while Indonesia's receipts normalized to US\$1.27. These findings suggest that Malaysia's tourism recovery was more strongly driven by the return of international mobility and visitor spending.

In contrast, Indonesia demonstrated stronger resilience through its domestic tourism market. Domestic tourist trips increased significantly from 722.16 million in 2019 to 1,200.28 million in 2025. This indicates that Indonesia's large domestic market acted as an important buffer during the recovery period, especially when international tourism had not fully recovered. This pattern reflects a domestic-demand-led recovery, where internal tourism mobility helped sustain tourism activities, accommodation demand, and employment opportunities. Therefore, although Indonesia's international recovery was more gradual, its domestic tourism expansion strengthened the resilience of the tourism sector.

The comparison of tourism GDP and employment contribution also shows different strengths between the two countries. Malaysia recorded a higher average tourism direct GDP contribution during 2016–2025 at 5.09%, compared with Indonesia at 4.09%. Malaysia also had a higher tourism employment contribution, averaging 22.01%, while Indonesia averaged 15.33%. This indicates that tourism has a stronger relative contribution to Malaysia's output and labor market. However, Indonesia showed a gradual increase in tourism employment contribution, rising from 9.97% in 2016 to 17.68% in 2025. This suggests that Indonesia's tourism sector increasingly contributed to labor absorption over time.

In terms of macroeconomic resilience, both countries were able to return to positive real GDP growth after the pandemic. Indonesia showed a more stable growth pattern, with real GDP growth returning to around 5% during 2022–2025. Malaysia experienced a deeper contraction in 2020 but recorded a stronger rebound in 2022 before stabilizing in 2024–2025. From the economic resilience perspective, Indonesia demonstrated a more gradual and stable recovery path, while Malaysia showed a more volatile but stronger short-term rebound. This difference indicates that resilience is not only measured by the speed of recovery, but also by the stability and sustainability of post-crisis growth.

Overall, the comparative analysis indicates that Indonesia and Malaysia have different tourism recovery models. Indonesia represents a domestically driven recovery model supported

by large-scale domestic tourist trips and stable macroeconomic growth. Malaysia represents an internationally driven recovery model supported by stronger international arrivals, higher hotel occupancy, higher tourism receipts per arrival, and greater tourism contribution to GDP and employment. These findings confirm that tourism recovery is not uniform across countries, but depends on domestic market capacity, international openness, tourism structure, visitor spending, labor absorption, and macroeconomic adjustment. Therefore, strengthening tourism recovery in both countries requires different policy priorities: Indonesia needs to increase the value and quality of tourism spending, while Malaysia needs to maintain international tourism competitiveness and ensure that recovery remains inclusive and resilient.

5. Conclusion

This study concludes that tourism recovery in Indonesia and Malaysia during 2016–2025 followed different patterns after experiencing a severe shock during the COVID-19 pandemic. Both countries recorded sharp declines in international tourist arrivals, hotel occupancy, tourism GDP contribution, and real GDP growth in 2020–2021, followed by a recovery phase after 2022. Indonesia's recovery was mainly supported by the strong expansion of domestic tourist trips, which reached 1,200.28 million in 2025. This shows that Indonesia's large domestic market became an important source of tourism resilience. Meanwhile, Malaysia showed stronger recovery in international tourist arrivals, hotel occupancy, tourism receipts per tourist arrival, tourism direct GDP contribution, and tourism employment contribution. Overall, Indonesia tends to represent a domestically driven tourism recovery model, while Malaysia tends to represent an internationally driven recovery model. Both countries returned to positive economic growth after the pandemic, but Indonesia showed a more stable recovery path, whereas Malaysia experienced a deeper contraction followed by a stronger rebound. These findings indicate that tourism recovery and macroeconomic resilience are shaped by differences in domestic market capacity, international tourism competitiveness, visitor spending, employment absorption, and overall economic stability.

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ANALYSIS OF THE INFLUENCE OF SERVQUAL ON CUSTOMER SATISFACTION AT BANK BRI LEDO UNIT IN BENGKAYANG REGENCY

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Abstract

Service quality is one of the factors that influence customer satisfaction in the banking industry. This study aims to analyze the effect of the SERVQUAL dimensions, namely tangibles, reliability, responsiveness, assurance, and empathy, on customer satisfaction at Bank BRI Unit Ledo, Bengkayang Regency. This study employs a quantitative approach using descriptive and associative methods. Data were collected through questionnaires distributed to 100 respondents selected using the accidental sampling technique. The data were analyzed using validity tests, reliability tests, classical assumption tests, multiple linear regression analysis, t-tests, F-tests, and the coefficient of determination (R^2). The results indicate that the tangibles, reliability, responsiveness, assurance, and empathy dimensions have a positive and significant effect on customer satisfaction at Bank BRI Unit Ledo.

Keywords: SERVQUAL, service quality, customer satisfaction, Bank BRI Unit Ledo.

1. Introduction

Banking is one of the sectors that has an important role in supporting economic growth through the intermediation function, namely collecting funds from the public and redistributing them in the form of credit and financial services. Finance (2021). Along with the development of technology and increasing competition in the banking industry in Indonesia, every bank is required to be able to provide quality services in order to meet the needs and expectations of customers. In the service industry, service quality is one of the main factors that affect customer satisfaction, because the service received will shape the perception of the bank's performance. Therefore, improving service quality is a very important strategy in maintaining customer trust and loyalty Dapijah, (2021); Nungky Cahyani et al., (2023); Parasuraman et al., (1988). Customer satisfaction is the level of feeling that arises after customers compare the service they receive with their expectations. If the service provided meets or exceeds expectations, then the customer will feel satisfied, while the service that is below expectations can cause dissatisfaction. The level of customer satisfaction is one of the indicators of the bank's success in providing services, so that the quality of service needs to be improved on an ongoing basis so that the relationship between the bank and customers is maintained Andriyani & Ardianto, (2020); Dapijah, (2021)

One of the widely used models in measuring service quality is SERVQUAL which was developed by Parasuraman et al., (1988). This model measures the quality of service through five dimensions, namely *Reliability* (reliability), *Responsiveness* (responsiveness), *Insurance* (Guarantees), *Empathy* (empathy), and *Tangible* (physical evidence). These five dimensions describe the company's ability to provide accurate, fast, trustworthy services, provide a sense

of security, pay attention to customer needs, and be supported by adequate physical facilities. In the banking sector, the application of the SERVQUAL dimension is one of the widely used approaches to evaluate service quality and its effect on customer satisfaction Bahari & Lukman, (2024); Betania et al., (2023); Parasuraman et al., (1988) Bank Rakyat Indonesia (Persero) Tbk is one of the state-owned banks that has a service network up to the unit level, including Bank BRI Ledo Unit Bengkayang Regency. As a service unit that interacts directly with the community, Bank BRI Ledo Unit is required to be able to provide fast, precise, friendly, and professional services. Based on internal data from Bank BRI Ledo Unit, the number of new customers during the 2021-2025 period fluctuated, namely 151 customers in 2021, increasing to 385 customers in 2022 and 477 customers in 2023, then decreasing to 343 customers in 2024 before increasing again to 399 customers in 2025. These fluctuations show the dynamics of customer development that need to be the bank's attention in maintaining service quality and customer satisfaction.

Various previous studies have shown that service quality has an influence on customer satisfaction. According to Bahari & Lukman, (2024) that the quality of service has a positive and significant effect on customer satisfaction. According to Betania et al., (2023) It also shows that the SERVQUAL dimension has an effect on customer satisfaction in the banking sector. Research results (Asyfiya & Fariza, (2024); Dhiya'ulhaq et al., (2023); Nungky Cahyani et al., (2023); Putri et al., (2023) It also shows that improving service quality can increase customer satisfaction. However, some studies show that not all dimensions of SERVQUAL have the same effect on customer satisfaction. The difference in the results of the study shows that the influence of each dimension of SERVQUAL still needs to be tested on different research objects. Research on the quality of service at Bank BRI Ledo Unit in Bengkayang Regency is still relatively limited, even though this service unit has diverse customer characteristics and plays an important role in providing banking services to the community. Therefore, this study was conducted to analyze the influence of *Reliability* (X1), *Responsiveness* (X2), *Insurance* (X3), *Empathy* (X4), and *Tangible* (X5) to Customer Satisfaction (Y) at Bank BRI Ledo Unit Bengkayang Regency. The results of the research are expected to make an empirical contribution to the development of service quality studies in the banking sector and become evaluation material for Bank BRI Ledo Unit in improving service quality and customer satisfaction.

2. Literature Review

2.1 Quality of Service (SERVQUAL)

Service quality is the company's ability to provide services that are able to meet or exceed customer expectations. In the banking sector, service quality is an important factor in creating customer satisfaction because the services provided are not only judged by the results received, but also by the service process that takes place. Quality service will increase customer trust, strengthen the relationship between banks and customers, and create a competitive advantage in the midst of competition in the banking industry Dapiah, (2021); Parasuraman et al., (1988). The SERVQUAL model developed by Parasuraman et al., (1988) is one of the widely used methods to measure service quality. This model explains that service quality

consists of five dimensions, namely *Reliability* (reliability), *Responsiveness* (responsiveness), *Insurance* (Guarantees), *Empathy* (empathy), and *Tangible* (physical evidence). Reliability is the bank's ability to provide services accurately, consistently, and in accordance with the promises that have been given to customers. This dimension reflects the bank's reliability in completing transactions correctly and providing reliable services Dapiah, (2021); Parasuraman et al., (1988) *Responsiveness* Showing the willingness and ability of employees to help customers and provide services quickly and precisely. Good responsiveness will provide a more effective service experience so that it can increase customer satisfaction Dapiah, (2021); Parasuraman et al., (1988) *Insurance* related to competence, politeness, and the ability of employees to provide a sense of security and foster customer trust during the service process. Employee knowledge and professionalism are important elements in building customer confidence in the quality of bank services Dapiah, (2021); Parasuraman et al., (1988). *Empathy* is the bank's attention and concern for the needs of each customer. Service that is personal, friendly, and understands customer needs will improve the relationship between the bank and customers so that it can encourage the creation of satisfaction Dapiah, (2021); Parasuraman et al., (1988). *Tangible* describe the condition of physical facilities, equipment, technology, service environment, and employee appearance. Good physical evidence is able to give a professional impression and increase customer comfort in using banking services Dapiah, (2021); Parasuraman et al., (1988). The five dimensions of SERVQUAL were used as independent variables in this study to analyze their influence on customer satisfaction of Bank BRI Ledo Unit Bengkayang Regency.

2.2 Customer Satisfaction

Customer satisfaction is the level of feeling that arises after customers compare expectations with the service received. If the service provided meets or exceeds expectations, then the customer will feel satisfied. On the other hand, if the service received is below expectations, dissatisfaction will arise. Therefore, customer satisfaction is one of the indicators of the success of service companies in providing services to customers Andriyani & Ardianto, (2020); Dapiah, (2021). In the banking industry, customer satisfaction is influenced by the quality of service provided during the transaction process. The better the quality of service received, the higher the level of satisfaction felt by customers. This condition shows that service quality has an important role in maintaining customer loyalty and increasing the company's competitiveness.

2.3 Hypothesis Development

The relationship between service quality and customer satisfaction has been proven in various previous studies. Bahari and Lukman (2024) stated that service quality has a positive and significant effect on customer satisfaction. Betania et al., (2023) also found that the SERVQUAL dimension has an effect on customer satisfaction in the banking sector. In addition, the research Asyfiya & Fariza, (2024); Dhiya'ulhaq et al., (2023); Khairunnisa & Putra, (2024); Nungky Cahyani et al., (2023) shows that improving service quality can increase customer satisfaction, even though the magnitude of the influence of each dimension of

SERVQUAL is different on each research object. Based on the theoretical foundation and the results of previous research, this study proposes the following hypothesis.

H1: Reliability (X1) has a positive effect on Customer Satisfaction (Y).

H2: Responsiveness (X2) has a positive effect on Customer Satisfaction (Y).

H3: Assurance (X3) has a positive effect on Customer Satisfaction (Y).

H4: Empathy (X4) has a positive effect on Customer Satisfaction (Y).

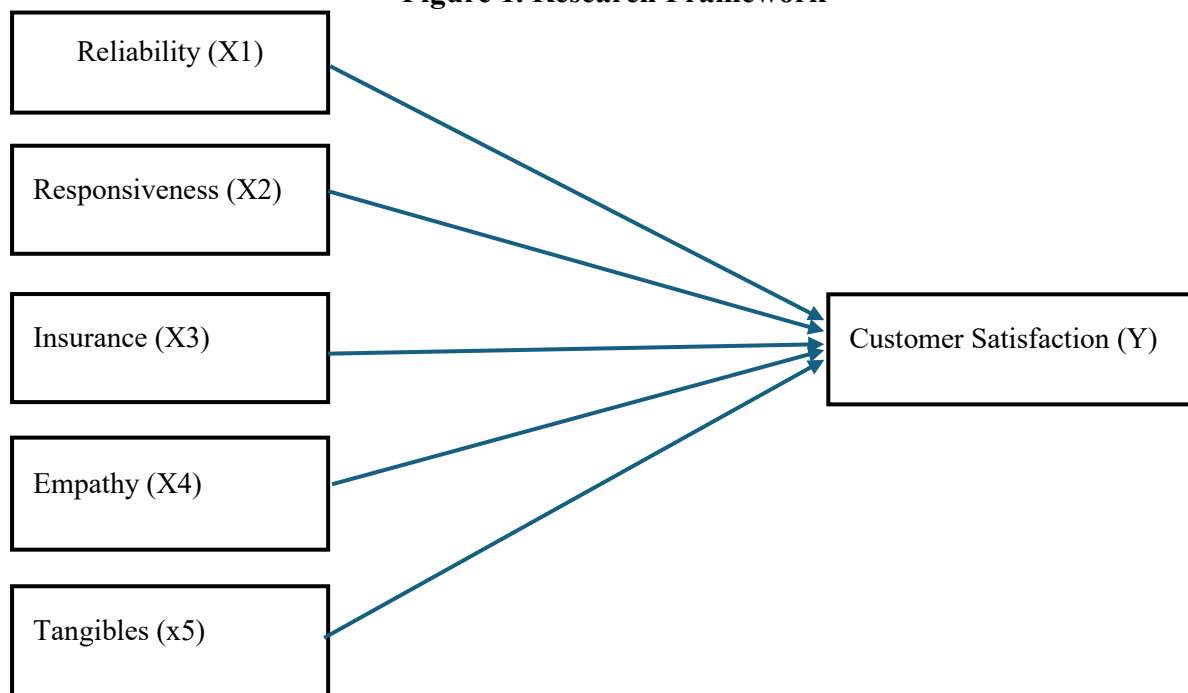
H5: Tangibles (X5) have a positive effect on Customer Satisfaction (Y).

3. Methodology

This study uses a quantitative approach with descriptive and associative methods. A quantitative approach is used to test the relationships between variables through statistical analysis, while a descriptive method is used to describe the characteristics of the research variables. The associative method aims to analyze the influence of service quality on customer satisfaction at Bank BRI Ledo Unit Bengkayang Regency. According to Hardani, (2020), The population in this study is all customers of Bank BRI Ledo Unit of Bengkayang Regency. Sampling technique using *non-probability* Sampling using the accidental sampling method, which is a sample determination technique based on respondents who happened to be met by the researcher and met the criteria as a research respondent. The number of samples used in this study was 101 respondents. The data used is primary data obtained through the distribution of questionnaires to respondents. The research instrument used a five-point Likert scale, ranging from a score of 1 (Strongly Disagree) to a score of 5 (Strongly Agree). The independent variables in this study consisted of *Reliability* (X1), *Responsiveness* (X2), *Insurance* (X3), *Empathy* (X4), and *Tangible* (X5), while the dependent variable is Customer Satisfaction (Y).

Data analysis was conducted using IBM SPSS Statistics version 27. The analysis stages include a validity test, a reliability test, a classical assumption test consisting of a normality test, a multicollinearity test, and a heteroscedasticity test, then followed by multiple linear regression analysis. Hypothesis testing is carried out through partial tests (*T-test*), simultaneous test (*F-test*), and the determination coefficient (R^2) to find out the influence of service quality on customer satisfaction Ghozali, (2021). Based on the SERVQUAL theory developed by Parasuraman et al., (1988) This study uses five dimensions of service quality as independent variables, namely *Reliability* (X1), *Responsiveness* (X2), *Insurance* (X3), *Empathy* (X4), and *Tangible* (X5). These five dimensions are analyzed to determine their influence on Customer Satisfaction (Y). The relationship between variables in this study is presented in Figure 1. Research Framework.

Figure 1. Research Framework



Source: Adapted from Parasuraman et al. (1988) and developed by researchers (2026).

4. Results and Discussion

The characteristics of the respondents in this study included gender, length of time of customer service, and frequency of transactions. The characteristics of the respondents are presented in Table 1. Characteristics of Respondents.

Table 1.
Respondent Characteristics

Features	Category	Frequency (n)	Percentage (%)
Gender	Male	45	44,6
	Women	56	55,4
	Total	101	100,0
Long Time Client	< 1 year	19	18,8
	1–3 years	25	24,8
	> 3 years	57	56,4

	Total	101	100,0
Transaction Frequency	Rare	27	26,7
	Medium	39	38,6
	Frequent	35	34,7
	Total	101	100,0

Source: Data processed using IBM SPSS Statistics Version 27 (2025).

Based on Table 1, the majority of respondents were female as many as 56 respondents (55.4%), while male respondents amounted to 45 respondents (44.6%). Based on the length of time they have been customers, most of the respondents have been customers for more than three years, as many as 57 respondents (56.4%). Based on transaction frequency, the majority of respondents made transactions with a moderate frequency of 39 respondents (38.6%). This shows that most of the respondents have sufficient experience in using the services of Bank BRI Unit Ledo so that they are able to provide an assessment of the quality of services received. Furthermore, multiple linear regression analysis was carried out to determine the influence of *Reliability* (X1), *Responsiveness* (X2), *Assurance* (X3), *Empathy* (X4), and *Tangibles* (X5) on Customer Satisfaction (Y).

Table 2.

Determination Coefficient Test Results (Model Summary)

Model	R	R Square	Adjusted R Square	Standard Error Estimation
1	0,901	0,812	0,803	1,35276

Source: Data processed using IBM SPSS Statistics Version 27 (2025).

Based on Table 2, an R value of 0.901 was obtained which shows a very strong relationship between service quality and customer satisfaction. The R Square value of 0.812 shows that 81.2% of the variation in customer satisfaction can be explained by the *variables Reliability, Responsiveness, Assurance, Empathy, and Tangibles*, while the remaining 18.8% is influenced by other factors outside the research model. An Adjusted R Square value of 0.803 indicates that the regression model has a good ability to explain variations in customer satisfaction.

Table 3.

Simultaneous Test Results (ANOVA)

Model	Number of Squares	df	Average Square	F	Say.
Back	753,143	5	150,629	82,312	0,000

Residual	173,847	95	1,830		
Total	926,990	100			

Source: Data processed using IBM SPSS Statistics Version 27 (2025).

Based on Table 3, the F-value was obtained with a significance level of 0.000 (< 0.05). These results show that the variables *Reliability* (X1), *Responsiveness* (X2), *Assurance* (X3), *Empathy* (X4), and *Tangibles* (X5) simultaneously have a significant effect on customer satisfaction. Thus, the regression model used is feasible to explain the relationship between service quality and customer satisfaction at Bank BRI Ledo Unit.

Table 4.
Multiple Linear Regression Analysis Results

Variabel	Regression Coefficient (B)	Value t	Say.
Konstanta	1,918	2,073	0,041
Reliability (X1)	0,250	2,389	0,019
Responsiveness (X2)	0,203	1,944	0,055
Insurance (X3)	-0,159	-1,355	0,178
Empathy (X4)	0,321	2,155	0,034
Tangibles (x5)	0,529	4,914	0,000

Source: Data processed using IBM SPSS Statistics Version 27 (2025).

Based on Table 4, the multiple linear regression equation is obtained as follows:

$Y = 1.918 + 0.250X_1 + 0.203X_2 - 0.159X_3 + 0.321X_4 + 0.529X_5$ The equation shows that *Reliability* (X1), *Responsiveness* (X2), *Empathy* (X4), and *Tangibles* (X5) have a positive regression coefficient, while *Assurance* (X3) has a negative regression coefficient. Positive coefficient values indicate that an increase in these variables tends to be followed by an increase in customer satisfaction, while a negative coefficient indicates an opposite relationship. Based on significance values, the variables *Reliability* (X1) (Sig. = 0.019), *Empathy* (X4) (Sig. = 0.034), and *Tangibles* (X5) (Sig. = 0.000) have a positive and significant effect on customer satisfaction because they have a significance value of less than 0.05. Meanwhile, the variables *Responsiveness* (X2) (Sig. = 0.055) and *Assurance* (X3) (Sig. = 0.178) had no significant effect on customer satisfaction because the significance value was greater than 0.05. Among all independent variables, *Tangibles* (X5) has the largest regression coefficient, so it can be said that it has the most dominant influence on customer satisfaction of Bank BRI Unit Ledo.

Based on the results of multiple linear regression analysis in Table 4, the *Reliability* (X1) has a positive and significant effect on customer satisfaction with a significance value of 0.019. These results show that the ability of Bank BRI Ledo Unit to provide precise, accurate, and

consistent services in accordance with the promises given is able to increase customer satisfaction. According to Parasuraman et al., (1988), *reliability* is the company's ability to provide the promised services reliably and accurately. The results of this study are in line with the research Bethany et al., (2023); Fitri & Rasyidi, (2023) which concludes that reliability has a positive and significant effect on customer satisfaction. This shows that the better the reliability of the service provided, the higher the level of customer satisfaction. The findings are also supported by research Tedjokusumo & R. Murhadi, (2023) which states that good service quality, especially in the reliability and responsiveness dimensions, is able to increase customer satisfaction so as to encourage the formation of customer loyalty. The results of this study are also strengthened by Rosalina, Lubis, and Effendi (2023) who stated that the reliability dimension is one of the factors that significantly affects customer satisfaction in Islamic banking because it reflects the bank's ability to provide services precisely, accurately, and consistently.

Variabel *Responsiveness* (X2) obtained a significance value of 0.055, so it did not have a significant effect on customer satisfaction. These results show that the speed and alertness of employees in providing services have not been the main factors that affect customer satisfaction at Bank BRI Ledo Unit. According to Parasuraman et al., (1988) Responsiveness is the willingness of employees to help customers and provide service quickly. However, the results of this study are different from the study Asyfiya & Fariza, (2024); Wibasuri, (2024) stating that responsiveness has a significant effect on customer satisfaction. The difference in results is suspected to be caused by differences in respondent characteristics, bank operational conditions, and customer expectations in each research object. The results of this study are also strengthened by Rosalina et al., (2023) which states that the reliability dimension is one of the factors that has a significant effect on customer satisfaction in Islamic banking because it reflects the bank's ability to provide services precisely, accurately, and consistently.

Variabel *Insurance* (X3) has a significance value of 0.178, so it does not have a significant effect on customer satisfaction. This shows that employee knowledge, the ability to provide a sense of security, and the guarantee of service provided have not been factors that determine customer satisfaction at Bank BRI Ledo Unit. According to Parasuraman et al., (1988) *Insurance* related to the ability of employees to foster trust and a sense of security in customers. The results of this study are different from the Rosalina et al., (2023); Wibasuri, (2024) which concludes that assurance has a positive and significant effect on customer satisfaction. These differences indicate that the influence of *Insurance* can be different in each research object. Research Damayanti et al., (2023) It shows that the influence of the assurance dimension on customer satisfaction can be different in each research object, so that the trust and service guarantee factors are not always the main determinants of customer satisfaction.

Variabel *Empathy* (X4) has a positive and significant effect on customer satisfaction with a significance value of 0.034. These results show that employee attention, friendliness in providing services, and the ability to understand the needs of each customer can increase customer satisfaction. According to Parasuraman et al., (1988), *Empathy* is the individual attention that the company gives to customers. The results of this study are in line with the

research Betania et al., (2023); Dhiya'ulhaq et al., (2023); Yusuf & Bala, (2021) which states that *Empathy* has a positive and significant effect on customer satisfaction. These findings are also supported by research Sanjaya et al., (2023) which concludes that the empathy dimension has a positive and significant effect on customer satisfaction because employee attention and concern are able to improve the quality of the relationship between banks and customers.

Variabel *Tangible* (X5) is the variable that has the most dominant influence on customer satisfaction with a regression coefficient of 0.529 and a significance value of 0.000. These results show that the condition of physical facilities, the comfort of the service room, the completeness of facilities, and the appearance of employees are the aspects that are most considered by customers in assessing the quality of service of Bank BRI Ledo Unit. According to Parasuraman et al., (1988), tangibles reflect physical evidence that can be directly observed by the customer, such as facilities, equipment, and employee appearance. The results of this study are in line with the research Asyfiya & Fariza, (2024); Bethany et al., (2023); Fitri & Rasyidi, (2023) which concludes that *tangible* has a positive and significant effect on customer satisfaction. In addition, the research Verarika, (2023) shows that the tangibles dimension has a positive influence on customer satisfaction through the provision of adequate facilities, comfort of service spaces, and professional employee appearances

The results of the study show that the *Reliability* (X1), *Empathy* (X4), and *Tangible* (X5) has a positive and significant effect on customer satisfaction, while *Responsiveness* (X2) and *Insurance* (X3) had no significant effect. These findings are in line with research Syamsul Alam et al., (2022) which concluded that the SERVQUAL dimension simultaneously had a significant effect on customer satisfaction in the banking sector. In addition, the Adjusted R Square value of 0.803 shows that 80.3% of the variation in customer satisfaction can be explained by the five dimensions of SERVQUAL used in this study, while the remaining 19.7% is influenced by other factors outside the research model. These findings show that the improvement of service quality, especially in the *Reliability*, *Empathy*, and *Tangible*, is an important factor in increasing customer satisfaction of Bank BRI Ledo Unit Bengkayang Regency. These results are also strengthened by research Nungky Cahyani et al., (2023) which states that improving the quality of service in all dimensions of SERVQUAL is an effective strategy in increasing customer satisfaction and narrowing the gap between expectations and services received

5. Conclusion

This study aims to analyze the influence of the dimensions of SERVQUAL, namely *Reliability* (X1), *Responsiveness* (X2), *Assurance* (X3), *Empathy* (X4), and *Tangibles* (X5) on customer satisfaction of Bank BRI Ledo Unit Bengkayang Regency. The results of the study show that simultaneously the five dimensions of SERVQUAL have a significant effect on customer satisfaction. Partially, *Reliability*, *Empathy*, and *Tangibles* have a positive and significant effect on customer satisfaction, while *Responsiveness* and *Assurance* have no significant effect. In addition, the results of the analysis show that *Tangibles* is the dimension that has the most dominant influence on customer satisfaction. The value of the determination coefficient (Adjusted R Square) of 0.803 indicates that 80.3% of the variation in customer

satisfaction can be explained by the five dimensions of SERVQUAL, while the rest is influenced by other factors outside the research model. Therefore, Bank BRI Ledo Unit is expected to continue to improve the quality of service, especially in terms of physical facilities, service reliability, and attention to customers to increase customer satisfaction in a sustainable manner.

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THE EFFECT OF HUMAN CAPITAL READINESS ON KITCHEN WORKER'S PERFORMANCE THROUGH WORK ENGAGEMENT AND JOB SATISFACTION WITH PERCEIVED ORGANIZATIONAL SUPPORT AS A MODERATING VARIABLE IN THE FREE NUTRITIOUS MEAL PROGRAM

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Abstract

The success of the Free Nutritious Meal Program depends on the readiness and performance of kitchen workers who are directly responsible for food preparation and distribution. This study examines the effect of human capital readiness on employee performance by exploring the mediating roles of work engagement and job satisfaction, as well as the moderating role of perceived organizational support. A quantitative research design was employed using a survey of kitchen workers participating in the program. Data were collected through structured questionnaires and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The proposed model suggests that human capital readiness positively influences work engagement and job satisfaction, which subsequently improve employee performance. Perceived organizational support is also expected to strengthen the relationship between human capital readiness and employee performance. The findings are expected to contribute to the human capital readiness in enhancing workforce performance. In addition, the study provides practical implications for policymakers and program managers in developing effective strategies to improve employee capability, organizational support, and the quality of public nutrition services.

Keywords: Human Capital Readiness, Work Engagement, Job Satisfaction, Perceived Organizational Support, Employee Performance, Free Nutritious Meal Program.

1. Introduction

Human resources quality has become a critical determinant of organizational performance, particularly in labor-intensive public service programs that require operational efficiency and consistent service quality. Many countries have implemented large-scale school feeding and public nutrition programs to improve health outcomes and support sustainable human development. The effectiveness of these initiatives depends not only on policy design and financial resources but also on the readiness and capability of frontline employees responsible for delivering the services.

Indonesia has introduced the Free Nutritious Meal Program (MBG) as one of its strategic national initiatives to improve nutritional status among school children, pregnant women, breastfeeding mothers, and toddlers. The program is implemented through thousands of Nutrition Fulfillment Service Units (SPPG), where kitchen workers are responsible for food preparation, quality control, and meal distribution. As the program continues to expand nationwide, kitchen workers are required to prepare large quantities of meals within limited time while complying with food safety and hygiene standards. Consequently, the quality of human resources has become a key factor in ensuring successful program implementation.

Despite its strategic importance, the MBG Program continues to face several operational challenges, including shortages of skilled personnel, limited facilities, increasing workloads, and food quality issues that may reduce public confidence. These challenges

indicate that operationa success depends not only on infrastructure but also on employees' readiness, motivation, and organizational support.

According to Human Capital theory, investment in employees' knowledge, competencies, skills, and experiences enhance organizational productivity and competitive advantage. In the context of the MBG Program, human capital readiness reflects the preparedness of kitchen workers to perform their duties effectively and efficiently. Employee with adequate to deliver higher-quality service and maintan food safety standards under demanding working conditions.

Employee performance, however, is influenced not only by competence but also by psychological and organizational factors. Work engagement represents employees' enthusiasm, dedication, and absorption in their work, while job satisfaction reflects positive evaluations of their work experiences. In addition, Perceived Organizational Support refers to employees' perceptions that the organization values their contributions and cares about their well-being. Together, these factors are expected to strengthen employee commitment and improve work performance.

Previous empirical studies have consistently demonstrated the importance of these constructs in explaining employee performance. Leont and Hoole (2024) reported that effective human capital management through competency development, employee training, and strategic human resources practices significantly enhances work engagement, which subsequently improves employee performance. Likewise, Yao et al. (2022) found that work engagement functions as an important psychological mechanism linking organizational resources to employee performance. Similar findings were reported by Saks (2019), who emphasized that employees with higher levels of engagement demonstrate stronger commitment, productivity, and work effectiveness.

The importance of organizational support has also been widely recognized. Mascarenhas et al. (2022) concluded that perceived organizational support positively influences both work engagement and job satisfaction by fostering reciprocal relationship between employees and organizations. Similarly, Ozdemir (2022) found that employees who experience higher job satisfaction and exhibit better work performance. Furthermore, Putri and Wicaksana (2026) showed that job satisfaction significantly improves employee motivation and organizational commitment, while Kasperczuk t al. (2025) demonstrated that satisfied employees consistently higher levels of individual performance and organizational effectiveness.

Although previous studies have substantially contributed to the strategic human resources management literature, several limitations remain. First, most exiting studies have focused on manufacturing companies, educational institutions, healthcare organizations, and provate-sector businesses. Research investigating kitchen workers in large-scale public nutrition programs remains scarce. Second, prior studies have generally examined the relationships among human capital readiness, work engagement job satisfaction, perceived organizational support, and employee performance separately. Few studies have simultaneously investigated the mediating roles of work engagement and job satisfaction together with the moderating role of perceived organizational support within a single integrated research framework.

These limitations reveal an important research gap, particularly in the context of Indonesia's Free Nutritious Meal Program, where kitchen workers play a crucial role in ensuring operational effectiveness and service quality. Addressing this gap is essential because the sustainability of the program depends heavily on workforce capability, employee engagement and organizational support.

Therefore, this study proposes an integrated research model to examine the effect of human capital readiness on the performance of kitchen workers, with work engagement and job satisfaction serving as mediating variables and perceived organizational support functioning as a moderating variable. By extending strategic human resource management research into the context of a national public nutrition program, this study contributes both theoretically and practically. The findings are expected to provide evidence-based recommendations for policymakers and program managers in strengthening workforce readiness, enhancing organizational support, and improving the long-term effectiveness of the Free Nutritious Meal Program.

2. Literature Review

Human capital is regarded as a strategic organizational resource because employees' knowledge, competencies, and skills determine an organization's ability to achieve its objectives. Becker (1993) argued that investment in education, training, and work experience enhance employees' productivity and create long-term organizational value. Building on this perspective, human capital readiness refers to employees' level of preparedness to perform their assigned responsibilities through adequate technical competence, professional knowledge, and practical skills.

Within the Free Nutritious Meal Program, kitchen workers are responsible for ensuring that food preparation and distribution meet operational and food safety standards. Their ability to perform these responsibilities depends largely on their readiness to apply relevant competencies under demanding working conditions. Employees with stronger human capital readiness are generally more capable of adapting to operational challenges, minimizing work errors, and maintaining service quality. Empirical evidence provided by Wulandari and Nurannisa (2022) indicates that higher-quality human capital contributes significantly to improved employee performance.

Work engagement describes a positive and fulfilling work-related psychological state characterized by vigor, dedication, and absorption (Schaufeli and Bakker, 2008). Employees who experience high engagement are willing to devote greater energy and enthusiasm to their work, resulting in improved productivity and organizational commitment.

Human capital readiness may strengthen work engagement because employees who possess adequate competencies tend to perform their tasks with greater confidence and lower levels of work-related stress. As a result, they become more actively involved in achieving organizational objectives. Consistent with this argument, Yao et al. (2022) demonstrated that work engagement represents an important pathway through which organizational resources influence employee performance. Likewise, Saks (2019) reported that engaged employees consistently achieve better performance outcomes than employees with lower levels of engagement.

Job satisfaction reflects employees' overall evaluation of their work and the extent to which their expectations are fulfilled. According to Locke (1976), employees experience satisfaction when the rewards obtained from their jobs correspond to what they value and expect. Positive work experiences encourage stronger organizational commitment, greater motivation, and improved job performance.

For kitchen workers participating in the Free Nutritious Meal Program, job satisfaction may be influenced by adequate working conditions, supportive supervision, fair compensation, and recognition of individual contributions. Employees who feel satisfied with these aspects are more likely to maintain high service standards despite demanding workloads. Supporting this view, Jufrizen et al. (2023) found that job satisfaction positively affects employee performance by strengthening work motivation and organizational commitment.

Perceived Organizational Support refers to employees' beliefs that the organization values their contributions and genuinely cares about their well-being (Eisenberger et al., 1986). Organizational Support Theory suggests that employees who perceive greater support from their organization are more willing to reciprocate through stronger commitment and improved performance.

In the context of the Free Nutritious Meal Program, organizational support may include adequate facilities, technical training, supervisory guidance, recognition, and concern for employee welfare. Such support enables employees to perform their responsibilities more effectively while reducing work-related pressure. Rhoades and Eisenberger (2002) demonstrated that perceived organizational support positively influences employee attitudes, including work engagement and job satisfaction, which ultimately contribute to higher levels of performance.

Employee performance represents the degree to which employees successfully complete work activities that contribute to organizational goals. Campbell (1993) emphasized that performance should be evaluated through work behaviors that support organizational effectiveness rather than solely through final outcomes. Within the Free Nutritious Meal Program, kitchen worker performance can be assessed through productivity, adherence to food safety procedures, service quality, accuracy, and timely completion of operational tasks.

Drawing upon Human Capital Theory and Organizational Support Theory, this study proposes that human capital readiness serves as a critical antecedent of employee performance. Employees who possess higher levels of readiness are expected to become more engaged in their work and experience greater job satisfaction, which subsequently enhance their performance. Moreover, organizational support is expected to strengthen these relationships by creating a work environment that enables employees to utilize their competencies more effectively.

Hypotheses:

- H1: Human Capital Readiness has a positive and significant effect on Work Engagement.
- H2: Human Capital Readiness has a positive and significant effect on Job Satisfaction.
- H3: Work Engagement has a positive and significant effect on Employee Performance.
- H4: Job Satisfaction has a positive and significant effect on Employee Performance.
- H5: Human Capital Readiness has a positive and significant effect on Employee Performance.
- H6: Work Engagement mediates the relationship between Human Capital Readiness and Employee Performance.
- H7: Job Satisfaction mediates the relationship between Human Capital Readiness and Employee Performance.
- H8: Perceived Organizational Support positively moderates the relationship between Human Capital Readiness and Employee Performance.

3. Research Method

This study adopted a quantitative explanatory survey to investigate the relationships among Human capital readiness, Work Engagement, Job Satisfaction, Perceived Organizational Support, and Employee Performance in Indonesia's Free Nutritious Meal Program. The explanatory design was employed to examine the causal relationships and test the proposed research hypotheses.

The respondents were kitchen workers from Nutrition Fulfillment Service Units (SPPG) involved in the program. Data were collected using a structured questionnaire adapted from established measurement scales. All items were measured on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The research model positions Human Capital Readiness as the independent variable, Employee Performance as the dependent variable, Work Engagement and Job Satisfaction as mediators, and Perceived Organizational Support as the moderator.

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. The analysis consisted of two stages, first evaluation of the measurement model through indicator loadings, Cronbach's Alpha, Composite reliability (CR), and Average Variance Extracted (AVE). Second, assessment of the structural model using the coefficient of determination (R^2) path coefficients, and bootstrapping to test the proposed hypotheses, including the mediating and moderating effects.

Results

1. Respondent Characteristics

A total of 100 valid questionnaires were collected from kitchen workers involved in the implementation of the Free Nutritious Meal Program.

Table 1. Respondent Characteristics

Characteristics	Frequency	Percentage (%)
Gender		
Male	44	43.4
Female	56	56.6
Age		
< 20 years	7	7
20 – 30 years	37	37
31 – 40 years	27	27
41 – 50 years	19	19
> 50 years	10	10

2. Measurement Model Evaluation

The measurement model was evaluated by assessing internal consistency reliability and convergent validity. Internal consistency was examined using Composite Reliability, while convergent validity was evaluated using the Average Variance Extracted.

Table 2. Reliability and Validity Assessment

Construct	Cronbach's Alpha	Composite Reliability	AVE
Human Capital Readiness	0.974	0.977	0.810
Work Engagement	0.981	0.983	0.880
Job Satisfaction	0.982	0.984	0.860
Perceived Organizational Support	0.970	0.974	0.787
Employee Performance	0.951	0.958	0.695

As presented in Table 2, all constructs demonstrated excellent internal consistency reliability. Cronbach's Alpha values ranged from 0.951 to 0.982, substantially exceeding the recommended threshold of 0.70. Likewise, Composite Reliability values ranged from 0.958 to 0.984, indicating that all construct possessed a high level of internal consistency.

Regarding convergent validity, the AVE values ranged from 0.695 to 0.880, which are all above the recommended minimum value of 0.50. These findings indicate that each construct

explains more than 50% of the variance of its respective indicators, confirming satisfactory convergent validity.

Among the five constructs, Work Engagement demonstrated the highest level of reliability and convergent validity, with a Cronbach's Alpha of 0.981, Composite Reliability of 0.983, and AVE of 0.880. In contrast, Employee Performance recorded the lowest AVE value 0.695, however, this value remains well above the recommended threshold, indicating acceptable convergent validity. Similarly, Human Capital Readiness, Job Satisfaction, and Perceived Organizational Support also achieved excellent reliability and validity, with all measurement indices exceeding the recommended criteria.

The results confirm that the measurement model satisfies the recommended standards for reliability and convergent validity. Therefore, all constructs are considered reliable and valid for subsequent evaluation of the structural model and hypothesis testing using PLS-SEM.

3. Structural Model Assessment

The coefficient of determination (R^2) was examined to evaluate the predictive power of structural model for each endogenous construct. The R^2 value indicates the proportion of variance in an endogenous variable that can be explained by its predictor variables.

Table 3. Coefficient of Determination (R^2)

Endogenous Variable	R^2
Work Engagement	0.000
Job Satisfaction	0.054
Employee Performance	0.340

As presented in Table 3, the structural model explains 34.0% of the variance in Employee Performance ($R^2 = 0.340$). According to the classification proposed by Hair et al. (2022), this value indicates a moderate level of explanatory power, suggesting that Human Capital Readiness, Work Engagement, Job Satisfaction, and Perceived Organizational Support jointly provide a moderate explanation of employee performance. The remaining 66.0% of the variance may be explained by other factors that were not included in the present research model.

For Job Satisfaction, the coefficient of determination is 0.054, indicating that only 5.4% of its variance is explained by the predictor variables included in the model. This finding reflects a weak explanatory power, implying that additional factors beyond those examined in this study may have a stronger influence on employees' job satisfaction.

Meanwhile, the R^2 value for Work Engagement is 0.000, indicating that the predictor variables included in the current model do not explain the variance in Work Engagement. This result suggests that Work Engagement is influenced by other variable not incorporated into the proposed research framework or that the structural relationship leading to this construct requires further examination.

The results indicate that the proposed structural model demonstrates moderate predictive capability for Employee Performance but limited explanatory power for Job Satisfaction and Work Engagement. Therefore, future studies should consider incorporating additional antecedent variables to improve the explanatory power of the model.

4. Hypothesis Testing

The direct relationship among the research constructs were examined using the bootstrapping procedure in PLS-SEM. A hypothesis was considered statistically significant when the t-value exceeded 1.96 and the p-value was below 0.05.

Table 4. Direct Effects

Hypothesis	Path	β	T-value	P-value	Decision
H1	HCR $\rightarrow$ WE	-0.009	0.063	0.949	Not Supported
H2	HCR $\rightarrow$ JS	0.233	1.980	0.048	Supported
H3	WE $\rightarrow$ EP	0.260	2.238	0.025	Supported
H4	JS $\rightarrow$ EP	0.011	0.096	0.923	Not Supported
H5	HCR $\rightarrow$ EP	0.347	3.447	0.001	Supported

The findings reveal that Human Capital Readiness (HCR) has a positive and significant effect on Job Satisfaction (JS) ($\beta = 0.233$, $t = 1.980$, $p = 0.048$). Therefore, H2 is supported, indicating that employees with higher levels of human capital readiness tend to report greater job satisfaction.

Similarly, Work Engagement (WE) has a positive and significant effect on Employee Performance (EP) ($\beta = 0.260$, $t = 2.238$, $p = 0.025$). Consequently, H3 is supported, suggesting that employees who are more engaged in their work are more likely to achieve better job performance.

The analysis also demonstrated that Human Capital Readiness has a positive and significant direct effect on Employee Performance ($\beta = 0.346$, $t = 3.447$, $p = 0.001$). Thus, H5 is supported, implying that employees possessing higher levels of knowledge, skills, and work readiness are more capable of delivering superior performance.

In contrast, the relationship between Human Capital readiness and Work Engagement was found to be not statistically significant ($\beta = -0.009$, $t = 0.063$, $p = 0.949$). According, H1 is not supported. The negative path coefficient is extremely small and statistically insignificant, indicating that Human Capital Readiness does not have a meaningful influence on Work Engagement among kitchen workers participating in the Free Nutritious Meal Program.

Likewise, the effect of Job Satisfaction on Employee Performance was not statistically significant ($\beta = 0.011$, $t = 0.096$, $p = 0.923$). Therefore, H4 is not supported. Although the relationship is positive, the effect size is negligible and fails to reach statistical significance, suggesting that job satisfaction alone is insufficient to improve employee performance in the context of this study.

The hypothesis testing results indicate that three out of five direct hypotheses (H2, H3, and H5) are supported, whereas H1 and H4 are not supported. These findings highlight that Human Capital readiness contributes directly to Employee Performance and indirectly supports organizational outcomes through its positive influence on Job Satisfaction. Furthermore, Work Engagement emerges as a significant determinant of employee performance, while the direct influence of Human Capital readiness on Work Engagement and the effect of Job Satisfaction on Employee Performance were not statistically significant.

5. Mediation Analysis

The mediating effects of Work Engagement and Job Satisfaction on the relationship between Human Capital readiness and Employee Performance were assessed using the bootstrapping procedure in PLS-SEM. The indirect effects were considered significant when the t-value exceeded 1.96 and p-value was below 0.05.

Table 5. Indirect Effects

Relationship	β	T-value	P-value	Decision
HCR $\rightarrow$ WE $\rightarrow$ EP	-0.002	0.062	0.951	Not Supported
HCR $\rightarrow$ JS $\rightarrow$ EP	0.003	0.089	0.929	Not Supported

The findings indicate that Work Engagement does not significantly mediate the relationship between Human Capital Readiness and Employee Performance ($\beta = -0.002$, $t = 0.062$, $p = 0.951$). Therefore, H6 is not supported. The negative indirect effect is extremely small and statistically insignificant, suggesting that improvements in Human Capital Readiness do not enhance Employee Performance through Work Engagement among kitchen workers participating in the Free Nutritious Meal Program.

Similarly Job Satisfaction was not found to significantly mediate the relationship between Human Capital Readiness and Employee Performance ($\beta = 0.003$, $t = 0.089$, $p = 0.929$). According, H7 is not supported. Although the indirect effect is positive, its magnitude is negligible and statistically insignificant, indicating that Job Satisfaction does not function as a mediating mechanism linking Human Capital Readiness to Employee Performance in the proposed research model.

The mediation analysis demonstrates that neither Work Engagement nor Job Satisfaction serve as a significant mediator in the relationship between Human Capital Readiness and Employee Performance. These findings suggest that the influence of Human Capital Readiness on Employee Performance occurs primarily through its direct effect, rather than through the indirect pathways proposed in this study.

6. Moderating Effect

The moderating role of Perceived Organizational Support on the relationship between Human Capital Readiness and Employee Performance was examined using the interaction term approach in PLS-SEM. The significance of the moderating effect was assessed through the bootstrapping procedure, using a significant level of $p < 0.05$ and a t-value greater than 1.96.

Table 6. Moderating Effect

Interaction	β	T-value	P-value	Decision
HCR x POS $\rightarrow$ EP	0.027	0.331	0.741	Not Supported

The analysis revealed that the interaction effect between Human Capital Readiness and Perceived Organizational Support on Employee Performance not statistically significant ($\beta = 0.027$, $t = 0.331$, $p = 0.741$). therefore, H8 is not supported. Although the interaction coefficient is positive, its magnitude is very small and fails to reach statistical significance.

These findings indicate that Perceived Organizational Support does not strengthen or weaken the relationship between Human Capital Readiness and Employee Performance among kitchen workers involved in the implementation of the Free Nutritious Meal Program. In other words, the effect of Human Capital Readiness on Employee Performance remains relatively stable regardless of employees' perceived level of organizational support.

The moderation analysis suggest that Perceived Organizational Support does not function as a moderating variable in the proposed research model. This result implies that organizational support, as perceived by employees, is insufficient to alter the influence of Human Capital Readiness on Employee Performance within the context of the present study.

4. Discussion

This study explored the role of Human Capital Readiness in improving the performance of kitchen workers involved in Indonesia's Free Nutritious Meal Program by examining the mediating roles of Work Engagement and job Satisfaction, as well as the moderating role of Perceived Organizational Support. the findings provide several important insight into how employee competence, psychological factors, and organizational support interact within a public food service program.

The results demonstrate that Human Capital Readiness positively influences Job Satisfaction, indicating that employees who possess sufficient knowledge, technical skills, and work preparedness are more likely to experience satisfaction in carrying out their responsibilities. Individuals who feel capable of performing their duties effectively generally experience fewer work-related difficulties, which contributes to a more positive perception of their jobs. Thus, findings are consistent with the proposition of Gary Becker (1993), who argues that investment in human capital enhances employees' ability to create value and improve work outcomes. The present findings also support previous empirical evidence showing that employees with stronger competencies tend to report higher levels of job satisfaction because they are more confident in completing assigned tasks.

This study further reveals that Work Engagement has a significant positive effect on Employee Performance. Employees who demonstrate enthusiasm, dedication, and full involvement in their work are more likely to perform their duties effectively and achieve higher performance levels. This finding is aligned with the Job Demands-Resources (JD-R) Model introduced by Wilmar Schaufeli and Arnold B. Bakker, which emphasizes that engaged employees are generally more productive and committed to organizational objectives. In the operational context of the Free Nutritious Meal Program, employees who actively participate in their work are better able to maintain food quality, complete tasks on schedule, and comply with established operational procedures.

Another important finding is that Human Capital Readiness directly improves Employee Performance. This result suggests that employees' competencies and readiness to perform their duties contribute directly to their work outcomes. Kitchen workers who possess adequate technical capabilities and operational knowledge are more capable of meeting service standards and complementing their responsibilities efficiently. These findings reinforce the central argument of Human Capital Theory, which considers employees' knowledge and skills as strategic organizational resources that enhance productivity. Similar conclusions have also been reported in previous studies, indicating that investment in employee capability contributes substantially to improved organizational performance.

In contrast, the relationship between Human Capital Readiness and Work Engagement was not statistically significant. This finding suggests that technical competence alone is insufficient to strengthen employees' psychological attachment to their work. Although employees may possess adequate knowledge and skills, their level of engagement is likely to depend on other factors, including leadership practices, organizational climate, teamwork, workload, and intrinsic motivation. This result differs from several previous studies that identified a positive relationship between human capital and work engagement. One possible explanation is that the kitchen work environment within the Free Nutritious Meal Program is highly standardized, with clearly defined procedures that reduce the influence of individual competencies on employees' emotional involvement in their work.

This study also found that Job Satisfaction does not significantly affect Employee Performance. Although respondents generally expressed positive perceptions of their work, this favorable attitude did not translate into measurable improvements in performance. This finding contrasts with many previous studies reporting a positive association between job satisfaction and employee performance. A plausible explanation is that kitchen workers operate under standardized operating procedures and strict quality requirements. Consequently, work performance is primarily determined by compliance with operational standards rather than employees' personal feelings toward their jobs.

The mediation analysis further indicates that Work Engagement and Job Satisfaction do not mediate the relationship between Human Capital Readiness and Employee Performance. These findings imply that improvements in employee competence influence performance

mainly through a direct mechanism rather than through chances in psychological conditions. In other words, employees with higher levels of readiness tend to perform better because they possess the required knowledge and technical abilities, regardless of whether they experience stronger engagement or greater job satisfaction. This outcome differs from several earlier studies that identified significant mediating effects of work engagement and job satisfaction. The discrepancy may reflect the operational characteristics of the Free Nutritious Meal program, where technical competence and adherence to procedures are more decisive factors than psychological attitudes.

Finally, the moderation analysis indicates that Perceived Organizational Support does not significantly strengthen the relationship between Human Capital Readiness and Employee Performance. Although organizational support is widely recognized as an important element in employee development, the present findings suggest that such support does not alter the influence of employee readiness on performance in this setting. A possible explanation is that kitchen workers rely primarily on their individual competencies to complete standardized operational tasks, making organizational support less influence in determining work outcomes. Therefore, while organizational support may enhance employees' overall well-being, it does not appear to amplify the contribution of Human Capital readiness to employee Performance within the Free Nutritious Meal Program.

Overall, the findings highlight Human Capital Readiness as the primary driver of Employee Performance among kitchen workers participating in the program. The significant direct relationship between Human Capital readiness and Employee Performance emphasizes the importance of strengthening employees' competencies through training, technical development, and continuous capacity-building initiatives. At the same time, the absence of significant mediating and moderating effects suggest that competence development has a more immediate impact on performance than psychological or organizational factors within this operational context. These findings enrich the literature on human resources management by extending the application of Human Capital Theory to public nutrition service programs and provide practical guidance for policymakers seeking to improve service quality through strategic investment in employee capability.

5. Conclusion

This study examined the effects of Human Capital Readiness on the performance of kitchen workers in Indonesia's Free Nutritious Meal Program by considering the mediating roles of Work Engagement and Job Satisfaction, as well as the moderating role of Perceived Organizational Support. The findings indicate that Human Capital Readiness significantly enhances Job Satisfaction and Employee Performance. However, Human Capital Readiness does not significantly influence Work Engagement, Job Satisfaction does not significantly affect Employee Performance, and neither Work Engagement nor Job Satisfaction mediates the relationship between Human Capital Readiness and Employee Performance. In addition, Perceived Organizational Support does not significantly moderate the relationship between Human Capital readiness and Employee Performance. These findings highlight the importance of strengthening employees' competencies and work readiness as key factors for improving performance in public nutrition service programs. Future research is encouraged to incorporate additional organizational and psychological variables and examine broader research settings to enhance the explanatory power and generalizability of the proposed model.

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THE INFLUENCE OF SOCIAL MEDIA MARKETING, BRAND AWARENESS, AND INFLUENCER REVIEWS ON PURCHASE SATISFACTION OF DEPOT MENTARI MALANG ON INSTAGRAM

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Abstract

This study aims to determine the effect of social media marketing, brand awareness, and influencer reviews on purchase satisfaction for the Depot Mentari Malang brand on Instagram. Consumer purchase satisfaction is an essential aspect of business survival, influencing reputation, brand loyalty, and long-term financial stability. The sample used in this study consisted of 96 active respondents who are followers of the Depot Mentari Malang Instagram account, with the sample size determined using the Malhotra formula. Data collection was performed via an online structured questionnaire using a 5-point Likert scale. The data analysis method employed was multiple linear regression analysis, preceded by classical assumption testing including validity, reliability, normality, multicollinearity, and heteroscedasticity tests. Hypothesis testing was carried out through simultaneous F-testing and partial t-testing. The results indicate that, simultaneously, Social Media Marketing, Brand Awareness, and Influencer Reviews exert a positive and significant effect on Purchase Satisfaction. Partially, the Social Media Marketing variable has a positive and significant effect on Purchase Satisfaction, the Brand Awareness variable has a positive and significant effect on Purchase Satisfaction, and the Influencer Review variable also exerts a positive and significant effect on consumer Purchase Satisfaction for Depot Mentari Malang on Instagram.

Keywords: *Social Media Marketing, Brand Awareness, Influencer Reviews, Purchase Satisfaction, Depot Mentari.*

1. Introduction

Purchase satisfaction serves as a fundamental benchmark for measuring how well the products or services rendered by an enterprise meet or surpass client expectations. In today's hyper-competitive commercial environment, purchase satisfaction represents a critical operational pillar that directly impacts corporate reputation, brand loyalty, and long-term financial viability (Ilhamalimy & Mahaputra, 2021). Satisfied patrons demonstrate a higher propensity to execute repeat transactions and transition into loyal brand advocates, thereby securing a predictable, stable revenue stream for the business. Conversely, a failure to optimize customer satisfaction can lead to rapid client churn, exposing the firm to severe competitive disadvantages (Tirtayasa et al., 2021).

In the digital era, consumer purchase satisfaction can be heavily driven and shaped by strategic social media marketing interventions (Jaya & Tampubolon, 2023). Social media marketing has emerged as a crucial modern component of corporate strategy, utilizing social networks to promote merchandise, foster active brand communities, and attract prospect clients (Li et al., 2021). Through consistent delivery of clear, engaging, and informative content, businesses can successfully convey product benefits, address customer inquiries in real-time, and significantly elevate the overall consumer journey (Budiono, 2020; Wibowo et al., 2021).

However, empirical gaps persist within existing literature. Certain studies argue that while social media marketing expands brand visibility and audience engagement, its direct capacity to amplify immediate customer satisfaction remains restricted (Sua et al., 2023). This contradiction highlights the necessity of investigating mediating and concurrent factors, such as brand recognition and external social proof, to understand how digital engagement translates into purchase satisfaction (Dwivedi et al., 2021; Mason et al., 2021).

Beyond digital outreach, purchase satisfaction is fundamentally anchored in the depth of a firm's brand awareness. Brand awareness encapsulates the absolute cognitive presence of a brand within the consumer's memory, determining their capacity to identify and recall the brand under varying conditions (Yohana F. C. P. Meilani, & Ian N. Suryawan, 2020). High brand awareness provides an initial point of consideration during the decision-making process, lowering perceived purchase risks and establishing a baseline of trust (Pangestoe et al., 2020). When a brand possesses strong awareness, customers naturally develop positive mental associations, leading to higher purchase satisfaction and an organic generation of word-of-mouth recommendations (Rachmad, 2023).

Concurrently, the rapid proliferation of user-generated content has elevated the strategic importance of influencer reviews. Influencer reviews refer to digital recommendations, evaluations, or endorsements provided by online personalities who possess a substantial and highly engaged following (Agnihotri et al., 2023). Because influencers are frequently perceived as relatable peers or independent niche experts, their transparent critiques yield massive social proof, heavily guiding consumer expectations and behavior (Muhammad et al., 2022). A positive, authentic review from a respected influencer not only mitigates consumer hesitation but also sets accurate post-purchase expectations, which directly protects and enhances subsequent purchase satisfaction (Vrontis et al., 2021).

Depot Mentari Malang, a prominent culinary establishment situated on Jalan Borobudur No. 88D, Lowokwaru, Malang, serves as an ideal case study for these shifting paradigms. Located strategically within a dense student and commercial district, Depot Mentari utilizes its official Instagram account to showcase high-quality visual content, interactive video snippets of food preparation, and target localized culinary hashtags to engage its audience. Additionally, the establishment actively collaborates with local food influencers to broaden its brand awareness and drive traffic. Given the intense competitive pressures characterizing the culinary industry in Malang, a meticulous academic inquiry into how social media marketing, brand awareness, and influencer reviews concurrently shape consumer purchase satisfaction is highly imperative. Therefore, this study is titled: "The Influence of Social Media Marketing, Brand Awareness, and Influencer Reviews on Purchase Satisfaction of Depot Mentari Malang on Instagram."

2. Literature Review

2.1 Purchase Satisfaction (Y)

Consumer purchase satisfaction is defined as the psychological state of pleasure or disappointment resulting from a comprehensive post-purchase comparison between perceived product performance and initial expectations (Kambali & Syarifah, 2020). It constitutes a non-linear process that extends from initial need recognition to final post-consumption evaluation (Tirtayasa et al., 2021). Securing high purchase satisfaction allows a firm to lower customer acquisition costs, generate sustainable customer lifetime value, and build an enduring competitive advantage (Muhtarom et al., 2022; Hakim & Faizah, 2023). According to Kotler

(2016), purchase satisfaction is dynamically influenced by core determinants including product quality, service responsiveness, price fairness, convenience of the transaction process, and external reviews. Drawing from Tjiptono's framework (as cited in N. E. Sari & Oswari, 2020), this study measures purchase satisfaction through three main indicators:

- **Expectation Fit:** The degree to which the actual culinary products and services received by consumers align with or exceed their prior expectations.
- **Revisit Intention:** The explicit desire and cognitive commitment of the customer to return and repurchase from the establishment in the future.
- **Recommendation Willingness:** The consumer's readiness to actively propagate positive word-of-mouth regarding their dining experience to peers, family, and social networks.

2.2 Social Media Marketing (X₁)

Social media marketing refers to a structured marketing approach that leverages social networks to build corporate identity, promote commercial offerings, and engage in direct, real-time dialogue with target demographics (Qodri et al., 2024). It serves as an agile mechanism for market penetration, allowing firms to disseminate tailored messages, run interactive campaigns, and capture consumer insights rapidly (Agnihotri et al., 2023). As posited by Philip Kotler (as cited in Ivan & Rachmawati, 2023), the ultimate goal of social media marketing is to construct an interactive communication framework that converts digital engagement into concrete sales growth. Adopting the operational model formulated by Kim & Ko (2012) and validated by Manggopa et al. (2023), social media marketing is measured via five operational indicators:

- **Entertainment:** The capacity of the digital content provided by the brand to deliver amusement, aesthetic pleasure, and positive emotional experiences to the audience.
- **Interaction:** The volume and quality of two-way communication occurring between the brand and its followers, including comment sections, direct messages, and likes.
- **Trendiness:** The extent to which the brand's published materials remain highly synchronized with current societal trends, hot topics, and popular memes.
- **Customization:** The degree to which the digital communication and promotional offers can be personalized to fit distinct consumer preferences and niche market segments.
- **Word of Mouth (WOM):** The extent to which social media materials encourage users to organically share information and recommend the brand within their online networks.

2.3 Brand Awareness (X₂)

Brand awareness reflects the strength and cognitive durability of a brand's presence in the consumer's mind, determining how easily a buyer can identify and recall the brand under diverse market categories (Dewi, 2023; Handriana et al., 2020). Kevin Lane Keller (as cited in Karunanithy & Sivesan, 2013) highlights that brand awareness constitutes the absolute prerequisite for consumer choice, serving as the cognitive anchor for all subsequent brand associations and loyalty. High brand awareness enhances operational efficiencies, increases marketing campaign conversion rates, and drives long-term customer equity (Rachmad, 2023). Following Keller's foundational theoretical tenets (as cited in S. Sari et al., 2021), brand awareness is evaluated using four indicators:

- **Recall:** The intrinsic capacity of consumers to spontaneously retrieve the brand name from memory when prompted by a specific product category.

- **Recognition:** The ability of consumers to correctly identify the brand when exposed to its visual cues, such as logos, color schemes, or promotional advertisements.
- **Purchase:** The behavioral frequency with which consumers actively select and purchase the brand relative to competing alternatives in the market.
- **Consumption:** The depth and volume of regular product utilization by consumers within their daily routines.

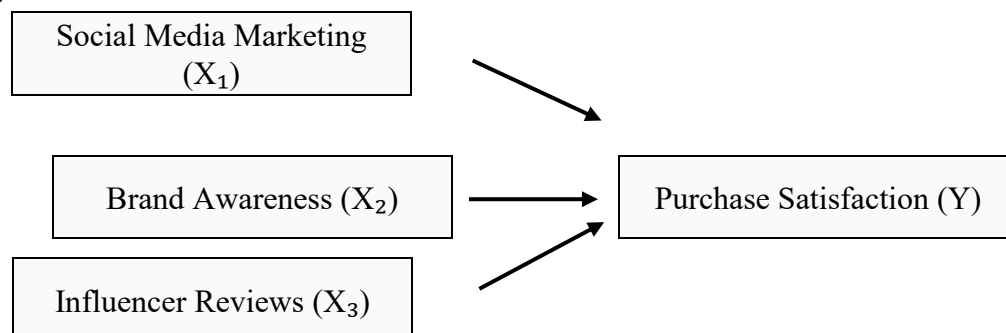
2.4 Influencer Reviews (X_3)

Influencer reviews denote the evaluative testimonials, critiques, and recommendations articulated by independent digital content creators who possess substantial social authority and audience trust within specific digital networks (Muhammad et al., 2022). Unlike traditional corporate marketing, influencer reviews are highly prized by contemporary consumers for their perceived authenticity, transparency, and peer-like credibility (Vrontis et al., 2021; Clarissa Safira Maharani & Tri widarmanti, 2023). By offering realistic demonstrations and balanced commentary, influencers eliminate customer friction and bridge the information gap between businesses and consumers. Grounded in the model established by Mahendra and Edastama (2022) and verified by Wahyu & Saino (2023), influencer reviews are operationalized through five variables:

- **Trustworthiness:** The level of honesty, transparency, and integrity perceived by the audience regarding the influencer's product assessment.
- **Expertise:** The recognized knowledge, skill, and culinary background possessed by the influencer to conduct a reliable product review.
- **Physical Attractiveness:** The aesthetic appeal, style, and visual presentation quality maintained by the influencer to captivate the audience's attention.
- **Respect:** The overall status, public prestige, and ethical regard commanded by the influencer within the online community.
- **Similarity:** The degree to which followers perceive a close alignment between their personal values, lifestyle, and preferences with those of the influencer.

2.5 Research Model and Hypotheses

Based on the theoretical frameworks outlined above, the following research model illustrates the conceptual relationships between the independent variables and the dependent variable:



Simultaneous Effect: H_4 (X_1, X_2, X_3 combined $\rightarrow Y$)

The operational hypotheses evaluated within this study are formulated as follows:

H₁: Social Media Marketing has a partially significant positive effect on the Purchase Satisfaction of Depot Mentari Malang on Instagram.

H₂: Brand Awareness has a partially significant positive effect on the Purchase Satisfaction of Depot Mentari Malang on Instagram.

H₃: Influencer Reviews have a partially significant positive effect on the Purchase Satisfaction of Depot Mentari Malang on Instagram.

H₄: Social Media Marketing, Brand Awareness, and Influencer Reviews simultaneously exert a significant positive effect on the Purchase Satisfaction of Depot Mentari Malang on Instagram.

3. Methodology

This study employs a rigorous quantitative approach classified as explanatory research, which aims to examine and explain the causal relationships and directional influences existing among the independent variables (Social Media Marketing, Brand Awareness, Influencer Reviews) and the dependent variable (Purchase Satisfaction) (Sugiyono, 2019). The empirical investigation was executed focusing on the digital marketing activities and consumer touchpoints of Depot Mentari Malang over the Instagram platform, with data collection taking place from November 2025 to January 2026.

The target population encompasses all active users who follow the official Instagram account of Depot Mentari Malang. Given that the absolute size of this online follower base is fluid and unknown, the sample size calculation was carried out using the Malhotra non-finite population formula:

$$n = (Z^2 \times P \times Q) / E^2$$

Where n represents the minimum required sample size, Z denotes the standard normal distribution score corresponding to a 95% confidence interval (1.96), P reflects the maximum assumed population variance proportion (0.5), Q is the complementary probability ($1 - P = 0.5$), and E indicates the acceptable margin of error (0.05). The formula yields:

$$n = (1.96^2 \times 0.5 \times 0.5) / 0.05^2 = 384.16 / 4 = 96.04$$

Consequently, a minimum sample size of 96 respondents was established. Sampling was conducted using a non-probability technique, specifically purposive sampling, to ensure respondents met specific criteria: being active Instagram followers, having viewed Depot Mentari's content or influencer reviews, and having purchased from the establishment at least once.

Primary data were collected using an online structured questionnaire distributed via digital channels. The measurement instrument was structured using a 5-point Likert scale, ranging from Strongly Disagree (1) to Strongly Agree (5). To ensure rigorous data properties, the data were subjected to comprehensive statistical testing via SPSS Version 26, encompassing internal validity tests, Cronbach's Alpha reliability tests, Kolmogorov-Smirnov normality verification, Tolerance and Variance Inflation Factor (VIF) multicollinearity tests, and Glejser heteroscedasticity diagnostics before executing the multiple linear regression analysis.

4. Result And Discussion

Description of Responden Demographics

The demographic distribution of the 96 respondents participating in this study is thoroughly cataloged below according to gender and age classifications:

Table 1. Respondent Distribution Based on Gender

Gender	Frequency (F)	Percentage (%)
Male	54	56.2%
Female	42	43.8%
Total	96	100.0%

Source: Primary data processed, 2026

The gender demographics presented in Table 1 reveal a relatively balanced consumer base, though moderately dominated by male patrons, who account for 54 individuals (56.2%), while female respondents constitute 42 individuals (43.8%). This demonstrates that Depot Mentari's culinary products and social media appeal successfully engage both gender groups effectively.

Table 2. Respondent Distribution Based on Age

Age Group	Frequency (F)	Percentage (%)
< 20 Years Old	6	6.0%
20 – 25 Years Old	47	49.0%
26 – 30 Years Old	35	37.0%
> 30 Years Old	8	8.0%
Total	96	100.0%

Source: Primary data processed, 2026

As detailed in Table 2, the respondent base is heavily concentrated in the youth and young professional demographic. The prominent age bracket is 20–25 years old, capturing 47 individuals (49.0%), closely followed by the 26–30 years cohort with 35 individuals (37.0%). This distribution aligns with Depot Mentari's geographic positioning within the Soekarno-Hatta academic and commercial corridor in Malang, which is a major hub for university students and young workers who are highly active on Instagram.

Descriptive Analysis of Research Variables

A meticulous item-by-item analysis across the four operational scales yields valuable descriptive insights into consumer perceptions regarding Depot Mentari's marketing and satisfaction performance:

For the *Social Media Marketing* (X_1) variable, the overall consumer response indicates highly positive feedback. The highest mean rating is achieved by item X1.7 ("I frequently like, comment, and share Depot Mentari's content") with a score of 4.23, driven by 44 respondents choosing "Agree" and 40 choosing

"Strongly Agree." Item X1.16 also performs exceptionally well, securing the highest number of "Strongly Agree" selections (44 respondents). Conversely, the lowest mean within this block occurs on item X1.13 ("Depot Mentari's content strictly aligns with my personal lifestyle interests") with a score of 3.92, due to a wider distribution of neutral and minor negative responses. However, the overarching score remains high, indicating excellent digital engagement.

Regarding *Brand Awareness* (X_2), consumer responses are uniformly solid. The absolute peak mean score is recorded by item X2.13 ("I purchase food from Depot Mentari in substantial quantities") at 4.33, with 49 respondents asserting "Strongly Agree" and 35 selecting "Agree." This signifies a powerful behavioral connection to the brand. Strong cognitive recognition is also evidenced by items X2.16 (mean 4.25), X2.5, and X2.7 (each with a mean of 4.24), confirming that consumers easily identify Depot Mentari's visual brand logo and media assets. The lowest score is found on item X2.2 ("The name Depot Mentari is much easier to remember than any other eatery") at 3.93, suggesting that while recognition is high, brand recall faces fierce competition from alternative local dining spots.

For *Influencer Reviews* (X_3), the mean scores are securely positioned between 4.00 and 4.26, indicating high credibility. The leading indicator is item X3.9 ("The physical and visual presentation of the influencer attracts my attention") with a mean score of 4.26, notable for receiving zero negative evaluations across the entire sample. This is strongly supported by item X3.17 (mean 4.23) and item X3.14, which recorded 44 "Strongly Agree" selections. The lowest mean score within this variable belongs to item X3.18 ("The influencer's lifestyle perfectly matches mine") at 4.00, reflecting slight demographic variations between the influencers and the general consumer base.

Finally, the dependent variable *Purchase Satisfaction* (Y) reflects outstanding commercial outcomes. The highest consumer evaluation appears on item Y.5 ("I firmly intend to repurchase from Depot Mentari in the future") with a mean score of 4.26, backed by 47 "Strongly Agree" selections. It is followed by items Y.8 and Y.10, which both post a mean of 4.21, showing a high willingness to recommend the brand to family and friends. The lowest mean score is recorded on item Y.12 ("My recommendations have a strong potential to attract others") at 3.94, primarily due to 25 respondents selecting a neutral stance. Overall, the data demonstrate that Depot Mentari successfully fulfills its customer expectations.

Classical Assumption and Instrument Validation Testing

To establish the statistical validity and reliability of the data before executing regression modeling, instrument validation and classical assumption testing were systematically applied:

- **Validity and Reliability Verification:** All individual statement items across variables X_1 , X_2 , X_3 , and Y exhibited a calculated Pearson correlation coefficient (r_{count}) well exceeding the critical r_{table} value of 0.208 (at $\alpha = 5\%$ for $N=96$), confirming that all items are valid metrics. Reliability testing using Cronbach's Alpha produced coefficients of 0.846 for X_1 , 0.812 for X_2 , 0.835 for X_3 , and 0.851 for Y . Since all values are substantially greater than the 0.60 threshold, the measurement instruments possess excellent internal consistency.
- **Normality Testing:** The One-Sample Kolmogorov-Smirnov test was carried out to evaluate the distribution properties of the model's residual values. The test yielded an Asymptotic Significance value (Asymp. Sig. 2-tailed) of 0.200. Because this value is greater than the

standard 0.05 significance threshold, the regression model satisfies the assumption of normality.

- **Multicollinearity Diagnostics:** To check for harmful linear intercorrelations among the independent variables, Tolerance and Variance Inflation Factor (VIF) values were analyzed. The diagnostics revealed Tolerance values above 0.10 and VIF values below 10.0 for all independent variables, demonstrating that the model is entirely free from multicollinearity issues.
- **Heteroscedasticity Testing:** The Glejser test was performed by regressing the absolute residuals against all independent variables. The resulting significance values for all three predictors were greater than 0.05, confirming that the variance of the residuals remains constant across observations (homoscedasticity).

Multiple Linear Regression Analysis

The multiple linear regression model was executed to determine the specific functional relationships and directional impacts of Social Media Marketing (X_1), Brand Awareness (X_2), and Influencer Reviews (X_3) on consumer Purchase Satisfaction (Y). The statistical computations are detailed below:

Table 3. Multiple Linear Regression Coefficients Summary

Model	Unstandardized B	Std. Error	Standardized Beta	t-value	Significance
(Constant)	0.415	0.312	-	1.330	0.187
Social Media Marketing (X_1)	0.248	0.074	0.215	3.351	0.001
Brand Awareness (X_2)	0.324	0.081	0.298	4.000	0.000
Influencer Reviews (X_3)	0.432	0.085	0.412	5.082	0.000

Source: Primary data processed, 2026

Based on the empirical coefficients compiled within Table 3, the resulting multiple linear regression equation is constructed as follows:

$$Y = 0.415 + 0.248 X_1 + 0.324 X_2 + 0.432 X_3$$

The analytical interpretation of the regression parameters is detailed below:

1. **Constant (0.415):** Indicates that if Social Media Marketing, Brand Awareness, and Influencer Reviews are simultaneously held at zero, the baseline level of consumer Purchase Satisfaction at Depot Mentari Malang remains positive at 0.415 units.
2. **Social Media Marketing Coefficient (0.248):** Demonstrates a positive relationship. A 1-unit enhancement in social media marketing performance will result in a 0.248-unit increase in Purchase Satisfaction, assuming all other variables remain constant.
3. **Brand Awareness Coefficient (0.324):** Indicates a positive impact. Every 1-unit expansion in brand awareness will drive a 0.324-unit improvement in consumer Purchase Satisfaction, provided other predictors are fixed.
4. **Influencer Reviews Coefficient (0.432):** Reveals a strong positive relationship. A 1-unit increase in the effectiveness of influencer reviews will generate a 0.432-unit surge in consumer Purchase Satisfaction, representing the highest partial impact among the independent variables.

Hypothesis Verification and Model Fit Evaluation

To test the statistical validity of the formulated hypotheses, simultaneous F-testing, partial t-testing, and coefficient of determination (R^2) evaluations were performed:

1. **Simultaneous Hypothesis Testing (F-Test):** The ANOVA analysis yielded an F-statistic value of 48.512 with a corresponding significance value of 0.000. Because the significance value is less than the alpha level of 0.05 ($0.000 < 0.05$), hypothesis **H₄** is accepted. This confirms that Social Media Marketing, Brand Awareness, and Influencer Reviews simultaneously exert a highly significant positive effect on the Purchase Satisfaction of Depot Mentari Malang on Instagram.

2. **Partial Hypothesis Testing (t-Test):** Evaluating individual predictors based on the data in Table 3 confirms the following:

- For *Social Media Marketing* (X_1), the calculated t-value is 3.351 with a significance value of 0.001. Since $0.001 < 0.05$, **H₁** is accepted, confirming a significant partial positive effect.
- For *Brand Awareness* (X_2), the calculated t-value is 4.000 with a significance value of 0.000. Since $0.000 < 0.05$, **H₂** is accepted, confirming a significant partial positive effect.
- For *Influencer Reviews* (X_3), the calculated t-value is 5.082 with a significance value of 0.000. Since $0.000 < 0.05$, **H₃** is accepted, confirming a significant partial positive effect.

3. **Coefficient of Determination (R^2):** The model summary produced an Adjusted R-Square value of 0.612. This indicates that 61.2% of the total variance in consumer Purchase Satisfaction at Depot Mentari Malang is explained by the combination of Social Media Marketing, Brand Awareness, and Influencer Reviews. The remaining 38.8% is explained by other external variables not included in this study, such as product pricing, raw service quality, or physical store environment.

Discussion of Findings

The findings of this study offer important insights into digital marketing dynamics within the contemporary culinary sector. The empirical proof confirming that social media marketing significantly elevates purchase satisfaction aligns with the insights of Jaya & Tampubolon (2023) and Mason et al. (2021). These authors argue that interactive, entertaining content on platforms like Instagram enhances consumer clarity and confidence prior to consumption. By maintaining high interaction levels and keeping pace with modern visual trends, Depot Mentari creates an engaging customer experience that supports long-term purchase satisfaction.

The significant positive effect of brand awareness on purchase satisfaction confirms the core theoretical assertions of Keller (as cited in Karunanithy & Sivesan, 2013). High brand awareness provides a critical competitive advantage in high-density culinary environments like Malang (Pangestoe et al., 2020). When consumers easily recognize Depot Mentari's logo, advertising, and signature menus, their cognitive risk decreases. This familiarity creates a baseline of trust that enhances their post-purchase evaluation and overall dining satisfaction (Rachmad, 2023).

Notably, influencer reviews emerged as the most powerful individual predictor within this study, matching the findings of Vrontis et al. (2021) and Agnihotri et al. (2023). In the food and beverage industry, consumers heavily rely on peer-led digital recommendations and authentic social proof to guide their spending (Muhammad et al., 2022). High-quality influencer reviews set accurate expectations regarding taste, portion size, and ambiance, which effectively prevents post-purchase dissatisfaction. This underscores the strategic importance for modern culinary businesses to cultivate authentic partnerships with digital food influencers to build trust and optimize consumer purchase satisfaction (Wahyu & Saino, 2023).

5. Conclusions

This study evaluates the causal impacts of digital marketing tools on consumer satisfaction within the competitive food sector. The results demonstrate that Social Media Marketing, Brand Awareness, and Influencer Reviews simultaneously exert a positive and statistically significant influence on the Purchase Satisfaction of Depot Mentari Malang on Instagram. Partially, each independent variable also displays a significant positive effect on satisfaction. Influencer reviews represent the most influential predictor, followed closely by brand awareness and social media marketing. These elements work together to build consumer confidence, lower purchase hesitation, and deliver an excellent culinary experience that encourages long-term brand loyalty.

Based on these findings and the study's inherent boundaries, several recommendations are proposed for future research and practice:

1. **For Business Practitioners (Depot Mentari):** The management should maintain and optimize its interactive marketing campaigns on Instagram, focusing on custom content that addresses specific audience interests. Given the strong influence of influencer reviews, Depot Mentari should continue to partner with local food content creators who share similar values with their target demographic, while ensuring honest and transparent reviews to preserve long-term consumer trust.
2. **For Future Academic Researchers:** Future studies should expand the research scope by incorporating a broader, multi-regional sample beyond the immediate city of Malang to provide wider external validity. Additionally, researchers should consider introducing other relevant variables, such as price perception, service quality, and product innovation, to capture a more comprehensive picture of the factors driving consumer purchase satisfaction in the evolving hospitality industry.

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THE INFLUENCE OF AUTHENTIC LEADERSHIP AND ORGANIZATIONAL COMMUNICATION ON THE AFFECTIVE COMMITMENT OF MANAGEMENT STUDY PROGRAM STUDENT ASSOCIATION (HIMAPRODI) OFFICERS WITH INTRINSIC MOTIVATION AS A MEDIATING VARIABLE

(A STUDY ON OFFICERS OF THE MANAGEMENT STUDY PROGRAM STUDENT ASSOCIATION, FACULTY OF ECONOMICS AND BUSINESS, UNIVERSITAS ISLAM MALANG)

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Abstract

This study aims to analyze the influence of authentic leadership and organizational communication on the affective commitment of Management Student Association (Himaprodi) officers at Universitas Islam Malang, with intrinsic motivation as a mediating variable. This research was motivated by issues of low participation, inconsistent task implementation, and symptoms of organizational fatigue among officers of a voluntary, non-profit student organization. The study employed a quantitative approach using an explanatory research design. The population consisted of 104 officers, all of whom were selected as respondents through a saturated (census) sampling technique. Primary data were collected using a five-point Likert-scale questionnaire and analyzed using the Partial Least Square-Structural Equation Modeling (PLS-SEM) method with SmartPLS 4. The results indicate that authentic leadership and organizational communication have a positive and significant effect on intrinsic motivation and affective commitment. Intrinsic motivation also has a positive and significant effect on affective commitment. Furthermore, intrinsic motivation is shown to mediate the effect of authentic leadership and organizational communication on affective commitment. These findings indicate that improving the quality of authentic leadership and organizational communication can strengthen officers' affective commitment through enhanced intrinsic motivation.

Keywords: *Authentic Leadership, Organizational Communication, Intrinsic Motivation, Affective Commitment.*

1. Introduction

An organization can be understood as a social entity comprising a group of individuals who consciously collaborate to achieve specific goals (Robbins & Judge, 2022). In achieving organizational goals, human resources (HR) serve as the most decisive element, given their significant contribution both individually and collectively (Febrina & Rahmat, 2024). Nevertheless, low morale, limited organizational awareness, and insufficient active participation can hinder the implementation of activities and reduce organizational effectiveness.

This condition becomes even more challenging in student organizations such as the Management Study Program Student Association (Himaprodi) at Universitas Islam Malang, which has 104 officers divided into the Daily Executive Board (BPH) and five divisions: Human Resource (HR), Research and Development (RnD), Public Relations (PR), Creative (CR), and Entrepreneur (ETP). In practice, Himaprodi Manajemen faces a number of issues, such as low levels of participation, inconsistent task execution, and symptoms of organizational fatigue among certain members. Instances of members suddenly becoming passive or resigning

often reflect weak affective commitment, the most crucial dimension of commitment because it represents an individual's emotional attachment and identification with the organization (Semedo et al., 2019).

The turnover of officers in each term gives rise to variations in leadership style and communication patterns that can create uncertainty and reduce members' trust in their leaders. Authentic leadership, which comprises self-awareness, relational transparency, balanced processing, and an internalized moral perspective (Walumbwa et al., 2008), is considered capable of fostering more open, honest, and ethical relationships. In addition to leadership, organizational communication, defined as an interdependent communication network among individuals (Siregar et al., 2021) also plays a major role in maintaining smooth internal interaction. Ineffective communication can make members feel excluded, thereby diminishing their motivation.

As a non-profit organization, the active engagement of Himaprodi Manajemen members is not driven by material rewards but by intrinsic motivation, an inner drive that does not require external stimulation (Sucipto, 2021). When officers are given room to take initiative, develop their abilities, and feel part of a cohesive community, their intrinsic motivation increases and encourages sustained participation.

Previous studies provide a relevant empirical foundation; however, most were conducted in formal, profit-oriented organizations, leaving research on voluntary, non-profit student organizations relatively scarce. The novelty of this study lies in the application of Self-Determination Theory (SDT) within the context of student organizations, positioning intrinsic motivation as the psychological mechanism that mediates the effect of authentic leadership and organizational communication on officers' affective commitment. Based on the foregoing, this study is important to explore the influence of authentic leadership and organizational communication on the affective commitment of Himaprodi Manajemen officers, with intrinsic motivation as a mediating variable.

2. Literature Review

2.1 Affective Commitment

Affective commitment is a form of emotional attachment in which individuals remain in an organization because they want to, rather than because they have to (Meyer & Allen, 1991). The indicators of affective commitment used in this study refer to Meyer and Allen (1991):

1. Emotional attachment
2. Identification
3. Involvement.

2.2 Authentic Leadership

Authentic leadership is a leadership style grounded in honesty, moral integrity, and high self-awareness, arising from the leader's self-awareness and internalized moral values (Avolio & Gardner, 2005). This study employs the authentic leadership indicators proposed by Walumbwa et al. (2008):

1. Self awareness
2. Relational transparency
3. Balanced processing
4. Internalized moral perspective.

2.3 Organizational Communication

Organizational communication is the process of sending and receiving messages among individuals or groups within an organization, aimed at creating understanding, coordination, and cooperation, both formally and informally (Pace & Faules, 2019). This study employs the organizational communication indicators proposed by Pace & Faules (2019):

1. Message clarity
2. Communication flow,
3. Openness
4. Feedback
5. Communication frequency.

2.4 Intrinsic Motivation

Intrinsic motivation is a drive that arises from within an individual due to satisfaction with the activity itself, rather than from material rewards (Sucipto, 2021). This study employs the intrinsic motivation indicators proposed by Deci & Ryan (2000)

1. Autonomy
2. Competence
3. Relatedness.

3. Methodology

A quantitative approach using explanatory research methods was applied in this study to examine the causal relationships between authentic leadership and organizational communication on the affective commitment of Himaprodi Manajemen officers, with intrinsic motivation serving as a mediating variable (Sugiyono, 2019; Sekaran & Bougie, 2017). The study was conducted among officers of the Management Study Program Student Association (Himaprodi Manajemen), Faculty of Economics and Business, Universitas Islam Malang, for the 2024-2025 term, from November 2025 to March 2026. The population consisted of 104 officers, comprising 5 members of the Daily Executive Board (BPH), 23 members of the Human Resource (HR) division, 17 members of the Research and Development (RnD) division, 19 members of the Public Relations (PR) division, 17 members of the Creative (CR) division, and 22 members of the Entrepreneur (ETP) division, based on the Decree of the Dean of FEB UNISMA Number 27/P44/U.08/D/F.05/I/2025. Given that the population size was relatively small and fully accessible, this study employed a census (saturated) sampling technique, whereby all 104 officers were used as respondents (Sugiyono, 2019).

3.1 Theoretical Framework

This study is grounded in Self-Determination Theory (SDT), a motivational framework which asserts that individuals are driven to act and sustain their engagement when three basic psychological needs, autonomy, competence, and relatedness, are fulfilled (Deci & Ryan, 2000). In the context of this study, authentic leadership and organizational communication function as contextual conditions that support the fulfillment of these psychological needs: leaders who demonstrate self-awareness, relational transparency, balanced processing, and an internalized moral perspective (Walumbwa et al., 2008) create an environment in which officers feel respected and free to express themselves, while open, clear, and responsive organizational communication (Pace & Faules, 2019) allows officers to feel informed, connected, and involved in organizational processes. According to SDT, when these psychological needs are satisfied, individuals internalize their engagement and develop intrinsic motivation, an inner drive that does not depend on external rewards (Sucipto, 2021),

which in turn strengthens affective commitment, the emotional attachment and willingness to remain in the organization out of genuine desire rather than obligation (Meyer & Allen, 1991). This theoretical foundation underlies the hypothesized relationships among authentic leadership, organizational communication, intrinsic motivation, and affective commitment examined in this study.

3.2 Conceptual Framework

Building on this theoretical foundation, the conceptual framework of this study positions Authentic Leadership (X1) and Organizational Communication (X2) as independent variables, Intrinsic Motivation (Z) as a mediating variable, and Affective Commitment (Y) as the dependent variable. Authentic Leadership and Organizational Communication are hypothesized to influence Intrinsic Motivation (H1, H2), while Intrinsic Motivation in turn is hypothesized to influence Affective Commitment (H5). In addition, Authentic Leadership and Organizational Communication are also hypothesized to have a direct effect on Affective Commitment (H3, H4), as well as an indirect effect mediated through Intrinsic Motivation (H6, H7). This framework illustrates how the leadership style and communication patterns experienced by Himaprodi Manajemen officers jointly shape their intrinsic motivation and, ultimately, their affective commitment, as presented in the Research Model.

3.3 Instrumentations

Data were collected using a questionnaire based on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), and distributed online through Google Forms. The instrument covered four variables: Affective Commitment (measured through 3 indicators: emotional attachment, identification, and involvement, adapted from Meyer & Allen, 1991), Authentic Leadership (4 indicators: self-awareness, relational transparency, balanced processing, and internalized moral perspective, adapted from Walumbwa et al., 2008), Organizational Communication (5 indicators: message clarity, communication flow, openness, feedback, and communication frequency, adapted from Pace & Faules, 2019), and Intrinsic Motivation (3 indicators: autonomy, competence, and relatedness, adapted from Deci & Ryan, 2000). Data were analyzed using the Partial Least Square-Structural Equation Modeling (PLS-SEM) method with SmartPLS 4 software, comprising a measurement model (outer model) and a structural model (inner model). Findings from the convergent validity test revealed that all indicator items produced outer loading values above 0.70 and Average Variance Extracted (AVE) values above 0.50, while the Composite Reliability and Cronbach's Alpha values for all variables exceeded 0.70, indicating that all items in the survey instrument are valid and reliable for use in this study.

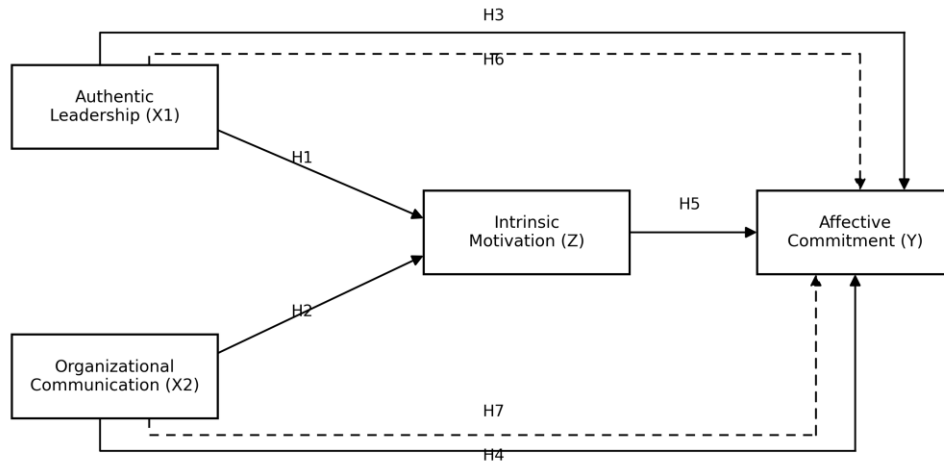


Figure 1. Research Model

4. Results and discussion

Measurement Model (Outer Model)

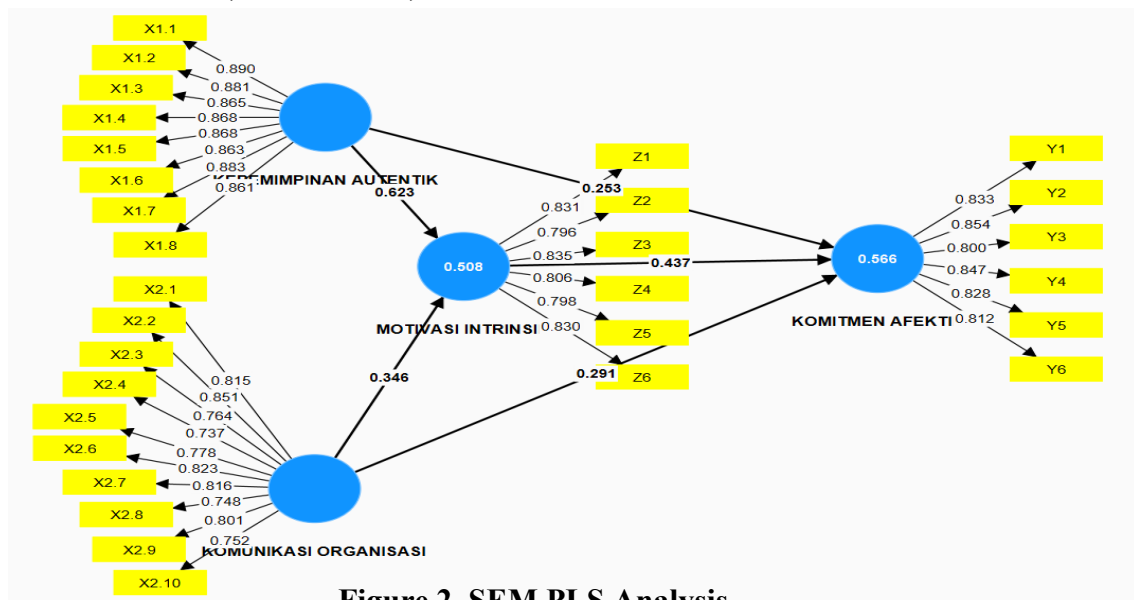


Figure 2. SEM PLS Analysis

Convergent validity was assessed using outer loading values and Average Variance Extracted (AVE). An indicator is considered valid if its outer loading value is > 0.70 and its AVE value is > 0.50 (Yarsasi et al., 2025).

Table 1. Convergent Validity Test Results (Outer Loading)

Variable	Indicator	Outer Loading	Remarks
Authentic Leadership (X1)	X1.1	0.890	Valid
	X1.2	0.881	Valid
	X1.3	0.865	Valid
	X1.4	0.868	Valid

Variable	Indicator	Outer Loading	Remarks
	X1.5	0.868	Valid
	X1.6	0.863	Valid
	X1.7	0.883	Valid
	X1.8	0.861	Valid
Organizational Communication (X2)	X2.1	0.815	Valid
	X2.2	0.801	Valid
	X2.3	0.851	Valid
	X2.4	0.764	Valid
	X2.5	0.737	Valid
	X2.6	0.778	Valid
	X2.7	0.823	Valid
	X2.8	0.816	Valid
	X2.9	0.748	Valid
	X2.10	0.752	Valid
Intrinsic Motivation (Z)	Z1	0.831	Valid
	Z2	0.796	Valid
	Z3	0.835	Valid
	Z4	0.806	Valid
	Z5	0.798	Valid
	Z6	0.830	Valid
Affective Commitment (Y)	Y1.	0.833	Valid
	Y2	0.854	Valid
	Y3	0.800	Valid
	Y4	0.847	Valid
	Y5	0.828	Valid
	Y6	0.812	Valid

Source: Processed data, 2026.

All indicators for the four variables had outer loading values above 0.70 and were therefore declared valid.

Table 2. Average Variance Extracted (AVE)

Variable	AVE	Remarks
Authentic Leadership (X1)	0.761	Valid

Variable	AVE	Remarks
Organizational Communication (X2)	0.688	Valid
Intrinsic Motivation (Z)	0.623	Valid
Affective Commitment (Y)	0.666	Valid

Source: Processed data, 2026.

Furthermore, the Average Variance Extracted (AVE) test results showed that the AVE value for Authentic Leadership was 0.761, Organizational Communication was 0.688, Intrinsic Motivation was 0.623, and Affective Commitment was 0.666. All AVE values were above 0.50, indicating that all variables met the convergent validity criteria.

Discriminant Validity

Table 4. Analysis Results Discriminant Validity

Indicator	Authentic Leadership	Organizational Communication	Affective Commitment	Intrinsic Motivation
X1.1	0.890	0.481	-0.046	0.543
X1.2	0.881	0.482	0.049	0.535
X1.3	0.865	0.460	-0.060	0.524
X1.4	0.868	0.458	-0.039	0.567
X1.5	0.868	0.443	0.044	0.507
X1.6	0.863	0.461	0.030	0.571
X1.7	0.883	0.425	0.016	0.559
X1.8	0.861	0.457	0.008	0.539
X2.1	-0.037	0.815	0.365	0.272
X2.2	-0.094	0.752	0.224	0.170
X2.3	0.043	0.851	0.415	0.378
X2.4	-0.085	0.764	0.262	0.169
X2.5	0.143	0.737	0.464	0.303
X2.6	-0.103	0.778	0.299	0.215
X2.7	-0.090	0.823	0.277	0.257
X2.8	-0.013	0.816	0.299	0.306
X2.9	0.026	0.748	0.303	0.265
X2.10	0.064	0.801	0.435	0.284
Y1.	0.394	0.360	0.833	0.555
Y2	0.422	0.352	0.854	0.535
Y3	0.461	0.354	0.800	0.591

Indicator	Authentic Leadership	Organizational Communication	Affective Commitment	Intrinsic Motivation
Y4	0.476	0.427	0.847	0.604
Y5	0.386	0.441	0.828	0.577
Y6	0.470	0.257	0.812	0.594
Z1	0.538	0.610	0.294	0.831
Z2	0.455	0.566	0.303	0.796
Z3	0.498	0.587	0.354	0.835
Z4	0.575	0.604	0.175	0.806
Z5	0.480	0.508	0.264	0.798
Z6	0.500	0.523	0.305	0.830

Source: Processed data, 2026.

Discriminant validity was assessed through cross-loading analysis, in which each indicator showed the highest loading value on its own construct compared to other constructs, thereby confirming that discriminant validity was met in this study.

Composite Reliability

Table 5. Composite Reliability Test Results

Variable	Composite Reliability	Cronbach's Alpha	Description
Authentic Leadership (X1)	0.955	0.955	Reliable
Organizational Communication (X2)	0.910	0.909	Reliable
Intrinsic Motivation (Z)	0.944	0.933	Reliable
Affective Commitment (Y)	0.901	0.900	Reliable

Source: Processed data, 2026.

All variables had Composite Reliability and Cronbach's Alpha values above 0.70, indicating that all research instruments were declared reliable.

Structural Model (Inner Model)

R-Square

Table 6. Coefficient of Determination Test Results (R-Square)

Variable	R Square	R Square Adjusted
Intrinsic Motivation	0.508	0.498
Affective Commitment	0.566	0.553

Source: Processed data, 2026.

The R Square Adjusted value for Intrinsic Motivation was 0.498, indicating that Authentic Leadership and Organizational Communication were able to explain 49.8% of the variance in Intrinsic Motivation, which is categorized as moderate. The R Square Adjusted value for Affective Commitment was 0.553, indicating that Authentic Leadership, Organizational Communication, and Intrinsic Motivation were able to explain 55.3% of the variance in Affective Commitment, which is also categorized as moderate (Ghozali, 2023).

Effect Size (F2)

Table 7. Effect Size Test Results (F-Square)

Relationship Between Variables	F-Square	Category
Authentic Leadership >> Affective Commitment	0.790	Large
Organizational Communication >> Affective Commitment	0.243	Medium
Intrinsic Motivation >> Affective Commitment	0.217	Medium
Authentic Leadership >> Intrinsic Motivation	0.158	Medium
Organizational Communication >> Intrinsic Motivation	0.217	Medium

Source: Processed data, 2026.

The effect size (F^2) test results show that Authentic Leadership provides the largest contribution to Affective Commitment (large category), while the other relationships fall into the medium category (Supriyati, 2021).

Direct Effect Hypothesis Testing

Table 8. Direct Effect Hypothesis Testing Results

Hypothesis	Relationship	Original Sample	T-Statistic	P-Values	Description
H1	Authentic Leadership >> Intrinsic Motivation	0.623	10.296	0.000	Significant
H2	Organizational Communication >> Intrinsic Motivation	0.346	6.414	0.000	Significant
H3	Authentic Leadership >> Affective Commitment	0.253	2.945	0.003	Significant
H4	Organizational Communication >> Affective Commitment	0.291	3.711	0.000	Significant
H5	Intrinsic Motivation >> Affective Commitment	0.437	4.387	0.000	Significant

Source: Processed data, 2026.

Based on table 4.12 of the results of the hypothesis test, it can be seen that:

1. The Influence of Authentic Leadership on Intrinsic Motivation has a *t*-Statistic value of > 1.96, which is 10,296 so that it can be said that there is a positive and significant direct influence, and has a *p*-Values value of < 0.05, which is 0.000 so that H_0 is rejected and H_a is accepted.
2. The influence of organizational communication on Intrinsic Motivation has a *t*-Statistic value of > 1.96, which is 6,414 so that it can be said that there is a positive and significant

direct influence, and has a *p-Values* value of < 0.05 , which is 0.000 so that H_0 is rejected and H_a is accepted.

3. The Influence of Authentic Leadership on Affective Commitment has a *t-Statistic* value of > 1.96 , which is 2.945 so that it can be said that there is a positive and significant direct influence, and has a *p-Values* value of < 0.05 , which is 0.003 so that H_0 is rejected and H_a is accepted.
4. The effect of organizational communication on affective commitment has a *t-Statistic* value of > 1.96 , which is 3,711 so that it can be said that there is a positive and significant direct influence, and has a *p-Values* value of < 0.05 , which is 0.000 so that H_0 is rejected and H_a is accepted.
5. The Influence of Intrinsic Motivation on Affective Commitment has a *t-Statistic* value of > 1.96 , which is 4.387 so that it can be said that there is a positive and significant direct influence, and has a *p-Values* value of < 0.05 , which is 0.000 so that H_0 is rejected and H_a is accepted.

Indirect Effect Hypothesis Testing

Table 8. Indirect Effect Hypothesis Testing Results

Hypothesis	Relationship	Original Sample	T-Statistic	P-Values	Description
H6	Authentic Leadership >> Intrinsic Motivation >> Affective Commitment	0.273	3.980	0.000	Significant
H7	Organizational Communication >> Intrinsic Motivation >> Affective Commitment	0.151	3.836	0.000	Significant

Source: Processed data, 2026.

Based on table of the results of the hypothesis test, it can be seen that:

1. The Influence of Authentic Leadership on Affective Commitment through having a *t-Statistic* value of > 1.96 , which is 3,980 so that it can be said that there is a positive and significant direct influence, and has a *p-Values* value of < 0.05 , which is 0.000 so that H_0 is rejected and H_a is accepted.
2. The Influence of Organizational Communication on Affective Commitment through Intrinsic Motivation has a *t-Statistic* value of > 1.96 , which is 3,836 so that it can be said that there is a positive and significant direct influence, and has a *p-Values* value of < 0.05 , which is 0.000 so that H_0 is rejected and H_a is accepted.

Authentic Leadership and Its Impact on Motivation

The results of the study show that authentic leadership has a positive and significant effect on intrinsic motivation (original sample 0.623; *t*-statistic 10.296; *p*-values 0.000). This indicates that the more authentic a leader is perceived to be—honest, consistent, transparent, and attentive to members' needs—the higher the internal drive of administrators to carry out their organizational tasks. Authentic leadership fulfills members' basic psychological needs for autonomy, competence, and relatedness, which in turn encourages members to be involved without relying on external pressure.

These findings are consistent with the research of Yasni et al. (2022), who found that authentic leadership significantly affects intrinsic motivation. This result is also supported by Baquero (2023), who showed that authentic leadership strengthens work engagement and psychological well-being, both of which are conceptually related to intrinsic motivation. Thus, this study reinforces the notion that authentic leadership plays an important role in fostering members' internal motivation within an organizational setting.

Organizational Communication and Its Impact on Intrinsic Motivation

The results show that organizational communication has a positive and significant effect on intrinsic motivation (original sample 0.346; t-statistic 6.414; p-values 0.000). This suggests that the clearer and more open the communication within an organization, the higher the intrinsic motivation of its members. Effective communication functions not only to convey information but also to build members' sense of being valued, heard, and emotionally involved, which encourages members to participate actively on their own initiative.

This finding is in line with the research of Pramudya et al. (2024), which revealed that organizational communication positively influences the intrinsic motivation of student organization administrators. This result is also supported by the communication theory of Pace and Faules (2019), which explains that effective organizational communication improves coordination and strengthens the social bonds among members. This indicates that communication quality is an important antecedent in building members' internal motivation.

Authentic Leadership and Its Impact on Affective Commitment

The results of the study show that authentic leadership has a positive and significant effect on affective commitment (original sample 0.253; t-statistic 2.945; p-values 0.003). This suggests that authentic leadership does not only shape members' internal motivation but also directly strengthens their emotional attachment to the organization. Leaders who demonstrate integrity, consistency, and transparency build a sense of trust and psychological safety, which fosters members' pride and loyalty toward the organization.

These results are consistent with the research of Semedo et al. (2019), who stated that authentic leadership increases affective commitment through the creation of an emotionally safe work environment. This finding is also supported by Selsa and Putra (2024), who showed that authentic leadership positively affects the affective commitment of organizational members. This confirms that leadership authenticity is a key determinant of members' emotional bonding within the organization.

Organizational Communication and Its Impact on Affective Commitment

The results show that organizational communication has a positive and significant effect on affective commitment (original sample 0.291; t-statistic 3.711; p-values 0.000). This indicates that open and effective communication plays an important role in strengthening members' sense of belonging and emotional attachment to the organization. When members receive clear information and have the opportunity to voice their opinions, their emotional connection to the organization becomes stronger.

This finding is consistent with the research of Rosanti (2022) and Pramudya et al. (2024), who found that organizational communication significantly affects organizational commitment. This result is further supported by Bogunovich and Greene (2025), who explained that communication aligned with organizational values strengthens members' emotional attachment over the long term. Thus, this study confirms that communication quality is a determining factor of affective commitment.

Intrinsic Motivation on Affective Commitment

The results of the study show that intrinsic motivation has a positive and significant effect on affective commitment (original sample 0.437; t-statistic 4.387; p-values 0.000). This suggests that members with a strong internal drive tend to be more loyal, more actively engaged, and more emotionally attached to the organization. When organizational activities are perceived as meaningful and provide opportunities for personal growth, members' affective commitment tends to increase.

This finding supports the research of Mahrani et al. (2022) and Nurningsih (2024), who found that intrinsic motivation has a positive effect on affective commitment. These results also reinforce Self-Determination Theory, which explains that the fulfillment of basic psychological needs results in stronger emotional attachment to the organization.

The Effect of Authentic Leadership on Affective Commitment through Intrinsic Motivation

The results of the study show that intrinsic motivation significantly mediates the relationship between authentic leadership and affective commitment (original sample 0.273; t-statistic 3.980; p-values 0.000). This suggests that authentic leadership does not only affect affective commitment directly but also works through intrinsic motivation as a psychological mechanism. Leaders who are open, trustworthy, and supportive foster members' internal motivation, which in turn strengthens their emotional attachment to the organization.

This result is consistent with the research of Yasni et al. (2022), who found that intrinsic motivation mediates the relationship between authentic leadership and affective commitment. This finding also confirms the relevance of Self-Determination Theory, which explains that social factors such as leadership can influence commitment through the fulfillment of members' psychological needs.

The Effect of Organizational Communication on Affective Commitment through Intrinsic Motivation

The results show that intrinsic motivation significantly mediates the relationship between organizational communication and affective commitment (original sample 0.151; t-statistic 3.836; p-values 0.000). This indicates that organizational communication is more effective in strengthening affective commitment when it is able to foster members' intrinsic motivation. Good communication builds members' sense of appreciation and connection, which grows into internal motivation and subsequently develops into emotional attachment to the organization.

This finding supports the research of Mahrani et al. (2022), who showed that intrinsic motivation is able to mediate the relationship between organizational factors and affective commitment. This result also reinforces the concept of Self-Determination Theory, which states that a positive organizational social environment increases members' internal motivation and generates emotional attachment to the organization.

5. Conclusions

It can be assumed that the organizational context of Himaprodi Manajemen, a voluntary, non-profit student body composed entirely of university officers spread across six divisions with regular annual turnover, makes its members particularly responsive to how they are led and how information reaches them, since neither salary nor formal career incentives bind them to the organization. By connecting the findings on authentic leadership, organizational communication, intrinsic motivation, and affective commitment, it can be concluded that officers' emotional attachment to Himaprodi Manajemen is shaped less by

structural or material factors and more by the psychological experience of being led honestly and communicated with openly. Authentic leadership emerged as the strongest contributor to affective commitment among all paths tested, suggesting that when leaders demonstrate self-awareness, transparency, balanced judgment, and moral consistency, officers do not merely comply with organizational expectations but genuinely internalize them as their own. Organizational communication, while contributing a comparatively smaller yet still meaningful effect, reinforces this pattern: officers who receive clear, open, and timely information are more likely to feel involved rather than sidelined, which sustains their willingness to remain engaged even without material reward.

Furthermore, the mediating role of intrinsic motivation indicates that these effects are not purely direct or mechanical, but operate through a deeper psychological process in which officers first come to feel autonomous, competent, and connected before that feeling translates into lasting commitment. This is consistent with the logic of Self-Determination Theory underlying this study, in which external conditions such as leadership and communication only strengthen commitment insofar as they succeed in satisfying officers' basic psychological needs. As a result of relying on a single term of officers and a cross-sectional design, however, these conclusions capture only a snapshot of a dynamic that likely evolves as leadership changes each term, meaning the true stability of these effects over time remains untested. Going forward, as Himaprodi Manajemen continues to experience regular leadership and membership turnover, sustaining affective commitment will depend on institutionalizing authentic leadership practices and participatory communication habits, such as regular evaluation forums and consistent, timely information-sharing, rather than relying on the character of any single generation of officers, so that intrinsic motivation and commitment can be preserved across successive terms.

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**ENTREPRENEURIAL SELF-EFFICACY, DIGITAL INNOVATION, AND SME
SUSTAINABILITY IN EMERGING ECONOMIES**

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Abstract

Small and Medium Enterprises (SMEs) plays a vital role in promoting economic development in developing countries, but they are faced with difficulties in sustaining business sustainability in the midst of digitalization and business competition that is becoming increasingly dynamic. Entrepreneurial self-efficacy and digital innovation have been considered among those factors that can help SMEs in adapting and increasing their competitiveness. While research in the area of entrepreneurial self-efficacy, digital innovation, and sustainability of SMEs is constantly growing, there are still researches that have not studied those three aspects collectively; hence, a research needs to be done in order to gain more insight, especially in developing countries. This study intends to conduct a research review of findings regarding those three aspects through the use of Systematic Literature Review (SLR). Articles that will be scientifically relevant will be chosen and analyzed based on certain criteria. This study hopes to provide insight into research trends, gaps, and direction for future research.

Keywords: entrepreneurial self-efficacy, digital innovation, SME sustainability, emerging economies, Systematic Literature Review

**ARTIFICIAL INTELLIGENCE CAPABILITY AND SUSTAINABLE
COMPETITIVE ADVANTAGE: EVIDENCE FROM INDONESIAN SMEs**

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Abstract

The present study investigates the association between artificial intelligence (AI) capability and sustainable competitive advantage within small and medium-sized enterprises (SMEs) in Indonesia using a Systematic Literature Review (SLR) in line with the PRISMA framework. The literature pertaining to the topic of interest during the period from 2020 to 2025 was searched through the Scopus and Google Scholar online databases by the use of the keywords AI capability, artificial intelligence, sustainable competitive advantage, and SMEs. The collected literature was evaluated against a set of predetermined inclusion and exclusion criteria. This review highlights important dimensions of AI capability such as technological infrastructure, human resource competency, data quality, managerial support, and organizational strategy and discusses how they can be used to develop sustainable competitive advantage.

Keywords: artificial intelligence capability, sustainable competitive advantage, SMEs, systematic literature review

**THE INFLUENCE OF MARKET ORIENTATION, DYNAMIC CAPABILITIES,
AND FINANCIAL MANAGEMENT ON BUSINESS PERFORMANCE
(CASE STUDY OF MSME CULINARY ACTORS AT SENJA BUNGATAN)**

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Abstract

This study examines the effects of market orientation, dynamic capabilities, and financial management on business performance among Micro, Small, and Medium Enterprises (MSME) culinary actors at Senja Bungatan, Bungatan District, Situbondo Regency. The purpose of this research is to determine the partial effect of the three independent variables on business performance and to test the relationship model among the variables. This study uses a quantitative approach with a saturated sample of 85 business actors, and data were collected through a questionnaire and analyzed using multiple linear regression with the assistance of SPSS. The results show that market orientation does not have a significant effect on business performance, while dynamic capabilities and financial management have a significant positive effect on business performance of MSME culinary actors at Senja Bungatan, Situbondo.

Keywords: *Market Orientation, Dynamic Capabilities, Financial Management, and Business Performance*

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) play an important role in sustaining a country's economic stability. This can be seen through trading activities in the community, which in turn encourages more individuals to become interested in starting their own businesses. The presence of MSMEs also has a positive impact on the development of the local economy, as MSMEs have become one of the main pillars driving economic growth in many regions of Indonesia. Under these conditions, training aimed at improving people's skills is needed so that the management of small businesses can run more efficiently and be able to develop in line with technological progress. In addition, improving the quality of human resources is also a determining factor so that MSME actors can utilize technology optimally and compete with large-scale companies (Aliyah, 2022).

The Situbondo Regency Government has once again achieved national recognition by winning the Outstanding Regional Initiative for MSME Empowerment award at the 2025 CNN Indonesia Awards. This prestigious award was given for the Situbondo Regency Government's strong commitment to strengthening the people's economy through the innovative Vorsa UMKM program (CNN Indonesia, 2025). Given its geographical position, Situbondo has significant market potential from the flow of tourists passing through every year, and the synergy between the MSME and tourism sectors is expected to strengthen the local economy and sustainably improve community welfare (CNN Indonesia, 2025).

Complete data on MSMEs in Situbondo Regency for the 2021-2025 period is difficult to find in full on public BPS sites; however, the observed trend shows a fairly stable growth rate, from 45,000 units in 2021 to 51,500 units in 2025, an increase of more than 14% over five years, driven by post-pandemic economic recovery through capital assistance, training, and digitalization of market access (BPS Kabupaten Situbondo, 2025). MSMEs dominate the retail trade, food processing, handicraft, and agricultural product sectors, with a contribution to Situbondo's GRDP exceeding 60%, while absorbing young labor and reducing the Open Unemployment Rate from 3.5% to 3.02%.

Situbondo Regency, which is traversed by the north coast route (Pantura) and has the longest coastline, is rich in beach-themed tourist destinations, one of which is offered by Bungatan District through its Kuliner Senja Bungatan (KSB) culinary tourism concept. This activity involves approximately 65 MSME actors domiciled in several villages within Bungatan District. Bletok Beach, located directly on the main Pantura route, has a strategic position that gives it a distinct appeal for tourists and passing motorists (Jatimtimes, 2025). The local government continues to encourage the development of this local culinary sector so that it can boost economic mobility in Situbondo Regency.

Financial management is essentially the management of funds and assets carried out in a planned manner to meet various needs, both temporary and ongoing. Sumarni et al. (2022) explain that financial management is a fundamental issue often faced by MSME actors, particularly because transaction recording has not been carried out systematically. Effective financial management, which includes the separation of personal and business finances, strict cash-flow management, in-depth cost analysis, and simple internal control, forms good business performance through the optimization of long-term profitability. This is in line with Febriyanti & Suhendi (2025), who found that the effectiveness and quality of financial statements have a simultaneous significant effect on MSME performance.

Market orientation, dynamic capabilities, and financial management are key factors that influence business performance because all three support the ability of MSMEs to manage operations and business strategy effectively. Therefore, an understanding of how far Market Orientation, Dynamic Capabilities, and Financial Management are related to Business Performance is needed. Based on the background described above, this study examines "The Influence of Market Orientation, Dynamic Capabilities, and Financial Management on Business Performance (Case Study of MSME Culinary Actors at Senja Bungatan)."

2. Literature Review

2.1 Business Performance

According to Sugiyono (2021), business performance in MSMEs can be understood as the achievement or work performance attained by MSME actors over a certain period, related to non-financial performance measures. Susanti et al. (2022) add that business performance can also be understood as the work success achieved by an individual, indicated by the extent to which the individual is able to complete their tasks within a certain timeframe within the company environment. The indicators used to measure business performance according to Daniyati et al. (2023) are as follows:

1. Proportional increase in output relative to input used
2. Effective and efficient utilization of resources
3. Optimization of net profit in operational activities
4. Positive growth and development trend of the business

2.2 Market Orientation

Setiadi et al. (2025) state that market orientation has a strategic role in improving MSMEs' marketing capability and performance. According to Daniella (2025), a strong market orientation provides an opportunity for MSME actors to deepen their understanding of and provide better solutions for customer needs compared to competitors, ultimately contributing to increased profitability and market share expansion. Uncles (2000) defines market orientation as a series of stages and related activities aimed at creating and providing customer satisfaction through continuous assessment of customer needs and expectations. The indicators used to measure market orientation according to Narver and Slater (1990) are as follows:

1. Customer orientation
2. Competitor orientation
3. Inter-functional coordination

2.3 Dynamic Capabilities

According to Teece (1997), dynamic capability refers to an organization's ability to detect opportunities and threats arising in the external environment (sensing), respond appropriately to these conditions (seizing), and adapt its resources and competencies (reconfiguring) in order to build sustainable competitive advantage. Evayani et al. (2022) add that dynamic capability is a firm's habit of integrating, reorganizing, renewing, and re-creating routine operational activities to build effective collaboration with suppliers and customers. The indicators used to measure dynamic capabilities in this study, adapted from Teece (1997), are as follows:

1. Identification of new external opportunities (sensing)
2. Acquisition of external resources (seizing)
3. Reconfiguration of internal resources
4. Renewal of internal resources

Pusporini (2020) defines financial management as the application of proper accounting principles in managing MSMEs' financial resources to avoid mixing personal and business finances, thereby improving recording accuracy and business profitability. According to Sumarni et al. (2022), financial management in MSMEs can be understood as a series of activities that include budget planning, transaction recording, preparation of financial statements, and resource control to maintain the business's financial health. The indicators used to measure financial management according to Mardianah & Iramani (2021) are as follows:

1. Financial planning process
2. Financial implementation
3. Financial evaluation
4. Allocation of monthly income for investment

3. Methodology

A quantitative approach using explanatory research methods was applied in this study to examine the causal relationships between market orientation, dynamic capabilities, and financial management on the business performance of MSME culinary actors at Senja Bungatan, Bungatan District, Situbondo Regency (Sugiyono, 2019). The study was conducted starting from December 2025, with primary data collected via an online questionnaire distributed using Google Forms. The population in this study consisted of 85 MSME culinary actors operating at Senja Bungatan. Given that the population size was below 100, the sampling technique used was saturated sampling (census), in which the entire population was employed as the sample to ensure the accuracy and generalizability of the research results with a minimal margin of error (Arikunto, 2012).

3.1 Theoretical Framework

This study is grounded in dynamic capability theory, which asserts that a firm's performance is shaped by its ability to sense opportunities and threats in the external environment, seize those opportunities through timely resource acquisition, and reconfigure its internal resources and competencies to sustain competitive advantage (Teece, 1997). Within this framework, dynamic capabilities represent the firm's core adaptive capacity, while market

orientation and financial management function as complementary resources that strengthen a firm's ability to translate environmental awareness and internal reconfiguration into tangible business outcomes. Market orientation enables MSME actors to continuously sense customer needs and competitor movements, providing the informational basis on which dynamic capabilities operate, while sound financial management ensures that the resources mobilized through sensing and seizing activities are allocated, recorded, and evaluated effectively. According to this logic, business performance improves when MSME actors possess strong market awareness, the flexibility to reconfigure their resources in response to change, and disciplined financial management practices. This theoretical foundation underlies the hypothesized relationships among market orientation, dynamic capabilities, financial management, and business performance examined in this study.

3.2 Conceptual Framework

Building on this theoretical foundation, the conceptual framework of this study positions Market Orientation (X1), Dynamic Capabilities (X2), and Financial Management (X3) as independent variables, and Business Performance (Y) as the dependent variable. Each independent variable is hypothesized to have a direct effect on Business Performance (H1, H2, H3). This framework illustrates how market awareness, adaptive capability, and financial discipline jointly shape the business performance of MSME culinary actors at Senja Bungatan, as presented in the Research Model.

3.3 Instrumentations

Data were collected using a researcher-developed questionnaire based on a five-point Likert scale, covering four variables: Business Performance (measured through 4 indicators: proportional increase in output relative to input, effective and efficient utilization of resources, optimization of net profit, and positive growth trend of the business, adapted from Daniyati et al., 2023), Market Orientation (3 indicators: customer orientation, competitor orientation, and inter-functional coordination, adapted from Narver & Slater, 1990), Dynamic Capabilities (4 indicators: sensing, seizing, reconfiguration, and renewal of internal resources, adapted from Teece, 1997), and Financial Management (4 indicators: financial planning, financial implementation, financial evaluation, and allocation of monthly income for investment, adapted from Mardianah & Iramani, 2021).

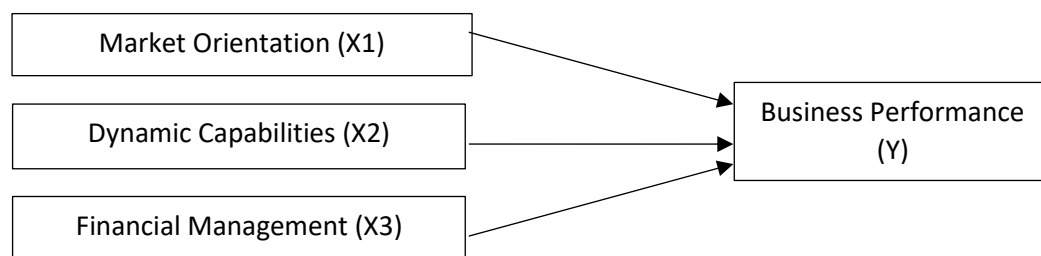


Figure 1. Research Model

4. Results and discussion

Of the 85 respondents involved in this study, the majority were female (63 respondents; 79.6%), while 22 respondents (23.1%) were male. Based on age, the majority of respondents were under 30 years old (56 respondents; 70.1%), followed by the 30-35 age group (12

respondents; 13.8%), the 36-40 age group (8 respondents; 6.7%), and above 40 years old (9 respondents; 9.4%). Based on product type, the majority of respondents sold food products (45 respondents; 78.46%), while beverages and beach handicrafts each accounted for 20 respondents (10.76%). Based on business duration, most respondents had been running their business for 2-4 years (55 respondents; 70.3%), followed by 1 year (21 respondents; 21.4%) and more than 5 years (9 respondents; 9.4%).

Validity Test

Table 1. Validity Test Results

Variable	Indicator	r count	r table	Description
Business Performance (Y)	Y1	0.364	0.213	Valid
	Y2	0.598	0.213	Valid
	Y3	0.532	0.213	Valid
	Y4	0.593	0.213	Valid
Market Orientation (X1)	X1.1	0.656	0.213	Valid
	X1.2	0.652	0.213	Valid
	X1.3	0.637	0.213	Valid
	X1.4	0.637	0.213	Valid
Dynamic Capabilities (X2)	X2.1	0.622	0.213	Valid
	X2.2	0.600	0.213	Valid
	X2.3	0.711	0.213	Valid
	X2.4	0.634	0.213	Valid
Financial Management (X3)	X3.1	0.671	0.213	Valid
	X3.2	0.566	0.213	Valid
	X3.3	0.635	0.213	Valid
	X3.4	0.548	0.213	Valid

Source: Primary data processed, 2026

Based on the table above, all statement items for the variables Business Performance, Market Orientation, Dynamic Capabilities, and Financial Management have a calculated r value greater than the r table value of 0.213 at a significance level of 5%. Therefore, it can be concluded that all statement items in the questionnaire are valid.

Reliability Test

Table 2. Reliability Test Results

Variable	Cronbach's Alpha	Critical Value	Description
Business Performance (Y)	0.613	0.60	Reliable
Market Orientation (X1)	0.607	0.60	Reliable
Dynamic Capabilities (X2)	0.613	0.60	Reliable
Financial Management (X3)	0.620	0.60	Reliable

Source: Primary data processed, 2026

The table shows that the Cronbach's Alpha value for all variables exceeds 0.60. Thus, the statement items for each variable meet the reliability criteria and are suitable for use in the subsequent stage of analysis.

Normality Test

Table 3. One-Sample Kolmogorov-Smirnov Test

Indicator		Unstandardized Residual
N		85
Normal Parameters	Mean	0.0000000
	Std. Deviation	1.19558515
Most Extreme Differences	Absolute	0.086
	Positive	0.061

	Negative	-0.086
Test Statistic		0.086
Asymp. Sig. (2-tailed)		0.174

Source: Primary data processed, 2026

The Kolmogorov-Smirnov normality test results show an Asymp. Sig. value of 0.174, which is greater than 0.05. Therefore, it can be concluded that the residual data used in this study are normally distributed, and the regression model is suitable for proceeding to the hypothesis testing stage.

Multicollinearity Test

Table 4. Multicollinearity Test Results

Variable	Tolerance	VIF	Description
Market Orientation (X1)	0.605	1.653	Multicollinearity free
Dynamic Capabilities (X2)	0.703	1.423	Multicollinearity free
Financial Management (X3)	0.725	1.379	Multicollinearity free

Source: Primary data processed, 2026

The table indicates that all independent variables have a tolerance value above 0.10 and a VIF value below 10, so it can be concluded that the variables Market Orientation, Dynamic Capabilities, and Financial Management are free from multicollinearity.

Heteroscedasticity Test

Table 5. Heteroscedasticity Test Results (Glejser Test)

Variable	Sig.	Alpha	Description
Market Orientation (X1)	0.231	0.05	No heteroscedasticity
Dynamic Capabilities (X2)	0.232	0.05	No heteroscedasticity
Financial Management (X3)	0.072	0.05	No heteroscedasticity

Source: Primary data processed, 2026

The significance value of all independent variables is greater than 0.05, indicating that heteroscedasticity does not occur in the regression model.

Multiple Linear Regression Analysis

Table 6. Multiple Linear Regression Results

Model	B	Std. Error	Beta	t	Sig.
(Constant)	5.299	1.302	-	4.069	0.000
Market Orientation (X1)	0.045	0.112	0.041	0.403	0.688
Dynamic Capabilities (X2)	0.249	0.069	0.339	3.633	0.000
Financial Management (X3)	0.408	0.078	0.482	5.251	0.000

Source: Primary data processed, 2026

Based on the results in the table above, the multiple linear regression equation of this study is as follows:

$$Y = 5.299 + 0.045X_1 + 0.249X_2 + 0.408X_3 + e$$

- The constant (a) of 5.299 indicates that if Market Orientation (X1), Dynamic Capabilities (X2), and Financial Management (X3) are equal to 0, then Business Performance is 5.299.
- The Market Orientation coefficient of 0.045 indicates that every one-unit increase in Market Orientation has the potential to increase Business Performance by 0.045 units, although the effect is not significant.
- The Dynamic Capabilities coefficient of 0.249 indicates that every one-unit increase in Dynamic Capabilities has the potential to increase Business Performance by 0.249 units.
- The Financial Management coefficient of 0.408 indicates that every one-unit increase in Financial Management has the potential to increase Business Performance by 0.408 units, representing the largest effect in the model.

Hypothesis Testing

F Test

Table 7. F Test Results (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	122.681	3	40.894	27.587	0.000
Residual	120.072	81	1.482		
Total	242.753	84			

Source: Primary data processed, 2026

The F test results show a calculated F value of 27.587 with a significance level of 0.000, which is less than 0.05. This indicates that the variables Market Orientation, Dynamic Capabilities, and Financial Management simultaneously have a significant effect on Business Performance. Therefore, H₀ is rejected and H_a is accepted, and the regression model is considered feasible for use in this study.

t Test (Partial)

Table 8. t Test Results

Variable	t	Sig.	Description
Market Orientation (X1)	0.403	0.688	Not significant
Dynamic Capabilities (X2)	3.633	0.000	Significant
Financial Management (X3)	5.251	0.000	Significant

Source: Primary data processed, 2026

The t test results show that the significance value of Market Orientation (0.688) is greater than 0.05, meaning that Market Orientation does not have a significant effect on Business Performance; H₀ is accepted and H_a is rejected. Meanwhile, the significance values of Dynamic Capabilities (0.000) and Financial Management (0.000) are both less than 0.05, indicating that both variables have a significant positive effect on Business Performance; H₀ is rejected and H_a is accepted for both variables.

Coefficient of Determination Test

Table 9. Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.711	0.505	0.487	1.21752

Source: Primary data processed, 2026

The results show an R Square value of 0.505 and an Adjusted R Square value of 0.487. This indicates that the variables Market Orientation, Dynamic Capabilities, and Financial Management are able to explain 48.7% of the variation in Business Performance, while the remaining 51.3% is explained by other variables not included in this study. Thus, the model's ability to explain Business Performance is considered moderate to strong.

The Influence of Market Orientation on Business Performance

The results of this study indicate that Market Orientation does not have a significant effect on the business performance of MSME culinary actors at Senja Bungatan. This finding suggests that although these MSMEs have attempted to implement market-oriented practices such as responding to customer needs and coordinating across business functions, these efforts have not yet been sufficient to directly improve business performance. This finding is in line with Alam et al. (2020), who found that market orientation influences performance, but not

significantly, and with Putri et al. (2025), who found that market orientation does not have a significant effect on performance. Effective market orientation requires strong internal coordination and an adaptive response to customer preferences, which for many of these MSMEs, most of which have only been operating for 2-4 years, is still in the process of being established.

The Influence of Dynamic Capabilities on Business Performance

The results show that Dynamic Capabilities have a significant positive effect on the business performance of MSME culinary actors at Senja Bungatan. This finding indicates that the ability of business actors to optimize the use of labor and continuously adapt has a real influence on improving business performance. This result is supported by Widyasari (2022), who found that dynamic capability has a positive and significant effect on business performance. Given that the majority of respondents are under 30 years old, this younger group tends to be more open to change, innovative, and adaptive in responding to market dynamics, making dynamic capability easier to build and develop, and an important factor to continuously strengthen amid increasingly intense competition in the culinary industry.

The Influence of Financial Management on Business Performance

The results show that Financial Management has a significant positive effect on the business performance of MSME culinary actors at Senja Bungatan. Business actors who are able to manage cash flow and allocate budgets appropriately have a stronger foundation for making effective and well-directed business decisions. This finding is consistent with Hartina et al. (2024), who found that financial management has a positive and significant effect on business performance, and with Febriyanti & Suhendi (2025), who found that financial statement effectiveness and quality have a significant positive effect on MSME performance. Good financial management is therefore an important foundation that supports the sustainable growth of these MSMEs amid increasingly intense competition in the culinary industry.

5. Conclusions

It can be assumed that socio-demographic factors, particularly age, play a role in shaping how MSME culinary actors at Senja Bungatan respond to market dynamics and business challenges. Given that the majority of respondents are under 30 years old, this younger generation of business actors tends to be more open to change, more adaptive, and more willing to reconfigure the way they run their business when circumstances demand it, which explains why Dynamic Capabilities emerged as a significant driver of Business Performance in this study. By connecting the three variables examined and how they collectively shape business outcomes, it can also be concluded that performance among these MSMEs is less dependent on how actively they position themselves in the market and more dependent on how well they adapt internally and manage their finances. Market Orientation, despite reflecting genuine efforts by business actors to understand customer needs and coordinate across business functions, has not yet translated into measurable performance gains, largely because many of these MSMEs have only been operating for two to four years and are still in the process of building the internal coordination that effective market orientation requires. Dynamic Capabilities and Financial Management, on the other hand, proved to be significant contributors, indicating that the ability to sense opportunities, reconfigure resources, and manage cash flow and budgets in a disciplined manner has a far more direct impact on business sustainability than market positioning alone.

As a result of operating in a relatively young and rapidly evolving culinary tourism destination, business actors at Senja Bungatan have had to rely heavily on adaptability and financial discipline rather than established market strategies, which is reflected in the relatively

strong explanatory power of the model (Adjusted R² of 48.7%). Furthermore, as competition within Situbondo's culinary tourism sector continues to intensify and as more MSMEs enter the Senja Bungatan area, it is likely that market orientation will become an increasingly important performance driver going forward, underscoring the need for local business actors to gradually strengthen this capability alongside the strengths they already possess. Local governments and business associations can take several steps to support this transition, including facilitating consumer-preference training, offering structured financial literacy programs, encouraging peer learning among younger and more adaptive business actors, and supporting the digitalization of market access so that MSME culinary actors at Senja Bungatan can build a more balanced and sustainable foundation for long-term performance.

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DIGITAL MARKETING INNOVATION AS A DRIVER OF BUSINESS RESILIENCE AMONG INDONESIAN SMES

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Abstract

Small and Medium Enterprises (SMEs) serve as a cornerstone of Indonesia's economic structure, yet they encounter considerable obstacles in preserving business resilience amid accelerating digital transformation and intensifying market rivalry. Digital marketing innovation has emerged as one of the strategic factors capable of supporting SMEs in navigating disruptions and reinforcing their competitive position. Although studies concerning digital marketing innovation and business resilience have expanded in recent years, relatively few investigations have addressed the interplay between these two constructs specifically within the Indonesian SME landscape; consequently, further exploration is required to deepen the understanding of this relationship, particularly in a post-pandemic setting. The present study endeavors to synthesize existing evidence concerning the connection between digital marketing innovation and business resilience by employing a Systematic Literature Review (SLR) approach. Relevant scholarly articles will be retrieved and appraised against predetermined eligibility criteria. Through this review, the study expects to contribute meaningful insights regarding prevailing research patterns, existing knowledge gaps, and promising avenues for subsequent scholarly inquiry.

Keywords: Digital Marketing Innovation, Business Resilience, Indonesian SMEs, Systematic Literature Review

**PEOPLE'S CREDIT INVENTION AND ITS IMPACT ON SMALL SCALE
MANUFACTURING FIRMS: EVIDENCE FROM INDONESIA**

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Abstract

This study investigates the People's Business Credit (KUR) policy on company performance. Company performance is measured using technical and financial efficiency. This study uses data from a 2015 micro and small industry survey, covering samples from across Indonesia with observations of approximately 60,000 respondents collected by the Central Statistics Agency. The estimation techniques used are regression adjustment and Lewbel Instrumental Variable (LIV) to avoid endogeneity issues between credit and company performance. The study results show that the KUR policy has a significant positive impact on the technical and financial efficiency of companies, although this policy has a relatively small empirical impact on company finances. Estimation treatment that considers the endogeneity of credit investment with outcomes produces quite different coefficients. These results indicate that this policy intervention supports the performance of small industries, so that regulations need to be improved in terms of intervention strategies to be more effective in improving the performance of small industries, especially in the selection or targeting system for beneficiaries.

Keywords: Smale Scale Industries, Credit Access, Firm Performance, Instrumental Variable

JEL: G21, L25, O12, C26

COMPANY INTERACTION WITH TAX STAFF AND ITS IMPACT ON TAX COMPLIANCE: AN EMPIRICAL STUDY IN INDONESIA

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Abstract

This study investigates the influence of company characteristics and interactions with tax staff on corporate tax compliance. Using survey data from the World Bank's 2023 Enterprises Survey for Indonesia, this survey is conducted in many countries and is conducted periodically with varying survey intervals. By using Propensity score matching to avoid selection bias because certain company characteristics can correlate with outcomes, the Propensity Score technique is good to use. The estimation results show that several characteristics, such as assets, international market access, and staff composition, significantly influence tax compliance, albeit with varying coefficients. Meanwhile, interaction patterns with tax staff show a negative coefficient, indicating that this closeness indicates that the amount of tax paid for tax payments is less than the average amount that should be paid. Perceptions of corruption also reinforce this by moderating the effect of closeness. This study proves that interactions with tax staff can be misused for biased tax payments.

Keywords: Tax Compliance, Firm Performance, Public Policy, Propensity Score Matching

JEL: H25, H26, K42, C21, L25

ANALYSIS OF DIGITAL MARKETING STRATEGY IN INCREASING SALES OF FLOWER ARRANGEMENTS

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Abstract

This study aims to analyze the digital marketing strategy implemented by Zakia Florist Ibu Musrifah Bangkalan and its impact on increasing sales. Using a descriptive qualitative approach, data was collected through interviews, observations, and social media documentation. The results show that Zakia Florist utilizes Instagram and WhatsApp as the primary media for promotion and customer communication. This strategy has been proven to increase reach and the number of orders, especially during certain periods such as graduation season. However, the implementation of digital marketing still faces several obstacles, such as limited time, human resources, and a lack of content creation capabilities. A SWOT analysis revealed that Zakia Florist's strengths are product quality and strategic location, but also faces threats from the growing competition of digital flower arrangements. This study recommends improving content consistency, using creative videos, providing a digital price catalog, and developing a delivery service to increase the effectiveness of digital marketing.

Keywords: Digital Marketing; Flower Arrangements; Marketing Strategy

1. Introduction

The development of digital technology has brought significant transformations in the business world, including the flower industry. In Indonesia, the flower business is experiencing rapid growth along with the increasing public demand for floral products for various events, such as weddings, birthdays, and other special moments (Kotler & Keller, 2016). Bangkalan City, as one of the economic and cultural centers in East Java, is a potential market for the florist business, while also creating fierce competition among business players. Zakia Florist Ibu Musrifah Bangkalan, as one of the florist MSMEs in this city, has utilized various digital marketing platforms to expand its market reach. However, despite implementing digital marketing strategies, this business still faces various obstacles in achieving optimal sales growth.

The use of digital media in marketing activities significantly helps achieve effectiveness and efficiency, both in the promotion process and transactions, because it can reach a wider

area with various consumer segments. Social media and marketplaces, as part of digital media, are considered reliable platforms to facilitate business actors in expanding marketing access. In the current digital era, the number of internet users continues to experience a very significant surge. In 2024–2025, the total number of active internet users in Indonesia will reach around 210 million people, so that more than 77% of the population is already connected and utilizes the internet in their daily activities. Meanwhile, a report from DataIndonesia.id shows that social media users in Indonesia also experienced an increase of around 12%, from the previous 170 million to 191 million users. This means that more than 69% of the Indonesian population now uses social media as part of their daily routine (Pamikatsih, 2024).

Gifts are something almost everyone enjoys. Nowadays, there are various types of gifts on offer, from watches and bags to clothing and flowers. Flowers are often given for occasions like birthdays, graduations, anniversaries, and various other events. However, fresh flowers usually don't last long and, when they wilt, are eventually thrown away, making them unsuitable for displays or keepsakes. Over time, this type of gift has become increasingly commonplace. People now tend to seek more creative and unique gifts, with longer-lasting durability. Therefore, the trend of giving bouquets made from scrap fabric or snack bouquets is gaining popularity and has become a business opportunity for many young people. Another alternative gift is a flower bouquet, often used as decoration, ornamentation, or as a form of congratulations. Although they provide aesthetic value, fresh flower bouquets still have the disadvantage of not being durable (Lubis et al., 2025).

Digital marketing offers several benefits for florist businesses, such as the ability to reach a wider market, strengthen customer interactions, and simplify transactions and promotions. Furthermore, digital technology and data analytics enable businesses to more accurately understand consumer preferences, enabling them to design more targeted marketing strategies (Lubis et al., 2025).

Some of the problems identified at Zakia Florist include low engagement on promotional content on social media, a lack of structured marketing content strategy, and increasing competition from other florists who are more aggressively utilizing platforms like TikTok and Google Ads. Furthermore, the lack of in-depth analysis of the effectiveness of each digital marketing channel makes it difficult for the business to optimize its marketing strategy. According to Chaffey & Ellis-Chadwick (2022), digital marketing success depends not only on a presence on various digital platforms but also on the ability to continuously measure and optimize those strategies regularly.

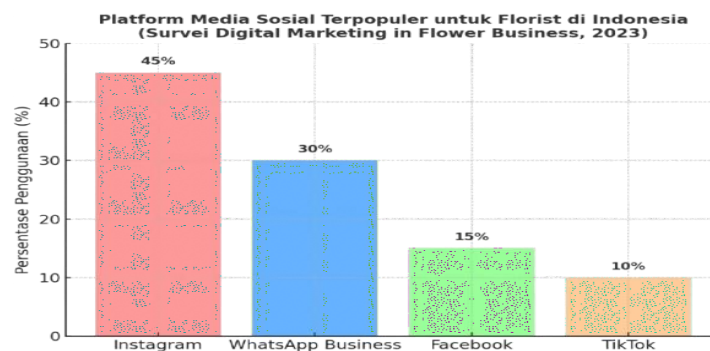
Research by Lubis et al. (2025) shows that Instagram and TikTok effectively increase florist sales because visual content can attract consumer interest. Ariyanto & Sari (2023) found that content creativity and two-way interaction are more influential than paid promotions in gift-selling MSMEs. Putri (2022) emphasized that engagement rate (likes, comments, responses) is a determining factor in sales conversions in creative bouquet businesses. Meanwhile, Maryati et al. (2025) emphasized that successful digital marketing requires innovation and internal business adaptation so that digital-based marketing strategies can be sustainable (Lubis et al., 2025; Ariyanto & Sari, 2023; Putri, 2022; Maryati et al., 2025).

This research is based on several key theories, including the concept of digital marketing according to Kotler (2016), which emphasizes the use of digital channels to increase customer engagement, brand awareness, and conversion rates. The 4P marketing mix theory (McCarthy, 1960) also serves as an important foundation, particularly in analyzing the product, price, place, and promotion aspects implemented by Zakia Florist. Furthermore, social media marketing metrics such as reach, engagement rate, click-through rate (CTR), and return on ad spend (ROAS) (Tuten & Solomon, 2018) will be used to measure the effectiveness of the implemented digital marketing strategy.

Changes in consumer behavior have made digital marketing through social media increasingly popular. Platforms like Instagram and TikTok have become key platforms, showcasing photos, videos, and a variety of engaging content. In this increasingly competitive environment, businesses need to have unique product offerings to help consumers recognize their brands. Consumers now seek product information and recommendations through social media, so positive interactions between sellers and customers can increase trust and brand loyalty.



Figure 1. Most Frequently Used Social Media in Indonesia
Source: StatsMe.id (2026)



Source: Digital Marketing in Flower Business Survey (2026)

Figure 2: Social Media Platforms Most Frequently Used by Florists in Indonesia

Based on the Digital Marketing in Flower Business survey (2026), the most widely used social media platform by florists in Indonesia is Instagram (45%), used to display visual product content such as attractive flower photos and videos, and build brand image. WhatsApp Business (30%), is used for direct communication with customers, catalog management, and fast customer service. Facebook (15%), is still used for paid advertising, promotions in community groups, and reaching a wider user segment. TikTok (10%), is starting to be noticed to attract the attention of the younger generation with creative video content and viral trends.

The analysis focuses on the digital marketing strategy implemented by Zakia Florist Ibu Musrifah Bangkalan, as well as the obstacles faced in its implementation. Amidst rapid technological developments and increasingly fierce competition in the florist business, the use of digital media such as social media, websites, and marketplaces presents a significant opportunity to increase sales. However, the reality in the field shows that the use of digital media is not always optimal and still leaves various obstacles. Therefore, the main problems formulated in this study include: how the digital marketing strategy is implemented by Zakia

Florist, the factors that inhibit the implementation of this strategy, and the extent to which this digital marketing strategy has an impact on increasing sales. This problem formulation is expected to help researchers systematically analyze the problem and find solutions that are appropriate to business conditions.

Aims to: (1) analyze the digital marketing strategies currently used by Zakia Florist, (2) measuring the impact of these strategies on increasing sales, and (3) providing recommendations for improvement based on findings and digital marketing theory. Thus, it is hoped that this research will provide both academic and practical benefits for the development of florist businesses in the digital era.

2. Literature Review

2.1. Digital Marketing Strategy

Digital marketing is a marketing activity conducted through digital media such as social media, websites, marketplaces, and instant messaging apps to disseminate product information quickly and widely. Digital marketing makes it easier for businesses to reach consumers, conduct real-time promotions, and build two way communication (Asysyifaa, 2024).

Digital marketing strategies provide businesses with the opportunity to reach audiences more precisely and efficiently. By leveraging data and analytics, companies can tailor each campaign to consumer characteristics, such as demographics, interests, and behavioral patterns, making the message more relevant (Amarudin et al., 2023). Furthermore, the ability to monitor campaign results in real-time helps businesses continuously evaluate and refine their strategies, thereby increasing marketing effectiveness and providing optimal returns on investment (ROI). A digital marketing strategy is the planning and implementation of marketing tactics using digital media such as social media, SEO, paid advertising, and big data to efficiently reach a broad audience, reduce advertising costs, and increase consumer purchase intention (Fadliana et al., 2023).

A digital marketing strategy is broken down into three main indicators:

1. Social Media

This indicator measures the extent to which digital platforms such as Instagram and WhatsApp Business are used to increase promotional reach, customer engagement, and the effectiveness of marketing communications. Based on the findings of Karunia & Nurhayati (2025), social media serves as the primary channel for florist SMEs to expand their market and build relationships with consumers. Active use of social media can increase product visibility and drive sales growth. Consequently, this indicator encompasses posting frequency, the business owner's responsiveness to customer messages, and the ability to utilize platform features optimally.

2. content quality

This indicator assesses the quality of photos, videos, and product descriptions uploaded to digital media. Attractive and informative visual content has been shown to strongly influence consumer purchasing interest, as explained in research by Karunia & Nurhayati (2025), who found that the visual quality of flower arrangements directly impacts the perceived value of the product. Content quality is crucial for building a business image and enhancing seller credibility. Therefore, this indicator encompasses the aesthetics of flower photos, clarity of information, and consistency of visual branding.

3. Digital Promosition

This indicator relates to the implementation of promotional strategies such as discounts, special offers, and paid advertising designed to increase consumer appeal. Research by Karunia & Nurhayati (2025) shows that targeted digital promotions can drive increased customer visits to

florist shops. The use of digital-based promotions has a significant impact on increasing ornamental plant sales volume. This indicator includes promotional frequency, targeting accuracy, and the promotion's impact on increasing interaction and sales (Kemuning, 2024).

2.2. Increased Sales

Sales is the process of exchanging goods or services between a seller and a buyer, involving price as the exchange value. In the modern business context, sales encompasses more than just transactions, but also communication, promotion, customer service, and efforts to build long-term relationships to encourage purchasing decisions. Sales serve as a key indicator of business success because they are the company's primary source of revenue.

This indicator relates to sales growth, which is the effort or result of a company's strategy to increase the number of transactions, expand market reach, increase turnover, or increase customer purchase frequency. Sales growth is typically achieved through improvements in product quality, marketing strategies, digital marketing, promotions, customer service, and innovation in the distribution process. The ultimate goal is revenue growth and a stronger business position in the market. Sales growth in the context of digital marketing is a positive effect of implementing digital strategies, such as the use of social media, marketplaces, and digital content, which directly increase transaction volume and business revenue. For example, a study on Muslim fashion businesses showed that implementing digital marketing was proven to increase their sales (Amarudin et al., 2023).

Digital marketing strategies serve as the initial bridge connecting businesses with consumers through the digital space. When a business consistently delivers engaging, informative, and relevant content, consumers will feel closer and more naturally familiar with the product. Sularno (2025) explains that creative and interactive content on social media can build initial attention and strengthen a brand's presence in consumers' minds. Simple activities such as uploading photos, videos, or short stories can create a sense of familiarity, leading consumers to voluntarily pay attention to a product (Sularno et al., 2025).

Consistency in digital communication then creates engagement, namely the active involvement of consumers in various forms of interaction. This engagement is not only in the form of likes or comments, but also a sense of trust, comfort, and emotional closeness that arises because consumers feel involved. Sabir (2025) emphasizes that consumers now play a role in building product value through reviews, comments, and even sharing personal experiences. Amarudin et al. (2023) also emphasize that when consumers receive clear information and responsive two-way communication, their trust increases and ultimately triggers purchase interest (Sabir, 2025).

Strong engagement significantly impacts sales growth. When the digital relationship feels warm and natural, consumers are more encouraged to try the product, make repeat purchases, and even recommend the brand to others. Anggara (2024) states that brand creativity in creating digital interaction spaces through content, service features, or promotional campaigns can strengthen emotional connections, ultimately influencing purchasing decisions. Consumers feel more confident because they are familiar with the product's quality and feel close to the brand (Tamzil et al., 2024; Isma et al., 2020).

Digital marketing, engagement, and sales growth are interconnected. Digital marketing opens the door, engagement deepens relationships, and these consistently built relationships drive increased sales volume, turnover, and customer loyalty. Sularno (2025) emphasized that well-maintained digital interactions can expand reach organically, while Amarudin et al. (2023) demonstrated that effective digital communication directly impacts sales growth. In other words, sales success isn't just about promotion, but about how brands build humane, warm, and meaningful relationships with their consumers.

3. Research Methods

This research uses a qualitative approach, a research method that aims to understand phenomena in depth through data collection in a natural context. Qualitative research focuses on the meaning, processes, experiences, and subjective understandings of informants, rather than on numbers or statistical calculations. According to Creswell (2018), qualitative research allows researchers to explore detailed information through direct interaction with research subjects, resulting in a more comprehensive understanding of the behavior, perceptions, and strategies used by an object.

Based on these characteristics, qualitative research was chosen because it can provide an in-depth description of how Zakia Florist implements digital marketing strategies, the challenges faced, and how these strategies impact sales growth. This approach also aligns with previous research (Karunia, 2025; Kemuning, 2024) that used qualitative methods to analyze MSME marketing strategies more realistically. Research Design

This study uses a descriptive qualitative approach to understand the digital marketing strategy implemented by Zakia Florist. A qualitative approach was chosen because it can explore marketing phenomena more naturally and in-depth, within the local business context. This approach also aligns with previous research by Karunia (2025), who used qualitative methods to analyze the marketing strategies of florists in Surakarta, and Kemuning (2024), who examined digital marketing strategies in ornamental plant businesses using descriptive qualitative analysis. Both studies provide the basis for the effectiveness of qualitative methods in realistically understanding MSME marketing strategies.

This study uses a SWOT analysis to assess the strengths, weaknesses, opportunities, and threats that influence the effectiveness of Zakia Florist's digital marketing strategy. This analysis is used to formulate a more targeted marketing development strategy, taking into account internal factors such as business experience and service quality, as well as external factors such as digital media usage trends and the level of competition among florists in Bangkalan City. With this approach, the research results are expected to provide realistic recommendations for increasing sales through digital marketing optimization.

4. Results and Discussion

The research results show that Zakia Florist, which was established in the 2020s and is located at Griya Utama Gang Flamboyan 1 Block Q 10 Bangkalan Madura, is a flower shop that provides a variety of flower arrangements, table flowers, bouquets, and standing flowers for various events, with a direct sales business model and subscription services for regular customers. Based on the results of observations and sales analysis from January to March, it was found that marketing is still traditional and has not optimally utilized the digital ordering system, while flower arrangement sales are the dominant product with a contribution of almost 50% and a significant increasing trend until March. Bouquets show stable sales in the range of 22-23%, while standing flowers have the lowest percentage of around 4.7% and only appear in February. April is the period with the highest sales performance because all types of florists experience an increase or stability in demand.

4.1. Main Products

Zakia Florist, located in Bangkalan, offers a variety of quality flowers to meet customer needs. Its main products include: (1) Wreaths, (2) Table Flowers, (3) Bouquet and (4) Standing Flower

4.2. Main Source of Income

Zakia Florist, located in Bangkalan, earns revenue through two main models, namely direct sales and subscription services.

4.3. Direct Sales

In this model, products are sold directly to consumers without intermediaries. Customers come to the outlet to purchase flowers or flower arrangements according to their needs, such as bouquets, bridal bouquets, event decorations, or other special orders.

4.4. Subscription Services

A subscription business model allows customers to pay regularly to receive fresh flowers or flower arrangements on a regular basis, such as weekly or monthly. This service is typically used by hotels, offices, restaurants, or private customers who require a supply of table flowers.

4.5. Competitive Advantage

Zakia Florist has several advantages that make it stand out from its competitors, especially in terms of product quality.

4.6. Cost Structure

4.6.1. Supporting Materials

Costs for various flower arrangement accessories, such as plastic wrap, ribbon, foam, wire, vases, and other decorative elements, also include packaging and branding costs, such as the use of special wrapping and labels to reinforce brand identity.

4.6.2. Unforeseen expenses

Costs that arise due to unforeseen circumstances, such as damaged flowers, flowers that wilt before they are sold, or sudden order cancellations.

4.6.3. Employee Wages

Salaries for employees who are in charge of arranging flowers, serving customers, and helping with the delivery process (if there is a delivery service).

4.7. SWOT Analysis

Table 1 Swot

Strengths	Weakness
Strategic Location in Bangkalan: Located in the city center of Bangkalan, Zakia Florist has easy access to the supply of main raw materials, which strengthens the consistency of stock and product quality.	Dependence on Physical Location: The store is heavily dependent on events held by the Campus.
Guaranteed Product Quality: Zakia Florist is renowned for providing creative bouquets and floral designs. This is a key advantage that sets it apart from other shops.	No Integrated Online Ordering System: Customers cannot yet order using a convenient digital system (such as a website or app), so they only rely on communication via WhatsApp or visiting in person, which can reduce efficiency and market reach.
Opportunities	Threats

The Increasing Trend of Flower Demand for Events: Special: The culture of giving flowers at graduation, Engagements, birthdays, weddings, and even condolences continue to rise. This creates a significant opportunity for Zakia Florist to offer a wide variety of flower bouquet products and packages. Opportunities for Expansion into Online Sales and Social Media: Technological developments and consumer habits of starting to shop via Instagram or marketplaces have opened up opportunities for Zakia Florist to reach a wider market through digital marketing and online sales.	Fierce Competition in Bangkalan: Bangkalan is a hub of activity, so many other flower sellers offer similar products, offering competitive prices and attractive designs. This can lead to pricing pressure and make product differentiation difficult. Threats from Online Sales and Modern Florists: Online florists, or those based on Instagram and marketplaces, now offer delivery services, custom designs, and the convenience of digital ordering.

The results of the digital marketing strategy interview carried out by Zakia Florist Mrs. Musrifah Bangkalan:

Questions about the Digital Marketing Strategy Used by Zakia Florist

"What digital marketing strategies are currently used by Zakia Florist to promote their products? products and interact with customers?"



Figure 2 Promotion on Instagram

Interviews with Ms. Musrifah, the owner of Zakia Florist, revealed that her current digital marketing strategy focuses on using Instagram and WhatsApp as primary platforms. The owner regularly uploads photos of customer orders and various promotions. Instagram also serves as a platform for receiving orders via DM, while WhatsApp serves as a direct communication channel with customers after they view the uploaded content.

This strategy demonstrates that Zakia Florist has utilized digital marketing at a fundamental level, namely building an online presence through social media. Although it doesn't yet have a website or online ordering platform, the use of Instagram and WhatsApp has helped expand its reach and attract new customers who wouldn't otherwise visit its premises (Asysyifaa, 2024).

The use of these two platforms demonstrates that Zakia Florist has embraced digital marketing at a fundamental level, namely building an online presence through social media.

Although it doesn't yet have a dedicated website or ordering platform, utilizing Instagram and WhatsApp has been able to expand its promotional reach and attract new customers who previously wouldn't have visited its premises (Asysyifaa, 2024).

This finding aligns with Tuten & Solomon's (2018) social media theory, which emphasizes that visual content in the form of photos and videos has a strong influence on customer engagement and purchasing interest. A similar finding was also revealed in research by Lubis et al. (2025), which showed that florists who actively upload content on Instagram experience a significant increase in the number of orders.

Furthermore, the owner reported that orders tend to increase when posting more frequently. This phenomenon supports the exposure effect theory, which states that the more frequently consumers see a product, the more likely they are to purchase it (Maryati et al., 2025). Therefore, posting consistency is a crucial element of Zakia Florist's digital marketing strategy, particularly in relation to the use of social media as a primary promotional tool.

Questions about the Impact of Digital Marketing on Sales

"How do these digital marketing activities affect sales volume and customer reach?"

An interview with Ms. Musrifah (the owner) revealed that digital marketing significantly increased Zakia Florist's sales. The majority of new customers reported learning about the shop through Instagram, making social media a primary source of initial information. The owner also explained that orders increase especially during certain periods such as graduation season, birthday celebrations, or other important events. This indicates that digital platforms are capable of reaching a larger number of consumers than traditional marketing.

Furthermore, consistent posting activity has been shown to increase orders. Ms. Dwi reported that when she actively posts flower stock, bouquet examples, and other situational content, orders come in faster than on days when she doesn't post. This finding aligns with Kotler & Keller's (2016) theory that intense digital marketing communication can increase brand recall and accelerate the consumer journey from product awareness to purchase.

These findings also support the concept of brand awareness and purchase intention proposed by Tuten & Solomon (2018). According to this theory, visual content such as photos and videos is the primary stimulus that stimulates purchase intention because it allows consumers to assess product quality before deciding to place an order. In the context of Zakia Florist, uploaded photos of bouquets, flower colors, and arrangement styles represent quality that customers can directly see, thus strengthening their perception of the product.

The pattern of increased orders when posting more frequently aligns with the repetition exposure theory (Haliza, 2025), which explains that the more frequently consumers are exposed to visual content, the more likely they are to like and ultimately purchase the product. Therefore, consistent posting not only serves as a promotional tool but also as a psychological process that builds consumer engagement with the brand. This makes digital marketing play a direct role in driving increased sales at Zakia Florist (Haliza, 2025).

Questions about Obstacles in Implementing Digital Marketing

"What are the challenges Zakia Florist faces in implementing its current digital marketing strategy?" Interviews with store employees revealed that the main obstacles to implementing digital marketing at Zakia Florist are limited time and limited ability to create digital content. Operational activities at the store run almost 24/7, making it difficult for employees to consistently take photos, edit images, and upload content to social media. This situation hinders the rhythm of content publication, which should be regular and maintain the store's visibility on Instagram.

Besides time constraints, limited digital skills are also a significant barrier. Employees report a lack of mastery of content design, writing engaging captions, and an inability to

understand how the Instagram algorithm works. As a result, uploaded content often lacks strong visual appeal, doesn't follow trends, and fails to reach its maximum audience. This aligns with the theory of Tuten & Solomon (2018), which states that content quality significantly determines engagement levels and the effectiveness of digital marketing.

This finding is also consistent with research by Sabir (2025), which explains that many MSMEs face limited digital human resources because the majority of the workforce is more focused on operational activities than online marketing management. This limitation prevents digital marketing strategies from running optimally, as content creation requires technical skills such as photography, graphic design, and an understanding of social media algorithms to increase reach.

Based on these conditions, Zakia Florist requires more structured content management or additional specialized staff capable of professionally managing social media. Chaffey & Ellis-Chadwick's (2022) theory in Amarudin et al., (2023) emphasizes that effective digital marketing requires content planning, consistent uploads, and the ability to analyze content performance so that strategies can be tailored to audience behavior. Thus, the digital HR barriers at Zakia Florist reflect the general challenges faced by MSMEs in the digital era, namely the need to improve digital literacy and provide specialized staff for more optimal online marketing. (Haliza, 2025; Amarudin et al., 2023)

Questions about Digital Marketing Strategy Development Recommendations

“In your opinion, what digital marketing strategies need to be improved or added?”

The interview with Ms. Musrifah, the owner of Zakia Florist, revealed that several aspects of the digital marketing strategy need to be improved to strengthen the business's competitiveness. She emphasized the importance of increasing the consistency of content uploaded on Instagram so that customers always receive the latest information on flower stock, arrangement variations, and available promotions. Furthermore, the founder also suggested that Zakia Florist provide a neat and easily accessible digital price catalog, so customers don't have to re-inquire about the price of each product through private messages. The founder also recommended creating short video content, such as behind-the-scenes flower arrangement processes, tips for choosing flowers, or before-and-after videos of bouquet arrangements. This type of content is believed to attract customers' attention because it provides both informational and entertainment value. This finding aligns with the theory of Tuten & Solomon (2018), which explains that video formats have the highest engagement rates on social media due to their dynamic nature and ease of consumption. Furthermore, Ms. Heru also emphasized the importance of adding a delivery service as a form of service innovation. This strategy aligns with the concept of customer convenience, as cited by Kotler & Keller (2016) in Asysyifaa (2024), which states that easy access to services can increase customer satisfaction and drive purchasing decisions. In the modern florist business, delivery services have become a standard of service expected by consumers, especially in the digital era, which demands speed and efficiency.

The founder's recommendations align with digital marketing theory, which emphasizes the importance of quality visual content, easy access to services, and innovation in product presentation. Haliza (2025) also explains that florist MSMEs capable of presenting creative content and providing a service system that facilitates customers will be more competitive than traditional florists. Therefore, implementing these strategies is expected to help Zakia Florist compete with modern online florists and increase the overall effectiveness of digital marketing (Haliza, 2025).

To facilitate understanding and reading, the results of the study are presented first and then continued with discussion. The subtitles of the results and discussion are presented

separately. Results can be presented in the form of tables, figures/graphs, descriptions, or a combination of the three. Tables, figures, or graphs can't be too long, too large, or too many. The table has no vertical lines (vertical) and horizontal (flat) lines are only found at the top and bottom of the table (see table 1). The font size for tables and figures uses Cambria font size 10. The presented tables and graphs should be referenced in the text. Here's an example of including tables and figures:

5. Conclusion

Based on research findings, the digital marketing strategy implemented by Zakia Florist Ibu Musrifah Bangkalan shows that the use of Instagram and WhatsApp is a key gateway for the business to expand customer reach. Simple activities such as uploading flower stock, bouquet sample arrangements, and communicating via direct messages have been shown to have a significant impact on increasing purchasing interest and the number of orders, especially during high-demand moments such as graduations and birthday celebrations. Interviews also showed that new customers mostly learn about the store through social media, making a digital presence a crucial element in attracting their attention and building trust.

The implementation of digital marketing at Zakia Florist still faces significant obstacles, particularly limited time, human resources, and content creation capabilities. This results in inconsistent uploads and suboptimal visual content to compete with modern online florists. Therefore, this study recommends improving the quality of visual content, using creative videos, providing a digital catalog, and developing online ordering and delivery services. These steps are expected to make Zakia Florist's digital marketing more effective, more humane in building rapport with customers, and sustainably increasing sales.

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**WHEN THE COOPERATIVE IS NOT TALKED TO: STAKEHOLDER
EXCLUSION, FRAUD, AND FRAGILITY OF THE GOVERNANCE OF THE RED
AND WHITE VILLAGE COOPERATIVE**

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Abstract

This study examines how the exclusion of stakeholders in the infrastructure development of the Red and White Village Cooperative (KDMP) in Madura gives birth to information asymmetry and governance fragility, which in turn increases the risk of fraud. A single qualitative case study was adopted with the locus of one of the KDMP in Madura which was selected based on the criteria of informants who were directly involved in the development process; Data was obtained through in-depth interviews, field observations, and documentation, analyzed interactively. Stakeholder exclusion systematically creates information asymmetry, weakens participatory control, and suppresses psychological ownership, thereby increasing the vulnerability of long-term fraud. Madura's typical culture of skepticism exacerbates passive obedience that paralyzes critical supervision. The integration of agency theory with cooperative management as agents and members as principals together with participatory governance frameworks reveals structural governance vulnerabilities; Mandatory involvement of cooperatives from planning to asset verification is recommended. This study uniquely integrates psychological ownership and local cultural dynamics into the analysis of cooperative fraud prevention governance, providing original insights for Indonesia's rural economic policies.

Keywords: *Information Asymmetry, Stakeholder Exclusion, Psychological Ownership, Risk of Fraud, Participatory Governance*

HEGEMONY OF MODERN ACCOUNTING STANDARDS IN SAVINGS AND LOAN COOPERATIVES/CREDIT UNIONS: A CRITICAL EXAMINATION OF THE IMPLEMENTATION OF EXPECTED CREDIT LOSS (ECL) UNDER SAK EP THROUGH THE GRAMSCIAN PERSPECTIVE

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Abstract

This study examines the application of Expected Credit Loss (ECL) within the Financial Accounting Standards for Private Entities (SAK EP) in Indonesian savings and loan cooperatives through the lens of Antonio Gramsci's hegemony theory. The regulatory framework established by Ministerial Regulation No. 02 of 2024, which mandates savings and loan cooperatives to adopt SAK EP as the basis for their accounting policies, serves as the primary point of analysis particularly with regard to the obligation to implement ECL-based Allowance for Impairment Losses (CKPN). Employing a qualitative approach with a case study method and a constructivist interpretive paradigm, this research is situated within two Credit Unions in East Java, namely CU Sawiran and CU Kosayu. Data were collected through semi-structured in-depth interviews and the analysis of regulatory documents and financial reports. The findings reveal that the implementation of SAK EP and ECL represents the hegemony of modern accounting standards over cooperative entities that have historically been built upon a logic of member solidarity. Rather than responding to this regulatory pressure through either full acceptance or outright rejection, cooperatives adopt a strategy of passive revolution namely, partial adoption sufficient to avoid formal sanctions without sacrificing their institutional operational logic. Limitations in technological infrastructure, historical loan data, and human resources constitute substantive barriers to ECL implementation. Furthermore, the application of ECL-based CKPN has a direct impact on the reduction of Net Surplus (Sisa Hasil Usaha) and the potential for a greater tax burden. This study affirms that accounting standards are not neutral technical instruments, but rather an arena of power negotiation among regulators, associations, and cooperatives.

Keywords: Expected Credit Loss; Accounting Hegemony; Savings and Loan Cooperatives; SAK EP; Gramsci Theory

THE TRANSFORMATION OF IT AUDIT THROUGH ARTIFICIAL INTELLIGENCE IN MOROCCO: A QUALITATIVE STUDY OF INTERNAL AND EXTERNAL AUDITORS' PERCEPTIONS AND PRACTICES

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Abstract

The increasing adoption of artificial intelligence (AI) technologies is transforming the landscape of IT auditing and reshaping both internal and external audit practices worldwide. In Morocco, ongoing digital transformation initiatives, growing cybersecurity concerns, and increasing regulatory expectations are accelerating the integration of AI-based tools into audit and information systems assurance activities. While prior studies on AI in auditing primarily emphasize technological performance and automation capabilities, limited research has explored how auditors themselves perceive this transformation, particularly within emerging economies such as Morocco. This study aims to examine how AI is redefining IT audit practices in the Moroccan context and to explore the perceptions of both internal and external IT auditors regarding its impact on audit quality, professional judgment, and the future of the profession. Adopting a qualitative research approach, the study relies on semi-structured interviews conducted with internal auditors, external auditors, and IT assurance professionals operating in Moroccan organizations and audit firms. The collected data are analyzed using a thematic analysis method to identify the major transformations associated with AI integration in audit activities. The expected findings suggest that AI contributes to improving audit efficiency through automation, continuous monitoring, real-time risk detection, and advanced data analytics. However, the study also highlights several challenges related to algorithmic transparency, ethical responsibility, data reliability, cybersecurity risks, and excessive dependence on automated systems. Furthermore, the results indicate that AI is progressively transforming the role of IT auditors from traditional control-oriented functions toward more analytical, strategic, and technology-driven responsibilities, requiring new competencies in data analytics, AI governance, and digital risk management.

This research contributes to the emerging literature on AI-enabled auditing by providing empirical evidence from the Moroccan context and by offering a comparative perspective between internal and external IT auditors. It also provides practical implications for audit firms, organizations, regulators, and professional bodies seeking to successfully integrate AI into audit processes while preserving audit quality and professional judgment.

Keywords: Artificial Intelligence; IT Audit; Internal Audit; External Audit; Digital Transformation; Audit Analytics; Perception.

THE INFLUENCE OF INFLUENCER MARKETING AND PRICE ON PURCHASE DECISIONS IN TIKTOK SHOP

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Abstract

The rapid growth of e-commerce through TikTok Shop requires businesses to understand factors influencing consumer purchase decisions. This study aims to analyze the influence of influencer marketing and price on purchase decisions on the TikTok Shop platform. A quantitative method with multiple linear regression analysis was employed. Primary data were collected from 150 TikTok Shop users through questionnaires using purposive sampling technique and processed using SPSS software. The t-test results reveal that price has a positive and significant effect on purchase decisions with a t-value of 8.162 and Sig. < .001, while influencer marketing has no significant effect with a t-value of 1.399 and Sig. = .164. The F-test results indicate that influencer marketing and price simultaneously have a significant effect on purchase decisions with an F-value of 97.451 and Sig. < .001. The R Square value of 0.570 indicates that 57.0% of the variation in purchase decisions can be explained by influencer marketing and price, while the remaining 43.0% is influenced by other variables outside this research model. This study concludes that price is the dominant factor driving consumer purchase decisions on TikTok Shop. The practical implication suggests that sellers should focus more on competitive pricing strategies, such as discounts and bundling, rather than relying solely on influencer marketing to increase sales. Keywords: Influencer Marketing, Price, Purchase Decision, TikTok Shop.

1. Introduction

The rapid development of digital technology has significantly changed the way people shop. According to Kotler and Keller (2016), e-commerce is a buying and selling process that uses electronic media as a transaction tool. This opinion is reinforced by Laudon and Traver (2021) who state that the presence of social media-based e-commerce platforms has created a new shopping experience that is more interactive and entertaining. One platform that is currently booming is TikTok Shop. According to We Are Social (2024), TikTok Shop successfully combines entertainment and commerce content, so consumers can see products through videos and directly make purchases without leaving the application.

This phenomenon has led to increasingly fierce competition among online sellers. According to Schiffman and Wisenblit (2019), consumer purchasing decisions are influenced by various external stimuli, including marketing communication and product information. This is further emphasized by Alma (2018) who argues that in the digital era, consumers tend to make purchases based on recommendations from other people and attractive prices. On TikTok Shop, these two factors are very prominent. Consumers are

not only exposed to product advertisements, but also to content from influencers who review products directly during live broadcasts.

Influencer Marketing has become one of the most widely used marketing strategies on TikTok Shop. According to Brown and Hayes (2008), influencer marketing is a strategy that utilizes individuals who have influence to influence the purchasing decisions of their followers. This view is strengthened by De Veirman et al. (2017) who found that influencers with high credibility, attractiveness, and expertise can significantly increase consumer trust in a brand. On TikTok Shop, influencers act as "digital salespeople" who build closeness with audiences through authentic and interactive content, so that viewers feel more confident to buy the products offered.

However, in addition to the influence of influencers, price remains a dominant factor in online purchasing decisions. According to Tjiptono (2017), price is the amount of money that must be sacrificed by consumers to obtain a product. This is in line with Zeithaml (1988) who states that consumers often use price as an indicator of product quality and value. Furthermore, Kotler and Armstrong (2018) emphasize that competitive prices, discounts, and promos are the main triggers for consumers to make spontaneous purchases. On TikTok Shop, features such as flash sales and vouchers make price a very sensitive factor. Therefore, this study aims to analyze how big the influence of Influencer Marketing and Price is on Purchase Decisions on the TikTok Shop platform.

2. Literature review

2.1. Definition of Influencer Marketing

According to Brown and Hayes (2008), influencer marketing is a marketing strategy that utilizes individuals who have influence, credibility, and a large audience on social media to communicate and promote a brand's message. This opinion is reinforced by De Veirman et al. (2017) who argue that influencers have a unique position because they are able to build emotional closeness with their followers through content that is considered more authentic and less pushy than conventional advertising. Furthermore, according to Freberg et al. (2011), influencers are seen as opinion leaders who can shape the attitudes and behavior of their followers in consuming a product. This view is further emphasized by Lou and Yuan (2019) who state that the effectiveness of influencer marketing is determined by three main dimensions, namely credibility, attractiveness, and expertise. Credibility relates to the trustworthiness of the influencer, attractiveness relates to physical appearance and personality, while expertise relates to the influencer's knowledge of the product being promoted. On the TikTok Shop platform, this role becomes even more important. According to Djafarova and Bowes (2021), live streaming features and product reviews by influencers create a sense of urgency and social proof, so that viewers feel more confident and are encouraged to make purchases directly during the broadcast.

2.2. Definition Price

According to Tjiptono (2017), price is the amount of money that must be sacrificed by consumers to obtain ownership or use of a product or service. This definition is in line with Kotler and Armstrong (2018) who define price as the value expressed in monetary units that consumers exchange for the benefits of owning or using a product. Furthermore, according to Monroe (2003), price is not only a nominal figure, but also a signal that consumers use to assess the quality, prestige, and value of a product. This opinion is supported by Zeithaml (1988) who explains that consumers often use price as an extrinsic cue to evaluate product quality, especially when they do not have complete information

about the product. In the context of e-commerce, especially TikTok Shop, price plays a very dominant role. According to Nagle and Müller (2018), competitive pricing strategies such as discounts, flash sales, and vouchers are able to trigger spontaneous purchasing behavior. This is because consumers on TikTok Shop tend to compare prices quickly and are influenced by the limited-time promo that creates a fear of missing out.

2.3. Definition Purchase Decision

According to Kotler and Keller (2016), purchase decision is the stage in the consumer decision-making process where consumers actually decide to buy or not buy a particular product after evaluating several available alternatives. This opinion is strengthened by Schiffman and Wisenblit (2019) who state that purchase decisions are the result of interaction between internal factors such as motivation, perception, learning, and attitudes, as well as external factors such as culture, social class, reference groups, and marketing activities. Furthermore, according to Engel et al. (1995), the purchase decision process consists of five sequential stages: problem recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behavior. In the digital era, especially on TikTok Shop, this process becomes much faster and more impulsive. According to Hasan (2020), the combination of entertaining content, influencer recommendations, and attractive price offers makes consumers often skip the information search and alternative evaluation stages, so that purchase decisions can occur directly when watching live streaming.

3. Methodology

This study employs a causal quantitative method. According to Sugiyono (2019), causal research aims to determine the cause-and-effect relationship between independent variables and the dependent variable. This approach was chosen because the researcher intends to objectively measure and analyze the influence of Influencer Marketing and Price on Purchase Decisions of TikTok Shop users. Through statistical testing, the relationship between variables can be proven empirically and objectively based on numerical data obtained from questionnaires.

This research was conducted on TikTok Shop users in Indonesia. The type of data used in this study is quantitative data, namely data in the form of numbers obtained from questionnaire responses distributed online via Google Form. The data sources in this study consist of primary data and secondary data. Primary data were obtained directly from respondents who are active TikTok Shop users, while secondary data were obtained from journals, books, and reports related to the research topic. The population in this study are all TikTok Shop users. The sampling technique used is non-probability sampling with a purposive sampling approach. According to Hair et al. (2014), the minimum sample size for multiple regression analysis is 5 to 10 times the number of indicators. In this study, the sample size was set at 150 respondents who have made at least one purchase on TikTok Shop in the last 3 months.

Data collection was carried out using a structured questionnaire adapted from previous research and adjusted to fit the context of TikTok Shop. Each statement was measured using a five-point Likert scale ranging from 1 for “Strongly Disagree” to 5 for “Strongly Agree”, allowing respondents to express their level of agreement precisely. The questionnaire was distributed through social media platforms such as Instagram, WhatsApp, and TikTok itself to reach users who are actively engaged with the platform and have purchasing experience.

The data analysis techniques applied in this study include validity and reliability tests, descriptive statistical analysis, classical assumption tests, and multiple linear regression analysis. Hypothesis testing was conducted using the t-test for partial effects and the F-test for simultaneous effects, along with the coefficient of determination to measure the model's explanatory power. All statistical calculations were performed using IBM SPSS Statistics version 25, ensuring accuracy and consistency in processing the collected data.

Before conducting the main analysis, the data were screened to ensure completeness and consistency, including checking for missing values and outliers that might distort the results. By following these systematic procedures, the study ensures that the findings are reliable, replicable, and can provide meaningful insights into how influencer marketing and pricing strategies shape consumer purchasing behavior on social commerce platforms.

4. Results and discussions

4.1. Validity Test

Table1. Validity Test

Variables		Correlation	Threshold Value	Conclusion
Influencer X1.1	Marketing	0.408	0.196	Valid
Influencer X1.2	Marketing	0.571	0.196	Valid
Influencer X1.3	Marketing	0.631	0.196	Valid
Influencer X1.4	Marketing	0.600	0.196	Valid
Influencer X1.5	Marketing	0.617	0.196	Valid
Variables		Correlation	Threshold Value	Conclusion
Price X2.1		0.622	0.196	Valid
Price X2.2		0.634	0.196	Valid
Price X2.3		0.617	0.196	Valid
Price X2.4		0.591	0.196	Valid
Price X2.5		0.548	0.196	Valid
Variables		Correlation	Threshold Value	Conclusion
Purchase Decision Y.1		0.612	0.196	Valid
Purchase Decision Y.2		0.476	0.196	Valid
Purchase Decision Y.3		0.459	0.196	Valid
Purchase Decision Y.4		0.610	0.196	Valid
Purchase Decision Y.5		0.511	0.196	Valid

Validity testing is used as a tool to measure whether a questionnaire is legitimate or valid (Sanaky et al., 2021). In this study, validity was tested using the Pearson Product Moment correlation technique, which relates the score of each item to the total score of the corresponding variable. Based on the table presenting the validity test results for the variables of Influencer Marketing, Price, and Purchase Decision, it is shown that all statement items have a correlation

value greater than the threshold value of 0.196. Therefore, it can be concluded that all items in the questionnaire are valid and suitable for use in this research.

4.2. Reliability Test

Table 2. Results of Reliability Test for Research Variables

Research Variables	Cronbach' Alpha N of	Items
Influencer Marketing	0,722	5
Price	0,763	5
Purchase Decision	0,725	5

The results of the reliability test show that all research variables have a Cronbach's Alpha value exceeding 0.60. The value for the Influencer Marketing variable is 0.722, Price is 0.763, and Purchase Decision is 0.725, with each variable consisting of 5 statement items. Therefore, it can be concluded that all variables in this study have met the reliability criteria, meaning the instrument used is consistent and reliable for measuring each research variable.

4.3. One-Sample Kolmogorov-Smirnov Normality Test

Table 3. One-Sample Kolmogorov-Smirnov Normality Test

Variables	One-Sample Kolmogorov Smirnov	Df (N)	Sig.
Influencer Marketing	.085	150	.001
Price	.092	150	.001
Purchase Decision	.088	150	.001

Based on the results of the One-Sample Kolmogorov-Smirnov normality test, the Influencer Marketing variable obtains a significance value of 0.001, the Price variable is 0.001, and the Purchase Decision variable is also 0.001. All values are less than 0.05, indicating the data are not normally distributed. However, this result is still acceptable for this study with 150 respondents. According to the Central Limit Theorem, with a sample size of more than 30–50, the sampling distribution approximates normality. In addition, social science research using Likert-scale questionnaires often yields non-normal data, so this deviation is common and does not invalidate further analysis.

4.4. Multicollinearity Test

Table 4. Multicollinearity Test Results

Variables	Unstandardized Coefficients		Collinearity Statistics	
	B	Std. Error	Tolerance	VIF
(Constant)	5.077	1.175		
Influencer Marketing X1	-.0109	0.075	0.367	2.722
Price_____X2	0.352	0.080	0.323	3.095

Based on the multicollinearity analysis, it is found that the Tolerance values for the Influencer Marketing (X1) and Price (X2) variables are 0.367 and 0.323, respectively. Both values exceed the specified minimum threshold of 0.10, which means neither variable serves as a strong predictor of the other. Additionally, the Variance Inflation Factor (VIF) values obtained are 2.722 for Influencer Marketing and 3.095 for Price, both of which remain well below the established maximum limit of 10. As stated by Hair et al. (1995), a model is considered free from multicollinearity issues when the Tolerance value is greater than 0.10 and the VIF value is less than 10. Therefore, it can be concluded that there is no indication of multicollinearity among the independent variables in the regression model used in this study.

4.5. Partial t-Test

Table 5. Partial t-Test Results

Variables Coefficients	Unstandardized	Standardized Coefficients B	T	Beta
(Constant)	5.077	1.175		
Influencer Marketing	-0,109	.075	-0.147	
Price	.352	.080	4,397	

Based on the results of the partial t-test presented in the table, the Influencer Marketing (X1) variable obtains a calculated t-value of -0.147. When compared to the t-table value of 1.976, the calculated t-value is smaller than the t-table value ($|-0.147| < 1.976$), and the significance value is greater than 0.05. According to Ghazali (2018), a variable is said to have no partial effect if the t-count is smaller than the t-table value or the significance level exceeds 0.05. Therefore, it can be concluded that Influencer Marketing has no significant partial effect on Purchase Decision.

Meanwhile, the Price (X2) variable obtains a calculated t-value of 4.397, which is greater than the t-table value of 1.976 ($4.397 > 1.976$), and the significance value is less than 0.05. This finding aligns with the view of Sugiyono (2019), who states that a variable has a significant effect if the t-count exceeds the t-table value and the probability value is below 0.05. Consequently, it can be concluded that Price has a positive and significant partial effect on Purchase Decision.

4.6. F-Test (Simultaneous

Table 6. F-Test (Simultaneous) Results

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	654.066	2	327.033	99.842	<.001 ^b
Residual	317.724	97	3.276		
Total	917.790	99			

Based on the ANOVA table above, the calculated F value is 99.842, which is greater than the F-table value of 2.70, with a significance level of < 0.001 . Since the significance value is smaller than 0.05, it can be concluded that Influencer Marketing and Price together have a significant effect on Purchase Decision. According to Ghazali (2018), a regression model is considered significant if the F-count is greater than the F-table value and the significance level is less than 0.05, meaning the independent variables jointly influence the dependent variable.

4.7. Coefficient of Determination (R^2) Test

Table 7. Coefficient of Determination (R^2) Test Results

Model	R	R square	Adjusted square	R Std. Error of the Estimate
1	.820a	.684	.678	1.80983

Based on the analysis results, the Adjusted R Square value obtained is 0.678. This figure indicates that approximately 67.8% of the variation in the dependent variable can be explained by changes in the independent variables used in the model, while the remaining 32.2% is influenced by other factors not included in this study. According to Ghozali (2018), the coefficient of determination (R^2) measures how well the model can explain the variation in the dependent variable, with values closer to 1 indicating stronger explanatory power.

5. Conclusion

The results of this study show that Influencer Marketing does not have a significant partial effect on Purchase Decision. This means that the extent of influence from content creators does not automatically determine purchasing decisions among consumers. Consumers focus more on objective factors such as price, value for money, and suitability with their needs rather than relying solely on endorsements or popularity. Therefore, even though an influencer may be widely known and trusted, consumers still prioritize the actual value and price of the product rather than being swayed by promotion alone.

Meanwhile, Price has a positive and significant effect on Purchase Decision. This indicates that when consumers perceive fair and reasonable pricing, their interest in buying increases. Price is one of the key elements consumers carefully consider before making a purchase, especially for products that require repeated spending. Consequently, a price that matches quality and offers good value will effectively encourage consumers to make a purchase. Furthermore, when tested together, Influencer Marketing and Price have a simultaneous significant effect on Purchase Decision. This shows that purchase intention will be highest when a product is supported by effective influencer outreach and offered at a price that consumers perceive as affordable and worth the cost.

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RIDING THE WAVE OF DISRUPTION: A LITERATURE-BASED FRAMEWORK FOR RESILIENCE-LED PERFORMANCE

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Abstract

The emergence of technological disruption has disrupted the developmental paths of organizations in different industries. Technological disruption has been felt most significantly in technology-intensive industries. It is important to note that technological disruption affects the financial performance of the organization directly. In addition, it acts as a call for change in relation to organizational strategies in accordance with changing market trends. This research focuses on the concept of digital leadership and entrepreneurial ability as a way of understanding how organizations move from the vulnerability of disruption to sustained competitive advantage. In an attempt to address a gap in theory, the current research work uses a Resilience-Led Performance Framework in relation to the technology navigation industry. Using conceptual research design and based on literature synthesis which in this case involves Thematic Synthesis and Propositional Logic, 35 peer-reviewed studies conducted between the years 2021 and 2026 were analyzed. From this literature, six propositions have been developed based on the integration of Disruptive Innovation Theory, Dynamic Capability Theory, Leadership Adaptability Theory, and Entrepreneurial Orientation Theory. The framework shows that technological disruption has a direct negative impact on firm performance while at the same time stimulating innovation capability as a response strategy. In the process, the adaptability and entrepreneurial orientation of the leader significantly enhance the innovative response. Innovation capability emerges as the main mediating factor connecting the disruption-related pressure and resilient performance. Also, the Resilience Positioning Matrix has been developed in order to apply the above framework across four strategic archetypes: vulnerable, stagnant, aggressive and resilient. In summary, it is clear that in order to achieve sustainable competitive advantage in the face of disruption, the development of adaptive leadership skills, entrepreneurial dispositions and innovative capabilities has to go hand in hand. Therefore, when all these variables are developed concurrently, the firm is able to leverage disruptive technologies to become competitive.

Keywords: *Technological Disruption, Innovation Capability, Leadership Adaptability, Entrepreneurial Orientation, Firm Performance, Strategic Resilience.*

READINESS OF THE CULTURAL TOURISM ECOSYSTEM TO ADOPT DIGITAL TECHNOLOGY FOR SUPPORTING SUSTAINABLE TOURISM PROMOTION IN BENGKULU CITY

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Abstract

Digital transformation has changed the way tourist destinations are managed and promoted, including in the cultural tourism sector, which plays a vital role in the preservation of cultural heritage and local economic development. However, the successful implementation of digital technology depends not only on destination managers but also on the readiness of all stakeholders in the cultural tourism ecosystem. This study aims to analyze the readiness of the cultural tourism ecosystem to adopt digital technology to support sustainable tourism promotion in Bengkulu City. The study employs a descriptive qualitative approach, using in-depth interviews as the data collection method with five informants selected through purposive sampling: the administrator of Rumah Pengasingan Bung Karno, Benteng Marlborough, administrator of Rumah Fatmawati; a cultural arts practitioner; and a small and medium-sized enterprise (SME) owner specializing in Bengkulu's traditional souvenirs. The data was analyzed using thematic analysis.

The results of the study indicate that all stakeholders hold positive perceptions regarding the importance of digital technology as a medium for promotion, cultural preservation, and the dissemination of information to tourists. However, the level of readiness to adopt digital technology still varies. Destination managers under the Cultural Preservation Office have a higher level of readiness because they are supported by more competent human resources, training, and a wider range of digital technologies. In contrast, cultural artists, managers of independently managed destinations, and MSME operators still face limitations in digital competence, suboptimal use of technology, and the need for ongoing guidance. This study concludes that the readiness of the cultural tourism ecosystem to support sustainable tourism promotion requires strengthening human resource capacity, institutional support, and collaboration among stakeholders so that digital transformation can proceed effectively and sustainably.

Keywords: *digital readiness, digital technology, cultural tourism ecosystem, tourism promotion, sustainable tourism.*

1. Introduction

Advances in digital technology have brought about significant changes in various sectors, including the tourism sector. The use of digital technology is no longer limited to communication; it has become an integral part of destination management, marketing, tourist services, and the preservation of cultural heritage. Various digital platforms—such as social media, websites, travel apps, digital payment systems, and artificial intelligence (AI)-based technologies—offer opportunities for tourist destinations to enhance their competitiveness and reach a broader audience of travelers. In addition to improving the effectiveness of promotion,

digital technology can also create more interactive travel experiences, thereby supporting the development of sustainable tourism (Dewi et al., 2022; Hariyanto et al., 2025).

Cultural tourism is a form of tourism that plays a vital role in preserving a region's cultural identity while also providing economic benefits to the community. The city of Bengkulu boasts a diverse array of cultural tourism attractions that draw visitors, including Rumah Pengasingan Bung Karno, Benteng Marlborough, Rumah Fatmawati, Chinatown, the Bengkulu Museum, Masjid Jamik, and the Tabot cultural tradition. The presence of these destinations makes Bengkulu one of the regions with a rich cultural heritage that must be preserved and promoted in a sustainable manner.

According to data from the Bengkulu Provincial Tourism Office, the city of Bengkulu has approximately 35 tourist attractions, including natural, cultural, and man-made attractions. In addition, the number of tourist visits in 2025 reached 2,776,053 domestic tourists and 967 international tourists. These figures indicate that the tourism sector has significant potential for further development through innovative digital-based promotional strategies.

The development of cultural tourism does not depend solely on tourism destination managers but also involves various stakeholders who interact within an ecosystem. The cultural tourism ecosystem includes destination managers, cultural and artistic practitioners, micro, small, and medium-sized enterprises (MSMEs), the government, and the community, who collectively support the creation of high-quality tourism experiences. Therefore, the success of digital transformation in the tourism sector requires the readiness of all involved stakeholders, not just tourism destination managers. Sunaryo (2013) explains that sustainable tourism destination development requires synergy among stakeholders, while Maulana et al. (2025) emphasize that collaboration between the government, the community, and business operators is a key factor in the development of digital-based tourism.

Various previous studies have shown that digital technology can enhance the competitiveness of tourist destinations through digital marketing, improved service quality, and expanded access to information for tourists. However, most studies still focus on destination managers or tourist behavior, while research on the readiness of various actors within the cultural tourism ecosystem remains relatively limited. In fact, cultural and artistic practitioners and MSMEs also play a vital role in shaping the tourism experience while supporting the sustainability of tourism. Ghaisani and Afifi (2022) demonstrate that digital marketing communication strategies in the cultural tourism sector can expand promotional reach, but their success is heavily influenced by the readiness of human resources and the participation of stakeholders.

Given these circumstances, this study aims to analyze the readiness of the cultural tourism ecosystem to adopt digital technology in support of sustainable tourism promotion in Bengkulu City. This study involves managers of historical tourist destinations, cultural and artistic practitioners, and MSME operators, and is thus expected to provide a more comprehensive picture of the readiness for digital transformation within the cultural tourism ecosystem.

2. Literature review

6.1. Digital Technology in Tourism

Digital transformation has become one of the key drivers of change in the tourism industry. The use of digital technology enables destination managers to develop more effective marketing strategies, improve service quality, and expand access to information for travelers. Various technologies—such as social media, websites, travel apps, Google Maps, digital payments, Quick Response (QR) codes, virtual tours, and artificial intelligence (AI)—have transformed the way travelers search for information, plan their trips, and share their travel

experiences. The use of these technologies also provides opportunities for tourist destinations to boost their competitiveness through more effective digital marketing and communication strategies.

According to Alfarida Herlina (2022), digital transformation in the tourism sector is driving changes in promotional strategies through the use of social media—particularly Instagram and YouTube—as communication channels capable of reaching a wider audience of tourists. The use of digital platforms enables the dissemination of destination information to be faster, more interactive, and more accessible, thereby enhancing the effectiveness of tourism marketing.

A study by Suranto Aw et al. (2023) explains that the implementation of e-tourism is an effective communication strategy for promoting the potential of tourist destinations in the era of the Fourth Industrial Revolution. Through the integration of information technology, destination managers can provide comprehensive information, improve service quality, and foster better interactions with tourists.

In the context of cultural tourism, the use of digital technology serves not only as a promotional tool but also as a means of preserving cultural heritage. The digitization of historical information, the use of social media, the provision of QR code-based information, and the development of digital content can enhance the tourist experience while introducing cultural values to a wider audience. Ghaisani and Afifi (2022) demonstrate that digital marketing communication strategies for cultural tourism destinations can strengthen the destination's image, increase tourist engagement, and support the sustainable promotion of cultural tourism.

Thus, digital transformation not only serves as a means of promoting tourist destinations, but also plays a role in improving service quality, expanding access to information, strengthening cultural preservation, and supporting sustainable tourism development

6.2. Cultural Tourism Ecosystem

A cultural tourism ecosystem is a system comprising various actors who interact with one another to develop, preserve, and promote culture-based tourism destinations. The ecosystem approach views the success of tourism development as being determined not only by destination managers but also influenced by the involvement of the government, the community, cultural and artistic practitioners, creative economy actors, academics, the media, and the private sector. Synergy among stakeholders is a key factor in creating tourism destinations that are competitive, sustainable, and capable of providing both economic and social benefits to local communities.

According to Sunaryo (2013), the development of tourism destinations must be carried out through collaboration among all stakeholders to achieve a balance between economic, social, cultural, and environmental aspects. The involvement of the government as a regulator, the public as the primary actors, the private sector as investors, academics as providers of scientific research, the media as a promotional tool, and local communities as guardians of cultural values are complementary elements that support the successful development of tourism destinations.

Within the cultural tourism ecosystem, each actor has a distinct yet complementary role. Destination managers are responsible for managing tourist attractions and providing services to visitors. Cultural and artistic practitioners play a role in preserving local culture through artistic performances, traditional music, and other cultural activities. Meanwhile, small and medium-sized enterprises (SMEs) support tourism activities by providing local specialty products that enhance the tourist experience while also generating economic benefits for the

local community. The involvement of all these stakeholders is a key asset in creating authentic, high-quality tourism experiences.

The success of digital transformation in cultural tourism is greatly influenced by the readiness of all actors within the ecosystem. The implementation of digital technology requires collaboration, human resource capacity building, and institutional support so that all stakeholders can make optimal use of the technology. Therefore, the adoption of digital technology must be understood as a process involving all components of the cultural tourism ecosystem so that the benefits of digitalization can be felt equitably and support the promotion of sustainable tourism. This aligns with the findings of Herlina's (2022) research, which indicates that digital transformation in the tourism sector requires synergy among stakeholders so that digital promotion strategies can be implemented effectively.

6.3. Sustainable Tourism

Sustainable tourism is a concept of tourism development that aims to meet the needs of tourists and local communities today without compromising the ability of future generations to meet their own needs. This concept emphasizes a balance between economic growth, environmental conservation, cultural preservation, and the improvement of local communities' well-being.

According to the United Nations World Tourism Organization (UNWTO), sustainable tourism is the management of all tourism resources in a way that meets economic, social, and aesthetic needs while preserving cultural integrity, ecological processes, biodiversity, and the systems that support local communities. Thus, the success of tourism development is measured not only by an increase in the number of tourist visits but also by a destination's ability to ensure the sustainability of its resources.

In cultural tourism, the principle of sustainability is realized through the preservation of cultural heritage, the protection of historic sites, the empowerment of local communities, and the enhancement of the economic value derived from tourism activities. The development of sustainable cultural tourism also requires a balance between conservation efforts and the use of culture as a tourist attraction, so that cultural values are preserved.

Advances in digital technology offer opportunities to strengthen the implementation of sustainable tourism. Digital technology enables the wider dissemination of information about historical and cultural values, improves the efficiency of destination management, enhances community participation, and supports data-driven decision-making. Therefore, digitalization has become a key tool in achieving sustainable tourism.

6.4. Sustainable Tourism Promotion

Sustainable tourism promotion is an effort to introduce tourist destinations through various communication channels while taking into account economic, social, cultural, and environmental sustainability. Promotion aims not only to increase the number of tourist visits but also to raise tourists' awareness of the importance of preserving cultural heritage, respecting local communities, and supporting environmental conservation and the well-being of communities surrounding tourist destinations. This approach is expected to create a balance between the growth of the tourism sector and the preservation of cultural and environmental resources (Ministry of Tourism and Creative Economy of the Republic of Indonesia, 2021).

According to Herlina (2022), digitalization plays a significant role in strengthening destination branding, increasing tourist engagement, and building a destination's image through the use of social media and digital platforms. The use of Instagram, YouTube, websites, and various other digital media allows information about tourist destinations to be disseminated more widely, quickly, interactively, and efficiently than through conventional promotional methods.

Research by Ghaisani and Afifi (2022) shows that digital marketing communication strategies for cultural tourism destinations can enhance the effectiveness of promotions by presenting content that is engaging, interactive, and tailored to the characteristics of digital travelers. In addition to expanding the reach of promotions, the use of digital media also increases travelers' engagement in learning about historical and cultural values, thereby providing a more meaningful travel experience.

Furthermore, Aw et al. (2023) explain that the success of digital-based tourism promotion is not only determined by the use of technology but also requires government support through policies, the development of digital infrastructure, human resource training, and collaboration among stakeholders. Such synergy is necessary to ensure that digital technology can be optimally utilized to strengthen a destination's competitiveness while supporting sustainable tourism development.

Thus, the promotion of sustainable tourism not only utilizes digital technology as a communication medium but also as a tool to strengthen cultural identity, enhance the competitiveness of destinations, expand community participation, and generate sustainable economic benefits for local communities.

7. Methodology

This study employs a qualitative approach with a descriptive design to gain an in-depth understanding of the readiness of the cultural tourism ecosystem to adopt digital technology in support of sustainable tourism promotion in Bengkulu City. This approach was chosen because it allows for the description of phenomena based on the experiences, perceptions, and practices of cultural tourism stakeholders.

Research informants were selected using purposive sampling, a technique for selecting informants based on their involvement in and knowledge of cultural tourism management in Bengkulu City. The research informants consisted of five individuals representing key actors in the cultural tourism ecosystem: administrator of Rumah Pengasingan Bung Karno, the administrator of Benteng Marlborough, the administrator of the Rumah Fatmawati, the owner of a traditional Bengkulu music studio, and a small and medium-sized enterprise (SME) owner selling traditional Bengkulu souvenirs.

Primary data was collected through in-depth interviews using a semi-structured interview guide. The interviews focused on perceptions regarding the importance of digital technology, the use of digital technology, human resource readiness, institutional support, obstacles encountered, and expectations for the development of digital technology-based cultural tourism promotion. Secondary data was obtained from documents from the Bengkulu Provincial Tourism Office, the Central Statistics Agency, and various relevant literature.

Data analysis was conducted using thematic analysis based on Braun and Clarke (2006). The analysis stages included reducing the interview data, coding, grouping codes into main themes, interpreting the results, and drawing conclusions. To enhance the credibility of the research findings, source triangulation was performed by comparing information among informants and supporting documents.

3.1. Instrumentation

This study analyzes the readiness of the cultural tourism ecosystem to adopt digital technology through three main groups of actors: cultural tourism destination managers, cultural artists, and MSME operators. The analysis was conducted using a thematic approach by identifying the perceptions, levels of digital technology adoption, human resource readiness, institutional support, and obstacles faced by each stakeholder group. The results of this analysis

were used to describe the level of readiness of the cultural tourism ecosystem in supporting sustainable tourism promotion in Bengkulu City.



Figure 1. Research Analysis Framework

8. Results and discussions

3.1. The Readiness of the Cultural Tourism Ecosystem to Adopt Digital Technology

This study analyzes the readiness of the cultural tourism ecosystem in Bengkulu City to adopt digital technology to support sustainable tourism promotion. This ecosystem consists of three main groups of actors: cultural tourism destination managers, cultural artists, and MSME operators, all of whom are interconnected in creating tourism experiences for visitors. The level of readiness is analyzed based on five aspects: perceptions of digital technology, human resource readiness, utilization of digital technology, institutional support, and obstacles faced in the digital transformation process.

The research findings indicate that all informants hold a positive view of the importance of digital technology in the development of cultural tourism. However, the level of readiness among the various stakeholders still varies, influenced by human resource capacity, institutional support, experience in using technology, and access to training.

3.2. Perceptions of Digital Technology

The interview results show that all informants understand that digital technology has become essential for the management and promotion of tourist destinations. The managers of

the Bung Karno Exile House and Fort Marlborough stated that most tourists today obtain information about tourist destinations through social media, search engines, and other digital platforms. Therefore, digital media is considered crucial for increasing the visibility of these destinations and expanding the reach of promotional efforts to the national and international levels.

The manager also noted that digitization serves not only as a promotional tool but also as a means of educating the public about the historical and cultural significance of each destination. According to the informant, presenting information through digital media can spark greater interest among the younger generation in learning about the nation's history, as the information can be conveyed in a more engaging way through photos, videos, and interactive content.

The same view was expressed by the manager of Rumah Fatmawati. Although the use of digital technology at that site is still limited, the informant believes that digital media can increase the number of tourist visits if utilized optimally. The informant recognizes that tourists today tend to search for information about locations, operating hours, ticket prices, and facilities online before visiting.

Cultural artists also view digital technology as an opportunity to introduce Bengkulu's traditional music to a wider audience. So far, performances have been promoted through Instagram, TikTok, and YouTube, allowing them to reach audiences outside Bengkulu Province. Similarly, MSME owners state that digital technology helps tourists locate their businesses and obtain information about Bengkulu's signature souvenirs.

The findings indicate that all stakeholders in the cultural tourism ecosystem are aware of the importance of utilizing digital technology as a means of promotion and information dissemination to tourists. This awareness serves as the foundation for the adoption of digital technology to support the development of cultural tourism destinations. These findings align with the research by Ghaisani and Afifi (2022), which states that the use of digital marketing communication strategies across various social media platforms can strengthen the promotion of cultural tourism destinations, increase tourist engagement, and expand the reach of information to the public.

3.3. Human Resource Readiness

The readiness of human resources is one of the most critical factors in the success of digital transformation. Research findings indicate that there are differences in digital capabilities among various actors in the cultural tourism ecosystem.

The administrator of Rumah Pengasingan Bung Karno and Benteng Marlborough are relatively better prepared than other informants. This is evident from the presence of a publications and documentation team specifically responsible for managing digital media. In addition, the managers regularly participate in training sessions organized by the Ministry of Culture, which gives them a better understanding of digital media management.

Unlike government-run destination management organizations, the administrator of Rumah Fatmawati admits that it does not yet have staff specifically dedicated to digital media. Website management and promotional efforts are still carried out in a rudimentary manner, so they have not yet been able to fully leverage the potential of digital technology.

Cultural artists also noted that they acquired their digital skills independently through their experience using social media. Although they have been using Instagram, TikTok, and YouTube as promotional platforms, the informants admitted that they still need training on creating more engaging digital content, using design applications, and leveraging artificial intelligence in the promotional process.

Among MSME operators, digital proficiency is rated as adequate. The informants have participated in several basic training sessions on digital marketing but do not yet have the ability to develop sustainable digital marketing strategies. Product promotion is still carried out in a rudimentary manner, so its effectiveness has not yet been maximized.

These results indicate that human resource readiness is not yet uniform across the cultural tourism ecosystem. These disparities in competencies have the potential to create a digital divide among tourism stakeholders; therefore, sustainable capacity-building programs are needed through training, mentoring, and the enhancement of digital competencies. This finding aligns with Aw et al. (2023), who explain that the successful implementation of e-tourism depends not only on the availability of technology but also on the readiness of human resources capable of effectively managing and utilizing digital technology to support the promotion and development of tourism destinations.

3.4. The Use of Digital Technology

Differences in human resource readiness influence the rate of digital technology adoption. The managers of the Bung Karno Exile House and Fort Marlborough have utilized various digital technologies, including social media, an official website, Google Maps, QRIS, and barcodes, and are currently developing digital displays, historical audiovisual presentations, and artificial intelligence-based technologies. The use of these technologies indicates that the managers have entered a more advanced stage of digital development.

In contrast, the management of Rumah Fatmawati is still in the early stages of digitization. The technology currently in use is limited to a website created by the government and Google Maps, while visitor records are still kept manually in a guestbook and payments are still made in cash.

Cultural artists are using Instagram, TikTok, YouTube, and Canva to promote traditional art activities. However, their use of these technologies remains rudimentary and is not yet supported by social media analytics or artificial intelligence to enhance the effectiveness of their promotional efforts.

MSME owners have been using Google Maps to help tourists find their business locations. However, digital promotion through social media has not been carried out consistently, so the potential of digital marketing has not been fully realized.

These findings indicate that the rate of digital technology adoption still varies within the cultural tourism ecosystem. These differences are influenced by human resource capabilities, organizational support, and the availability of digital infrastructure.

3.5. Institutional Support

Institutional support is a factor that distinguishes the level of readiness among the various stakeholders. Destination managers under the Cultural Preservation Office receive various forms of support, such as training, mentoring, website development, and the provision of digital tools to support promotional activities.

Conversely, the managers of Rumah Fatmawati, cultural artists, and MSME operators say they still need more intensive support from the government and relevant agencies. They hope to receive training on digital marketing, social media management, the use of artificial intelligence, and promotional strategies based on digital content.

These findings indicate that collaboration among stakeholders is a key factor in accelerating digital transformation within the cultural tourism ecosystem. The government acts as a facilitator by providing policies, training, guidance, and digital infrastructure, while destination managers, cultural and artistic practitioners, and MSME operators serve as the implementers of innovation on the ground. These findings align with Sunaryo (2013), who states that the success of tourism destination development heavily depends on the synergy and

collaboration of all stakeholders—including the government, the community, the business sector, academia, and the media—in creating competitive and sustainable destinations.

4.1.5 Challenges in the Adoption of Digital Technology

Although all informants have a positive perception of digital technology, various challenges still pose obstacles to its implementation. The main challenge faced by government destination managers is a shortage of human resources, which has prevented the optimal development of digital innovations.

The management of Rumah Fatmawati faces a shortage of staff with digital skills, so its digital media management remains basic. Cultural and artistic practitioners face challenges in mastering more complex technologies, such as professional content creation and the use of artificial intelligence. Meanwhile, MSME owners report that digital promotion has not been carried out consistently due to limitations in time, capabilities, and marketing strategies.

The findings indicate that the challenges of digital transformation are not only related to the availability of technology, but also involve human resources, institutional aspects, and the sustainability of support programs.

3.6. The Readiness of the Cultural Tourism Ecosystem to Support the Promotion of Sustainable Tourism

Overall, the research findings indicate that the cultural tourism ecosystem in Bengkulu City has demonstrated an initial level of readiness to adopt digital technology to support sustainable tourism promotion. This readiness is reflected in the positive perceptions held by all stakeholders regarding the importance of digitalization as a means of promotion, cultural preservation, and providing access to information for tourists. However, the level of readiness among stakeholders still varies, influenced by human resource capacity, the level of digital infrastructure utilization, and the institutional support received. Based on the research analysis framework, this readiness has implications for four key aspects of sustainable tourism promotion: enhanced destination promotion, cultural preservation, improved tourist experiences, and community economic empowerment.

The use of digital technology enables cultural tourism destinations in Bengkulu City to be promoted more widely through social media, websites, Google Maps, and other digital platforms, thereby increasing the destinations' visibility and expanding the reach of the tourist market. In addition, digitization also contributes to cultural preservation through digital documentation, the dissemination of historical information, and the presentation of educational content that strengthens the public's understanding of local cultural values. From the tourists' perspective, the use of digital technology makes it easier to access information before and during their visits, thereby creating a more informative, interactive, and high-quality travel experience. Meanwhile, for MSME owners and cultural and artistic practitioners, digital technology opens opportunities to expand the marketing of products and services, increase the number of customers, and strengthen community economic empowerment through the growth of a culture-based creative economy.

Nevertheless, the research findings also indicate that these benefits have not yet been fully realized due to varying levels of digital readiness among actors in the cultural tourism ecosystem. Therefore, strengthening digital capacity through ongoing training, technical assistance, the provision of digital infrastructure, and enhanced collaboration among the government, destination managers, cultural and artistic practitioners, MSME operators, academics, and local communities are critical factors for improving the ecosystem's overall readiness. With increased readiness in terms of perception, human resources, digital infrastructure, institutional support, and the ability to overcome obstacles, digital technology serves not only as a promotional medium but also as a strategic tool for preserving cultural

heritage, enhancing the quality of the tourist experience, strengthening destination competitiveness, and generating sustainable economic benefits for local communities.

The findings of this study are consistent with those of Ghaisani and Afifi (2022), who explain that the use of digital marketing communication strategies can strengthen the promotion of cultural tourism destinations, increase the reach of information, and encourage tourist engagement through various digital platforms. Furthermore, the results of this study also support Aw et al. (2023), who state that the success of implementing digital technology in the tourism sector is not only determined by the use of the technology itself but is also influenced by human resource readiness, institutional support, and collaboration among stakeholders. This aligns with the view of Sunaryo (2013), who emphasizes that synergy among the government, the community, business operators, academics, and the media is a critical factor in creating competitive and sustainable tourism destinations. Thus, the readiness of the cultural tourism ecosystem to adopt digital technology serves as the primary foundation for achieving sustainable tourism promotion in Bengkulu City.

5. Conclusion

This study shows that the cultural tourism ecosystem in Bengkulu City is generally ready to adopt digital technology to support sustainable tourism promotion. All stakeholders involved—namely, cultural tourism destination managers, cultural artists, and MSME operators—have a positive perception of the importance of digital technology as a medium for promotion, cultural preservation, and improving access to information for tourists. However, the level of readiness among these stakeholders still varies.

Destination managers under the Cultural Preservation Office demonstrate a higher level of readiness because they have adopted various digital technologies, are supported by more competent human resources, and receive training and guidance from the government. In contrast, independently managed destination operators, cultural and artistic practitioners, and MSME operators still face limitations in digital competence, suboptimal use of technology, and a continued need for ongoing training and guidance.

The research findings also indicate that the readiness of the cultural tourism ecosystem is not solely determined by the availability of technology, but is influenced by the readiness of human resources, institutional support, and collaboration among stakeholders. Therefore, strengthening digital capacity through training programs, mentoring, and synergy among the government, destination managers, cultural and artistic practitioners, and MSME operators is a crucial step toward accelerating digital transformation within the cultural tourism ecosystem.

This study suggests that the development of sustainable tourism promotion in Bengkulu City requires an approach that focuses not only on the provision of technology but also on capacity building for all stakeholders in the cultural tourism ecosystem. With more equitable readiness, the use of digital technology is expected to expand the reach of promotional efforts, strengthen the preservation of cultural heritage, enhance the competitiveness of the destination, and provide sustainable economic benefits for the local community.

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ARTIFICIAL INTELLIGENCE ENHANCING SUSTAINABLE PROFITABILITY IN ISLAMIC DIGITAL BANKING

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Abstract

Artificial Intelligence (AI) has emerged as a strategic driver of innovation, operational efficiency, and sustainability in the banking industry, including Islamic banking. However, empirical evidence on the role of AI in improving sustainable profitability remains limited, particularly in emerging economies such as Indonesia. This study aims to examine the effects of Artificial Intelligence and Digital Transformation on Sustainable Profitability in Islamic digital banking by integrating Structural Equation Modeling–Partial Least Squares (SEM-PLS) and machine learning approaches. A quantitative research design was employed using panel data collected from 12 Islamic commercial banks in Indonesia during 2021–2025, comprising 60 observations. SEM-PLS was applied to evaluate the structural relationships among variables, while Random Forest and Extreme Gradient Boosting (XGBoost) algorithms were used to predict sustainable profitability. The results reveal that Artificial Intelligence significantly enhances Sustainable Profitability ($\beta = 0.412$, $p < 0.001$), whereas Digital Transformation also exerts a positive effect ($\beta = 0.387$, $p < 0.001$). Moreover, Digital Efficiency strengthens the relationship between technological transformation and banking performance. Among the machine learning models, XGBoost achieved the highest predictive accuracy (89.3%), demonstrating its effectiveness in predicting sustainable profitability. These findings confirm that Artificial Intelligence plays a pivotal role in promoting sustainable profitability in Islamic digital banking and provide both explanatory and predictive insights for developing intelligent and sustainable digital banking ecosystems.

Keywords: Artificial Intelligence; Digital Transformation; Islamic Banking; Sustainable Profitability; Machine Learning; Digital Efficiency.

THE MEDIATING ROLE OF COPING OPTIMISM IN THE RELATIONSHIP BETWEEN SELF-EFFICACY, SELF-ACCEPTANCE, AND ADAPTIVE PERFORMANCE AMONG PUBLIC SECTOR

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Abstract

This study aims to examine the role of coping optimism as a psychological mechanism linking self-efficacy and self-acceptance to adaptive performance among public sector employees. Specifically, the study investigates whether coping optimism functions as a full mediator in transforming personal psychological resources into adaptive workplace behavior. A quantitative cross-sectional survey was conducted involving 206 civil servants employed in regional government institutions. Data were collected using structured questionnaires and analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with bootstrapping procedures to assess the measurement and structural models. The results indicate that self-efficacy and self-acceptance significantly enhance coping optimism. In turn, coping optimism has a significant positive effect on adaptive performance. The mediation analysis demonstrates that coping optimism fully mediates the relationships between self-efficacy, self-acceptance, and adaptive performance, suggesting that personal resources contribute to employee adaptability through optimistic coping processes. The model explains 52.5% of the variance in adaptive performance and demonstrates satisfactory predictive relevance. This study extends the adaptive performance literature by positioning coping optimism as a full mediating mechanism rather than merely an antecedent of adaptive performance. By integrating Social Cognitive Theory, Stress Appraisal Theory, Conservation of Resources Theory, and the Broaden-and-Build Theory, the study provides a comprehensive explanation of how personal psychological resources are transformed into adaptive workplace behavior within public sector organizations.

Keywords: adaptive performance, coping optimism, self-efficacy, self-acceptance, full mediation, public sector

JEL Classification : M12 Personnel Management

1. Introduction

Organizations are increasingly operating in environments characterized by rapid technological advancements, digital transformation, organizational restructuring, and evolving stakeholder expectations. These changes require employees not only to perform their routine tasks effectively but also to adapt to new situations, acquire new competencies, and respond constructively to uncertainty. Consequently, adaptive performance has emerged as a critical dimension of employee effectiveness in contemporary organizations (Pulakos et al., 2000; Bednall & Hendricks, 2021). Adaptive performance refers to an individual's ability to modify behavior, adjust to changing work demands, solve novel problems, and maintain effectiveness

under dynamic conditions (Charbonnier-Voirin & Roussel, 2012). The importance of adaptive performance is particularly evident in public sector organizations; hence the adaptive performance plays a significant role in ensuring organizational effectiveness and service quality within public sector institutions (Tan & Nadarajah, 2021; Mustafa, 2021).

Previous studies have identified numerous antecedents of adaptive performance, including leadership, organizational support, employee competencies, self-efficacy and psychological resources (Bednall & Henricks, 2021; Nandini et al., 2022). Among these factors, self-efficacy has consistently been associated with employees' ability to cope with challenges and adapt to changing work environments (Essandoh et al., 2024; Pina et al., 2020). According to Social Cognitive Theory, self-efficacy reflects individuals' beliefs in their capability to organize and execute actions required to achieve desired outcomes (Bandura, 1997). Employees with high self-efficacy are more likely to approach challenging situations with confidence, persist in the face of obstacles, and engage in proactive problem-solving behaviors. Empirical studies have demonstrated that self-efficacy positively contributes to employee adaptability and adaptive performance across various organizational contexts (Pina et al., 2020; Essandoh et al., 2024; Teguh & Sutawijaya, 2024).

Another important psychological resource is self-acceptance. Self-acceptance refers to an individual's ability to recognize and accept personal strengths and weaknesses without excessive self-criticism (Ryff & Keyes, 1995). Individuals who demonstrate greater self-acceptance tend to exhibit higher psychological well-being, emotional stability, and resilience when facing difficult situations. Previous studies have found that self-acceptance is associated with constructive coping strategies, positive psychological adjustment, and resilience (Zou et al., 2022; Ewert et al., 2024). Consequently, self-acceptance may contribute to employees' ability to adapt effectively to workplace changes and uncertainty.

While prior studies have established the importance of self-efficacy and self-acceptance, the psychological mechanisms through which these personal resources are translated into adaptive workplace behavior remain insufficiently understood. Recent adaptive performance literature suggests that personal resources do not automatically result in adaptive behavior; instead, individuals must possess psychological processes that enable them to interpret workplace challenges positively and respond constructively to uncertainty (Chim & Lai, 2024). In this regard, coping optimism represents a potentially important yet underexplored mechanism.

Coping optimism reflects an individual's tendency to appraise challenges positively and maintain confidence in achieving favorable outcomes when facing adversity or uncertainty (Palacios-Delgado et al., 2024). Individuals possessing stronger psychological resources may be more likely to develop optimistic coping orientations, which subsequently facilitate adaptive responses to changing workplace conditions (Chim & Lai, 2024; Zou et al., 2022). However, empirical evidence examining coping optimism as a mediating mechanism between self-efficacy, self-acceptance, and adaptive performance remains limited. Consequently, the present study seeks to address this gap by investigating the mediating role of coping optimism in the relationships between self-efficacy, self-acceptance, and adaptive performance among public sector employees.

The selection of coping optimism as a mediating variable is theoretically important. Coping optimism is conceptually more proximal to the appraisal process through which self-efficacy and self-acceptance are transformed into adaptive workplace behavior. This perspective is consistent with Conservation of Resources Theory, coping optimism represents

a valuable psychological resource that enables individuals to maintain motivation, persistence, and psychological well-being under conditions of uncertainty (Hobfoll, 1989) and the Broaden-and-Build Theory (Fredrickson, 2001), which suggest that positive psychological resources broaden individuals' cognitive and behavioral repertoires, thereby facilitating adaptation and performance. Employees who exhibit coping optimism are therefore more capable of adapting their behavior to evolving workplace demands, resulting in higher adaptive performance. Stress Appraisal Theory (Lazarus & Folkman, 1984) suggests that individuals evaluate stressful situations through cognitive appraisal processes before determining behavioral responses. Employees who possess high self-efficacy and self-acceptance are more likely to appraise workplace challenges positively and develop optimistic expectations regarding their ability to manage adversity.

Furthermore, the Broaden-and-Build Theory argues that positive psychological states broaden individuals' cognitive and behavioral repertoires, allowing them to explore alternative solutions, acquire new skills, and respond more flexibly to changing circumstances (Fredrickson, 2001). Taken together, these theoretical perspectives suggest that self-efficacy and self-acceptance function as antecedent psychological resources, while coping optimism serves as the cognitive-affective mechanism through which these resources are translated into adaptive performance. Rather than acting merely as another predictor of adaptive performance, coping optimism represents the psychological process that explains how personal resources become adaptive workplace behavior.

2. Literature Review

2.1. Self-Efficacy and Coping Optimism

Self-efficacy refers to an individual's belief in their capability to organize and execute actions necessary to achieve desired outcomes (Bandura, 1997). Previous studies have shown that self-efficacy is associated with resilience, positive coping behaviors, and adaptability in dynamic work environments. Individuals who believe in their capabilities are more likely to maintain confidence when facing uncertainty and are therefore more likely to develop optimistic coping orientations (Pina et al., 2020; Essandoh et al., 2024; Teguh & Sutawijaya, 2024). Sunlei (2025) demonstrated that self-efficacy significantly predicts adaptive performance, suggesting that employees with greater confidence in their capabilities are more likely to adjust successfully to changing work environments. Bekešienė (2023) shown that self-efficacy enhances adaptive behavior among public-sector employees by increasing confidence in dealing with changing work demands. Employees who believe in their ability to overcome challenges are also more likely to maintain positive expectations regarding future outcomes and develop constructive coping responses when facing workplace stressors. Consequently, self-efficacy is expected to strengthen coping optimism by fostering confidence in one's ability to manage uncertainty and adversity effectively (H1: Self-efficacy positively influences coping optimism).

2.2. Self-Acceptance and Coping Optimism

Self-acceptance is defined as an individual's ability to recognize and accept personal strengths and weaknesses without excessive self-criticism or self-rejection (Ryff & Keyes, 1995). As one of the core dimensions of psychological well-being, self-acceptance enables individuals to maintain emotional stability, psychological balance, and positive self-evaluation when confronted with challenging situations. Individuals with high self-acceptance tend to

demonstrate greater emotional resilience and adaptive coping strategies because they are less likely to perceive personal limitations as threats to their self-worth. Research has shown that self-acceptance contributes to psychological adjustment, resilience, and constructive coping behavior (Zou et al., 2022; Ewert et al., 2024). Employees who accept themselves are better positioned to interpret workplace stressors realistically and respond to organizational challenges with a positive mindset. Therefore, self-acceptance is expected to promote coping optimism by encouraging individuals to maintain positive appraisals and constructive responses when facing uncertainty and workplace demands (H2: Self-acceptance positively influences coping optimism).

2.3. Coping Optimism and Adaptive Performance

Coping optimism refers to an individual's positive belief that challenges or stressors can be effectively addressed through constructive efforts and strategies. Optimistic individuals tend to expect favorable outcomes, perceive challenges as manageable, and persist in pursuing solutions despite obstacles (Carver & Scheier, 2014). Optimistic individuals are more likely to engage in problem-focused coping, seek solutions, and remain persistent in achieving goals, while pessimistic individuals tend to withdraw or adopt avoidance strategies (Nes & Segerstrom, 2006). Furthermore, optimism has been found to facilitate adaptability, resilience, and positive performance outcomes in uncertain environments (Hough, 2020; Potgieter, 2021; Palacios-Delgado et al., 2024). Recent studies also indicate that optimism enhances individuals' capacity to adjust to changing work demands by promoting cognitive flexibility and constructive responses to organizational uncertainty (Chim & Lai, 2024). Consequently, coping optimism can be viewed as a psychological mechanism through which personal resources are translated into adaptive workplace behavior (H3: Coping optimism positively influences adaptive performance).

2.4. Adaptive Performance

Adaptive performance refers to an employee's ability to modify behavior, acquire new skills, solve unfamiliar problems, and effectively respond to changing work demands and environmental conditions (Pulakos et al., 2000). In contemporary organizations characterized by technological advancement, organizational transformation, and increasing uncertainty, adaptive performance has become a critical component of employee effectiveness. Adaptive performance is particularly important in public sector organizations where employees are expected to respond effectively to policy changes, bureaucratic reforms, digital transformation initiatives, and evolving public expectations. Systematic reviews have identified adaptive performance as a multidimensional construct influenced by individual, team, and organizational factors (Nandini et al., 2022; JLISS, 2024). These findings highlight the importance of psychological resources in facilitating employee adaptability.

2.5. The Mediating Role of Coping Optimism

Although self-efficacy and self-acceptance represent important personal psychological resources, these characteristics may not directly translate into adaptive workplace behavior. Employees must first develop positive cognitive appraisals and constructive coping responses that enable them to manage uncertainty effectively. Coping optimism serves this function by transforming confidence and self-acceptance into adaptive behavioral responses. Coping optimism refers to a positive orientation toward managing stress, adversity, and challenging circumstances. Individuals with higher levels of optimism tend to perceive stressful situations as manageable, maintain positive expectations regarding future outcomes, and employ more adaptive coping strategies (Nes & Segerstrom, 2006; Palacios-Delgado et al., 2024). Research

has demonstrated that optimism promotes persistence, resilience, positive adjustment, and performance outcomes across various settings (Hough, 2020; Potgieter, 2021). Moreover, optimism has been found to facilitate adaptability and constructive responses to uncertainty by encouraging individuals to engage in proactive coping behaviors (Chim & Lai, 2024). Therefore, coping optimism may serve as a critical psychological mechanism through which self-efficacy and self-acceptance influence adaptive performance.

Employees with strong efficacy beliefs are more likely to develop optimistic coping orientations, which subsequently enhance their ability to adapt to changing work conditions. Likewise, individuals with greater self-acceptance are more likely to maintain positive expectations and constructive coping strategies that support adaptive performance. Therefore, coping optimism is expected to mediate the relationships between self-efficacy, self-acceptance, and adaptive performance (H4: Coping optimism mediates the relationship between self-efficacy and adaptive performance; H5: Coping optimism mediates the relationship between self-acceptance and adaptive performance).

2.6. Conceptual Framework

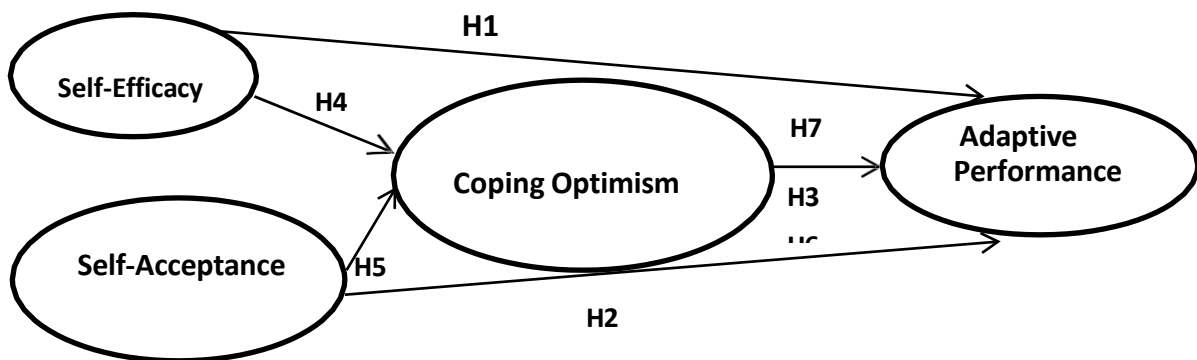


Figure 1. Conceptual Framework

The proposed model integrates insights from Social Cognitive Theory (Bandura, 1997), Stress Appraisal Theory (Lazarus & Folkman, 1984), Conservation of Resources Theory (Hobfoll, 1989), and the Broaden-and-Build Theory (Fredrickson, 2001) to propose that self-efficacy and self-acceptance function as personal psychological resources that foster coping optimism, which subsequently enhances adaptive performance. Employees who exhibit coping optimism are therefore more capable of adapting their behavior to evolving workplace demands, resulting in higher adaptive performance. Taken together, these theoretical perspectives suggest that self-efficacy and self-acceptance function as antecedent psychological resources, while coping optimism serves as the cognitive-affective mechanism through which these resources are translated into adaptive performance. Coping optimism represents the psychological process that explains how personal resources become adaptive workplace behavior.

3. Methodology

3.1. Research Design and Sample

This study employed a quantitative cross-sectional research design to examine the relationships among self-efficacy, self-acceptance, coping optimism, and adaptive performance among public sector employees. Data were collected using a structured questionnaire distributed to civil servants working in regional government institutions. A purposive sampling technique was adopted because the study required respondents who possessed sufficient experience in dealing with workplace changes and organizational

demands. Therefore, participants were required to be active civil servants with at least one year of work experience. A total of 235 questionnaires were distributed. After data screening and validation procedures, resulting in 206 valid responses retained for analysis, representing a response rate of 87.66%. The final sample size exceeded the minimum sample requirements for Partial Least Squares Structural Equation Modelling (PLS-SEM).

3.2. Measurement of Variables

All constructs were measured using previously validated scales adapted from the literature. Self-efficacy was measured using eight indicators adapted from Bandura (1997), self-acceptance using ten indicators developed by Ryff and Keyes (1995), coping optimism using ten indicators from (Carver & Scheier, 2014), and adaptive performance using nineteen indicators develop by Charbonnier- Roussel (2012). Responses were recorded using a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

3.3. Data Screening and Common Method Bias

Common method bias was assessed using full collinearity diagnostics. All VIF values were below the recommended threshold, indicating that common method bias was unlikely to threaten the validity of the findings.

3.4 Data Analysis

The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. PLS-SEM was selected because it is suitable for prediction-oriented research and theory development involving multiple latent constructs and mediation relationships (Hair et al., 2022). Analysis was conducted using a two-stage approach. The first, involved evaluation of the measurement model through assessment of indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Indicator reliability was assessed using outer loadings, internal consistency reliability using Cronbach’s alpha and Composite Reliability (CR), convergent validity using Average Variance Extracted (AVE), and discriminant validity using the Fornell-Larcker criterion and Heterotrait-Monotrait Ratio (HTMT). The second stage involved evaluation of the structural model through assessment of collinearity, path coefficients, coefficient of determination (R^2), effect size (f^2), and mediation effects. The significance of the structural relationships was assessed using a bootstrapping procedure with 5,000 subsamples.

4. Results and Discussion

4.1. Respondents Profile

Most respondents were female (54.9%), aged between 36 and 46 years (43.7%), held a bachelor's degree (70.9%), and occupied functional positions (76.2%). The respondents represented diverse tenure categories, indicating adequate representation of public-sector employees.

4.2. Measurement Model Assessments

The measurement model was assessed by examining internal consistency reliability, convergent validity, and discriminant validity. As presented in Table 1, all constructs demonstrated satisfactory reliability, with Cronbach’s Alpha and Composite Reliability values exceeding the recommended threshold of 0.70 (Hair et al., 2022). Convergent validity was supported as AVE values exceeded 0.50 for all constructs except Adaptive Performance (AVE

= 0.441), which remained acceptable due to its high Composite Reliability (0.930). Furthermore, the Fornell–Larcker criterion confirmed discriminant validity, as the square root of AVE for each construct exceeded its correlations with other constructs. These results indicate that the measurement model was adequate for subsequent structural model analysis.

Table 1 Measurement Model Assessment

Construct	CA	CR	AVE	CO	AP	SA	SE
Coping Optimism (CO)	0.881	0.914	0.680	0.824			
Adaptive Performance (AP)	0.920	0.930	0.441	0.725	0.664		
Self-Acceptance (SA)	0.737	0.831	0.555	0.537	0.560	0.745	
Self-Efficacy (SE)	0.800	0.862	0.557	0.572	0.592	0.630	0.746

4.3. Structural Model Assessment

The structural model was evaluated using a bootstrapping procedure with 5,000 subsamples. The assessment included path coefficients, coefficient of determination (R^2), effect size (f^2), and mediation analysis.

Table 2 Structural Model Evaluation

Construct / Relationship	R^2	Q^2	f^2	Interpretation
Coping Optimism	0.381	0.250	-	Moderate explanatory power
Adaptive Performance	0.525	0.222	-	Moderate explanatory power
Self-Efficacy → Coping Optimism	-	-	0.149	Medium
Self-Acceptance → Coping Optimism	-	-	0.086	Small
Coping Optimism → Adaptive Performance	-	-	1.106	Very Large

Table 2 summarizes the structural model evaluation. The model explains 38.1% of the variance in Coping Optimism and 52.5% of the variance in Adaptive Performance. The Q^2 values exceeded zero, indicating adequate predictive relevance. Effect size analysis revealed that Coping Optimism exerts a very large effect on Adaptive Performance ($f^2 = 1.106$), whereas Self-Efficacy and Self-Acceptance demonstrate medium and small effects on Coping Optimism, respectively.

4.4. Hypothesis Testing

The significance of the structural relationships was assessed using the bootstrapping procedure. The results indicate that all hypothesized relationships are positive and statistically significant. As shown in Table 7, Self-Efficacy and Self-Acceptance significantly influence

Coping Optimism supporting H1 and H2 Furthermore, Coping Optimism significantly influences Adaptive Performance supporting H3.

Table 3 Direct Effects

Hypothesis	Relationship	β	t-value	p-value	Decision
H1	Self-Efficacy → Coping Optimism	0.388	5.765	0.000	Supported
H2	Self-Acceptance → Coping Optimism	0.292	4.622	0.000	Supported
H3	Coping Optimism → Adaptive Performance	0.725	20.794	0.000	Supported

The results indicate that self-efficacy positively influences coping optimism. This finding supports Social Cognitive Theory (Bandura, 1997), which argues that individuals who possess strong beliefs in their capabilities are more likely to approach challenges with confidence and maintain positive expectations regarding future outcomes. The finding is consistent with previous studies demonstrating that self-efficacy contributes to positive coping behavior and adaptability (Pina et al., 2020; Essandoh et al., 2024; Teguh & Sutawijaya, 2024). The present study extends prior research by showing that self-efficacy primarily contributes to adaptive performance through the development of coping optimism. Thus, confidence in one's abilities appears to be an important psychological resource that fosters optimistic coping orientations when employees encounter uncertainty and change.

The findings further demonstrate that self-acceptance significantly influences coping optimism. Employees who accept both their strengths and limitations tend to experience greater emotional stability and are more capable of maintaining positive expectations when facing workplace challenges. This result is consistent with the psychological well-being framework proposed by Ryff and Keyes (1995), which identifies self-acceptance as a fundamental component of positive psychological functioning. The result aligns with previous studies indicating that self-acceptance enhances resilience, psychological adjustment, and constructive coping behavior (Zou et al., 2022; Ewert et al., 2024). Individuals who possess higher levels of self-acceptance are less likely to become overwhelmed by setbacks and are therefore better able to maintain optimistic coping orientations. Within public organizations, self-acceptance may help employees navigate bureaucratic reforms, policy changes, and evolving public service expectations more effectively.

Among all relationships examined, coping optimism demonstrated the strongest effect on adaptive performance. This finding suggests that employees who maintain positive expectations and constructive coping strategies are more capable of adjusting to changing work requirements, learning new skills, solving unexpected problems, and remaining effective under uncertain conditions. This finding supports Conservation of Resources Theory (Hobfoll, 1989), which proposes that psychological resources enable individuals to maintain effective functioning during challenging situations. Employees who possess optimistic coping orientations are more likely to invest effort, persist in the face of obstacles, and actively seek solutions because they anticipate positive outcomes. The finding also supports the Broaden-and-Build Theory (Fredrickson, 2001), which argues that positive psychological states broaden cognitive flexibility and encourage adaptive behavioral responses, and consistent with previous studies highlighting the role of optimism in promoting adaptability and positive performance outcomes (Hough, 2020; Potgieter, 2021; Chim & Lai, 2024; Palacios-Delgado et al., 2024).

However, this study extends the existing literature by demonstrating that coping optimism plays a particularly important role in enhancing adaptive performance among public-sector employees. The exceptionally strong effect size observed in this study ($f^2 = 1.106$) suggests that coping optimism functions as a critical psychological resource supporting

employee adaptability in contexts characterized by bureaucratic reform, digital transformation, and increasing service complexity.

4.5. Mediation Analysis

The mediation analysis revealed significant indirect effects of Self-Efficacy and Self-Acceptance on Adaptive Performance through Coping Optimism. The results indicate that Self-Efficacy has a significant indirect effect on Adaptive Performance through Coping Optimism ($\beta = 0.281$, $t = 5.173$, $p < 0.001$), supporting H4. Similarly, Self-Acceptance has a significant indirect effect on Adaptive Performance through Coping Optimism ($\beta = 0.212$, $t = 4.564$, $p < 0.001$), supporting H5.

Table 4 Indirect Effects

Hypothesis	Indirect Relationship	β	t-value	p-value	Decision
H4	Self-Efficacy $\rightarrow$ Coping Optimism $\rightarrow$ Adaptive Performance	0.281	5.173	0.000	Supported
H5	Self-Acceptance $\rightarrow$ Coping Optimism $\rightarrow$ Adaptive Performance	0.212	4.564	0.000	Supported

The mediation analysis supports the proposed full mediation mechanism. Direct paths from Self-Efficacy and Self-Acceptance to Adaptive Performance were not specified because the theoretical model assumes that personal resources influence adaptive behavior through coping optimism. The significant indirect effects observed in this study therefore provide evidence that coping optimism serves as the primary psychological mechanism linking self-efficacy and self-acceptance to adaptive performance.

A particularly important finding of this study is that coping optimism fully mediates the relationships between self-efficacy, self-acceptance, and adaptive performance. This finding suggests that personal resources alone are insufficient to generate adaptive workplace behavior. Instead, employees must first develop optimistic coping orientations that enable them to interpret workplace challenges positively and respond constructively to change.

Theoretically, this finding supports Stress Appraisal Theory (Lazarus & Folkman, 1984), which proposes that behavioral outcomes emerge through cognitive appraisal and coping processes rather than directly from personal characteristics. Employees with high self-efficacy and self-acceptance may possess valuable psychological resources, but these resources influence adaptive performance only when translated into optimistic coping strategies. This finding also extends Conservation of Resources Theory (Hobfoll, 1989), suggesting that personal resources generate behavioral outcomes through resource-conversion mechanisms. In the present study, coping optimism functions as that conversion mechanism, transforming self-efficacy and self-acceptance into adaptive workplace behavior. The full mediation finding provides an important contribution to the adaptive performance literature because previous studies have primarily examined self-efficacy, optimism, and adaptive performance as independent predictors. The present study demonstrates that coping optimism should be viewed not merely as another antecedent of adaptive performance but as the central psychological process through which personal resources are translated into adaptive behavior.

5. Conclusion

This study examined the relationships among self-efficacy, self-acceptance, coping optimism, and adaptive performance among public-sector employees. The findings demonstrate that self-efficacy and self-acceptance significantly enhance coping optimism, while coping optimism positively influences adaptive performance. Furthermore, the mediation analysis supports the proposed full mediation mechanism, indicating that the effects of self-efficacy and self-acceptance on adaptive performance operate through coping optimism. These findings highlight the importance of positive coping processes in translating personal psychological resources into adaptive workplace behavior.

The study contributes to the adaptive performance literature by extending attention beyond direct antecedents and emphasizing coping optimism as a key psychological mechanism linking personal resources to adaptive outcomes. The findings also provide practical implications for public-sector organizations, suggesting that employee development initiatives should focus not only on competencies and skills but also on strengthening self-efficacy, self-acceptance, and optimistic coping capabilities to enhance adaptability in increasingly dynamic work environments.

This study is subject to several limitations. First, the cross-sectional design restricts causal inference. Second, the data were collected from public-sector employees within a specific organizational context, which may limit the generalizability of the findings. Future research may employ longitudinal designs, incorporate additional psychological and organizational variables, and examine the proposed model across different sectors and cultural settings to further validate the role of coping optimism in adaptive performance.

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THE INFLUENCE OF THE NUMBER OF TOURISTS AND DOMESTIC INVESTMENT (PMDN) ON THE GROSS REGIONAL DOMESTIC PRODUCT (GRDP) OF THE SPECIAL REGION OF YOGYAKARTA FOR THE PERIOD 2015 - 2025

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Abstract

This study aims to analyze the effect of the number of tourists and Domestic Investment (PMDN) on the Gross Regional Domestic Product (GRDP) of the Special Region of Yogyakarta (DIY) during the 2015–2025 period. This study employed a quantitative approach using multiple linear regression analysis based on quarterly secondary data, consisting of 44 observations. The partial test results indicate that Domestic Investment (PMDN) has a positive and significant effect on GRDP, suggesting that domestic investment effectively enhances the region's production capacity. Likewise, the number of tourists has a positive and significant effect on GRDP, as tourist arrivals generate a multiplier effect across various related economic sectors. Simultaneously, the combination of these two variables has a significant effect on fluctuations in the GRDP of the Special Region of Yogyakarta. The coefficient of determination shows that variations in the number of tourists and Domestic Investment explain 66,5% of the variation in the GRDP, while the remaining 33,5% is influenced by other factors outside the model. Therefore, strengthening the tourism sector alongside increasing domestic investment plays a crucial role in promoting sustainable regional economic growth

Keywords: *Special Region of Yogyakarta, Gross Regional Domestic Product (GRDP), Number of Tourists, Domestic Investment (PMDN).*

1. Introduction

Economic growth of Yogyakarta Special Region Province during the 2015-2025 period, measured through the Gross Regional Domestic Product (GRDP), shows a tendency to increase, although it has experienced fluctuations during certain periods. According to data from the Central Statistics Agency, before the COVID-19 pandemic, the economy of DIY experienced positive growth, evident from the increase in GRDP value in the first quarter of 2015 amounting to 24,321.80 billion rupiah, rising to 36,203.92 billion rupiah in the fourth quarter of 2019. However, in 2020, there was an economic slowdown due to the COVID-19 pandemic, which impacted various economic sectors, marked by a decline in GRDP in the second quarter of 2020 to 32,074.23 billion rupiah from 34,614.81 billion rupiah in the first quarter. As economic conditions improved, the GRDP of DIY showed recovery from 2021 to 2025, with the GRDP value increasing from 38,837.79 billion rupiah in the fourth quarter of 2021 to 53,820.88 billion rupiah in the fourth quarter of 2025. This condition indicates that the economy of the Special Region of Yogyakarta continues to develop despite facing fluctuating economic dynamics.

According to the BPS of the Special Region of Yogyakarta (2024), the Special Region of Yogyakarta is one of the main tourist destinations in Indonesia, with strong cultural, historical, educational, and natural attractions, thus capable of attracting many domestic and international tourists every year. According to Emilda Widiani Sabrina (2023) the high number of tourist visits drives economic activity in sectors such as hotels, restaurants, transportation, trade, services, and MSMEs, contributing to the Gross Regional Domestic Product (GRDP). In addition, the growth of the tourism sector also attracts investors to invest through Domestic Investment (PMDN), particularly in the tourism, property, and trade sectors (Sarra et al., 2020). The Special Province of Yogyakarta also has a significant number of productive-age population as a labor source that supports regional economic growth.

The variable of domestic investment in this study can be explained through the Solow economic growth theory proposed by Robert Solow (1956). This theory emphasizes that investment is the main driver of sustainable economic growth through capital investment, with technology as an exogenous factor. Domestic investment becomes one of the crucial funding sources for developing regions and can significantly contribute to development (Tajudin, 2023). Thus, the relationship between domestic capital investment and labor absorption should be viewed as an important component in meeting the aggregate demand originating from the tourism sector.

Meanwhile, the relationship of the variable number of tourists can be explained through the Tourism System Theory proposed by Neil Leiper (1990). This theory states that tourism activities consist of three main components: people, geography, and the tourism industry (Pangesti Sekar Jati, 2022). The people component can be seen through tourists' understanding of tourist destinations and the level of tourist visits, which can be influenced by geographical factors such as accessibility and supporting facilities to tourist sites, as well as the tourism industry, which includes accommodation and tourist attractions. From a tourism system perspective, an increase in the number of tourists can boost the demand for accommodation, transportation, and other supporting services, thereby driving growth in related economic sectors. These activities create a multiplier effect, which is the cascading impact of tourist activities on increasing community income, thus creating an increase in regional output reflected in GDP (Putri & Vidriza, 2025).

Several previous studies have examined various factors influencing Gross Regional Domestic Product (GRDP). Riza Safitri (2025) concluded in their research that the variables of Domestic Investment and Labor have a positive and significant impact on GRDP during the period from 2015 to 2023. Research conducted by Emilda Widiani Sabrina (2023) also concluded that the number of tourists positively and significantly affects the GRDP of the Special Region of Yogyakarta from 2012 to 2021. On the other hand, a study by Indratno et al. (2023) concluded that Domestic Investment does not influence the GRDP of the Special Region of Yogyakarta. Sadid et al. (2024) also concluded in their study that labor does not have a significant effect on the GRDP of the districts/cities in West Nusa Tenggara Province from 2018 to 2022. The inconsistencies in results and differences in variables from previous studies indicate a gap that needs further investigation.

The Special Region of Yogyakarta has unique economic characteristics, with the tourism sector as one of the main drivers of regional economic activity, supported by domestic investment. The combination of these two factors is believed to influence fluctuations in the GRDP of Yogyakarta, making it an interesting subject for further study. Therefore, this research aims to analyze the impact of the number of tourists and Domestic Investment on the Gross Regional Domestic Product (GRDP) of the Special Region of Yogyakarta from 2015 to 2025. This study is important to provide empirical evidence regarding the factors that influence GRDP and to contribute to the study of regional development economics. Additionally, the

results of this research are expected to serve as input for local governments in formulating regional development policies focused on strengthening the tourism sector.

2. Literature review

2.1. Gross Regional Domestic Product (GRDP)

Gross Regional Domestic Product (GRDP) is the primary indicator used to measure the level of economic activity in a region over a specific period. According to the Central Statistics Agency, GRDP is the total gross value added generated by all business units in a region or the total value of final goods and services produced by various economic sectors during a specific period (Mukti & Soraya, 2024). GRDP is often used as an indicator to assess regional economic development because it reflects the level of economic productivity in aggregate. The higher the GRDP value of a region, the greater the economic activity taking place in that area.

According to the economic growth theory proposed by Simon Kuznets, economic growth is the long-term increase in a country or region's capacity to provide goods and services to the community (Fahrudin, 2024). In the context of regional development, GRDP serves as an important indicator to evaluate the success of economic development because it reflects the results of the accumulation of production, distribution, and consumption activities of the community. Therefore, changes in GRDP value can be influenced by various economic factors such as investment, tourism sector activities, and the availability of labor as a factor of production.

2.2. Number of Tourists

The number of tourists refers to the total visits made by domestic and international travelers to a particular area within a certain period for purposes such as tourism, business, education, or other activities. According to the Central Statistics Agency, a tourist is defined as someone who travels outside their residence temporarily and does not intend to earn income at the visited location (Mukaffi & Haryanto, 2022). In regional economics, an increase in the number of tourists can boost demand in economic sectors such as hotels, restaurants, transportation, trade, and other services.

The relationship between the number of tourists and Gross Regional Domestic Product (GRDP) can be explained through the Tourism System Theory proposed by Neil Leiper (1990). This theory explains that tourism activities constitute a system involving tourists, geographical destinations, and the tourism industry that interact to form economic activities. Tourist spending will create a multiplier effect in the form of increased community income and regional economic output (Refliani et al., 2025). However, to ensure that the increase in visitors positively impacts sustainable economic growth, local governments cannot focus solely on the quantity of visits.

Environmental capacity, readiness of digital and transportation infrastructure, and local community participation in the tourism supply chain (community-based tourism) are crucial factors (Indratno et al., 2023). Without proper management and governance, a high influx of visitors can potentially lead to problems such as rising prices for local goods, environmental degradation, and economic inequities where the benefits of the tourism sector are enjoyed only by large investors while local communities face negative impacts (Ferreira et al., 2020). Therefore, the number of tourists should be viewed as an initial trigger whose success is evaluated based on how equitably the benefits of welfare are felt by all segments of society at the tourist site.

Research conducted by Emilda Widiani Sabrina (2023) in the Special Region of Yogyakarta shows that the number of tourists has a positive effect on the region's GRDP because the increase in tourist visits can drive growth in the tourism sector and other economic activities. Similar findings were reported by Septiani Banavasya Putri (2025), who concluded

that the number of tourists has a positive and significant impact on the economic growth of the tourism sector in West Nusa Tenggara Province.

2.3. Domestic Investment (PMDN)

Domestic Investment (PMDN) is an investment activity carried out by domestic investors by injecting capital to run businesses in the territory of Indonesia (Basyarudin & Ramadhan, 2024). According to the Ministry of Investment and Downstream Industry/BKPM, PMDN is an activity of investing capital to conduct business in the territory of the Republic of Indonesia carried out by domestic investors using domestic capital (Suradiyanto, 2020). Domestic investment plays an important role in economic development as it becomes a source of financing for infrastructure development, business expansion, production capacity enhancement, and the development of productive sectors.

Theoretically, the relationship between PMDN and GDP is explained through the Solow Growth Theory proposed by Robert Solow (1956), which emphasizes that capital accumulation is one of the main factors of long-term economic growth (Muhammad Ashfaq Ahmed, 2024). The higher the investment entering a region, the greater the production capacity that can be generated, thus increasing economic output. Research conducted by Riza Safitri (2025) shows that PMDN has a positive and significant impact on GDP, as domestic investment encourages increased economic activity and expands the production capacity of the region. Similar results were also found by Sadid et al. (2024), who concluded that the PMDN variable has a positive and significant effect on the GDP of districts/cities in the West Nusa Tenggara Province during the period 2018–2022. However, research by Indratno et al. (2023) showed different results, indicating that PMDN does not have a significant effect on the GDP of the Special Region of Yogyakarta, highlighting an interesting discrepancy in empirical results that warrants further investigation.

3. Methodology

This study employs a quantitative approach to analyze the impact of tourist numbers and Domestic Direct Investment (PMDN) on the Gross Regional Domestic Product (GRDP) of the Special Region of Yogyakarta. It utilizes quarterly time-series secondary data spanning the 2015–2025 period, comprising 44 observations. Data were obtained from the Statistics Indonesia (BPS) office of the Special Region of Yogyakarta and the Ministry of Trade's "Satu Data Perdagangan" system. Analysis was conducted using multiple linear regression with the aid of EViews 10 software. To ensure the model met the Best Linear Unbiased Estimator (BLUE) criteria, classical assumption tests, including tests for normality, multicollinearity, heteroscedasticity, and autocorrelation, were performed. Finally, hypothesis testing was carried out using the t-test, F-test, and the coefficient of determination (R^2).

3.1. Theoretical framework

This study employs Solow's Growth Theory as a framework to explain the relationship between Domestic Direct Investment (PMDN) and Gross Regional Domestic Product (GRDP). According to Solow (1956), capital accumulation is a key factor driving economic growth through enhanced production capacity and productivity. In the context of this study, an increase in domestic investment is expected to expand economic activity, thereby leading to a rise in GRDP.

Furthermore, this study draws upon the Tourism System Theory proposed by Neil Leiper (1990). The theory explains that tourism activity arises from the interaction between tourists, destinations, and the tourism industry. An increase in the number of tourists drives up the demand for goods and services, thereby generating a multiplier effect that contributes to regional economic growth. Consequently, the number of tourists is considered a factor

influencing the Gross Regional Domestic Product (GRDP) of the Special Region of Yogyakarta.

3.2. Conceptual framework

The conceptual framework illustrates the relationships to be tested in the study. The independent variables consist of the number of tourists (X_1) and Domestic Investment (PMDN) (X_2), while Gross Regional Domestic Product (GRDP) serves as the dependent variable (Y). Based on theory and prior research, both independent variables are hypothesized to have a positive effect on GRDP, both partially and simultaneously. The relationships between these variables are presented in Figure 1.

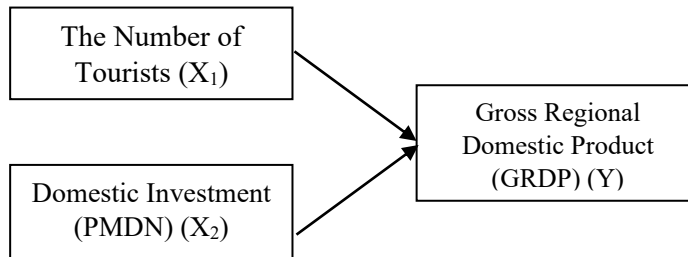


Figure 1 Conceptual Framework

Source: Processed by the researchers, 2026

3.3. Instrumentation

The research instrument consists of secondary data obtained through documentation techniques from official publications by Statistics Indonesia (BPS) of the Special Region of Yogyakarta and the Ministry of Trade's "Satu Data Perdagangan" system. The variables analyzed include the number of tourists as the first independent variable, Domestic Direct Investment (PMDN) as the second independent variable, and Gross Regional Domestic Product (GRDP) as the dependent variable. All variables were measured using quarterly data from the 2015–2025 period, yielding 44 observations that were subsequently processed to examine the relationships between the variables in accordance with the research model.

4. Results and discussions

Table 3. Descriptive Statistic

Variable	N	Minimum	Maximum	Mean	Std. Dev
X1	44	13.71000	14.86000	14.27523	0.334341
X2	44	3.490000	8.490000	6.418409	0.992411
Y	44	10.10000	10.89000	10.50045	0.224499

Source: Output EViews 10, 2026

Based on Table 1, the descriptive statistics for this study indicate a sample size (N) of 44 observations. The tourist variable (X_1) has a minimum value of 13.71, a maximum value of 14.86, a mean of 14.27523, and a standard deviation of 0.334341. The Domestic Investment variable (X_2) has a maximum value of 8.49, a minimum value of 3.49, a mean of 6.418409, and a standard deviation of 0.992411. The GRDP variable (Y) has a minimum value of 10.1, a maximum value of 10.89, a mean of 10.50045, and a standard deviation of 0.224499.

Classical assumption tests are conducted to obtain a regression model that is unbiased, consistent, and accurate. The classical assumption tests performed in this study are the normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test.

Table 4. Normality Test

Jarque-Bera	0.987214

Probability	0.610421

Source: Output EViews 10, 2026

A normality test was conducted to determine whether the data for the dependent and independent variables in the regression model followed a normal distribution (Juliandi et al., 2016). Table 2 presents the results of the normality test performed using the Jarque-Bera test. The test result is indicated by a probability value of 0.610421. This result shows that the probability value exceeds the 5% significance level, $0.610421 > 0.05$, indicating that the residuals are normally distributed.

Table 5. Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.754361	1875.832	NA
X1	0.003870	1962.080	1.051265
X2	0.000439	46.04669	1.051265

Source: Output EViews 10, 2026

The next stage of testing is the multicollinearity test. This test is conducted to determine whether there is a strong correlation among the independent variables within the regression model (Juliandi et al., 2016). Table 3 shows that the centered VIF values for each variable meet the required criterion, a centered VIF value of less than 10. Therefore, it can be concluded that there is no multicollinearity among the independent variables and that the regression model is free from multicollinearity.

Table 6. Heteroskedasticity Test

Obs*R-squared	2.049616
Prob. Chi-Square(5)	0.8422

Source: Output EViews 10, 2026

Following the normality and multicollinearity tests, the next step is the heteroskedasticity test. This test is conducted to determine whether the regression model exhibits unequal variances in the residuals across observations. In this study, the heteroskedasticity test was performed using the White test. Table 4 shows that the chi-square probability value exceeds the 5% (0.05) alpha level; specifically, the chi-square probability value is 0.8422, which is greater than 0.05. Therefore, it can be concluded that the regression model does not exhibit heteroskedasticity.

Table 7. Autocorrelation Test

Obs*R-squared	11.12970
Prob. Chi-Square(2)	0.0038

Source: Output EViews 10, 2026

An autocorrelation test must also be conducted during the classical assumption testing stage. In this study, the autocorrelation test was performed using the LM Test. Table 5 indicates that the regression model still exhibits signs of autocorrelation. This is evidenced by the chi-square probability value falling below the critical threshold of 0.05 (specifically, $0.0038 < 0.05$). Consequently, model refinement is required to eliminate the autocorrelation issue and bring the Durbin-Watson statistic within the range indicating the absence of autocorrelation (Eltania, 2022).

Table 8. Autocorrelation Test (after correction)

Obs*R-squared	4.253769
Prob. Chi-Square(2)	0.1192

Source: Output EViews 10, 2026

After applying the first-difference data transformation, Table 6 shows that the chi-square probability value exceeds the critical value of 0.05 ($0.1192 > 0.05$). Therefore, it can be concluded that the regression model in this study is free from the problem of autocorrelation.

After conducting the classical assumption tests, the next step is hypothesis testing. The hypothesis tests employed in this study include the F-test to examine the simultaneous effect of the independent variables on the dependent variable, the t-test to assess the effect of each independent variable on the dependent variable, and the coefficient of determination to measure the regression model's ability to explain the variation in the dependent variable.

Table 9. t-test

Variable	Coefficient	Probability	Result
C	3.236933	0.0006	
X1	0.482532	0.0000	Significant
X2	0.058466	0.0080	Significant

Source: Output EViews 10, 2026

Based on Table 7, the multiple linear regression equation model in this study is as follows.

$$\ln Y = 3.236933 + 0.482532 \ln X1 + 0.058466 \ln X2$$

Number of Tourists (X₁) on Gross Regional Domestic Product (Y)

The analysis results indicate that the "Number of Tourists" variable has a regression coefficient of 0.482, with a probability value of 0.000 (< 0.05). This demonstrates that the number of tourists has a positive and significant effect on the Gross Regional Domestic Product (GRDP). The regression coefficient of 0.482 indicates that every 1% increase in the number of tourists is associated with a 0.482% increase in GRDP, assuming other variables in the model remain constant. This implies that an increase in tourist visits boosts the demand for goods and services, thereby stimulating regional economic activity.

These findings align with the study by Septiani Banavsya Putri (2025), which states that the number of tourists has a positive and significant impact on economic growth in the tourism sector of West Nusa Tenggara (NTB) Province. Research by Emilda Widiani Sabrina (2023) also demonstrates that tourism activity contributes positively to regional GRDP by generating a multiplier effect across the trade, transportation, and accommodation sectors.

Domestic Investment (X₂) on Gross Regional Domestic Product (Y)

Based on Table 7, the analysis results show that the Domestic Direct Investment (PMDN) variable has a regression coefficient of 0.058 with a probability value of 0.008 (< 0.05). This indicates that PMDN has a positive and significant effect on GRDP. The regression coefficient of 0.058 implies that every 1% increase in PMDN is accompanied by a 0.058% increase in GRDP, assuming other variables in the model remain constant. This means that an increase in domestic investment drives higher production activity, thereby impacting regional economic growth.

These findings align with the study by Sadid et al. (2024), which found that PMDN has a positive and significant effect on the GRDP of regencies and cities in West Nusa Tenggara (NTB) Province. Similar findings were reported by Riza Safitri (2025), who stated that PMDN

plays a crucial role in fostering economic growth because domestic investment is directly linked to domestic productive sectors.

Table 10. F-test

F-statistic	40.73913
Prob(F-statistic)	0.000000

Source: Output EViews 10, 2026

Based on Table 8, the F-test results indicate that the variables of tourist numbers and Domestic Direct Investment (PMDN) simultaneously influence the Gross Regional Domestic Product (GRDP) of the Special Region of Yogyakarta (DIY) Province. This is evidenced by a probability value of 0.000, which is lower than the 5% (0.05) significance level ($0.000 < 0.05$). Consequently, the null hypothesis (H_0), stating that the independent variables do not collectively influence GRDP, is rejected, while the alternative hypothesis (H_1) is accepted.

These results demonstrate that variations in the GRDP of DIY Province are not driven by a single factor but rather by the combined effect of tourist numbers and PMDN. An increase in tourist numbers has the potential to stimulate economic activity by boosting consumption within the tourism sector spanning accommodation, transportation, trade, culinary services, and other related services (Mukaffi & Haryanto, 2022). Meanwhile, PMDN plays a role in enhancing production capacity through increased investment across various economic sectors, job creation, and improved regional productivity (Taqiyyuddin, 2023). The synergy between rising tourism activity and domestic investment ultimately contributes to an increase in value-added, as reflected in GRDP growth.

Table 11. Coefficient of Determination

R-squared	0.665247
Adjusted R-squared	0.648917

Source: Output EViews 10, 2026

Based on Table 9, the coefficient of determination (R-squared) is 0.665, indicating that 66.5% of the variation in the Gross Regional Domestic Product (GRDP) of DIY Province can be explained by the variations in the number of tourists and Domestic Direct Investment (PMDN) included in the regression model. Meanwhile, the remaining 33.5% is influenced by factors outside the research model that were not analyzed, such as household consumption, government spending, foreign investment, exports and imports, inflation, employment levels, industrial sector development, and other macroeconomic variables contributing to GRDP formation.

The Adjusted R-squared value of 0.648 indicates that, after adjusting for the number of independent variables and observations, the model still explains 64.8% of the variation in DIY Province's GRDP. This value does not differ significantly from the R-squared, suggesting that the regression model possesses good explanatory power and does not suffer from a significant loss in predictive capability due to the inclusion of independent variables. Thus, the number of tourists and PMDN are variables that contribute substantially to explaining changes in DIY Province's GRDP during the study period.

5. Conclusion

Overall, the economy of the Special Region of Yogyakarta (DIY), as measured by Gross Regional Domestic Product (GRDP) from 2015 to 2025, shows an upward trend, despite experiencing fluctuations due to the impact of the COVID-19 pandemic. Multiple linear regression analysis reveals that the variables of tourist numbers and Domestic Direct

Investment (PMDN) each exert a positive and significant influence on GRDP. When tested simultaneously, the combination of rising tourist numbers, which generates an economic multiplier effect, and the influx of domestic investment, which strengthens regional production capacity, proves to have a significant impact on driving DIY's GRDP growth. These two variables play a substantial role in the study, as they successfully explain 66.5% of the variation in DIY's GRDP value during the period under review.

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**ANALYSIS OF THE IMPLEMENTATION OF KNOWLEDGE SHARING IN
BUILDING BONDS WITHIN THE STUDENT DORMITORY LIFE AT SHANTI
BHUANA INSTITUTE**

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Abstract

Knowledge sharing is the process of exchanging knowledge, information, experiences, skills, and ideas among individuals and groups. The demanding academic schedule leaves students with limited time to gain knowledge and experience outside of class hours, making knowledge sharing activities in the dormitory environment an important effort to support student development. This study aims to analyze the application of knowledge sharing in fostering bonding among students in the dormitory life at Shanti Bhuana Institute. This study employs a descriptive qualitative approach, using data collection techniques that include interviews with six informants and the distribution of structured questionnaires via purposive sampling. The results show that knowledge sharing serves as a medium for students to get to know one another, fosters a sense of togetherness and family, and establishes trust as the key factor in the success of these sharing activities. This study also identified several obstacles, including a lack of openness among some members, low self-confidence when speaking in front of a group, and concerns about individual privacy. Overall, knowledge sharing has proven to be an effective strategy for strengthening bonds and creating a more harmonious and supportive dormitory environment.

Keywords: Knowledge Management, Tacit to Tacit, Sharing Knowledge, Bonding

**THE GAP ANALYSIS OF THE INTEGRATED FRAMEWORK OF
TECHNOLOGICAL DISRUPTION, LEADERSHIP ADAPTABILITY, AND
ENTREPRENEURIAL ORIENTATION THROUGH THE LENS OF DYNAMIC
CAPABILITIES**

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Abstract

Why do resource-rich incumbent firms fail to reconfigure their capabilities when confronted with platform-based digital disruption? This question, emblematic of the strategic paradox faced by once-dominant players such as TomTom, Nokia, and Blockbuster, remains inadequately resolved in the extant literature. This paper presents a systematic literature review that synthesizes three previously fragmented research streams—technological disruption, leadership adaptability, and entrepreneurial orientation (EO)—into a unified theoretical framework anchored by the Dynamic Capabilities View (Teece et al., 1997). Drawing on disruptive innovation theory (Christensen, 1997), Upper Echelon Theory (Hambrick & Mason, 1984), and EO Theory (Miller, 1983; Lumpkin & Dess, 1996), we develop an integrated causal model in which technological disruption and EO jointly drive dynamic capabilities (sensing, seizing, and reconfiguring), which in turn determine firm financial performance and innovation competitiveness, moderated by leadership adaptability across the full causal chain. The review synthesizes evidence from over fifty peer-reviewed sources spanning 1983–2026, identifying a critical and hitherto unexamined gap: no prior study tests the joint moderation of leadership adaptability on both the technological disruption–performance and EO–innovation pathways within a single structural model. Our integrative gap analysis reveals that dynamic capabilities have rarely been positioned as a simultaneous mediator for both disruption effects and EO-driven innovation. The proposed framework advances the field by offering the first theoretically grounded, empirically testable model of incumbent survival that integrates these constructs into a coherent causal sequence. Findings carry significant implications for strategic management scholars and practitioners navigating digital turbulence, underscoring that leadership adaptability—not technology investment alone—is the decisive moderating factor in incumbent resilience.

Keywords: digital disruption, dynamic capabilities, entrepreneurial orientation, leadership adaptability, incumbent survival, platform competition, systematic literature review.

**THE INFLUENCE OF WORK ENVIRONMENT AND COMPENSATION ON
EMPLOYEE JOB SATISFACTION AT PT. BANK RAKYAT INDONESIA
(PERSERO) IN BENGKAYANG DISTRICT**

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Abstract

This study aims to determine the extent of influence of the work environment and compensation on employee job satisfaction at PT. Bank Rakyat Indonesia (Persero) in Bengkayang District. The research method used in this study is a quantitative method with a causality approach. Data were obtained by distributing questionnaires to 31 respondents using a random sampling technique. nonprobability Sampling. This data collection used a questionnaire in Likert scale units. Data management used SPSS software version 25 for instrument testing, multiple linear regression analysis, and hypothesis testing. The results of this study indicate that the work environment variable (X1) has a significant effect on job satisfaction (Y), and compensation (X2) has a significant effect on employee job satisfaction.

Keywords: Work Environment, Compensation and Job Satisfaction

1. Introduction

Human Resources (HR) is an inseparable main pillar of an organization. HR plays a vital role in increasing operational efficiency and effectiveness in order to achieve the established vision and mission (Handokoet *al.*, 2021). Essentially, the long-term success of an organization depends heavily on the individual performance of its employees (Akmaliaet *al.*, 2020). Therefore, amidst intense industrial competition, organizations are required to have high-quality human resources that are optimally managed so that company productivity can continue to increase (Nurpada et al., 2023; Hidayatet *al.*, 2024). As the driving force of a company, superior human resources require emotional support and adequate facilities to build motivation, loyalty, and job satisfaction (Puspita, 2022). Job satisfaction itself is a form of positive emotional attitude among employees towards the roles they play (Pailanet *al.*, 2024). When the level of job satisfaction is high, employees will demonstrate maximum performance, which ultimately becomes the main key to the company's success (Handokoet *al.*, 2021) On the other hand, dissatisfaction often arises due to the gap between the financial rewards received and the expectations of the eligibility expected by workers.

Two crucial factors that dominate the formation of job satisfaction are the work environment and compensation. The work environment, both physical and non-physical, plays a significant role because it directly interacts with employees' daily comfort (Mustikaningsih & Irbayuni, 2022). A conducive work environment has been shown to increase creativity and performance, while poor conditions will reduce productivity (Thalibana, 2022; Hidayat et al., 2024). On the other hand, compensation in the form of financial and non-financial rewards acts as a means of fulfilling life's needs and as a motivational stimulus. A fair compensation scheme based on objective work evaluations will tend to make employees more loyal and satisfied (Riswandi et al., 2025). Theoretically, this study refers to *Two-Factor Theory* from Frederick

Herzberg (1959). This theory explains that job satisfaction is influenced by motivator factors (intrinsic) and external factors (*hygiene*(extrinsic) such as salary and working conditions. If the factors *hygiene* if this is not fulfilled, the negative impact is in the form of swelling absenteeism figures and high employee turnover (*turnover*) is unavoidable (Umiyati, 2021). Based on this theory, an in-depth analysis is needed on the notoriously competitive banking industry, particularly PT. Bank Rakyat Indonesia (BRI), which has significant responsibility for providing financial services to border areas such as Bengkayang District.

However, initial field observations indicate problems with the work environment and compensation at the BRI Unit and Branch Offices in Bengkayang District. From an environmental perspective, discomfort in the form of traffic noise, lighting systems, and suboptimal room temperature settings are suspected of disrupting employee concentration (Anggun & Alni, 2024). In terms of compensation, complaints were found regarding the lack of overtime pay when employees complete work outside formal office hours, which triggers feelings of being unappreciated (Fausia et al., 2024). This empirical situation is complicated by the existence of *research gap* or inconsistencies in previous research results. Research by Hidayat et al. (2024) found that the work environment and compensation had a significant positive effect on job satisfaction. Conversely, Maesaroh's (2025) research at DBS Bank Bandung showed that both factors had a negative effect. This difference in results underpins the urgency of this research, coupled with its novelty (*novelty*) in the form of an analysis focus on two BRI offices simultaneously in one sub-district to meet the minimum sample limit and provide a more comprehensive portrait of human resource dynamics in the border area.

2. Literature Review

2.1. Understanding the Work Environment

The work environment is all conditions and elements surrounding employees that can influence the implementation of their tasks and work, both directly and indirectly, such as relationships between employees, relationships between employees and superiors, lighting, room temperature, and noise in the workplace (Afrianti & Indra, 2024). Herzberg's theory states that the work environment serves as a reference for employees in carrying out their work and if the work environment is conducive, employees will feel satisfied with the work. According to the results of research conducted by Hidayat et al., (2021). The work environment is the place where employees do their work and where they spend their daily work.

An employee's level of work comfort is significantly determined by the conditions of their work environment (Suryani & Darma, 2021). Dimensions of the work environment that need to be optimized include adequate lighting, stable air temperature, effective workspaces, a secure security system, and harmonious social relationships among coworkers (Azzahra And al., 2024). Thus, the work environment can be defined as the totality of physical and non-physical stimuli surrounding the workforce that directly or indirectly influence their productivity. The significance of this influence is determined by the extent to which the quality of the work environment supports employee operational activities. In Nurjaya's (2022) research, the work environment encompasses physical conditions, work atmosphere, and relationships between employees, all of which can impact comfort and productivity.

Comprehensively, work environment indicators reflect all variables around the work area that have the potential to influence the conditions and operational dynamics of employees within an organization or company. Sedarmayanti & Rahadian (2020) In his research, he emphasized that work environment indicators encompass all existential elements surrounding the work area. These components influence employee activities through physical dimensions such as temperature regulation, lighting intensity, and noise levels, as well as non-physical dimensions represented by interpersonal relationships among employees and vertical

relationships between superiors and subordinates. By synthesizing these parameters, the actual quality and dynamics of the work atmosphere within an organization can be comprehensively evaluated.

2.2. Understanding Compensation

Compensation is essentially a form of appreciation or reward given by an organization for the professional contributions dedicated by its workforce. As one of the primary orientations of an individual's career, the existence of compensation acts as a motivational stimulus that encourages employees to optimize their capacity and commitment in completing their work responsibilities. Amaliahet *al.* (2018). Compensation is defined as the totality of rewards, whether financial, non-financial, or the provision of supporting facilities, received by employees from the organization. This instrument, which includes basic wages, incentives, and periodic benefits, plays a significant role in triggering job satisfaction, especially when employees perceive fairness and timeliness as a form of appreciation for their performance (Riza & Fazri, 2023). The alignment between compensation realization and employee expectations creates the perception that their contributions are recognized by the organization. The impact of meeting the appropriateness of these rewards not only leads to individual satisfaction but also optimizes their commitment, loyalty, and the efficiency of their performance output for the organization.(Hidayatet *al.*., 2025).

According to Thalibana (2022) There are several indicators in providing compensation to employees, including: Salary, as the main part of the remuneration structure, salary is the reward received by employees from management. This instrument serves as a legitimate financial reward for all forms of contribution and productivity that have been actualized by employees in company operations. Wages are payments based on the hours worked by employees. Allowances, are a form of compensation provided by the organization to employees who achieve superior performance. When an employee is able to realize or exceed their professional targets, management will distribute this financial stimulus as a form of appreciation for their work. Facilities are a form of indirect non-financial compensation provided by the company to optimize the employee's work environment. The provision of these facilities and infrastructure aims to provide convenience and smoothness for employees in executing their operational tasks effectively. Incentives, are additional rewards given based on performance or achievement of targets in work.

2.3. Understanding Job Satisfaction

According to Masman (2024), job satisfaction is an emotional state experienced by employees while carrying out their professional responsibilities. This perception is greatly influenced by the extent to which the company's ecosystem and work climate support their activities; a conducive environment will stimulate employee comfort and positive assessments of their work. Based onUmiyati (2021)In his research, he emphasized that job satisfaction is a crucial instrument that organizations must prioritize to improve work comfort and encourage optimal employee contributions. An organization's success in constructing maximum job satisfaction will result in positive reciprocal implications, where employees tend to demonstrate their best performance and dedication for the company's progress (Wibawaet *al.*., 2021).

According to Adinata, C & Turangan, A, (2023) job satisfaction can be seen from several aspects such as satisfaction with work, salary, promotion, supervision and relationships between colleagues. Then developed by Fahmi (2021) who stated that there are several indicators of job satisfaction, namely: Satisfaction with superiors, in the form of support and appreciation from superiors. Satisfaction with aspects of working conditions, when employees feel comfortable with the way or form of socializing between colleagues. Satisfaction with the

compensation given, the extent to which employees feel the salary received is commensurate with the responsibilities and workload given. Satisfaction with the work itself, employees feel satisfied with the tasks carried out, such as the suitability of the work with their abilities and interests. Job security, in this case how satisfied employees feel with the guarantee or sense of security in maintaining employment in the company.

3. Research Methods

This study uses quantitative data to explain a variable. This study was conducted using primary data by distributing questionnaires as the data source, given directly to employees of Bank BRI KCP and BRI Unit in Bengkayang District. This study uses quantitative data to explain a variable. This study was conducted using primary data by distributing questionnaires as the data source, given directly to employees of Bank BRI Unit and BRI KCP in Bengkayang Regency.

In this study, we used *nonprobability*. According to Sugiyono, (2020) "a sampling technique that does not provide equal opportunities/chances for each element or member of the population to be selected as a sample". In this study, the sampling technique used was *nonprobability* sampling with the technique used is saturated sampling.

4. Results and Discussion

4.1. Validity Test

Table 1. Results of Validity Test of Work Environment and Job Satisfaction Variables

Indicators	Correlation	Limit Value	Conclusion
Work Environment X1.1	0,916	0,355	Valid
Work Environment X1.2	0,775	0,355	Valid
Work Environment X1.3	0,573	0,355	Valid
Work Environment X1.4	0,679	0,355	Valid
Work Environment X1.5	0,514	0,355	Valid
Indicators	Correlation	Limit Value	Conclusion
Compensation X2.1	0,699	0,355	Valid
Compensation X2.2	0,750	0,355	Valid
Compensation X2.3	0,781	0,355	Valid
Compensation X2.4	0,547	0,355	Valid
Compensation X2.5	0,630	0,355	Valid
Indicators	Correlation	Limit Value	Conclusion
Job Satisfaction Y.1	0,739	0,355	Valid
Job Satisfaction Y.2	0,657	0,355	Valid
Job Satisfaction Y.3	0,748	0,355	Valid

Job Satisfaction Y.4	0,424	0,355	Valid
Job Satisfaction Y.5	0,776	0,355	Valid

Validity testing in this study was conducted to assess whether the questionnaire used was appropriate and capable of accurately measuring the research variables. A statement item was declared valid if its correlation value exceeded the specified minimum limit, while items with correlation values below this limit were declared invalid. Based on the results of testing the three variables: work environment, compensation, and job satisfaction, it was found that all statement items had correlation values greater than the specified limit value, namely 0.355. Thus, all research instruments were declared valid and could be used in the research process..

4.2. Reliability Test

Table 2. Results of the Reliability Test of Research Variables

Research Variables	Cronbach' Alpha	N of Items
Work environment	0,728	5
Compensation	0,712	5
Job Satisfaction	0,689	5

Based on the results of the reliability test, it is known that the Work Environment variable (X1) has a Cronbach's Alpha value of 0.728, the Compensation variable (X2) of 0.712, and the Job Satisfaction variable (Y) of 0.689. All Cronbach's Alpha values are greater than the minimum limit used, which is 0.60. Therefore, it can be concluded that all research instruments are declared reliable or have a good level of consistency, so they are suitable for use in collecting data in research.

4.3. Normality Test

Table 3. Results of the Shapiro-Wilk Normality Test

Variables	Shapiro-Wilk Statistic	Df (N)	Say.
Work environment	.921	31	.025
Compensation	.959	31	.281
Job Satisfaction	.922	31	.026

Based on the results of the normality test using the Shapiro-Wilk method, the compensation variable has a significance value of $0.281 > 0.05$, indicating that the data is normally distributed. Meanwhile, the work environment variable obtained a significance value of $0.025 < 0.05$ and the job satisfaction variable was $0.026 < 0.05$, indicating that both variables are not normally distributed. Although the results of the two variables indicate that the data is not normally distributed, this condition is not a major obstacle in a study, especially research that uses questionnaire data with a Likert scale.

4.4. Multicollinearity Test

Table 4. Multicollinearity Test Results

Variables	Unstandardized Coefficients		Collinearity Statistics	
	B	Std. Error	Tolerance	VIF
(Constant)	5.169	1.870		
Total X1	0.366	0.161	0.301	3.327
Total X2	0.368	0.160	0.301	3.327

Based on the results of the multicollinearity test, the variables Total X1 and Total X2 each have a tolerance value of $0.301 > 0.10$ and a VIF value of $3.327 < 10$. Thus, it can be concluded that there are no symptoms of multicollinearity between the independent variables in the regression model.

4.5. *t*-test (Partial)

Table 5. Results of the t-Test (Partial)

Variables	Unstandardized Std. Error		Standardized T		Say.
Coefficients	Coefficients				
B	Beta				
(Constant)	5.169	1.870	2.764	.010	
K Environment	.366	.161	.433	2.275	.031
Compensation	.368	.160	.438	2.304	.029

Based on the coefficient table above, the Work Environment variable (X1) has a regression coefficient value of 0.366 with a significance value of $0.031 < 0.05$, so it can be concluded that the Work Environment variable partially has a positive and significant effect on the Job Satisfaction variable (Y). This means that every 1 unit increase in X1 will increase Y by 0.366. Meanwhile, the Compensation variable (X2) has a regression coefficient value of 0.368 with a significance value of $0.029 < 0.05$, so it can be concluded that the Compensation variable has a positive and significant effect on the Job Satisfaction variable (Y). This means that every 1 unit increase in X2 will increase Y by 0.368.

4.6. *F* Test (Simultaneous)

Table 6. F-Test Results (Simultaneous)

Model	Sum of squares	Df	Mean square	F	Say.
Regression	114.119	2	57.059	32.029	.000
Residual	49.881	28	1.781		
Total	164.000	30			

Based on the table above, the F value obtained is 32.029 with a significance value of $0.000 < 0.05$. This indicates that the variables of Work Environment (X1) and Compensation

(X2) simultaneously or together have a significant effect on the variable of Job Satisfaction (Y). Thus, the regression model in this study is suitable for use in further analysis.

4.7. Coefficient of Determination Test (R^2)

Table 7. Results of the Determination Coefficient Test (R^2)

Model	R	R square	Adjusted square	R Std. Error of the Estimate
1	0.834 ^a	.696	.674	.335

Based on the results of the determination coefficient test, the R value obtained was 0.834, indicating that the relationship between the independent variable and the dependent variable was categorized as very strong. The R Square value of 0.696 indicated that variables X1 and X2 were able to explain variable Y by 69.6%, while the remaining 30.4% was influenced by other variables outside the study.

5. Conclusion

Based on the results of research on the influence of the work environment and compensation on employee job satisfaction at PT. Bank Rakyat Indonesia (Persero) Unit and Branch Office of Bengkayang District, it can be concluded that the work environment has a significant influence on employee job satisfaction. The better the perceived work environment, both physically and non-physically, the higher the level of employee job satisfaction.

Furthermore, compensation also significantly impacts employee job satisfaction. Fair compensation commensurate with employee contributions can increase job satisfaction, thus fostering enthusiasm and loyalty.

Simultaneously, the work environment and compensation significantly influence employee job satisfaction. The results of the coefficient of determination test indicate that these two variables are able to explain 69.6% of the variation in job satisfaction, while the remaining 30.4% is influenced by other factors outside the study. Therefore, PT. Bank Rakyat Indonesia (Persero) Unit and KCP Bengkayang District are expected to continue to improve the quality of the work environment and provide fair and appropriate compensation so that employee job satisfaction can continue to increase.

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ANALYSIS OF THE INFLUENCE OF CAFE ATMOSPHERE AND CUSTOMER EXPERIENCE ON CONSUMER PURCHASE DECISIONS AT THE CW COFFE BENGKAYANG BRANCH

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Abstract

The rapid growth of the café industry requires business operators to understand the factors that influence consumer purchasing decisions. This study aims to identify and analyze the influence of café atmosphere and customer experience on consumer purchasing decisions at the CW Coffee branch in Bengkayang. This study employed a quantitative approach using a survey method involving 170 respondents. Data were analyzed using multiple linear regression techniques with the assistance of SPSS software. The results indicate that the Cafe Atmosphere variable has a positive and significant effect on purchasing decisions, with a calculated t-value greater than the critical t-value and a significance level of <0.001 . Furthermore, the "Customer Experience" variable was also found to have a positive and significant effect on purchasing decisions, with a calculated t-value of 3.858 greater than the critical t-value of 1.974 and a significance level of $0.001 < 0.05$. These findings suggest that a comfortable café atmosphere and the experience consumers have while inside the café can encourage purchasing decisions. It is hoped that these findings can serve as a reference for café managers in developing more effective marketing strategies.

Keywords: Café Atmosphere, Customer Experience, Purchase Decision

1. Introduction

Drinking coffee has become an integral part of daily life for Indonesians. Over time, coffee preparation methods have continued to evolve, ranging from attractive packaging designs to creative blends incorporating various ingredients such as milk and cream, resulting in a wider variety of premium flavors. These innovations have contributed to an increase in the number of coffee enthusiasts, and coffee culture has now evolved into a global phenomenon with social significance. According to Fitriani (2023), coffee culture has evolved into a lifestyle among young people, particularly in urban areas where modern coffee shops are abundant. This phenomenon has encouraged many people to explore business opportunities in the food and beverage sector, specifically by opening coffee shops.

Over time, coffee shops have evolved beyond simply being places to drink coffee; they have become versatile spaces where people can relax, work, and experience a new atmosphere. A comfortable atmosphere, an aesthetically pleasing layout, and other amenities such as free internet (Wi-Fi) are key factors driving the growing appeal of coffee shops among diverse demographics. Additionally, social media plays a significant role in reinforcing this trend, as many customers take photos at cafes and share their experiences online a practice that helps shape a cafe's popularity and reputation.

The rapidly intensifying level of competition requires coffee shop managers to devise innovative strategies to attract and retain customers. The key to their success lies in their ability to understand customer preferences and needs, consistently maintain service quality, and continuously enhance the customer experience to remain competitive in a market with ever

changing demands. This view is supported by Nurachman (2021), who emphasizes that competitive advantage in the coffee shop industry can be achieved through the optimization of product innovation, product quality, and service quality, which enables companies to survive and win the competition, particularly in the coffee shop industry.

According to Kotler and Armstrong (2020), the purchasing decision is defined as a structured process that consumers go through, starting from recognizing a need to selecting the product or service that best meets and aligns with their expectations. As individuals who are constantly evolving, consumers' needs and desires are always changing in line with the times, economic conditions, and the modernization of lifestyles. Specifically in the coffee shop industry, purchasing decisions depend not only on the quality of the coffee's taste but are also heavily influenced by the overall experience customers receive which encompasses everything from the café's atmosphere to the quality of its service.

The multitude of consumer demands, needs, and desires requires every business owner to create a unique selling proposition for their business. Along with the rapid growth of the coffee shop industry, innovation and creativity have become essential factors that every business owner must possess to survive and compete amid changing and evolving consumer preferences. Therefore, coffee shop owners need to thoroughly understand their customers behavior so that the marketing strategies they implement can be designed effectively. And aligned with market needs.

In recent years, the coffee shop industry in Indonesia has experienced rapid growth. This phenomenon is not only evident in major cities like Jakarta but is also beginning to take root in various regions, including Bengkayang Regency. The increasing number of coffee shops in Bengkayang reflects a shift in people's lifestyles and habits, as coffee shops are no longer merely places to enjoy coffee but are also utilized as spaces for relaxing, working, discussing ideas, and socializing. The development of the coffee shop business in Bengkayang from year to year also shows a positive trend. This is evident from the increasing number of new cafes offering various attractive concepts, such as aesthetically pleasing interior designs, more creative menu options, and friendly service that keeps up with the times.

This phenomenon indicates that the people of Bengkayang Regency have a strong interest in the culture of gathering at coffee shops, particularly among young people. One of the most well-known coffee shops is CW Coffee. This spot offers a comfortable atmosphere with a diverse menu selection and an environment that supports various activities, whether for socializing or productive work. CW Coffee is a coffee shop located on Jl. SeboPET, Bengkayang District, Bengkayang Regency, West Kalimantan. In addition to offering a wide variety of food and beverage options, this coffee shop features two areas indoor and outdoor that visitors can use to work on assignments, hold meetings, or simply relax and hang out with friends.

The presence of CW Coffee indicates that business opportunities in the food and beverage sector particularly in the coffee shop business still hold good prospects in Bengkayang Regency. However, as more coffee shops emerge with competitive concepts and consumer behavior continues to evolve, business owners are required to keep innovating. This can be achieved by creating a comfortable and inviting café atmosphere and providing a satisfying customer experience. This strategy is expected to maintain customer loyalty while increasing consumer interest in visiting. Various previous studies have shown that café atmosphere is one of the factors that influence consumer behavior, particularly in the decision-making process. Research conducted by Apriliani (2024) indicates that café atmosphere significantly influences consumer purchasing decisions. These findings suggest that the more comfortable and appealing the atmosphere a café provides, the greater the likelihood that consumers will make a purchase and have a satisfying experience during their visit.

In addition to the café atmosphere, customer experience is another factor that can influence consumer purchasing decisions. Positive experiences customers have while interacting with products or services increase satisfaction, thereby encouraging the desire to make a purchase. Research conducted by Meeprom & Kokkhangplu (2025) shows that various dimensions of customer experience contribute significantly to customer satisfaction and the intention to repurchase in the coffee industry. Therefore, in the context of CW Coffee Bengkayang, efforts to create a high-quality customer experience are a crucial aspect in fostering consumer purchase satisfaction.

Based on this discussion, there is a need for research that empirically examines the various factors influencing consumer purchasing decisions at coffee shops, particularly amid increasingly intense business competition in Bengkayang Regency. An analysis of the influence of café atmosphere and customer experience is essential as a basis for business operators to develop marketing strategies aligned with consumer needs and preferences. Therefore, this study aims to analyze the influence of café atmosphere and customer experience on consumer purchasing decisions at the Bengkayang branch of CW Coffee.

2. Research Methodology

This study employs a quantitative approach using a causal research design to identify and analyze the influence of *café atmosphere* and *customer experience* on consumer purchasing decisions at CW Coffee in Bengkayang. The quantitative approach was chosen because it can objectively test the relationship between variables through statistical analysis techniques. The research subject is CW Coffee, located in Bengkayang Regency, West Kalimantan. The study population includes all CW Coffee Bengkayang customers who have ever made a purchase. The sampling technique used *non-probability sampling* with a *purposive sampling* method, in which respondents were selected based on specific criteria. The criteria for respondents in this study were consumers who had visited the store and made at least one purchase and were at least 17 years old. The sample size used in this study was 170 respondents.

The data used consisted of primary and secondary data. Primary data were obtained through the distribution of questionnaires designed using a five-point Likert scale, while secondary data were obtained from various sources, such as books, scientific journals, and previous research relevant to the study topic. Data analysis was conducted using multiple linear regression. Before hypothesis testing, the data first underwent instrument validation, including validity and reliability tests. Next, classical assumption tests comprising normality and multicollinearity tests were performed to ensure the data met the requirements for regression analysis.

3. Result and Discussion

Data for this study were collected from customers at the Bengkayang branch of CW Coffee using a questionnaire as the research instrument. The results of data processing showed variations in responses for each indicator; however, no significant outliers were found, so the data were deemed suitable for further analysis.

3.1. Multiple Linear Regression Analysis

Based on the results of the multiple linear regression analysis, all variables related to café atmosphere and customer experience were found to have a significant effect on consumer purchasing decisions at the Bengkayang branch of CW Coffee.

Table 3.1
Results of Multiple Linear Regression Analysis

Variabel	B	Std Error	F Statistic	Nilai Sig	T Statistic	Nilai Sig	Adjusted R Square
(Constant)	0.185	0.257	124.452	< 0.001			0.594
<i>Cafe Atmosphere</i> X1	0.550	0.100			5.507	< 0.001	
<i>Customer Experience</i> X2	0.379	0.098			3.858	<0.001	

The result of a mathematical equation:

$$Y = 0.185 + 0.550 \text{ Cafe Atmosphere} + 0.379 \text{ Customer Experience} + e$$

3.2. T Test (Parsial)

The results of the t-test indicate that the variables *cafe atmosphere* dan *customer experience* have a positive and significant effect on purchasing decisions.

Table 3.2
Test Result T

Variabel	B	Std. Error	t	Sig
<i>Cafe Atmosphere</i>	0.550	0.100	5.507	< 0.001
<i>Customer Experience</i>	0.379	0.098	3.858	< 0.001

Based on the results of the partial analysis (t-test), it was found that the variables *cafe atmosphere* and *customer experience* have a positive and significant influence on consumer purchasing decisions. These results indicate that consumer purchasing decisions are influenced not only by the products offered but also by a comfortable *cafe atmosphere* and the positive experiences gained during a visit. Thus, the better the *cafe atmosphere* and *customer experience* provided, the greater the likelihood that consumers will make a purchase. The following is an explanation of each of the variables studied:

1. Variable *Cafe Atmosphere*

The *cafe atmosphere* variable achieved a significance level of <0.001, which is lower than the significance threshold of 0.05. Furthermore, the calculated t-value of 5.507 is greater than the critical t-value of 1.974. These results indicate that *cafe atmosphere* has a positive and significant effect on consumers' purchasing decisions. This finding suggests that a comfortable café atmosphere supported by attractive interior design, adequate lighting, well-organized spatial layout, and a conducive environment can create a positive impression on consumers. These conditions make consumers feel more comfortable and at ease while in the café, thereby increasing their likelihood of making a purchase.

2. Variable *Customer Experience*

The *Customer Experience* variable achieved a significance level of <0.001 with a calculated t-value of 3.858. This indicates that the calculated t-value is greater than the

critical t-value ($3.858 > 1.974$) and the significance level is less than 0.05. Thus, Customer Experience has been proven to have a positive and significant effect on consumer purchasing decisions. These results show that the experience consumers have while enjoying products and services at CW Coffee Bengkayang plays a crucial role in driving purchasing decisions. Friendly service, a smooth transaction process, and pleasant interactions with employees create a positive experience for consumers. The better the experience during a visit, the more likely consumers are to make a purchase.

3.3. F Test (Simultan)

The results of the F-test show that, taken together, the variables cafe atmosphere and customer experience have a significant effect on consumer purchasing decisions.

Tabel 3.3
Result of F-test

Model	Sum of Squares	df	Mean Squares	F	Sig
1 Regression	38,851	2	19,426	124,452	,000b
Residual	26,067	167	0,156		
Overall	64,918	169			

Based on the results of the F-test in the table above, the calculated F-value was 124.452, with a significance value of <0.001 , which is less than the significance level of 0.05. These results indicate that the variables café atmosphere and customer experience simultaneously have a positive and significant effect on purchasing decisions at the Bengkayang branch of CW Coffee.

3.4 Coefficient of Determination (R^2) Test

The coefficient of determination (R^2) indicates that all of these independent variables are capable of explaining the dependent variable.

Tabel 2.4
Result of the coefficient of Determination (R^2) Test

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,774	,598	,594	,395

Based on the test results in Table 3.4, the Adjusted R^2 value is 0.594. This indicates that 59.4% of the variation in the dependent variable purchase decision can be explained by the variables cafe atmosphere and customer experience. Meanwhile, the remaining 40.6% is influenced by other factors outside the research model that were not examined but are suspected to also influence consumer purchasing decisions at the Bengkayang branch of CW Coffee.

4. Conclusion

Based on the results of the study conducted on consumers of CW Coffee Bengkayang, the following key conclusions can be drawn:

1. The results of this study indicate that the “café atmosphere” variable has a positive and significant effect on consumers’ purchasing decisions. Furthermore, the “cafe

atmosphere” variable has the greatest influence compared to the other variables. This indicates that a comfortable cafe atmosphere, attractive interior design, well-organized layout, and an environment that supports consumer activities are the primary factors driving consumers to make purchases. Consumers consider not only product quality but also the comfort and atmosphere they experience while at the cafe.

2. The customer experience variable was also found to have a positive and significant effect on consumer purchasing decisions. Positive experiences gained while enjoying products or services such as employee friendliness, ease of transaction, and comfort during the visit can increase consumer satisfaction, thereby encouraging them to make purchases.
3. The results of the analysis show that the research model is quite effective in explaining consumer purchasing decisions. The adjusted R-squared value of 59.4% indicates that the variation in purchasing decisions can be explained by the variables café atmosphere and customer experience. Meanwhile, the remaining 40.6% is influenced by other factors outside the research model that were not examined.
4. In practical terms, the results of this study show that consumer purchasing decisions are influenced not only by product quality but also by a comfortable cafe atmosphere and a positive customer experience. Therefore, management at the Bengkayang branch of CW Coffee needs to maintain the quality of the café atmosphere and improve the customer experience through friendly service, comfortable facilities, and convenience in serving customers.

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UNDERSTANDING FINANCIAL FRAGILITY AMONG SINGLE MOTHERS: EXAMINING THE MEDIATING EFFECT OF FINANCIAL OPTIMISM BETWEEN FINANCIAL LITERACY AND LOCUS OF CONTROL

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Abstract

The increasing number of single mothers as heads of households has become a significant socio-economic issue, particularly in relation to family financial resilience. Single mothers are more vulnerable to financial fragility due to limited income, substantial responsibilities, and unstable economic pressures. In addition, low financial literacy and a weak locus of control are considered key factors that may exacerbate this condition. Therefore, a comprehensive understanding of the determinants of financial vulnerability among single mothers is essential. This study aims to examine the effects of financial literacy and locus of control on financial fragility, and to analyze the mediating role of financial optimism among single mothers in Bekasi Regency. This study employs a quantitative approach using a survey method through questionnaire distribution. The sample consists of 250 single mothers residing in Bekasi Regency, selected using a non-probability purposive sampling technique. Data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) to assess the validity and reliability of the measurement model and to examine the structural relationships among variables. The findings reveal that financial literacy and locus of control significantly affect financial fragility. Moreover, both financial literacy and locus of control significantly influence financial optimism. Financial optimism also significantly affects financial fragility and mediates the relationship between financial literacy and locus of control. These results highlight the importance of enhancing financial literacy, strengthening internal locus of control, and fostering financial optimism to reduce financial vulnerability among single mothers.

Keywords: financial fragility, financial literacy, locus of control, financial optimism, single mother.

1. Introduction

The global transformation of family structures has led to a significant increase in single-parent households, particularly those headed by women. This phenomenon is not merely a social shift but also brings complex economic implications for household sustainability. Previous studies indicate that between 10% and 25% of children in member countries of the Organization for Economic Co-operation and Development (OECD) live in single-parent households, with more than 80% of these households led by women. (Lut et al., 2021; OECD, 2023). As primary breadwinners and caregivers, single mothers face dual responsibilities that intensify financial pressure and increase their vulnerability to economic instability. (Ponce, 2024).

Empirical evidence suggests that single mothers often experience role conflict between employment and family responsibilities, leading to emotional stress and financial imbalance. (Radcliffe et al., 2022). Limited income, wage disparities, low savings, and job insecurity

further exacerbate their risk of poverty and financial fragility. (Harkness, 2022). Financial fragility refers to the inability of individuals or households to cope with unexpected financial shocks without resorting to debt or asset liquidation, making it a critical issue in understanding household financial resilience.

In Indonesia, similar patterns are observed. Data from the Central Statistics Agency (BPS) show that 12.73% of households in 2023 were headed by women, with a higher proportion in urban areas. (Rizaty, 2023). Many of these households consist of single mothers due to divorce or widowhood, and they tend to experience lower levels of welfare compared to male-headed households. Furthermore, approximately 46% of Indonesians are categorized as financially fragile, indicating a widespread inability to manage emergency expenses. (Naurah, 2023). This condition is particularly relevant for low-income single mothers who bear full financial responsibility for their families.

At the regional level, Kabupaten Bekasi reflects this concerning trend. As an industrial and urban area with a dense population, Bekasi has a notable proportion of female-headed households among low-income households. Statistics indicate that female-headed households are 1.296 times more likely to experience poverty compared to male-headed households. (BPS, 2022). Additionally, the high rate of divorce, largely driven by economic factors, has contributed to the increasing number of single mothers. In 2024 alone, Bekasi recorded 3,529 divorce cases, with more than 75% initiated by women, highlighting the growing prevalence of female headed households.

Preliminary survey findings further reveal that most single mothers in Bekasi experience moderate levels of financial fragility, indicating they can meet basic needs but have limited capacity to withstand financial shocks. This situation underscores the importance of identifying key determinants that influence financial fragility among this vulnerable group.

From a theoretical perspective, financial literacy is considered a crucial factor in improving financial decision-making and reducing financial vulnerability. However, empirical findings remain mixed. Some studies report a negative relationship between financial literacy and financial fragility. (Calcagnini et al., 2025; Wiersma et al., 2025), while others find insignificant direct effects (Korczak, 2025), suggesting the need for further investigation in different socio-economic contexts, particularly in developing countries.

In addition to financial literacy, psychological factors such as locus of control play an important role in shaping financial behavior. Individuals with an internal locus of control tend to exhibit better financial discipline, more proactive planning, and lower financial fragility than those with an external orientation. (Kleimeier et al., 2023; Lakew et al., 2024). However, limited research has specifically examined this relationship among single mothers, creating an empirical gap.

Furthermore, financial optimism, defined as an individual's expectation of future financial conditions, has emerged as a relevant behavioral factor. Moderate and realistic optimism can encourage preventive financial behaviors such as saving and planning, while excessive optimism may lead to risk-taking and increased financial vulnerability (Allanjawi et al., 2023). Although prior studies suggest that financial optimism influences financial decision-making and well-being (Chhatwani & Mishra, 2021; Lim & Bone, 2022), its role as a mediating variable between financial literacy, locus of control, and financial fragility remains underexplored.

Given these gaps, this study aims to examine the effect of financial literacy and locus of control on financial fragility, with financial optimism as a mediating variable among single mothers in Kabupaten Bekasi. This research is expected to contribute to the literature by providing empirical evidence from a developing country context, with a particular focus on a

vulnerable and underrepresented group, while also offering practical insights for policymakers to improve financial resilience among female-headed households.

Unlike previous studies that primarily investigated financial fragility in the general population, this study proposes an integrated behavioral finance model by examining the mediating role of financial optimism in the relationships between financial literacy, locus of control, and financial fragility among single mothers. Furthermore, this study provides empirical evidence from Indonesia, an emerging economy where research on financially vulnerable female-headed households remains limited.

1.1. Problem Statement

The increasing number of single-mother households and their heightened vulnerability to financial fragility represent a critical socio-economic issue. Although financial fragility has been widely studied, existing research primarily focuses on general populations and macroeconomic factors, with limited attention given to vulnerable groups such as single mothers. This lack of focus restricts a deeper understanding of how financial vulnerability manifests in specific socio economic contexts, particularly among female-headed households with dual responsibilities as breadwinners and caregivers.

Another important issue lies in the inconsistent findings regarding the determinants of financial fragility. Previous studies have shown that financial literacy tends to reduce financial fragility; however, some empirical evidence suggests that its effect is not always significant or direct (Calcagnini et al., 2025; Korczak, 2025; Wiersma et al., 2025). Similarly, while locus of control has been identified as an important psychological factor influencing financial behavior, most studies have examined its impact on financial decision-making rather than directly on financial fragility (Kleimeier et al., 2023; Lakew et al., 2024). These inconsistencies indicate that the relationship between individual capabilities and financial fragility may involve more complex mechanisms.

Furthermore, the role of psychological factors, particularly financial optimism, has not been sufficiently explored within an integrated framework. Existing studies have examined financial optimism in relation to financial behavior and well-being; however, its role as a mediating variable linking financial literacy and locus of control to financial fragility remains underexplored. (Chhatwani & Mishra, 2021; Lim & Bone, 2022). This gap suggests the need for a more comprehensive model that incorporates both financial and psychological dimensions.

In addition, most empirical studies on financial fragility have been conducted in developed countries, limiting their generalizability to developing economies such as Indonesia. Differences in socio-economic conditions, access to financial services, and cultural factors may influence financial behavior and vulnerability. Therefore, there is a need for context-specific research examining financial fragility in emerging markets, particularly at the regional level, such as Kabupaten Bekasi, where the prevalence of single mothers and economic pressures is relatively high.

Based on these gaps, this study aims to develop an integrated model to examine the influence of financial literacy and locus of control on financial fragility, with financial optimism as a mediating variable among single mothers in Kabupaten Bekasi. This approach is expected to provide a more comprehensive understanding of financial vulnerability in a specific and under-researched context.

2. Literature Review

2.1. Financial Fragility

Financial fragility refers to a condition in which individuals or households are unable to cope with unexpected financial shocks using their available resources. This concept originates from Hyman Minsky's Financial Instability Hypothesis, which argues that financial systems are inherently unstable and tend to generate vulnerabilities during periods of economic stability (Minsky, 1977). According to this theory, excessive reliance on debt and risk-taking behavior can gradually increase financial fragility, eventually leading to financial crises.

At the micro level, financial fragility is reflected in individuals' inability to meet urgent financial needs without relying on external support, such as taking on debt or liquidating assets. (Calcagnini et al., 2025). Individuals experiencing financial fragility typically face unstable income, high debt burdens, and limited savings. (Adonsou & Piper, 2025). This condition is particularly relevant for vulnerable groups such as single mothers, who often face income constraints and high financial responsibilities.

Several factors influence financial fragility, including financial literacy, income stability, access to liquid assets, and behavioral aspects such as risk preferences and self-control. (Chen et al., 2024; Kleimeier et al., 2023). These factors highlight that financial fragility is not only driven by economic conditions but also by individual capabilities and psychological characteristics.

2.2. Financial Literacy and Financial Fragility

Financial literacy is defined as an individual's ability to understand financial concepts, evaluate risks, and make informed financial decisions. (Muñoz-Céspedes et al., 2024). It encompasses knowledge, skills, attitudes, and behaviors necessary for effective financial management and long-term financial well-being.

Financial literacy plays a crucial role in reducing financial fragility. Individuals with higher financial literacy are better able to manage income, plan expenditures, and build emergency savings. Previous studies show that financial literacy is negatively associated with financial fragility, as it enhances individuals' ability to respond to financial shocks. (Calcagnini et al., 2025; Wiersma et al., 2025). However, some studies report inconsistent findings, suggesting that financial literacy does not always directly reduce financial fragility. (Korczak, 2025). This indicates that the relationship may involve indirect mechanisms, such as psychological factors. Despite these inconsistencies, financial literacy remains a key determinant of financial resilience. Therefore, the following hypothesis is proposed:

H1: Financial literacy has a negative effect on financial fragility.

2.3. Locus of Control and Financial Fragility

Locus of control refers to an individual's belief regarding the extent to which they can control events and outcomes in their life. (Gyurák Babel'ová et al., 2025). Individuals with an internal locus of control believe that outcomes are determined by their own actions, while those with an external locus of control attribute outcomes to external factors such as luck or circumstances.

In the financial context, locus of control plays an important role in shaping financial behavior. Individuals with an internal locus of control tend to exhibit proactive financial behaviors, such as budgeting, saving, and avoiding excessive debt. In contrast, individuals with an external locus of control are more likely to experience financial stress and make poorer financial decisions. (Kleimeier et al., 2023; Lakew et al., 2024).

Empirical studies show that locus of control has a significant negative effect on financial fragility, as individuals with a stronger internal locus of control are better able to manage financial risks. (Chujan et al., 2022). Therefore, the following hypothesis is proposed:

H2: Locus of control has a negative effect on financial fragility

2.4. Financial Optimism and Financial Fragility

Financial optimism refers to an individual's positive expectations regarding their future financial condition. (Chhatwani & Mishra, 2021). It reflects the extent to which individuals believe that their financial situation will improve over time. Financial optimism plays a dual role in financial behavior. On one hand, realistic optimism encourages proactive financial actions such as saving, planning, and risk management. On the other hand, excessive optimism may lead to overconfidence and risky financial decisions. (Allanjawi et al., 2023).

Previous studies indicate that financial optimism is negatively associated with financial fragility, as optimistic individuals tend to adopt better financial coping strategies. (Chhatwani & Mishra, 2021). Therefore, the following hypothesis is proposed:

H3: Financial optimism has a negative effect on financial fragility.

2.5. Financial Literacy and Financial Optimism

Financial literacy influences individuals' expectations about their financial future. Individuals with higher financial literacy are better able to understand financial opportunities and risks, which increases their confidence in achieving financial stability.

Empirical studies suggest that financial literacy positively influences financial optimism by enhancing individuals' ability to plan and manage their financial futures. (Lim & Bone, 2022). Financial knowledge enhances confidence and reduces uncertainty, thereby fostering a more optimistic financial outlook. Therefore, the following hypothesis is proposed:

H4: Financial literacy has a positive effect on financial optimism.

2.6. Locus of Control and Financial Optimism

Locus of control also plays a significant role in shaping financial optimism. Individuals with an internal locus of control tend to believe that their actions can improve their financial condition, leading to higher levels of optimism.

Previous research shows that individuals with stronger internal control exhibit higher financial optimism, as they perceive themselves as capable of influencing future outcomes. (Dohmen et al., 2023). In contrast, individuals with an external locus of control tend to be less optimistic due to a perceived lack of control. Therefore, the following hypothesis is proposed:

H5: Locus of control has a positive effect on financial optimism.

2.7. Mediating Role of Financial Optimism

Financial optimism plays an important mediating role in explaining the influence of financial literacy and locus of control on financial fragility. From a behavioral finance perspective, financial decisions are driven not only by knowledge but also by psychological factors.

Individuals with higher financial literacy tend to develop greater confidence and optimism about their financial future, which, in turn, reduces financial vulnerability. Similarly, individuals with an internal locus of control are more likely to maintain a positive outlook and adopt adaptive financial behaviors, thereby lowering financial fragility.

Despite its importance, the mediating role of financial optimism in the relationship between financial literacy, locus of control, and financial fragility remains underexplored, particularly among single mothers in developing countries. Therefore, the following hypotheses are proposed:

H6: Financial optimism mediates the relationship between financial literacy and financial fragility.

H7: Financial optimism mediates the relationship between locus of control and financial fragility.

3. Methodology

3.1. Research Design

This study adopts a quantitative research approach with an explanatory research design to systematically investigate the causal relationships among financial literacy, locus of control, financial optimism, and financial fragility. The quantitative approach enables measurement of latent constructs using numerical data and facilitates rigorous statistical testing of the proposed hypotheses, thereby ensuring the objectivity and generalizability of the findings.

The explanatory design is particularly appropriate for this study, as it aims not only to identify relationships among variables but also to examine the underlying causal mechanisms shaping financial fragility. Specifically, this study incorporates financial optimism as a mediating variable to capture both direct and indirect effects within the structural model. This approach allows for a more comprehensive understanding of how individual cognitive and behavioral factors interact in influencing financial vulnerability. Accordingly, this research design provides a robust analytical framework for testing the proposed conceptual model and offers empirical insights into the determinants of financial fragility among single mothers.

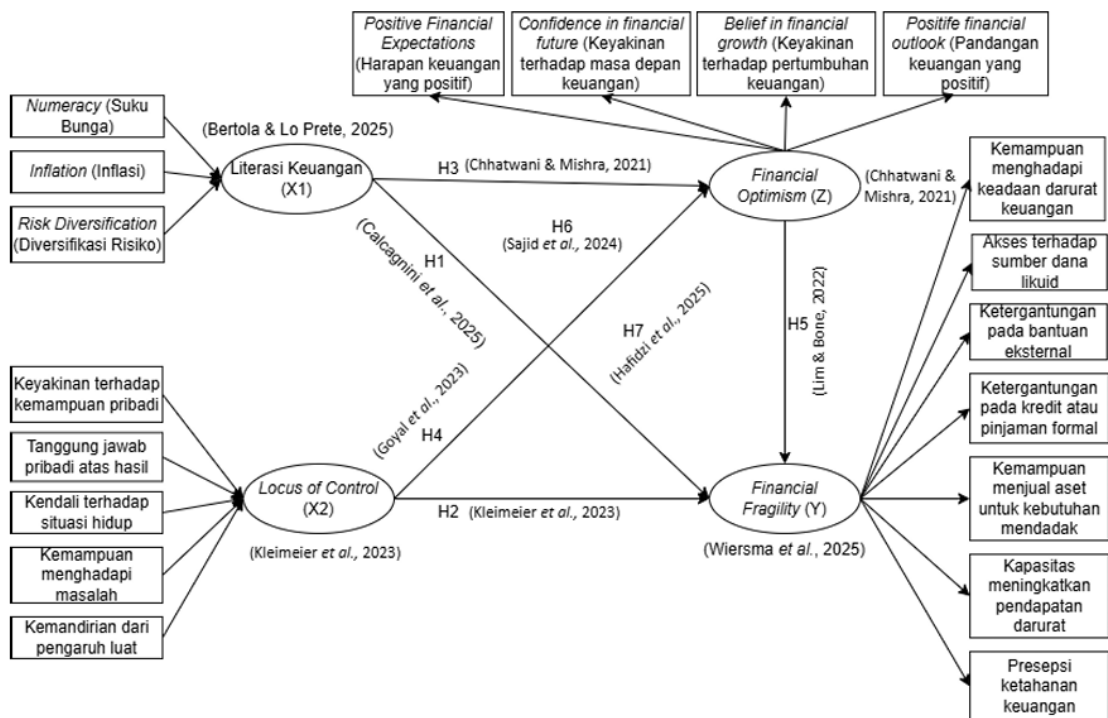


Figure 1 Conceptual Framework

3.2. Population and Sampling

The population of this study consists of women categorized as single mothers in Kabupaten Bekasi who are solely responsible for managing household finances. This group is considered particularly relevant due to their heightened financial fragility, stemming from the absence of dual-income support and increased economic responsibility. The population

includes individuals aged at least 18 years, with at least one dependent, a source of income, and who independently manage household finances.

Due to the absence of precise official data regarding the total number of single mothers meeting these criteria, the population size is considered unknown. Therefore, a non-probability sampling technique, specifically purposive sampling, is employed to select respondents who meet predetermined criteria relevant to the research objectives. This approach is appropriate in situations where the population is difficult to identify and when the study requires respondents with specific characteristics.

The determination of the sample size was based on the Lemeshow formula, which is commonly used when the population size is unknown. Using a confidence level of 95% ($Z = 1.96$), a proportion value of 0.5, and a margin of error of 8%, the minimum required sample size was calculated to be approximately 150 respondents. To improve the robustness of the analysis, this study successfully collected data from 250 eligible single mothers who met the predetermined sampling criteria. The larger sample size enhances the statistical power and reliability of the PLS-SEM analysis.

3.3. Data Collection Method

This study employs both primary and secondary data sources to ensure a comprehensive analysis of financial fragility among single mothers. Primary data serve as the main source of information and are collected directly from respondents through a structured questionnaire. The questionnaire is designed to measure financial literacy, locus of control, financial optimism, and financial fragility using indicators derived from established theories and prior empirical studies. This approach ensures that each construct is accurately represented and measured.

The questionnaire is distributed online using digital platforms such as Google Forms and disseminated through social media channels, including WhatsApp and Instagram, to reach respondents efficiently. The use of an online survey method allows flexibility for respondents while improving the speed and accuracy of data collection. All measurement items are assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), a scale widely used in behavioral research to capture perceptions and attitudes consistently.

In addition to primary data, secondary data are used to contextualize the research and strengthen the analytical framework. These data are obtained from credible sources, including publications from the Indonesian Central Bureau of Statistics (BPS), reports on female-headed households, financial literacy statistics, and relevant academic literature. The integration of primary and secondary data enhances the validity and reliability of the study findings.

3.4. Variable Measurement

The variables in this study consist of financial fragility as the dependent variable, financial literacy and locus of control as independent variables, and financial optimism as a mediating variable. Each variable is operationalized using multiple indicators adapted from prior studies to ensure construct validity and measurement consistency. Financial fragility is defined as an individual's ability to cope with unexpected financial shocks, including access to liquid funds, reliance on external assistance, and the capacity to manage emergencies.

Financial literacy refers to an individual's understanding of financial concepts such as interest rates, inflation, and risk diversification. Locus of control reflects the extent to which individuals believe they can influence their financial outcomes through their own actions.

Financial optimism represents an individual's positive expectations and confidence regarding future financial conditions.

All variables are measured using a Likert scale, allowing respondents to express their level of agreement with each statement. This measurement approach ensures that the constructs can be quantified and analyzed statistically within the PLS-SEM framework.

3.5. Data Analysis Technique

The data analysis in this study is conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software. This method is chosen for its suitability for analyzing complex models with multiple latent variables, as well as its ability to handle relatively small sample sizes and non normal data distributions.

The analysis is performed in two main stages: evaluation of the measurement model (outer model) and evaluation of the structural model (inner model). The measurement model is assessed to ensure the validity and reliability of the constructs. Convergent validity is evaluated using outer loadings and Average Variance Extracted (AVE). In contrast, discriminant validity is assessed using criteria such as the Fornell-Larcker criterion, cross-loadings, and the Heterotrait Monotrait ratio (HTMT). Reliability is examined using Cronbach's alpha and composite reliability values.

The structural model evaluation focuses on examining the relationships between variables, including both direct and indirect effects. The coefficient of determination (R^2) is used to assess the model's explanatory power, while hypothesis testing is conducted via a bootstrapping procedure to determine the significance of the path coefficients. The mediating effect of financial optimism is analyzed by evaluating the indirect effect between the independent and dependent variables.

Overall, the use of PLS-SEM in this study provides a robust analytical framework to explain the influence of financial literacy and locus of control on financial fragility, both directly and through the mediating role of financial optimism.

4. Result

4.1. Respondent Profile

This study involves 250 single mothers residing in Bekasi Regency who meet the research criteria. The sample size exceeds the minimum requirement for PLS-SEM analysis, enhancing the robustness of the results.

The majority of respondents are within the productive age group (30–39 years) and predominantly divorced, indicating significant economic responsibility. Most respondents have a secondary education level and are engaged in diverse occupations, with a notable proportion working in the industrial and informal sectors, while some are not formally employed.

In terms of economic characteristics, most respondents fall within the middle-income category and have one to two dependents, reflecting moderate financial obligations. These characteristics provide a relevant context for analyzing financial behavior and financial fragility among single mothers.

Tabel 1. Demographic Profile of Respondents

Demographic Profile	Category	Frequency (%)
Age	< 30 years	43
	30 – 39 years	113
	40 – 49 years	63
	> 50 years	31
Single Mother Status	Divorced (Ceraf Hidup)	133
	Widowed (Ceraf Mati)	117
Education Level	Elementary School (SD)	3
	Middle School (SMP)	28
	High School / Vocational (SMA/SMK)	105
	Diploma	45
	Bachelor’s Degree (S1)	68
	Master’s Degree (S2)	1
Occupation	Factory Worker	60
	Entrepreneur / MSMEs	38
	Private Employee	38
	Contract / Honorary Worker	25
	Teacher / Educator	18
	Civil Servant (ASN/PNS/PPPK)	13
	Healthcare Worker	8
	Not Working / Housewife	50
Monthly Income	< Rp 2,000,000	12
	Rp 2,000,000 – Rp 3,000,000	40
	Rp 3,000,000 – Rp 5,000,000	73
	> Rp 5,000,000	25
Number of Dependents	1 dependent	49
	2 dependents	91
	3 dependents	8
	> 3 dependents	2

4.2. Measurement Model Assessment

The measurement model was assessed using convergent validity, discriminant validity, and construct reliability, following established PLS-SEM guidelines. (Hair et al., 2021).

4.2.1. Convergent Validity

Convergent validity is established when indicators of a construct share a high proportion of variance. As suggested by (Hair et al., 2021) Outer loadings should exceed 0.70, and AVE values should exceed 0.50.

Tabel 2. Convergent Validity and Reliability

Construct	Indicator	Outer Loading	(AVE)	Infomation
Financial Fragility (Y)	FF1	0.720	0.709	Valid
	FF2	0.786		
	FF3	0.862		
	FF4	0.761		
	FF5	0.817		
	FF6	0.850		
	FF7	0.764		
Literasi Keuangan (X1)	LK1	0.813	0.704	Valid
	LK2	0.829		
	LK3	0.875		
Locus Of Control (X2)	LOC1	0.866	0.736	Valid
	LOC2	0.850		
	LOC3	0.829		
	LOC4	0.862		
	LOC5	0.882		
Financial Optimism (Z)	FO1	0.857	0.633	Valid
	FO2	0.801		
Construct	Indicator	Outer Loading	(AVE)	Infomation
	FO3	0.884		
	FO4	0.824		

All indicator loadings in this study surpass the 0.70 threshold, indicating strong indicator reliability. Furthermore, AVE values for all constructs range from 0.633 to 0.736, confirming that each latent construct explains more than 50% of the variance of its indicators. These findings provide strong evidence of convergent validity.

4.2.2. Discriminant Validity

Discriminant validity ensures that constructs are empirically distinct. This study employs the Heterotrait-Monotrait Ratio (HTMT), which is recommended as a more sensitive criterion compared to traditional methods.

Tabel 3. Discriminant Validity Heterotrait-Monotrait Ratio of Correlations (HTMT)

Variabel	FF	FO	LK	LOC
Financial Fragility				
Financial Optimism	0.787			
Literasi Keuangan	0.709	0.685		
Locus of Control	0.586	0.706	0.295	

According to (Sarstedt et al., 2021) HTMT values should be below 0.90. All HTMT values in this study fall below this threshold, indicating adequate discriminant validity and confirming that each construct captures a distinct conceptual domain.

4.2.3. Construct Reliability

Construct reliability evaluates internal consistency using Cronbach's Alpha and Composite Reliability (CR). As recommended (Hair et al., 2021) Values above 0.70 indicate acceptable reliability.

Tabel 4. Cronbach's Alpha & Composite Reliability

Variabel	<i>Cronbach's alpha</i>	<i>Composite reliability (rho c)</i>	Ket.
<i>Financial Fragility</i>	0.903	0.923	<i>Reliabel</i>
<i>Financial optimism</i>	0.863	0.907	<i>Reliabel</i>
Literasi Keuangan	0.790	0.877	<i>Reliabel</i>
<i>Locus of Control</i>	0.910	0.933	<i>Reliabel</i>

All constructs in this study demonstrate Cronbach's Alpha and CR values exceeding 0.70, indicating high internal consistency. This confirms that the measurement instruments are reliable and suitable for structural model analysis.

4.3. Model Fit Evaluation

Model fit was evaluated using several indices, including SRMR, NFI, and GoF. The SRMR value of 0.049 is below the recommended threshold of 0.10, indicating a good model fit. The NFI value of 0.899, which approaches 1, further supports model adequacy.

Tabel 5. Model Fit

Parameter	<i>Rule of Thumb</i>	Nilai Parameter	Ket.
SRMR	Lebih kecil dari 0.10	0.049	Fit
d_ ULS	> 0.05	0.457	Fit
d_ G	> 0.05	0.207	Fit
<i>Chi-square</i>	χ^2 statistik $\geq \chi^2$ tabel	301.913 ≥ 28.869	Fit
NFI	Mendekati Nilai 1	0.899	Fit
GoF	0.1 (GoF kecil), 0.25 (GoF moderate), 0.36 (GoF kuat)	0.630	Fit
<i>Q² Predictive Relevance</i>	$Q^2 > 0$: Memiliki <i>predictive relevance</i> $Q^2 < 0$: Kurang memiliki <i>predictive relevance</i> 0.02 (Lemah); 0.15 (Moderate); 0.35 (Kuat)	Q^2 <i>Financial Fragility</i> 0.511 > 0 Q^2 <i>Financial Optimism</i> 0.564 > 0	Fit

Additionally, the Goodness of Fit (GoF) value of 0.630 exceeds the threshold for a strong model (>0.36), indicating substantial explanatory power. The Q^2 values (0.511 and 0.564) are above zero, confirming strong predictive relevance, as suggested by William W. Chin (1998).

4.4. Structural Model Assessment

4.4.1. Coefficient of Determination (R^2)

The R^2 value for Financial Fragility is 0.582, indicating moderate-to substantial explanatory power. Meanwhile, Financial Optimism has an R^2 value of 0.572. According to (Hair et al., 2021), R^2 values of 0.75, 0.50, and 0.25 can be interpreted as substantial, moderate, and weak, respectively. Thus, the model demonstrates adequate predictive capability.

Tabel 6 R Square

Variabel	R-square
<i>Financial Fragility</i>	0.582
<i>Financial Optimism</i>	0.572

4.4.2. Hypothesis Testing (Direct Effects)

Hypothesis testing in this study was conducted using the bootstrapping procedure within the Partial Least Squares Structural Equation Modeling (PLS SEM) framework. In accordance with (Hair et al., 2021) A relationship is considered statistically significant when the t-statistic exceeds 1.96, and the p-value is below 0.05.

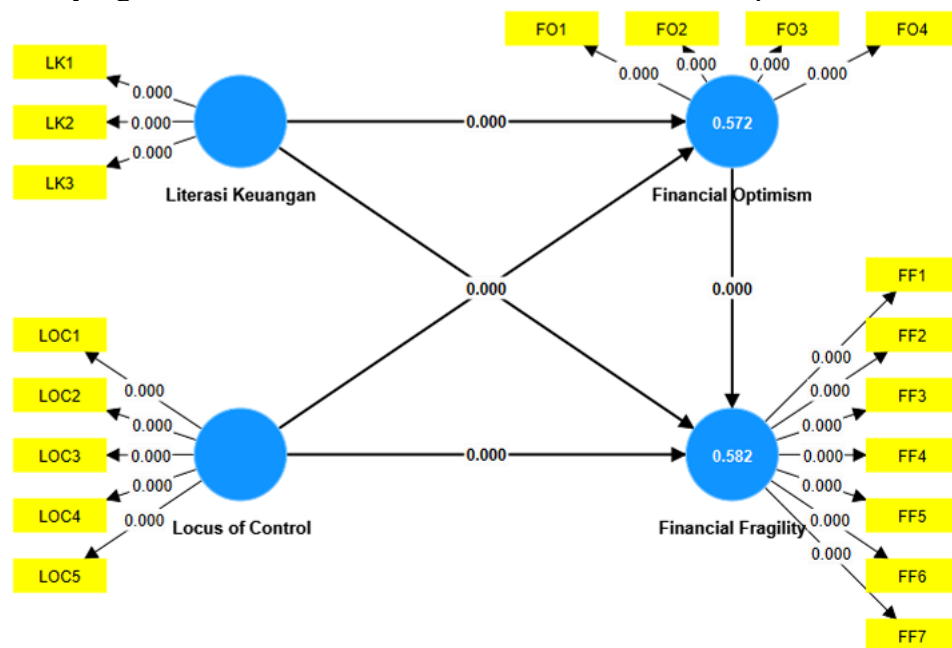


Figure 2 Structural model showing the direct and indirect path coefficients.

Tabel 7 Hypothesis Testing (Direct Effect)

Hipotesis	Koefisien Jalur	Original sample (O)	T statistics (O/STDEV)	P values	Ket.
H1	LK → FF	-0.337	6.605	0.000	Supported
H2	LOC → FF	-0.212	3.737	0.000	Supported
H3	LK → FO	0.435	10.392	0.000	Supported
H4	LOC → FO	0.518	13.516	0.000	Supported
H5	FO → FF	-0.378	5.631	0.000	Supported

The results indicate that all hypothesized direct relationships are statistically significant (Table 2). Financial literacy has a significant negative effect on financial fragility, indicating that higher levels of financial knowledge reduce financial vulnerability among single mothers. Likewise, locus of control negatively influences financial fragility, suggesting that individuals with a stronger internal locus of control are better able to cope with financial challenges. Furthermore, financial literacy positively affects financial optimism, indicating that greater financial knowledge enhances individuals' confidence in their future financial condition. Similarly, locus of control has a positive effect on financial optimism, suggesting that individuals who believe they can influence financial outcomes tend to develop more optimistic financial expectations. Finally, financial optimism negatively affects financial fragility, demonstrating that individuals with greater confidence in their financial future are less likely to experience financial vulnerability. Overall, these findings confirm that both cognitive and psychological factors play a substantial role in reducing financial fragility among single mothers.

4.4.3. Mediation Analysis (Indirect Effects)

The mediation analysis was conducted to examine indirect relationships in the structural model, particularly the role of financial optimism as a mediator.

Tabel 8 Mediation Effects

Hipotesis	Koefisien Jalur	Original sample (O)	T statistics (O/STDEV)	P values	Ket.
H6	LK→FO→FF	-0.164	5.200	0.000	Supported
H7	LOC→FO→FF	-0.196	5.144	0.000	Supported

As shown, financial optimism significantly mediates the relationships between financial literacy and financial fragility, and between locus of control and financial fragility. This indicates that both variables influence financial fragility not only directly but also indirectly through the formation of financial optimism. These findings support the argument of (Hair et al., 2021), which emphasizes that mediation analysis in PLS-SEM is essential for uncovering the underlying mechanisms of causal relationships. Thus, financial optimism acts as a key psychological pathway linking individual capabilities to financial outcomes.

4.4.4. Effect Size (f^2)

To assess the relative contribution of each exogenous construct, effect size (f^2) was evaluated. According to Jacob Cohen (1988), f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively.

Tabel 9. Effect Size

Variabel	FF	FO	LK	LOC
FF				
FO	0.146			
LK	0.179	0.414		
LOC	0.064	0.587		

The results in Table 4.9 indicate that financial literacy and locus of control exhibit large effect sizes on financial optimism, highlighting their dominant role in shaping financial expectations. Meanwhile, financial literacy and financial optimism show medium effects on financial fragility, indicating meaningful contributions in reducing financial vulnerability. In contrast, locus of control has a relatively small effect on financial fragility, suggesting that its influence is more pronounced through indirect pathways than through direct effects. Overall, these findings suggest that psychological and cognitive factors primarily influence financial fragility through the development of financial optimism, reinforcing its role as a central mediating mechanism in the model.

5. Discussion

5.1. Financial Literacy and Financial Fragility

The findings indicate that financial literacy has a significant negative effect on financial fragility, suggesting that higher levels of financial knowledge reduce financial vulnerability among single mothers. Individuals with greater financial literacy are more capable of budgeting, prioritizing essential expenditures, managing debt responsibly, and establishing emergency savings. These financial capabilities enable them to respond more effectively to unexpected financial shocks without relying excessively on borrowing or asset liquidation.

This finding supports the argument of Human Capital Theory, which posits that knowledge and skills improve individuals' decision-making capacity and resource allocation. In the context of single mothers, financial literacy functions as an important economic resource that facilitates better financial planning despite limited income and substantial family responsibilities. Consequently, financially literate individuals are more likely to maintain financial stability under adverse economic conditions.

This result is consistent with previous studies by Calcagnini et al. (2025) and Moreno-garcía et al. (2024), who reported that financial literacy significantly reduces financial fragility by improving financial management and resilience. However, it differs from Korczak (2025), who found no direct relationship, possibly because the present study focuses on a financially vulnerable population with unique socioeconomic characteristics.

5.2. Financial Literacy and Financial Optimism

The results indicate that financial literacy positively influences financial optimism. Individuals who possess greater financial knowledge are generally more confident in their ability to manage financial resources and achieve future financial stability. Financial literacy reduces uncertainty regarding financial decision-making, thereby fostering positive expectations about future financial conditions.

From a behavioral finance perspective, financial knowledge not only improves objective financial capability but also strengthens individuals' confidence in making sound financial decisions. This increased confidence contributes to a more optimistic outlook toward future financial well-being, encouraging adaptive financial behaviors.

These findings are consistent with previous studies by Chhatwani & Mishra, (2021), Sajid et al. (2024), and Wiersma et al. (2025), which demonstrate that financial literacy

enhances financial confidence and optimism by enabling individuals to make more informed financial decisions.

5.3. Locus of Control and Financial Fragility

The findings demonstrate that locus of control has a significant negative effect on financial fragility. Individuals with a stronger internal locus of control tend to believe that their financial outcomes depend primarily on their own actions rather than external circumstances. Consequently, they are more likely to engage in proactive financial behaviors, including budgeting, saving, and long-term financial planning.

According to Rotter's Social Learning Theory, individuals with an internal locus of control assume greater personal responsibility for their actions and therefore demonstrate higher levels of self-regulation. This psychological characteristic enables them to cope more effectively with financial challenges, thereby reducing their susceptibility to financial fragility.

This finding is consistent with previous studies conducted by Bialowolski et al., (2021), Kleimeier et al. (2023), and Novokmet & Marija Vuković (2024), which similarly reported that individuals with stronger internal control experience lower levels of financial vulnerability.

5.4. Locus of Control and Financial Optimism

The results reveal that locus of control positively influences financial optimism. Individuals who believe that they can influence future outcomes through their own efforts tend to develop stronger confidence regarding their financial future. Such confidence encourages positive expectations and greater motivation to achieve financial stability.

This finding supports the view that psychological characteristics significantly influence financial perceptions beyond objective financial conditions. Individuals with an internal locus of control generally perceive financial challenges as manageable, which reinforces optimistic expectations and adaptive financial behavior.

The present findings are consistent with those of Chujan et al. (2022), Goyal et al. (2023), and Hafidzi et al. (2025), who likewise found that internal locus of control positively contributes to financial optimism.

5.5. Financial Optimism and Financial Fragility

The findings indicate that financial optimism significantly reduces financial fragility. Individuals who possess optimistic yet realistic expectations regarding their financial future are more likely to engage in prudent financial planning, maintain emergency savings, and remain resilient when confronted with financial uncertainty.

Financial optimism functions as a psychological resource that strengthens individuals' confidence in overcoming economic challenges. Rather than encouraging unrealistic expectations, moderate financial optimism motivates individuals to adopt preventive financial behaviors that reduce vulnerability to unexpected financial shocks.

These findings support previous studies by Chhatwani & Mishra (2021), Griesdorn, (2023), and Lim & Bone (2022), which concluded that financial optimism contributes positively to financial resilience and overall financial well-being.

5.6. Financial Optimism as a Mediator between Financial Literacy and Financial Fragility

The findings demonstrate that financial optimism significantly mediates the relationship between financial literacy and financial fragility. This indicates that financial literacy reduces financial vulnerability not only through improved financial knowledge but also by strengthening individuals' confidence in their future financial condition.

These findings suggest that financial optimism serves as an important psychological mechanism through which financial literacy is translated into adaptive financial behavior.

Financial knowledge alone may not be sufficient to reduce financial fragility unless individuals also possess confidence in their ability to apply that knowledge effectively in managing financial challenges.

This result is consistent with previous studies by Chhatwani & Mishra (2021), Ruofan Bai (2023), and Sajid et al. (2024) highlighting the important mediating role of financial optimism in improving financial well-being.

5.7. Financial Optimism as a Mediator between Locus of Control and Financial Fragility

The findings further reveal that financial optimism significantly mediates the relationship between locus of control and financial fragility. Individuals with stronger internal locus of control tend to develop greater confidence in their future financial condition, which subsequently reduces their financial vulnerability.

These findings indicate that locus of control influences financial fragility not only directly but also indirectly through psychological expectations regarding future financial outcomes. Financial optimism therefore serves as a behavioral pathway through which perceived personal control is translated into greater financial resilience.

This finding is consistent with previous studies conducted by Chhatwani & Mishra (2021), Hafidzi et al. (2025), and Peetz et al. (2021), emphasizing the importance of psychological mechanisms in explaining financial behavior.

6. Conclusion and Implications

6.1. Conclusion

This study concludes that financial and psychological factors significantly influence financial fragility among single mothers. Financial literacy and locus of control have been shown to reduce financial fragility, both directly and indirectly, through financial optimism. These findings indicate that financial vulnerability is not solely determined by knowledge but is also shaped by individual psychological characteristics.

Financial optimism also plays a crucial role in reducing financial fragility. This study finds that financial optimism not only directly affects financial fragility but also mediates the relationship between financial literacy, locus of control, and financial fragility. This suggests that individuals with higher confidence in their financial future tend to make better financial decisions and exhibit greater resilience.

This study provides empirical evidence that integrating cognitive and psychological factors into a single framework offers a more comprehensive understanding of financial fragility. The findings also highlight the importance of behavioral aspects in explaining financial outcomes, particularly among vulnerable groups such as single mothers in emerging economies.

6.2. Theoretical Implications

This study contributes to the financial behavior literature by integrating financial literacy, locus of control, and financial optimism into a unified model. Previous studies have often examined these variables separately, whereas this study demonstrates their combined influence on financial fragility. This integration provides a more comprehensive framework for understanding financial vulnerability.

This study also highlights the mediating role of financial optimism. The findings extend existing literature by showing that financial optimism is not only a direct determinant of financial fragility but also a mechanism linking cognitive and psychological factors to financial outcomes. This contribution provides deeper insights into how individuals translate knowledge and self-control into financial resilience.

6.3. *Practical Implications*

This study provides important implications for individuals, financial institutions, and policymakers. Individuals, particularly single mothers, are encouraged to improve their financial literacy and strengthen self-control to manage financial challenges better. Enhancing financial optimism can also help individuals build confidence in facing financial uncertainty.

Financial institutions should design inclusive financial education programs that not only improve financial knowledge but also address psychological aspects such as confidence and behavioral control. Providing accessible financial services and guidance can help vulnerable groups achieve financial stability.

Policymakers are expected to strengthen financial literacy programs, particularly for economically vulnerable populations. Policies that integrate financial education with behavioral interventions may be more effective in reducing financial fragility and improving overall financial well-being.

6.4. *Limitations and Future Research*

This study has several limitations that should be acknowledged. The sample is limited to single mothers in Bekasi Regency, which may restrict the generalizability of the findings. Additionally, this study employs a cross-sectional design, which does not capture changes in financial behavior over time.

Future research is recommended to use a larger, more diverse sample that includes a range of demographic groups and geographic areas. Longitudinal studies are also suggested to examine changes in financial fragility and financial behavior over time. Furthermore, future studies may incorporate additional variables, such as income stability, social support, or financial stress, to enhance the model's explanatory power.

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ATTITUDE TOWARDS USING METAVERSE TECHNOLOGY AND STUDENTS' ADOPTION INTENTION: EXAMINING THE MODERATING ROLE OF PRIVACY CONCERNS

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Abstract

The metaverse technology has emerged as a promising digital platform for transforming higher education by enabling immersive and interactive learning experiences. While prior studies have consistently identified attitude as a key determinant of technology adoption, little is known about whether privacy concerns alter the strength of this relationship in the context of educational metaverse adoption. Addressing this gap, this study examines the influence of students' attitudes towards metaverse technology on their intention to adopt the technology and investigates the moderating role of privacy concerns.

A quantitative cross-sectional survey was conducted among higher education students in Indonesia, and the proposed research model was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The results demonstrate that students' attitudes exert a strong and positive effect on their intention to adopt metaverse technology, confirming attitude as the most influential predictor of adoption intention. However, the moderating effect of privacy concerns is not statistically significant, indicating that privacy-related apprehensions neither strengthen nor weaken the relationship between attitude and behavioural intention. These findings suggest that students' adoption decisions are primarily driven by favourable attitudinal evaluations rather than by concerns over data privacy.

This study extends the technology adoption literature by demonstrating that privacy concerns do not constitute a significant boundary condition in the attitude–intention relationship within metaverse technology adoption in academic activities. The findings refine current understanding of metaverse technology adoption by highlighting the predominance of attitudinal factors over privacy-related considerations in educational settings. Practically, the results suggest that higher education institutions and educational technology developers should prioritise strategies that cultivate positive student attitudes through meaningful learning experiences, perceived educational value, and engaging virtual environments to accelerate metaverse adoption.

Keywords: metaverse technology; student attitude; behavioural intention; privacy concerns; higher education; PLS-SEM.

ACCELERATING DISRUPTIVE INNOVATION THROUGH GENERATIVE AND AGENTIC ARTIFICIAL INTELLIGENCE: A SYSTEMATIC LITERATURE REVIEW

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Abstract

The rapid advancement of Generative Artificial Intelligence (Gen-AI) and Agentic AI represents one of the most consequential technological transitions of the 21st century. These technologies are not merely incremental innovations; they constitute a paradigmatic shift that is restructuring the foundations of industrial competition, creative production, and organizational strategy. Despite the exponential growth in academic and practitioner interest, a comprehensive systematic synthesis of how Gen-AI and Agentic AI specifically accelerate innovative disruption remains absent from the literature. This study presents a Systematic Literature Review (SLR) conducted in accordance with the PRISMA 2020 protocol to synthesize empirical and theoretical evidence on the mechanisms by which Generative AI and Agentic AI accelerate innovative disruption across industries and organizational contexts. Following the six-stage PRISMA 2020 protocol, a comprehensive search was conducted across six major academic databases: Scopus, IEEE Xplore, ScienceDirect, SpringerLink, Taylor & Francis, and Wiley Online Library. The search covered publications from January 2020 to April 2026. From an initial pool of 1,478 records, 50 final papers met the inclusion criteria (Scopus Q1/Q2 journals, English language, peer-reviewed, empirically or theoretically grounded). Thematic synthesis of the 50 included papers revealed seven primary themes: (1) Gen-AI mechanisms for innovation acceleration; (2) Agentic AI and organizational disruption; (3) disruptive innovation frameworks in the AI era; (4) AI-driven productivity and firm performance; (5) business model transformation via Gen-AI; (6) governance, ethics, and risk; and (7) sector-specific applications. Key findings indicate that Gen-AI accelerates the ideation-to-implementation cycle by an estimated 30-60%, while Agentic AI introduces autonomous decision-making loops that fundamentally alter competitive dynamics through multi-agent orchestration. Gen-AI and Agentic AI operate as dual engines of innovative disruption: the former democratizes the creation of novel content and solutions, while the latter automates and scales execution at unprecedented speed. Together, they manifest Schumpeter's creative destruction at machine speed, challenge Christensen's disruptive innovation model with faster market entry cycles, and demand new dynamic capabilities from incumbents. Future research should prioritize longitudinal empirical studies, sector-specific governance frameworks, and the measurement of long-term socioeconomic impacts.

Keywords: *Generative AI, Agentic AI, Disruptive Innovation, Large Language Models, Digital Transformation, Innovation Acceleration, Systematic Literature Review, PRISMA 2020.*

THE IMPACT OF TECHNOLOGICAL DISRUPTION, LEADERSHIP ADAPTABILITY, AND ENTREPRENEURIAL ORIENTATION ON FIRM PERFORMANCE

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Abstract

New technology changes how companies compete and do business. In the world of maps and directions, smartphone apps now help people find their way instead of special GPS devices, making it hard for old companies to keep up. This study looks at TomTom, a company that makes GPS devices, to see how it changes when new technology comes along. The study follows special rules called PRISMA 2020 and reviews many articles carefully. It also looks closely at TomTom over time to understand how it changes. The study uses ideas about how new technology can shake up businesses and how companies can adapt quickly to stay successful. It looks at information from books, articles, and other sources about TomTom's changes to understand what it did. Research shows that when new technology appears, companies often face early problems or losses. But leaders who are willing to try new things and be creative can handle these challenges well. For example, TomTom moved to digital maps and online location services, showing how smart planning and creativity help companies succeed even when they face tough starts. The study combines ideas about how technology disrupts companies and how they can change, emphasizing that good leadership and new ideas are very important. This helps other companies learn how to change their plans, invent new ideas, and stay competitive as technology keeps changing.

Keywords: Technological disruption, dynamic capabilities, entrepreneurial orientation

1. Introduction

The technological revolution, especially in the fields of global navigation and positioning, as well as the global economic trend toward continued digitalization, has caused a significant shift in the industry's dynamics. The frontiers between traditional industries have been blurred by big data, cloud computing, and mobile internet, forcing well-known firms to adapt or face the threat of obsolescence (Jacobides, 2022) (Szalavetz, 2022). They formerly dominated the market for standalone GPS devices, but the release of smartphones and free real-time navigation services by tech giants like Google and Apple in 2010 has led to a notable decline in demand for these devices (Furr et al., 2022). According to this interruption, digital transformation is generating new interdependence and competitive pressures that necessitate a strategic shift from a product-centric to a platform-oriented business model (Çebi & Gözlü, 2023) (Lopez-Vega & Moodysson, 2023). Traditional producers are, as a result, under more pressure to adjust to the difficulties of a continually changing ecology in order to stay relevant in an increasingly digital world (Jacobides, 2022) (Çebi & Gözlü, 2023). Previously a global leader in portable navigation devices (PNDs), TomTom was established in the Netherlands in 1991 and now has a commanding presence in Europe as well as a major influence in North America and the Asia-Pacific area. The introduction of platform-based navigation services, however, had a big influence on its hardware industry, and its profitability remained poor. In

order to concentrate on becoming a provider of live traffic information, digital map data, and high-resolution map services for autonomous vehicles, TomTom ultimately shifted its long-term goals by exiting the consumer hardware industry. The firm currently functions as a global provider of location data technology and services, thanks to greater competition and improved financial stability (Teece, 2023; Warner and Betting, 2021).

The transformation of TomTom raises the fundamental question of strategic management: how do existing companies survive and adjust in the face of major technological disruption, while others fail or leave the market? Even though prior studies have examined technological upheaval, leadership agility, entrepreneurial attitudes, dynamic capabilities, and individual company performance, there is still a dearth of integrated frameworks that address combined and sequential impacts, particularly in platform-based and digitally disrupted environments (Kraus et al., 2023). There is still a lack of comprehensive explanatory models and consideration of multi-stage processes in the current, fragmented literature. By establishing a comprehensive framework to explain the resilience and performance of businesses in the face of technological disruption, this study addresses these gaps.

1.1 The Research Question

In light of the aforementioned history and theoretical gaps, this research seeks to answer three fundamental research questions:

1. What impact does technological disruption have on a company's income, profitability, and future performance trajectory?
2. How does the flexibility of leadership influence a company's strategic response and future performance in the face of disruptive pressures?
3. How can an entrepreneurial orientation help a business improve its innovation capacity, competitive edge, and long-term performance in the face of market upheaval?

1.2 The Research Objective

1. Using TomTom as an illustration, examine how technological disruption affects a company's performance, including its revenue, profitability, and long-term performance trajectory.
2. The study examines how a leader's capacity for adaptation affects strategic responses in the face of technological change, which in turn affects business results.
3. In order to encourage the long-term sustainability of businesses in a turbulent market environment, explore how entrepreneurial orientation improves innovation capacity and competitive advantage.

1.3 Theoretical Significance

This study constructs a comprehensive theoretical framework by integrating the theory of technological disruption, dynamic capability theory, leadership adaptability theory, and entrepreneurial orientation theory into a unified explanatory model, aiming to explain corporate performance in disruptive contexts. It empirically identifies and validates two distinct mediation paths: (1) leadership adaptability → strategic responsiveness → firm performance, and (2) entrepreneurial orientation → innovation capability → competitive advantage → firm performance.

This study fills a critical gap in the literature by elucidating the combined and interactive effects of leadership adaptability and entrepreneurial orientation in shaping corporate outcomes within a highly volatile and uncertain environment. Furthermore, this theory expands the dynamic capabilities theory by concretizing the logic of perception, capture, and transformation in the context of digital platform competition and the transition from hardware-based business models to software and data-driven ecosystems.

1.4 Practical Significance

For conventional hardware companies dealing with disruptive challenges brought about by digitalization and platforms, this study offers a replicable transformation framework. It gives managers advice on how to increase adaptability in leadership, improve environmental awareness, and speed up strategic restructuring in response to disruptive changes. The cultivation of an entrepreneurial mindset in companies to foster proactive innovation, opportunity identification, and calculated risk-taking is supported by these results.

In addition, this research gives policymakers and industry professionals insights that help them comprehend the industrial revolution brought about by disruptive technologies and develop successful digital transformation plans.

1.5 Research Structure

This paper consists of eight sections: introduction; literature review and theoretical foundation; research model and hypotheses; research methodology; case analysis; results and hypothesis testing; discussion and implications; conclusion, limitations, and future research.

2. Literature review

6.5. Digital Disruption and Technological Disruption

Disruptive innovation's fundamental framework, which sees new models targeting overlooked niches before entering mainstream markets and supplanting incumbent firms, is still very applicable in today's digital economy (Zhang et al., 2022). According to recent research, this theory is expanded to encompass digital disruption, with the understanding that digital technology fundamentally alters value chains, necessitates the rewriting of industry norms, and establishes new frameworks for value capture (Verhoef et al., 2021).

This type of digital disruption and transformation is widely described as a process that causes major shifts in value creation methods, poses a threat to established business models, and alters the competitive environment of industries (Heshmatisafa & Seppänen, 2023). Digital disruption typically has a number of unique features:

- Platformization: Services are delivered via digital platforms rather than physical goods.
- Free or inexpensive access: Basic services are frequently free, facilitating rapid user acquisition.
- Data-centricity: The core value comes from the real-time use, analysis, and collection of data.
- Competition between ecosystems: Integrated digital business ecosystems compete with one another, not just individual businesses (Tawaststjerna & Olander, 2021).

Digital disruption is most evident in the substitution of standalone GPS equipment by mobile apps in industries like navigation. According to empirical data, such digital changes quickly lower the sales volume, income, and profit margins of established companies that use outdated models (Verhoef et al., 2021). Therefore, unless traditional companies that depend on hardware sales proactively seek business model innovation and change their value extraction logic to reflect these new realities, they are at risk of structural decline (Clauss et al., 2021; Menter et al., 2023).

Disruption compels firms to realign resources, modify strategies, and develop new business models in addition to jeopardizing corporate performance (Clauss et al., 2021; Smuts et al., 2024). Nevertheless, firms' capacity to react to disruption varies considerably depending on internal variables such as leadership quality, organizational flexibility, and entrepreneurial culture (Lisdiono et al., 2022; Salvato, 2021).

6.6. Leadership Adaptability

It has long been recognized that leadership is an essential component of strategic decision-making and organizational change. Traditional leadership strategies that prioritize efficiency and control are adequate in stable environments. However, leadership must be flexible in volatile, uncertain, complicated, and ambiguous VUCA contexts (Esenyel, 2024; Volderauer et al., 2024).

The ability of leaders to identify changes in the environment, modify cognitive frameworks, redistribute resources, reorganize organizational structures, and lead strategic change in unexpected circumstances is what is meant by leadership flexibility (Huang et al., 2023; Li et al., 2024). It comprises four interconnected elements:

1. Revolutionary leadership: fostering creativity, encouraging vision, and fostering a commitment to change (Chang & Octoyuda, 2024; Farag, 2025).
2. Adaptive leadership: addressing adaptive challenges, maintaining resilience in the face of disruptive change, and resolving disputes (Shaw et al., 2023; Hossain et al., 2025).
3. Strategic leadership: Effective strategic leadership plays a crucial role in maintaining long-term competitiveness by aligning an organization's internal skills and resources with external environmental shifts (Kebede et al., 2024).
4. Digital leadership: Leading in an environment driven by data, platforms, and artificial intelligence (Alawiah & Tukiran, 2024; Hossain et al., 2025).

According to empirical evidence, adaptive leadership is a reliable indicator of strategic agility, business model innovation, and overall business success during digital transformation (AlNuaimi et al., 2022; Li et al., 2021). Dynamic capabilities allow extremely adaptive leaders to recognize disruptive threats early, make bold strategic choices, realign resources, and manage the organization through a smooth transformation (Tian et al., 2025). Conversely, authoritarian leadership fosters misalignment with operational circumstances, ultimately results in an inability to manage disruptive change, and exacerbates organizational inertia (Trenerry et al., 2021; Viljoen et al., 2022).

In the face of technological change, few research have clearly demonstrated a connection between leadership flexibility, strategic responsiveness, and business performance. The relationship between an entrepreneurial mindset and leadership flexibility has been studied even less. This research closes the gap.

6.7. Entrepreneurial Orientation (EO).

Entrepreneurial orientation reflects the strategic stance of a company towards entrepreneurship, encompassing continuous innovation, proactive opportunity seeking, and reasonable risk-taking (Lumpkin & Dess, 1996; Covin & Lumpkin, 2022). It is widely regarded as a key driver of innovation, risk-taking, and sustainable competitive advantage.

Classic EO encompasses three core dimensions:

1. Innovativeness: Supporting new ideas, experimentation, research and development, and creative solutions.
2. Forward-looking: Anticipate future demands and competitor trends to seize emerging opportunities.
3. Risk-taking: willing to invest resources into projects with uncertain outcomes.

In the digital environment, entrepreneurial orientation (EO) assists enterprises in overcoming inertia, embracing new technologies, and exploring novel business models (Kraus et al., 2022; Nambisan et al., 2021). An increasing number of empirical studies have confirmed that entrepreneurial orientation is positively correlated with innovative strength, competitive advantage, and corporate performance, especially. It is in dynamic and disruptive markets (Hughes et al., 2021; Lew et al., 2024; Yaqub et al., 2024).

Recent literature has further extended entrepreneurial orientation (EO) to the field of digital entrepreneurship, emphasizing data utilization, platform participation, and ecosystem collaboration (Zahra & Nambisan, 2022; Ferreira et al., 2024). For existing enterprises facing disruption, entrepreneurial orientation supports proactive restructuring rather than passive defense (Liu et al., 2024; Maulana & Susilowati, 2025). However, in a disruptive environment, the mechanism by which entrepreneurial orientation affects performance through innovation capability and competitive advantage remains to be further studied

6.8. Dynamic capability theory

The Dynamic Capabilities Theory, originally proposed by Teece, Pisano, and Shuen (1997) and further refined for modern digital contexts by Teece (2023) and Ellström et al. (2022), explains how companies can achieve and maintain competitive advantage in a rapidly changing environment. The theory focuses on three interrelated capabilities:

1. Sensing (Perception): Identify and assess opportunities and threats in the external environment.
2. Seizing: Mobilize resources to capture valuable opportunities.
3. Transforming (Reconfiguring): Continuously reconfigure assets, structures, and processes to maintain adaptability

This framework is highly applicable to enterprises undergoing digital transformation and technological disruption, as it explains the internal mechanics required to pivot legacy business models effectively (Al-Moaid & Almarhdi, 2024).

6.9. Strategic Responsiveness, Innovation Capability, Competitive Advantage, and Corporate Performance

2.5.1. Strategic Response

Strategic response refers to a series of well-thought-out actions taken by a company to cope with environmental pressures (Shui et al., 2024). Under disruptive changes, typical response measures include business model innovation, strategic alliances, market exit, diversification, and digital transformation. Effective strategic responses can have a positive impact on performance (Liu et al., 2024; Spieth et al., 2023).

2.5.2. Innovation Capability

Innovative capability refers to the ability to develop new technologies, products, services, or processes (Lewrick et al., 2021; Crossan & Apaydin, 2021). It serves as a crucial mediating variable between entrepreneurial orientation and competitive advantage.

2.5.3. Competitive Advantage

Competitive advantage stems from unique, valuable, scarce, and difficult-to-imitate resources and capabilities (Barney, 1991). In the digital industry, advantages often originate from data assets, technology patents, and ecosystem partnerships (Li et al., 2021; Kapoor, 2022).

2.5.4. Company Performance

Corporate performance encompasses financial indicators (revenue, profitability) and strategic indicators (market share, viability, growth potential). Technological disruption often diminishes short-term performance, but if companies can respond effectively, it may lead to long-term growth (Vial, 2020; Teece, 2022).

2.6 Overview of theoretical framework and research gaps

Existing literature has made progress in studying disruptive innovation, leadership,

entrepreneurial orientation, and performance. However, there are still three key gaps:

1. Fragmentation: Most studies examine variables in isolation rather than placing them within a complete system for investigation.
2. Mediation ambiguity: The multi-stage mediation pathways between leadership adaptability, entrepreneurial orientation, strategic responsiveness, innovation, and performance remain unclear.
3. Insufficient background: There is limited research on the transition from hardware to digital platforms in the navigation and automotive ecosystem.

This study fills these gaps by constructing a dual-path integrative model based on multiple theories and validating it through rigorous case studies.

3. Methodology

3.1 Research Design

This study employs a comprehensive methodological approach combining a systematic literature review following PRISMA 2020 guidelines and an exploratory single-case study of TomTom International B.V. This dual-method approach enables both theoretical grounding and empirical validation of the proposed conceptual model.

3.2 Systematic Literature Review (SLR)

The systematic literature review followed the PRISMA 2020 guidelines to ensure rigorous and transparent selection of relevant studies:

- 1) Databases: Scopus, Google Scholar, ScienceDirect
- 2) Search terms: technological disruption, digital disruption, leadership adaptability, entrepreneurial orientation, platform competition, dynamic capabilities
- 3) Identified: 265 articles
- 4) Screening: 45 articles were excluded
- 5) Qualifications: 150 articles were excluded
- 6) Included: 50 high-quality peer-reviewed articles (2020-2025)

Phase	Action & Description	Quantity (n)
Identification	Records identified from databases (<i>Scopus, Google Scholar, ScienceDirect</i>)	n = 265
	Duplicates or records removed before screening	n = 0
Screening	Records screened (Title and abstract level)	n = 265
	Records excluded (<i>Irrelevant topics, wrong inndustry, etc.</i>)	n = 45
Eligibility	Reports sought for retrieval / Full-text assessment	n = 220
	Reports excluded at full-text stage (<i>e.g., lack of empirical data</i>)	n = 150
	Reports assessed for eligibility	n = 70
Included	Total studies included in the review	n = 50

Diagram 1. Flow diagram SLR

3.3 Exploratory Single-Case Study

Case Selection:

TomTom International B.V. was selected as the case study based on the following criteria:

- Extreme case: Represents a dramatic transformation from hardware to digital services
- Representative: Exemplifies challenges faced by traditional companies in digitally disrupted industries

- Information-rich: Extensive publicly available data enables comprehensive analysis

Data Sources:

- Annual reports (2007-2026)
- Gartner industry reports
- Press releases and official communications
- Peer-reviewed academic papers
- Industry analyses and market reports

Data Analysis Procedure:

The analysis followed a systematic three-stage coding process:

Table 1. Coding

Stage	Description	Example from tomtom
Open coding	Identifying initial concepts from data	"Hardware revenue decline", "Shift to maps"
Axial coding	Grouping concepts into categories	"Technological disruption", "Strategic response"
Selective coding	Integrating categories into core themes	"Hardware-to-platform transformation"

Validity: Data triangulation, longitudinal analysis, and pattern matching. To ensure the robustness of the methodology, three complementary strategies were employed: data triangulation. This study systematically integrates multiple data sources, including TomTom's annual reports, Gartner's industry analyses, press releases, and peer-reviewed academic literature. This triangulation method reduces reliance on a single perspective, thereby enhancing the credibility of the research findings. (Data sources: annual reports, Gartner reports, press releases, academic papers, industry analyses.)

- Vertical analysis

This case study covers TomTom's transformation journey from 2007 to 2026, showcasing the decline of its hardware business and revealing its gradual transition towards digital services. This time span allows us to identify strategic turning points and the trajectory of performance recovery. (TomTom has successfully transformed from a GPS manufacturer primarily focusing on hardware to a globally leading provider of location technology and data services)

- Pattern matching

The coding analysis followed a process of openness → axiality → selectivity, verifying propositions through qualitative pattern matching. Observed results (such as declining revenue, innovation capability, competitive advantage) were compared with theoretical expectations derived from the framework of disruptive innovation and dynamic capabilities. Internal validity was enhanced by matching empirical evidence with conceptual propositions. (Validation methods: data triangulation, longitudinal analysis, pattern matching.)

Table 2. Longitudinal financial data reveals the persistence of the interruption effect

Period	Revenue Trend	Operating Margin	Key Disruption Indicator
2010–2012	Sharp decline	Negative	Smartphone navigation achieves mass adoption
2013–2015	Stabilizing at lower base	Improving but negative	PND market contraction accelerates
2016–2020	Recovery trajectory	Approaching breakeven	Strategic transformation gains traction

2021–2025	Moderate growth	Positive (2025: 4.95%)	Location technology revenues stabilize

3.4 Research Model and Hypotheses

Conceptual Model:

Based on the aforementioned literature and theoretical derivation, this study constructs the following comprehensive model:

- a. Independent Variables: technological disruption, leadership adaptability, entrepreneurial orientation
- b. Mediating variables: strategic response, innovation capability, competitive advantage
- c. Dependent variable: Corporate performance (revenue and profitability)

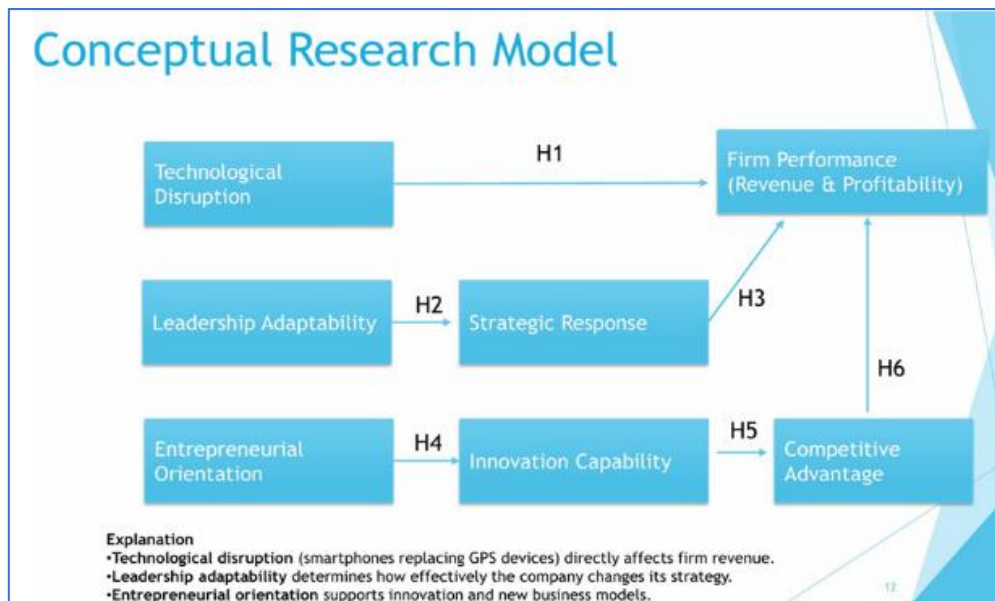


Diagram 1. Conceptual Model

Hypotheses:

- a. H1: Technological disruption has a significant negative impact on corporate performance.
- b. H2: Leadership adaptability has a significant positive impact on strategic response.
- c. H3: Strategic response has a significant positive impact on corporate performance.
- d. H4: Strategic response plays a mediating role between leadership adaptability and corporate performance.
- e. H5: Entrepreneurial orientation has a significant positive impact on innovation capability.
- f. H6: Innovation capability enhances competitive advantage, and competitive advantage plays a continuous mediating role between innovation capability and corporate performance.

4. Results and discussions

4.1 Proposition Testing Results

Proposition 1 (P1) states that technological disruption has a negative impact on corporate performance, especially for mature companies. A clear example is the rise of smartphone-based navigation applications (such as Google Maps and Apple Maps) that quickly replaced standalone GPS devices. This shift led to a significant decline in hardware revenue and profitability for companies like TomTom. Long-term financial data and industry analysis

confirm this structural decline, which is consistent with modern frameworks of disruption theory emphasizing the vulnerability of incumbent firms to rapid technological shifts (Gha et al., 2023; Utomo et al., 2023). Overall, this evidence supports the view that disruptive technologies initially weaken the performance of existing companies.

Proposition 2 (P2) emphasizes that the adaptability of leadership plays a crucial role in shaping a company's strategic response. This is fully demonstrated by TomTom's leadership through strategically exiting the consumer hardware market, reallocating resources, and shifting focus to digital maps and autonomous driving ecosystems. This adaptive approach is confirmed through an analysis of annual reports, press releases, industry analyses, and other materials, indicating that the company is able to actively perceive changes and effectively adjust its strategy. Therefore, adaptive leadership enables TomTom to make decisive strategic shifts that are aligned with emerging industry trends and technological advancements.

Proposition 3 (P3) emphasizes how strategic response measures can significantly enhance corporate performance during disruptive periods. By shifting to authorized digital maps, traffic data, and high-definition maps, the company has stabilized its revenue sources and enhanced its resilience. Furthermore, establishing partnerships within the automotive ecosystem has also solidified its competitive position. Years of case evidence support this approach, demonstrating a recovery trajectory consistent with the disruption theory proposed by Krause et al. (2022). Overall, the evidence confirms that strategic restructuring effectively mitigates the negative impacts of disruption, thereby achieving sustained performance improvement.

Proposition 4 (P4) emphasizes that the adaptability of leadership alone cannot directly enhance corporate performance. Instead, its positive impact is achieved through strategic response, especially strategic agility, restructuring, and digital transformation. Recent research by Alhosani and Ahmad (2024) demonstrates this mediating effect, verifying that adaptive leadership behaviors must first translate into a rapid strategic response (organizational agility) to subsequently affect the performance trajectory. These findings confirm that strategic response is the key mechanism connecting adaptive leadership with improved organizational outcomes, emphasizing that proactive strategic change is crucial for realizing the advantages of leadership in a dynamic business environment.

Proposition 5 (P5) states that entrepreneurial orientation (EO) enhances a company's innovation capability. TomTom's strategic investments in real-time traffic data, high-definition maps, and collaboration within its ecosystem serve as clear evidence. These initiatives demonstrate the key dimensions of entrepreneurial orientation: innovativeness, proactiveness, and risk-taking. Research supports this connection, emphasizing how R&D initiatives and new product launches driven by entrepreneurial orientation significantly contribute to enhancing innovation capability (Lumpkin & Dess, 1996; Kraus et al., 2022). Overall, entrepreneurial orientation plays a crucial role in enhancing innovation capability, especially in industries facing disruption and rapid change.

Proposition 6 (P6) states that a company's innovation capability enhances its competitive advantage and serves as a crucial link between entrepreneurial orientation (EO) and overall performance. Taking TomTom as an example, this is manifested through its proprietary map data, technical expertise, and strong ecosystem partnerships, which create unique and difficult-to-imitate advantages. These assets have consolidated TomTom's market position and helped it regain competitiveness. Research supports this point, showing a clear pattern: innovation output enhances competitive position, which in turn drives performance recovery. Therefore, innovation and competitive advantage form a serial mediation path, linking entrepreneurial orientation to better business outcomes.

4.2 Summary of Finding

Table 3. Proposition

Proposition	Evidence (TomTom Case)	Validation Method	Outcome
P1: Disruption → Performance decline	Smartphone apps substituted GPS devices, reducing revenue/profitability	Longitudinal financial data, industry reports	Supported
P2: Leadership adaptability → Strategic response	Exit from hardware, repositioning to digital services	Triangulation of reports, press releases, industry analyses	Supported
P3: Strategic response → Performance recovery	Digital services stabilized competitiveness	Case evidence across multiple years	Supported
P4: Strategic response mediates leadership-performance	Leadership enabled restructuring → recovery	Sequential coding of leadership → response → performance	Supported
P5: EO → Innovation capability	Investments in HD mapping, proactive ecosystem engagement	R&D initiatives, product launches	Supported
P6: Innovation capability → Competitive advantage → Performance	Proprietary data and partnerships restored competitiveness	Pattern matching of innovation → positioning → recovery	Supported

4.3 Theoretical Contribution

This study makes meaningful and rigorous theoretical contributions to the literature on technological disruption, adaptive leadership, entrepreneurial orientation, and dynamic capabilities. Firstly, it integrates leadership adaptability and entrepreneurial orientation into a coherent and testable framework under the pressure of technological disruption, addressing the long-standing issue of theoretical fragmentation in previous research. Most existing studies have explored these two constructs in isolation, whereas this study reveals their complementary and synergistic effects in supporting organizational transformation and performance recovery.

Secondly, this study formally identifies and empirically validates a dual mediation pathway: the strategic response mediation effect between leadership adaptability and corporate performance, as well as the continuous mediation effect of innovation capability and competitive advantage between entrepreneurial orientation and corporate performance. This multi-layered mechanism elucidates how internal resources and strategic behaviors are transformed into performance outcomes, significantly enriching the theoretical logic of organizational adaptability in disruptive environments.

Thirdly, this study extends the dynamic capability theory and provides a contextualized explanation by applying the perception-grasping-transformation framework to typical hardware-to-digital transformations. It demonstrates how perceiving external threats, grasping emerging opportunities, and transforming organizational resources jointly drive business renewal, thereby enhancing the practical relevance of dynamic capabilities in digital transformation research.

Fourthly, this paper advances the theory of technological disruption by demonstrating that corporate performance is not determined by disruption itself, but rather by the quality of organizational response driven by leadership and strategic orientation. This perspective provides a more balanced and process-based perspective on the survival and failure of existing enterprises under digital substitution.

4.4 Managerial Implication

These conclusions provide clear and actionable management insights for enterprises facing disruptive changes brought by digitalization and platforms. Firstly, managers must enhance their ability to scan the external environment and perceive threats, so as to identify technological substitutions at an early stage, rather than clinging to declining business models until severe performance crises arise.

Secondly, organizations should prioritize the cultivation of adaptive and transformational leadership skills to support bold strategic restructuring, resource adjustments, and organizational redesign. Leaders must strike a balance between short-term operational stability and long-term strategic renewal.

Thirdly, enterprises should integrate entrepreneurial orientation into their organizational culture and strategy, emphasizing continuous innovation, proactive market positioning, and appropriate risk-taking, in order to maintain competitiveness in the rapidly changing market.

Fourthly, enterprises primarily focusing on traditional products are strongly advised to expedite their transition to a data-driven, platform-based, and service-oriented business model. This will reduce their reliance on hardware revenue and establish stable income streams through ecosystem collaboration, particularly in the automotive and intelligent mobility sectors.

Fifthly, enterprises should establish agile organizational structures and responsive decision-making systems to support rapid strategic adjustments, continuous innovation, and sustainable growth in a highly disruptive digital environment.

4.5 Future Insights

Several emerging trends will fundamentally shape industrial competition and strategic management. Firstly, business models will continue to shift from product sales to platform ecosystems, emphasizing value co-creation among partners. Secondly, artificial intelligence, big data, and autonomous driving technology will become the core sources of competitive advantage in the field of location services and travel solutions. Thirdly, competition will increasingly shift from individual enterprises to digital ecosystems, requiring enterprises to choose appropriate strategic partnerships rather than competing independently. Fourthly, real-time data, planning.

Computational and analytical capabilities will replace physical assets as the most critical strategic resources. Fifth, innovation will evolve from occasional projects to continuous, organization-wide iterative learning. Sixth, future leaders must possess adaptability, digital literacy, and the ability to manage both existing businesses and explore new growth opportunities. These trends indicate that long-term success will depend on dynamic capabilities, strategic flexibility, and digital maturity, rather than historical advantages or static resources.

5. Conclusion

5.1 Main Findings

Through a thorough literature review and an extensive longitudinal case study of TomTom, this study examines how technological disruption, leadership agility, and entrepreneurial mindset collectively affect business results. According to the study findings, technological disruption has a major negative impact on income and profitability in the short term. Strategic response, which plays a crucial mediating role, can be effectively promoted by leadership flexibility, which in turn improves business performance. Through a sequence of mediating mechanisms, an entrepreneurial mindset can improve innovation capacity, boost competitive advantage, and ultimately improve business performance. All hypotheses are supported by the real-world example of TomTom's successful transition from a GPS hardware producer to a world leader in location technology and data services. The thorough model developed in this study successfully demonstrates how established businesses may withstand disruption, carry out strategic change, and regain long-term performance. These results contribute to a greater theoretical comprehension of organizational flexibility and offer empirical support for firms undergoing digital transition.

5. 2 Limitations

Notwithstanding the theoretical and practical utility of this research, there remain a number of restrictions. First and foremost, this investigation uses an exploratory single-case approach, concentrating only on TomTom. Despite being quite representative, the study's results are still not applicable to different industries, firm sizes, or institutional contexts. Second, this research is mostly based on secondary data like industry reports, yearly reports, and publicly available materials; it does not include direct interview data from frontline workers or senior management. This may restrict the extent to which one comprehends the inner workings of decision-making, discuss. Thirdly, this research uses qualitative techniques and avoids using structural equation modeling or statistical testing with a large sample size.

(SEM), and as a result, it cannot produce numerical assessments of effect sizes or statistical generalizability. Fourthly, the model does not account for possible contingency variables that may influence the observed links, such as institutional environment, industry pace, or organizational inertia. When interpreting and implementing the research findings, these restrictions should be taken into account.

5. 3 Future research directions

Based on the findings and limitations of this study, this paper proposes several promising directions for future research. First, future research should utilize structural equation modeling (SEM) in quantitative studies with large samples to verify the universality of the model across different sectors and regions, enabling statistical analysis of mediating and moderating effects. Secondly, thru comparative case studies across sectors, it is possible to explore the similarities and differences in adaptation patterns within the manufacturing, automotive, retail, and technology industries. Thirdly, researchers can clarify the boundary conditions of theoretical models by introducing conditional variables such as digital capabilities, data governance, organizational inertia, and institutional support. Fourth, future qualitative research can adopt a longitudinal design using multiple case studies and capture the dynamic changes in strategic responses thru detailed interviews with executives. Fifth, with the rapid development of artificial intelligence and autonomous systems, future research can explore how AI capabilities and digital governance are reconstructing disruptive innovation, leadership, innovation, and competitive advantage. Sixth, future research may have the potential to extend this framework to emerging markets. In emerging markets, digital transformation and institutional complexity present unique challenges and opportunities for the transformation of existing companies.

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THE EFFECT OF FLASH SALES & FREE SHIPPING ON IMPULSIVE BUYING (A STUDY OF SHOPEE APP USERS IN BOGOR)

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Abstract

E-commerce in Indonesia is growing rapidly along with the increasingly competitive competition among e-commerce platforms that offer various services for online shopping customers. Various e-commerce platforms continue to strive to offer various marketing strategies, including flash sales and free shipping. These marketing strategies can influence customer psychology by creating a sense of urgency to immediately make spontaneous purchases because customers feel they are getting benefits from buying products with flash sales and free shipping promotions. This study uses a quantitative approach with a total of 100 respondents. The sampling method used is nonprobability sampling. The criteria for respondents in this study are those domiciled in Bogor, users of the Shopee application, and have made at least three transactions on Shopee. The data collection process was carried out by distributing questionnaires. Data analysis used in this study is Covariance-Based Structural Equation Modeling (CB-SEM) supported by JASP software. The results of the study indicate that flash sales and free shipping partially have a significant effect on impulsive buying behavior. Simultaneously, flash sales and free shipping have a significant effect on impulsive buying behavior. This is indicated by the p-value in the F test which obtained a value of ≤ 0.001 , as well as an R-Square value of 0.664 which indicates that flash sales and free shipping together can explain 66.4% of the variation in impulsive buying.

Keywords: flash sale, free shipping, impulsive buying

**ANALYSIS OF CUSTOMER RELATIONSHIP MANAGEMENT (CRM)
IMPLEMENTATION FOR ASACLEAN CUSTOMER RETENTION
AT PT. ELEMATEC INDONESIA**

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Abstract

This study aims to examine the implementation of Customer Relationship Management (CRM) in retaining Asaclean customers at PT. Elematec Indonesia and to identify strategic efforts to improve customer retention. The research employed a qualitative descriptive approach and was conducted during an independent internship program at PT. Elematec Indonesia. Data were obtained through observations, interviews, documentation, and a literature review, while the analysis was carried out using the SWOT framework. The results demonstrate that the company has implemented CRM through various relationship-oriented activities, including customer visits, routine follow-up communication, complaint management, after-sales services, and customer engagement programs. Nevertheless, customer loss remains a recurring issue due to several constraints, such as the absence of an integrated customer management system, reliance on a single product representative, and the lack of periodic CRM performance evaluation. The findings further indicate that optimizing the company's internal strengths and external opportunities through a more integrated CRM strategy has the potential to strengthen customer loyalty and minimize customer loss.

Keywords: Customer Relationship Management, Customer Retention, B2B Marketing, SWOT Analysis, Asaclean.

FEMALE BOARD REPRESENTATION, ESG PERFORMANCE, CARBON DISCLOSURE, AND THE COST OF CAPITAL: EVIDENCE FROM INDONESIA AND MALAYSIA

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Abstract

This study examines whether female board representation influences the cost of capital of listed firms in two emerging Asian markets and whether ESG performance and carbon disclosure function as parallel mediating mechanisms. Drawing on stakeholder, upper echelons, signalling and legitimacy theories, the study employs a parallel-mediation framework using an unbalanced panel of 1,358 firm-year observations from 284 non-financial firms listed on the Indonesia Stock Exchange and Bursa Malaysia over the 2016–2025 period. Female board representation is measured by the proportion, presence and number of female directors, while the cost of capital is proxied by the weighted average cost of capital (WACC), the cost of equity (CoE) and the cost of debt (CoD). ESG performance and carbon disclosure scores are obtained from the LSEG/Refinitiv database. The empirical analysis incorporates industry, country and year fixed effects with firm-clustered standard errors. The findings indicate that female board representation is associated with higher financing costs while also corresponding with stronger ESG performance and more extensive carbon disclosure. However, improvements in sustainability performance and disclosure do not appear to explain the relationship between board gender diversity and the cost of capital. These findings suggest that board gender diversity contributes to strengthening corporate sustainability practices, yet such improvements are not fully reflected in capital pricing decisions within emerging markets. The study highlights the importance of institutional development in sustainable finance and suggests that the effectiveness of governance-related sustainability signals depends on the extent to which capital markets incorporate ESG-related information into financing decisions. These insights contribute to the literature on corporate governance, sustainable finance and capital market development in emerging economies.

Keywords: Board gender diversity; Financing costs; ESG performance; Carbon disclosure; Emerging markets

1. Introduction

The determinants of a firm's cost of capital have long occupied a central place in corporate finance, yet recent scholarship increasingly emphasizes that non-financial attributes particularly governance quality and sustainability performance have a material bearing on the rate of return investors require (Bo, 2025; Chang et al., 2022). Firms that demonstrate stronger environmental and social practices are frequently found to face lower financing costs, because investors price the reduced risk and improved transparency associated with responsible

corporate conduct (Tron et al., 2025; Ellili, 2020). Stakeholder theory offers an analytical lens for this relationship, explaining how firms that respond credibly to heterogeneous stakeholder expectations reduce information asymmetry and the perceived riskiness of their securities, which is ultimately reflected in a lower cost of capital (Awa et al., 2024; Chen et al., 2023; Ali et al., 2019).

Within this broader debate, the gender composition of corporate leadership has attracted growing attention. A substantial body of evidence documents that the presence of women in the boardroom is associated with distinctive strategic choices, including more conservative risk-taking, higher disclosure quality and stronger engagement with sustainability agendas (Basdekis et al., 2023; Siregar et al., 2024; Doan & Iskandar-Datta, 2020). Consistent with upper echelons theory, these differences arise because directors' values, experiences and cognitive frames shape the strategic decisions of the organisations they govern (Yu et al., 2025; Heubeck, 2024). Empirical findings on the link between board gender diversity and financial outcomes nevertheless remain mixed: some studies report beneficial effects on performance and sustainability, whereas others find weak, insignificant or context-dependent results (Cambrea et al., 2023; Romano et al., 2020). This heterogeneity suggests that any influence of female directors on the cost of capital is unlikely to be purely direct, and may instead operate through intervening sustainability-related mechanisms that have not been fully disentangled (Suherman et al., 2023; Pahala et al., 2025).

Two such mechanisms are especially salient. First, ESG performance has been shown to be negatively associated with the cost of capital, as higher ESG ratings signal superior risk management and a long-term orientation that reassures both equity and debt investors (Yilmaz, 2022; Raimo et al., 2021; Zhao et al., 2024). Second, and conceptually distinct, carbon disclosure captures the extent to which firms transparently report climate-related information; more extensive carbon disclosure has been linked to lower information asymmetry, reduced idiosyncratic volatility and improved valuation (Matthews et al., 2025; Perera et al., 2023). Importantly, carbon disclosure does not always move in tandem with aggregate ESG performance, implying that the two constructs may exert independent effects on capital-market outcomes (Liu et al., 2025; Desai, 2022). Treating sustainability as a single, homogeneous construct therefore risks obscuring the specific channels through which leadership characteristics are transmitted to financing costs.

Despite the richness of these literatures, three gaps remain. First, most prior studies examine the gender-diversity–performance, ESG–cost-of-capital and carbon-disclosure–value relationships in isolation, or rely on single-mediator designs that cannot separate overlapping sustainability channels (Wang et al., 2023; Velte, 2022). Second, the bulk of the evidence is drawn from developed markets, leaving the emerging-market context where institutional, regulatory and disclosure environments differ markedly comparatively underexplored (Zhu et al., 2022; Dua & Sharma, 2024). Third, cross-country comparative evidence within emerging Asia is scarce, even though neighbouring economies such as Indonesia and Malaysia exhibit meaningful differences in governance regimes and sustainability-reporting requirements that may condition these relationships.

This study addresses these gaps by asking whether female board representation is associated with the cost of capital of listed firms in Indonesia and Malaysia, and whether ESG performance and carbon disclosure mediate that association individually and in parallel. Four questions are posed: (1) Is female board representation associated with firms' cost of capital? (2) Does ESG performance mediate that association? (3) Does carbon disclosure mediate it? (4) Do ESG performance and carbon disclosure operate as parallel and independent mediating mechanisms?

The answers we obtain are, in two of three respects, at odds with the prevailing expectation. Using a complete-case unbalanced panel of 1,358 firm-year observations for 284 non-financial firms over 2016–2025, we find that female board representation is positively not negatively associated with the weighted average cost of capital, the cost of equity and, most robustly, the cost of debt. At the same time, the proportion and the number of female directors are positively and significantly associated with both ESG performance and carbon disclosure, confirming the “internal” prediction of upper echelons theory. Yet neither ESG performance nor carbon disclosure is significantly associated with any measure of financing cost, whether the mediators are entered separately or simultaneously. The chain that the literature typically assumes diverse boards produce better sustainability outcomes, and better sustainability outcomes are rewarded with cheaper capital is therefore broken at its second link in this setting.

The study makes three contributions. Theoretically, it shows that the signalling and legitimacy mechanisms so often invoked in the sustainable-finance literature are institutionally conditional: a signal is priced only when capital providers possess both the capacity and the incentive to interpret it, and neither condition can be taken for granted in bank-dominated, concentrated-ownership emerging markets. Modelling sustainability as two distinct constructs rather than one monolithic factor allows us to demonstrate that this failure of transmission is not an artefact of construct aggregation, since aggregate ESG performance and carbon-specific transparency behave identically. Empirically, the paper provides cross-country evidence from two institutionally distinct ASEAN markets over a decade that includes the introduction of Malaysia’s gender-diversity expectations and Indonesia’s sustainable-finance regulation, and it documents an economically meaningful positive association between board gender diversity and financing costs that has rarely been reported. Practically, the results reframe the policy problem: in these markets the binding constraint on the “business case” for diversity and disclosure lies not in corporate behaviour, which is already responding, but in the pricing capacity of the capital markets themselves an insight directly relevant to Sustainable Development Goal 8 on decent work and inclusive economic growth.

The remainder of the paper is organised as follows. Section 2 reviews the relevant theory and evidence and develops the hypotheses. Section 3 describes the data, variable measurement and empirical strategy. Section 4 reports the results, Section 5 discusses them, and Section 6 concludes with limitations and directions for future research.

2. Literature review and hypothesis development

2.1. Theoretical framework

The relationships examined here are grounded in four complementary perspectives. Stakeholder theory posits that firms create durable value by attending to the legitimate claims of a broad set of constituents employees, communities, regulators and providers of capital rather than shareholders alone; responsiveness to these claims through credible governance and sustainability outcomes reduces conflict and information asymmetry, lowering the risk premium demanded by investors (Awa et al., 2024; Valentinov, 2023; Bello-Pintado et al., 2023). Upper echelons theory complements this view by arguing that organisational outcomes reflect the values, experiences and cognitive frames of those at the apex of the firm; the demographic composition of the board, including its gender composition, therefore shapes strategic choices regarding risk, disclosure and sustainability (Yu et al., 2025; Heubeck, 2024). Signalling theory explains why such choices matter for capital markets: under information asymmetry, observable indicators such as ESG ratings and voluntary disclosures function as costly, credible signals of management quality and long-term orientation, influencing investors’ assessment of risk (Spence, 1973; Huang, 2022; Pulino et al., 2022). Finally, legitimacy theory accounts for environmental transparency specifically, explaining how firms use carbon and

other environmental disclosures to align with regulatory and societal expectations and to secure their licence to operate (Suchman, 1995; Akhter et al., 2022; Yolifiandri et al., 2025).

Integrating these theoretical perspectives, this study develops a conceptual framework in which female board representation affects the cost of capital both directly and indirectly through ESG performance and carbon disclosure. Importantly, these perspectives distinguish between two analytically distinct mechanisms. Upper echelons theory and stakeholder theory primarily explain how board gender diversity shapes firms' sustainability-related decisions and practices, whereas signalling theory and legitimacy theory explain how such sustainability outcomes are interpreted and valued by external stakeholders, particularly capital providers. Existing empirical research has generally assumed that these internal and external mechanisms operate in tandem, with improvements in sustainability performance and disclosure naturally translating into lower financing costs. In contrast, the present study explicitly disentangles these two mechanisms by examining the production of sustainability outcomes separately from their pricing by financial markets. This distinction provides a more rigorous assessment of the governance–finance relationship and offers new insights into whether enhanced sustainability practices are necessarily rewarded through a lower cost of capital.

2.2. Female board representation and the cost of capital

A growing literature links gender diversity in corporate leadership to firm outcomes. Female directors are frequently associated with more conservative financial policies, enhanced monitoring intensity and higher-quality disclosure attributes that can reduce the riskiness of a firm's cash flows and the opacity of its reporting (Basdekis et al., 2023; Doan & Iskandar-Datta, 2020; Alkayed et al., 2024). From an upper echelons standpoint, these tendencies reflect systematic differences in risk preferences and stakeholder orientation, which may translate into lower volatility and reduced agency costs (Siregar et al., 2024; Fatarina et al., 2023). To the extent that capital providers reward such characteristics, firms with greater female board representation should face a lower cost of capital.

Despite growing scholarly attention, the empirical evidence remains mixed. Several studies associate board gender diversity with improvements in governance quality and more favourable financing conditions, whereas others find limited or contradictory evidence (Pahala et al., 2025; Zampone et al., 2024), while others find insignificant or context-dependent associations, particularly where female representation falls below a critical mass of roughly three directors or thirty per cent of seats (Romano et al., 2020; Cambrea et al., 2023; De Masi et al., 2021). A further strand cautions that the direction of selection matters: the “glass cliff” literature documents that women are disproportionately appointed to leadership positions in firms already experiencing elevated risk or deteriorating performance, which can generate a positive cross-sectional correlation between female representation and risk-related outcomes even in the absence of any adverse causal effect (Ryan & Haslam, 2005).

H1. Female board representation is negatively associated with firms' cost of capital.

2.3. The mediating role of ESG performance

There are strong theoretical and empirical reasons to expect female directors to enhance ESG performance. Female leaders tend to display greater sensitivity to social and environmental concerns and a stronger stakeholder orientation, which manifests in more robust sustainability commitments and disclosure (De Masi et al., 2021; Wang et al., 2025; Yahya, 2025). Empirical studies report positive associations between female representation in top governance bodies and ESG ratings, although the strength of the effect is sometimes conditioned by board structure and CEO duality (Heubeck, 2024; Zhu et al., 2022).

In turn, ESG performance is widely documented to reduce financing costs. Higher ESG ratings are associated with a lower cost of equity and of debt because they signal effective risk management, lower the likelihood of costly controversies and broaden the investor base (Yilmaz, 2022; Eliwa et al., 2021; Fandella et al., 2023; Gonçalves & Barros, 2022; Moussa & Elmarzouky, 2024). Some studies do report weak or insignificant effects, attributing this to measurement heterogeneity and rating divergence (Jang et al., 2020; Dua & Sharma, 2024), but the preponderance of evidence supports a negative ESG–cost-of-capital relationship. Linking the two strands, ESG performance is expected to operate as a transmission channel: female directors strengthen ESG performance, which in turn lowers the cost of capital.

H2: ESG performance mediates the negative relationship between female board representation and firms' cost of capital.

2.4. The mediating role of carbon disclosure

Carbon disclosure constitutes a distinct dimension of environmental transparency that captures the breadth and credibility of a firm's climate-related reporting. Drawing on legitimacy theory, firms disclose carbon information to demonstrate conformity with evolving regulatory and societal expectations (Akhter et al., 2022; Desai, 2022). Female directors, given their documented stakeholder orientation and emphasis on transparency, are likely to promote more extensive carbon disclosure (De Masi et al., 2021; Alkayed et al., 2024).

Greater carbon transparency is, in turn, associated with lower information asymmetry, reduced idiosyncratic volatility and improved market valuation, all of which are conducive to a lower cost of capital (Matthews et al., 2025; Perera et al., 2023; Siddique et al., 2021). Recent evidence further indicates that carbon information disclosure exerts causal and dynamic effects on firm value that are not fully captured by aggregate ESG measures (Liu et al., 2025; Habibullah & Friyani, 2025). Carbon disclosure is therefore expected to mediate the relationship between female board representation and the cost of capital independently of overall ESG performance.

H3. Carbon disclosure mediates the negative relationship between female board representation and firms' cost of capital.

2.5. Parallel mediation of ESG performance and carbon disclosure

Because aggregate ESG scores and carbon-specific disclosure do not necessarily move together, treating them as a single mechanism may conflate distinct channels and obscure their respective contributions (Liu et al., 2025; Anggraini & Andayani, 2025). A parallel-mediation framework allows each mediator to be modelled simultaneously, isolating the unique indirect effect transmitted through ESG performance from that transmitted through carbon disclosure while accounting for their correlation (Preacher & Hayes, 2008; Matiza, 2022; Pascoal et al., 2020). This approach affords a more precise identification of how female directors influence financing costs and permits a direct test of whether the two mechanisms are genuinely independent.

H4. ESG performance and carbon disclosure operate as parallel and independent mediators of the relationship between female board representation and firms' cost of capital.

2.6. Institutional context: Indonesia and Malaysia

Indonesia and Malaysia are neighbouring upper-middle-income ASEAN economies whose capital markets are similar in several structural respects and instructively different in others, which is what makes the pairing informative. Both are bank-dominated financial systems in which listed non-financial firms rely heavily on relationship-based bank credit

rather than on public bond markets, and both exhibit high ownership concentration, with family and state blockholders common. In such settings, the classic information-asymmetry problem that underpins signalling arguments is partly resolved through private channels such as blockholder monitoring, group affiliation and long-standing banking relationships rather than through public disclosure, which weakens the marginal informational value of any given public signal.

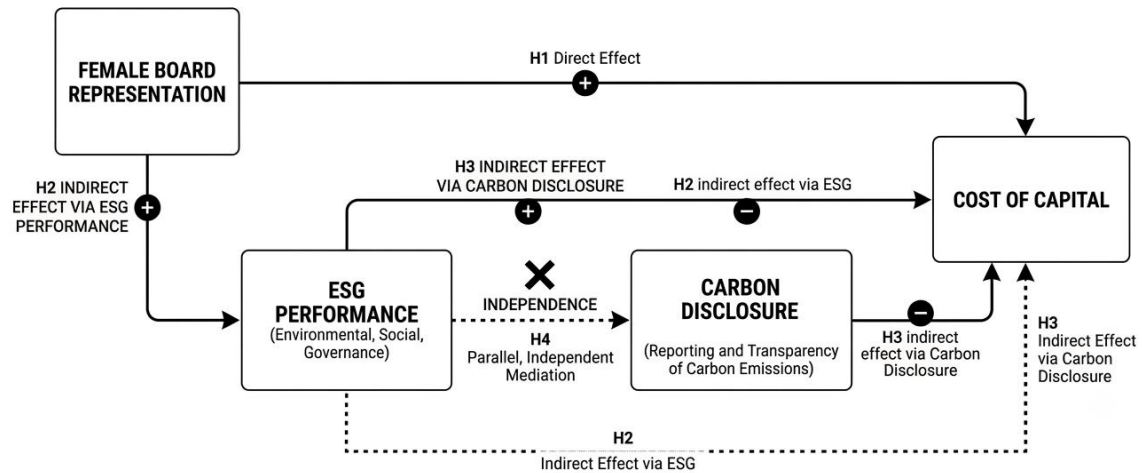


Figure. 1 Summarizes the conceptual framework
Source: Authors' work

The two jurisdictions differ, however, in board-composition governance and in the architecture of sustainability regulation. Malaysia's Malaysian Code on Corporate Governance has, since 2017, set an explicit expectation of at least 30 per cent women directors, initially for large listed issuers on a comply-or-explain basis and subsequently extended in scope, making board gender diversity a salient and partly externally driven attribute of Malaysian boards (Securities Commission Malaysia, 2021). Indonesia has no comparable quota or comply-or-explain target; female board representation there arises from firm-level choice and, frequently, from family ownership structures in which women directors are related to the controlling shareholder. Indonesia has, by contrast, moved earlier and more prescriptively on sustainability reporting, requiring listed issuers and financial institutions to publish sustainability reports under Financial Services Authority Regulation No. 51/POJK.03/2017 (Otoritas Jasa Keuangan, 2017), whereas Malaysia's sustainability-reporting requirements have evolved through Bursa Malaysia's listing requirements and, more recently, the National Sustainability Reporting Framework.

3. Data and method

3.1. Research design

This study adopts a quantitative, explanatory research design using panel data and a parallel-mediation framework to examine the direct and indirect associations between female board representation and the cost of capital. A cross-country perspective is employed, pooling non-financial firms in Indonesia and Malaysia so as to capture two institutionally distinct emerging Asian markets while retaining sufficient statistical power (Devi, 2023; Kosmützky et al., 2020). Female board representation is positioned as the independent variable, the cost of capital as the dependent variable, and ESG performance and carbon disclosure as parallel mediating variables. Because the design is observational and the identification strategy relies

on within-industry, within-country and within-year comparisons rather than on exogenous variation in board composition, the estimates reported below are interpreted throughout as conditional associations rather than as causal effects.

3.2. Population, sample and data

The population comprises non-financial firms listed on the Indonesia Stock Exchange (IDX) and Bursa Malaysia over the ten-year period 2016–2025. Financial firms are excluded owing to their distinct regulatory environment and capital-structure characteristics. Cost-of-capital inputs, ESG performance scores and carbon disclosure scores are obtained from the LSEG/Refinitiv database; board-composition data are drawn from the same source and cross-checked against annual and sustainability reports.

The sample is constructed on a complete-case basis: an observation is retained only if data are available for every variable entering the analysis. Table 2 documents the resulting attrition. The initial cross-section of Indonesian and Malaysian listed firms yields 11,168 firm-year observations for 1,218 firms, of which 9,810 are lost to missing data overwhelmingly because ESG and carbon-disclosure scores are assigned by LSEG/Refinitiv only to firms within its analytical coverage universe, which in these two markets is confined largely to the larger and more liquid issuers. The final estimation sample is an unbalanced panel of 1,358 firm-year observations for 284 firms, of which 416 observations (65 firms) are Indonesian and 942 observations (219 firms) are Malaysian, with an average of 4.78 observations per firm. The unbalanced structure is retained deliberately, since requiring a full ten-year record would compound the coverage bias already introduced by rating availability.

3.3. Variable Measurement

The dependent variable, the cost of capital, is proxied principally by the weighted average cost of capital (WACC), with the cost of equity (CoE) and the cost of debt (CoD) examined as alternative measures (Hazea et al., 2025; Tawfiq et al., 2024). WACC weights the costs of equity and debt by their respective shares in the capital structure:

$$WACC = CoE \times \frac{E}{D + E} + CoD \times \frac{D}{D + E}$$

CoE is estimated using the capital asset pricing model, which relates the expected return to systematic risk:

$$CoE = r_f + \beta(r_m - r_f)$$

where r_f is the risk-free rate, β is the firm's systematic risk and r_m is the expected market return. CoD is measured as the ratio of interest expense to total interest-bearing debt (Eliwa et al., 2021; Acheampong & Ibeji, 2024):

$$CoD = \frac{\text{Interest expense}}{\text{Total interest-bearing debt}}$$

The independent variable, female board representation, is operationalised in three complementary ways, each capturing a different construct: (i) the proportion of female board members, defined as the number of female directors divided by total board size and expressed as a percentage, which captures relative voice; (ii) a female board dummy equal to one if the firm has at least one female director and zero otherwise, which captures mere presence or tokenism; and (iii) the number of female board members, which captures absolute representation and is the measure most closely aligned with critical-mass arguments (Suherman et al., 2021; Fatarina et al., 2023; De Masi et al., 2021). Because the three measures are strongly collinear (Table 4), each is entered in a separate specification rather than jointly.

The two mediating variables are obtained from LSEG/Refinitiv. ESG performance is measured by the ESG score, a composite assessment of environmental, social and governance

practices on a 0–100 scale in which higher scores indicate stronger performance (Nirino et al., 2021; Fandella et al., 2023). Carbon disclosure is measured by the carbon/emissions disclosure score, also on a 0–100 scale, which reflects the extent of greenhouse-gas reporting, emission-reduction initiatives and climate-related policies, with higher scores denoting greater transparency (Siddique et al., 2021).

Following prior literature, all models control for firm size (the natural logarithm of total assets), leverage (the debt-to-equity ratio, DER), profitability (return on equity, ROE), firm age (years since establishment) and liquidity (the current ratio) (Suherman et al., 2023; Acheampong & Ibeji, 2024; Ramirez et al., 2022). Price-to-book value (PBV) was initially considered as a control for growth opportunities but was excluded from the estimated models because of its very high correlation with ROE ($r = 0.786$; see Table 4), which would have introduced avoidable multicollinearity without adding independent information; descriptive statistics for PBV are nonetheless reported for completeness. Industry, country and year fixed effects are included throughout to absorb sector-specific, jurisdiction-specific and macroeconomic influences, and all continuous and count variables are winsorised at the 1st and 99th percentiles to limit the influence of extreme observations. Table 1 summarises the measurement of all variables.

Table 1. Definition and measurement of variables

Variable	Category	Measurement	Source
Cost of capital (WACC)	Dependent	Weighted average of the cost of equity and cost of debt, weighted by their shares in the capital structure	LSEG/Refinitiv; annual reports
Cost of equity (CoE)	Dependent (alt.)	Capital asset pricing model: risk-free rate + $\beta \times$ market risk premium	LSEG/Refinitiv; market data
Cost of debt (CoD)	Dependent (alt.)	Interest expense divided by total interest-bearing debt	LSEG/Refinitiv; annual reports
Proportion of female board members	Independent	Number of female directors divided by total board size (%)	LSEG/Refinitiv; annual reports
Female board dummy	Independent	= 1 if at least one director is female, 0 otherwise	LSEG/Refinitiv; annual reports
Number of female board members	Independent	Count of female directors on the board	LSEG/Refinitiv; annual reports
ESG performance	Mediator	ESG score capturing environmental, social and governance practices, 0–100 (higher = stronger)	LSEG/Refinitiv
Carbon disclosure	Mediator	Carbon/emissions disclosure score, 0–100 (higher = greater transparency)	LSEG/Refinitiv
Firm size	Control	Natural logarithm of total assets	Annual reports
Leverage (DER)	Control	Total debt divided by total equity	Annual reports
Profitability (ROE)	Control	Net income divided by total equity	Annual reports
Firm age	Control	Number of years since the firm was established	Annual reports
Liquidity	Control	Current ratio (current assets / current liabilities)	Annual reports
Growth opportunities (PBV)	Reported only	Price-to-book value; excluded from regressions owing to high correlation with ROE	Market data
Country	Fixed effect	Indicator distinguishing Indonesian from Malaysian firms	—
Industry	Fixed effect	Eleven industry groupings	LSEG/Refinitiv
Year	Fixed effect	Observation year, 2016–2025	—

3.4. Empirical models

To examine the direct association and the two mediating channels, six models are estimated. For firm i in year t , Model 1 tests the direct association between female board representation and the cost of capital:

$$CoC_{it} = \alpha_0 + \alpha_1 FEMALE_{it} + \alpha_k Controls_{it} + \eta_j + \delta_c + \lambda_t + \varepsilon_{it}$$

Model 2 tests whether female board representation is associated with ESG performance:

$$ESG_{it} = \beta_0 + \beta_1 FEMALE_{it} + \beta_k Controls_{it} + \eta_j + \delta_c + \lambda_t + \varepsilon_{it}$$

Model 3 incorporates ESG performance into the cost-of-capital equation to assess its mediating role:

$$CoC_{it} = \gamma_0 + \gamma_1 FEMALE_{it} + \gamma_2 ESG_{it} + \gamma_k Controls_{it} + \eta_j + \delta_c + \lambda_t + \varepsilon_{it}$$

Model 4 tests whether female board representation is associated with carbon disclosure:

$$CD_{it} = \delta_0 + \delta_1 FEMALE_{it} + \delta_k Controls_{it} + \eta_j + \delta_c + \lambda_t + \varepsilon_{it}$$

Model 5 includes carbon disclosure in the cost-of-capital equation:

$$CoC_{it} = \theta_0 + \theta_1 FEMALE_{it} + \theta_2 CD_{it} + \theta_k Controls_{it} + \eta_j + \delta_c + \lambda_t + \varepsilon_{it}$$

Finally, Model 6 specifies the parallel-mediation model, in which ESG performance and carbon disclosure enter the cost-of-capital equation simultaneously, allowing each to be assessed as an independent mediator:

$$CoC_{it} = \varphi_0 + \varphi_1 FEMALE_{it} + \varphi_2 ESG_{it} + \varphi_3 CD_{it} + \varphi_k Controls_{it} + \eta_j + \delta_c + \lambda_t + \varepsilon_{it}$$

Here CoC is the cost of capital (WACC, CoE or CoD); $FEMALE$ denotes female board representation (proportion, dummy or count); ESG is the ESG score; CD is the carbon disclosure score; $Controls$ is the vector of firm-level controls defined in Table 1; η_j , δ_c and λ_t capture industry, country and year fixed effects respectively; and ε_{it} is the idiosyncratic error term. Each equation is estimated three times, once for each measure of female board representation, and Equations (1), (3), (5) and (6) are estimated three times again, once for each cost-of-capital proxy.

3.5. Estimation strategy and hypothesis testing

The models are estimated by ordinary least squares with industry, country and year fixed effects and standard errors clustered at the firm level, which accommodates both heteroskedasticity and the serial dependence induced by repeated observations of the same firm. This specification was preferred to firm fixed effects because the key explanatory variables are highly persistent within firms board composition changes slowly, and the female board dummy is time-invariant for the majority of sample firms so that a within-firm estimator would discard most of the identifying variation and would not, in any event, identify the coefficient on the dummy for firms that never change status. The cost of this choice is that unobserved time-invariant firm heterogeneity is absorbed only to the extent that it is captured by industry and country membership; the resulting interpretive limits are acknowledged in Result Section.

Inference relies on t -tests for individual coefficients, with statistical significance evaluated at the 1, 5 and 10 per cent levels, and on the coefficient of determination (R^2 , adjusted R^2 and within- R^2 relative to the fixed effects) to gauge explanatory power. Mediation is assessed using the product-of-coefficients approach, following recent methodological guidance for applied and archival research (Jollineau & Bowen, 2023; Rasoolimanesh et al., 2021; Schuler et al., 2025). For each proposed mediator M , the indirect effect is the product $a \times b$, where a is the coefficient on $FEMALE$ in the mediator equation (Model 2 for ESG, Model 4 for carbon disclosure) and b is the coefficient on the mediator in the cost-of-capital equation conditional on $FEMALE$ (Model 3 for ESG, Model 5 for carbon disclosure). Model 1 delivers the total effect c and Models 3, 5 and 6 the direct effect c' .

We adopt the joint-significance logic now recommended in place of the sequential causal-steps procedure (Rasoolimanesh et al., 2021): mediation requires that both constituent

paths be non-zero, so that where the b path is statistically indistinguishable from zero the indirect effect cannot be distinguished from zero either, irrespective of the magnitude of a . Consistent with recent critiques of the partial/full mediation dichotomy, we deliberately refrain from labelling any attenuation in c' as "partial mediation" unless the indirect effect itself is significant (Ledermann et al., 2025). We further note, following Rohrer et al. (2022), that identifying an indirect effect from observational panel data requires the absence of unmeasured mediator–outcome confounding in addition to the assumptions underpinning the total effect; the mediation estimates reported below are therefore descriptive of associational pathways rather than of causal mechanisms.

4. Results

4.1. Sample composition

Table 2 reports the construction of the estimation sample. Panel A shows that 11,168 initial firm-year observations for 1,218 firms are reduced to 1,358 observations for 284 firms once complete data on all model variables are required. Panel B shows that Malaysian firms account for roughly two-thirds of the final panel (942 observations, 219 firms) and Indonesian firms for the remaining third (416 observations, 65 firms), with Indonesian firms contributing more observations each on average (6.40 versus 4.30 years) because ESG coverage of the larger IDX constituents began earlier and has been more continuous.

Table 2. Sample selection and distribution by country

Panel A. Sample selection

Sample selection criterion	Firm-year observations	Firms
Initial sample, 2016–2025	11,168	1,218
Less: observations excluded owing to missing data	(9,810)	—
Final complete-case unbalanced panel	1,358	284

Panel B. Distribution of the final sample by country

Country	Firm-year observations	Firms	Min. year	Max. year	Average observations per firm
Indonesia	416	65	2016	2025	6.40
Malaysia	942	219	2016	2025	4.30
Total	1,358	284	2016	2025	4.78

Note. The initial sample comprises all available firm-year observations for Indonesian and Malaysian listed non-financial companies over 2016–2025. Exclusions were applied at the firm-year level, so the number of firms associated with excluded observations is not reported. Average observations per firm equals firm-year observations divided by unique firms.

4.2. Descriptive statistics

Table 3 presents descriptive statistics for the winsorised variables. The average firm in the sample faces a weighted average cost of capital of 4.44 per cent, a cost of equity of 4.03 per cent and a cost of debt of 6.54 per cent. The dispersion of the two equity-linked measures is considerable (standard deviations of 10.12 and 14.51 percentage points respectively) and both take negative values at the lower tail, reflecting periods in which estimated betas were low or negative and market risk premia compressed, particularly during 2020–2021.

Female board representation is modest but not negligible. Women hold 19.19 per cent of board seats on average, with a median of 20 per cent; 78.2 per cent of firm-years feature at least one female director; and the average board contains 1.54 women. The distribution is instructive for the critical-mass debate: the median firm sits below the 30 per cent threshold commonly invoked in that literature, and the 75th percentile (28.57 per cent) only just approaches it. Turning to the mediators, the mean ESG score is 46.86 and the mean carbon disclosure score

is 44.45, both close to the mid-point of their 0–100 scales but with wide dispersion (standard deviations of 18.09 and 28.62), indicating substantial heterogeneity in sustainability practice within these two markets. The sample firms are large (mean log total assets of 22.00), moderately levered (mean DER of 0.79), profitable (mean ROE of 19.80 per cent) and mature (mean age of 34.6 years).

Table 3. Descriptive statistics of winsorised variables

Variable	N	Mean	Std. Dev.	Min.	P25	Median	P75	Max.
WACC	1,358	0.0444	0.1012	−0.2202	−0.0221	0.0532	0.0957	0.3131
Cost of equity (CoE)	1,358	0.0403	0.1451	−0.3173	−0.0640	0.0603	0.1211	0.3833
Cost of debt (CoD)	1,358	0.0654	0.0864	0.0004	0.0303	0.0472	0.0683	0.6860
Proportion of female board members (%)	1,358	19.1852	13.9836	0.0000	10.0000	20.0000	28.5714	57.1429
Female board dummy	1,358	0.7820	0.4130	0.0000	1.0000	1.0000	1.0000	1.0000
Number of female board members	1,358	1.5420	1.2312	0.0000	1.0000	1.0000	2.0000	5.0000
ESG score	1,358	46.8574	18.0867	10.0887	32.4007	46.2959	60.7327	85.1840
Carbon disclosure	1,358	44.4536	28.6197	0.0000	20.1600	44.3161	68.4088	97.2649
Firm size	1,358	21.9977	1.4089	18.9250	21.0319	21.8589	22.9084	25.3045
Debt-to-equity ratio (DER)	1,358	0.7902	1.0966	0.0012	0.1454	0.4333	0.9214	6.6184
Return on equity (ROE)	1,358	0.1980	0.3191	−0.3980	0.0597	0.1302	0.2316	1.8570
Firm age	1,358	34.6105	16.2751	6.5700	22.0000	32.0000	46.0000	85.4300
Price-to-book value (PBV)	1,358	3.3939	7.5242	0.2151	0.7255	1.3621	2.8804	52.9558
Current ratio	1,358	2.1583	1.5360	0.2387	1.1472	1.7350	2.6863	8.2378

Note. All continuous and count variables are winsorised at the 1st and 99th percentiles. The female board dummy is not winsorised because it is binary. WACC, CoE, CoD and ROE are expressed as decimal ratios; the proportion of female board members is a percentage. Firm size is the natural logarithm of total assets; firm age is the observation year minus the year of establishment. ESG score and carbon disclosure are measured on a 0–100 scale. P25 and P75 denote the 25th and 75th percentiles.

4.3. Correlations

Table 4 reports the Pearson correlation matrix. Three features merit comment. First, the univariate correlations between female board representation and financing costs are positive rather than negative: the proportion of female directors correlates 0.071 with WACC and 0.070 with CoE (both $p < 0.01$), and the number of female directors correlates 0.057 and 0.061 respectively (both $p < 0.05$). The correlation with the cost of debt is, by contrast, statistically indistinguishable from zero at the univariate level (0.011 for the proportion, −0.039 for the count), a discrepancy with the regression results that is resolved below.

Second, both mediators correlate positively and significantly with female board representation—0.168 and 0.247 for the ESG score against the proportion and count respectively, and 0.125 and 0.200 for carbon disclosure—but essentially not at all with any cost-of-capital measure (0.015, 0.012 and 0.017 for the ESG score against WACC, CoE and CoD; 0.033, 0.032 and 0.012 for carbon disclosure). The absence of even an unconditional association between the mediators and the outcome is the first indication that the hypothesised transmission channel may not be operative.

Third, several pairs are highly correlated: WACC with CoE (0.945), the proportion with the number of female directors (0.896), the ESG score with carbon disclosure (0.788), and ROE with PBV (0.786). These correlations govern the specification choices set out in Section 3.3: the three cost-of-capital measures are treated as alternative dependent variables, the three female board measures are entered in separate specifications, PBV is dropped in favour of ROE, and the two mediators—although correlated—are entered both separately and jointly

precisely so that any collinearity-driven artefact in the parallel model can be detected by comparison with the single-mediator models.

Table 4. Pearson correlation matrix

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) WA CC	1.000													
(2) CoE	0.945***	1.000												
(3) CoD	0.052*	0.027	1.000											
(4) Female board proportion	0.071***	0.070***	0.011	1.000										
(5) Female board dummy	0.036	0.041	-0.014	0.725***	1.000									
(6) Number of female board members	0.057**	0.061**	-0.039	0.896***	0.661***	1.000								
(7) ESG score	0.015	0.012	0.017	0.168***	0.149***	0.247***	1.000							
(8) Carbon disclosure	0.033	0.032	0.012	0.125***	0.103***	0.200***	0.788***	1.000						
(9) Firm size	-0.078**	-0.079**	-0.193**	0.049*	0.107***	0.209***	0.341***	0.342***	1.000					
(10) DER	0.005	-0.028	-0.129**	-0.023	-0.057**	-0.034	0.013	-0.017	0.172***	1.000				
(11) ROE	-0.003	0.001	0.011	0.031	0.017	0.006	0.217***	0.140***	-0.127**	0.184***	1.000			
(12) Firm age	0.053*	0.054**	0.067**	-0.063**	-0.035	-0.083**	0.146***	0.121***	0.039	-0.096**	0.113***	1.000		
(13) PBV	-0.008	-0.019	-0.008	0.054**	0.013	0.020	0.228***	0.150***	-0.104**	0.236***	0.786***	0.118**	1.000	
(14) Current ratio	0.039	0.047*	0.161***	0.002	-0.006	-0.033	-0.156**	-0.133**	-0.258**	-0.369**	-0.158**	-0.006	-0.171**	1.000

Note. N = 1,358 firm-year observations. All continuous and count variables are winsorised at the 1st and 99th percentiles; the female board dummy is not. Significance is based on two-tailed tests. ***, ** and * denote significance at the 1, 5 and 10 per cent levels.

4.4. Female board representation and the cost of capital (H1)

Table 5 reports the baseline estimates of Equation (1) for each cost-of-capital measure and each female board measure. The results contradict H1 in sign wherever they are statistically significant. For the weighted average cost of capital (Panel A), the number of female directors carries a coefficient of 0.0039 ($p < 0.01$): each additional woman on the board is associated with a WACC 0.39 percentage points higher, equivalent to about 8.8 per cent of the sample mean of 4.44 per cent, or 3.9 per cent of a standard deviation. Neither the proportion of female directors (0.0002, n.s.) nor the female board dummy (0.0020, n.s.) attains significance. The same pattern holds for the cost of equity (Panel B): the count is significant at 0.0042 ($p < 0.05$), or 0.42 percentage points per additional female director, while the proportion (0.0001) and the dummy (−0.0006) are indistinguishable from zero.

The cost of debt (Panel C) yields the strongest and most uniform results: all three measures are positive and significant at the 5 per cent level. A one-percentage-point increase in the female share of the board is associated with a cost of debt 0.07 percentage points higher (0.0007), so that a one-standard-deviation increase of 13.98 percentage points corresponds to roughly 0.98 percentage points of additional borrowing cost. The presence of at least one female director is associated with a cost of debt 2.53 percentage points higher (0.0253), and each additional female director with 0.85 percentage points (0.0085) the latter amounting to about 13 per cent of the mean cost of debt of 6.54 per cent. These are economically substantial magnitudes.

It is worth pausing on the contrast between Panel C and the univariate correlations in Table 4, where the female board measures were unrelated to the cost of debt. The reconciliation lies with firm size, which correlates positively with female representation (0.209 with the count) and negatively with the cost of debt (−0.193), and which enters Panel C with a strongly negative coefficient (−0.0070 to −0.0079, $p < 0.01$). Once the size advantage of firms that appoint more women is netted out, a positive residual association between female representation and borrowing cost emerges. The finding is thus a conditional one and should be read as such.

The controls behave as expected. Larger firms enjoy a lower cost of capital on all three measures. Higher leverage is weakly associated with a higher WACC (0.0025, $p < 0.10$) but with a *lower* cost of debt (−0.0087, $p < 0.01$), consistent with larger and more frequent borrowers obtaining better terms through scale and relationship effects. Firm age is positively associated with WACC and CoE at conventional levels, and the current ratio is weakly positively associated with the cost of debt. The within- R^2 values for WACC and CoE are very low (0.0044 and 0.0029 respectively), indicating that the fixed effects, rather than the firm-level covariates, account for most of the explained variation; the cost-of-debt models perform better on this metric (within- R^2 of about 0.054).

Table 5. Female board representation and the cost of capital
Panel A. Dependent variable: WACC

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0002 (0.0001)	—	—
Female board dummy	—	0.0020 (0.0047)	—
Number of female board members	—	—	0.0039*** (0.0015)
Firm size	−0.0033*** (0.0011)	−0.0032*** (0.0011)	−0.0038*** (0.0011)
Debt-to-equity ratio	0.0025* (0.0014)	0.0025* (0.0014)	0.0027* (0.0015)
Return on equity	−0.0044 (0.0058)	−0.0038 (0.0057)	−0.0051 (0.0058)

Variable	(1) Proportion	(2) Dummy	(3) Count
Firm age	0.0002** (0.0001)	0.0002** (0.0001)	0.0002** (0.0001)
Current ratio	0.0003 (0.0011)	0.0003 (0.0011)	0.0003 (0.0011)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
Firms	284	284	284
R ²	0.4399	0.4395	0.4409
Adjusted R ²	0.4290	0.4286	0.4300
Within R ²	0.0044	0.0037	0.0063

Panel B. Dependent variable: cost of equity (CoE)

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0001 (0.0002)	—	—
Female board dummy	—	−0.0006 (0.0068)	—
Number of female board members	—	—	0.0042** (0.0021)
Firm size	−0.0040*** (0.0015)	−0.0040*** (0.0015)	−0.0046*** (0.0015)
Debt-to-equity ratio	0.0000 (0.0022)	−0.0000 (0.0022)	0.0002 (0.0023)
Return on equity	0.0004 (0.0084)	0.0011 (0.0083)	−0.0007 (0.0083)
Firm age	0.0002* (0.0001)	0.0002* (0.0001)	0.0002* (0.0001)
Current ratio	−0.0005 (0.0013)	−0.0005 (0.0013)	−0.0004 (0.0013)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
Firms	284	284	284
R ²	0.4649	0.4648	0.4657
Adjusted R ²	0.4545	0.4544	0.4552
Within R ²	0.0029	0.0027	0.0042

Panel C. Dependent variable: cost of debt (CoD)

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0007** (0.0003)	—	—
Female board dummy	—	0.0253** (0.0121)	—
Number of female board members	—	—	0.0085** (0.0039)
Firm size	−0.0070*** (0.0025)	−0.0071*** (0.0025)	−0.0079*** (0.0026)
Debt-to-equity ratio	−0.0087*** (0.0028)	−0.0082*** (0.0028)	−0.0082*** (0.0027)
Return on equity	0.0011 (0.0061)	0.0011 (0.0060)	0.0011 (0.0062)
Firm age	0.0001 (0.0002)	0.0001 (0.0002)	0.0001 (0.0002)
Current ratio	0.0059* (0.0033)	0.0060* (0.0033)	0.0060* (0.0033)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
Firms	284	284	284
R ²	0.1391	0.1405	0.1396
Adjusted R ²	0.1223	0.1238	0.1228
Within R ²	0.0537	0.0552	0.0542

Note. Firm-clustered standard errors in parentheses. All models include industry (11), country (2) and year fixed effects. All continuous and count variables are winsorised at the 1st and 99th percentiles. ***, ** and * denote significance at the 1, 5 and 10 per cent levels.

4.5. The *a* paths: female board representation and the two mediators

Table 6 estimates Equations (2) and (4), which trace the first leg of each hypothesised indirect pathway. Here the results align closely with theory. For ESG performance (Panel A), the proportion of female directors carries a coefficient of 0.1358 ($p < 0.05$) and the count a coefficient of 2.6569 ($p < 0.01$). In economic terms, a one-standard-deviation increase in the female share of the board (13.98 percentage points) is associated with an ESG score 1.90 points higher, while each additional female director is associated with a score 2.66 points higher roughly 0.15 of a standard deviation of the ESG score. The female board dummy, by contrast, is insignificant (3.3307, s.e. 2.3487). The pattern for carbon disclosure (Panel B) is the same in shape and somewhat larger in magnitude: the proportion is significant only at the 10 per cent

level (0.1523), the count is significant at the 1 per cent level (3.2764, or 3.28 disclosure points per additional female director), and the dummy is again insignificant (3.3150, s.e. 3.0422).

The consistent divergence between the dummy on one hand and the proportion and count on the other is theoretically informative. What appears to matter for sustainability outcomes is not whether a board includes a woman but how many women it includes and how much of the board they constitute—precisely the prediction of critical-mass arguments (De Masi et al., 2021; Fatarina et al., 2023). Among the controls, firm size dominates in both equations (6.01 and 9.66 points per unit of log assets, $p < 0.01$), profitability is strongly positive (19.14 and 23.39), and leverage is negative (−1.56 and −2.64), suggesting that sustainability performance and disclosure are, in these markets, substantially a function of resources and slack.

Table 6. Female board representation and the proposed mediators

Panel A. Dependent variable: ESG score

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.1358** (0.0626)	—	—
Female board dummy	—	3.3307 (2.3487)	—
Number of female board members	—	—	2.6569*** (0.7648)
Firm size	6.0113*** (0.6479)	6.0231*** (0.6414)	5.6739*** (0.6669)
Debt-to-equity ratio	−1.5550** (0.6511)	−1.4946** (0.6436)	−1.4120** (0.6344)
Return on equity	19.1448*** (2.8703)	19.3899*** (2.8751)	18.7579*** (2.8754)
Firm age	0.1017* (0.0538)	0.0961* (0.0539)	0.1035* (0.0537)
Current ratio	−0.5601 (0.5142)	−0.5535 (0.5096)	−0.5423 (0.5082)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
R ²	0.3570	0.3528	0.3699
Adjusted R ²	0.3444	0.3402	0.3576
Within R ²	0.2870	0.2824	0.3013

Panel B. Dependent variable: carbon disclosure

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.1523* (0.0904)	—	—
Female board dummy	—	3.3150 (3.0422)	—
Number of female board members	—	—	3.2764*** (1.0851)
Firm size	9.6573*** (0.9632)	9.6792*** (0.9539)	9.2321*** (1.0203)
Debt-to-equity ratio	−2.6422** (1.1802)	−2.5827** (1.1879)	−2.4652** (1.1733)
Return on equity	23.3928*** (4.6018)	23.7244*** (4.6198)	22.8380*** (4.5891)
Firm age	0.0671 (0.0800)	0.0614 (0.0805)	0.0693 (0.0798)
Current ratio	−0.6067 (0.7809)	−0.6001 (0.7775)	−0.5848 (0.7734)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
R ²	0.3176	0.3151	0.3263
Adjusted R ²	0.3043	0.3017	0.3132
Within R ²	0.2345	0.2317	0.2443

Note. Firm-clustered standard errors in parentheses. All models include industry, country and year fixed effects. ***, ** and * denote significance at the 1, 5 and 10 per cent levels.

4.6. The *b* paths: ESG performance and the cost of capital (H2)

Table 7 adds the ESG score to the cost-of-capital equation (Equation 3). The coefficient on ESG performance is statistically indistinguishable from zero in all nine specifications: 0.0000 for WACC (Panel A), 0.0000 to −0.0001 for the cost of equity (Panel B), and 0.0004 for the cost of debt (Panel C), each with a standard error at least as large as the point estimate. The coefficients on the female board measures are essentially unchanged from Table 5—the count remains 0.0039 for WACC and rises marginally to 0.0044 for CoE, while the cost-of-debt coefficients attenuate only slightly (from 0.0007 to 0.0006 for the proportion, 0.0253 to 0.0241 for the dummy and 0.0085 to 0.0076 for the count).

Because the b path is indistinguishable from zero, the indirect effect $a \times b$ cannot be distinguished from zero either, regardless of the significance of the a path documented in Table 6. H2 is therefore not supported. The modest attenuation of the cost-of-debt coefficients is noted for completeness but is expressly not interpreted as partial mediation, since the condition for such an interpretation is not met (Zhao et al., 2010).

Table 7. ESG performance as a mediator

Panel A. Dependent variable: WACC

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0002 (0.0001)	—	—
Female board dummy	—	0.0018 (0.0048)	—
Number of female board members	—	—	0.0039*** (0.0015)
ESG score	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)
Firm size	−0.0035*** (0.0012)	−0.0035*** (0.0012)	−0.0038*** (0.0012)
Debt-to-equity ratio	0.0025* (0.0015)	0.0026* (0.0015)	0.0027* (0.0015)
Return on equity	−0.0050 (0.0063)	−0.0046 (0.0063)	−0.0051 (0.0063)
Firm age	0.0002** (0.0001)	0.0002** (0.0001)	0.0002** (0.0001)
Current ratio	0.0003 (0.0011)	0.0003 (0.0011)	0.0003 (0.0011)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
R ²	0.4399	0.4395	0.4409
Within R ²	0.0044	0.0038	0.0063

Panel B. Dependent variable: cost of equity (CoE)

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0001 (0.0002)	—	—
Female board dummy	—	−0.0006 (0.0068)	—
Number of female board members	—	—	0.0044** (0.0021)
ESG score	0.0000 (0.0001)	0.0000 (0.0001)	−0.0001 (0.0001)
Firm size	−0.0040** (0.0017)	−0.0040** (0.0017)	−0.0043** (0.0017)
Debt-to-equity ratio	0.0000 (0.0023)	0.0000 (0.0023)	0.0002 (0.0023)
Return on equity	0.0006 (0.0094)	0.0011 (0.0093)	0.0003 (0.0093)
Firm age	0.0002* (0.0001)	0.0002* (0.0001)	0.0002* (0.0001)
Current ratio	−0.0005 (0.0014)	−0.0005 (0.0014)	−0.0005 (0.0013)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
R ²	0.4649	0.4648	0.4657
Within R ²	0.0029	0.0027	0.0043

Panel C. Dependent variable: cost of debt (CoD)

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0006* (0.0003)	—	—
Female board dummy	—	0.0241** (0.0113)	—
Number of female board members	—	—	0.0076** (0.0033)
ESG score	0.0004 (0.0004)	0.0004 (0.0004)	0.0003 (0.0004)
Firm size	−0.0091*** (0.0033)	−0.0093*** (0.0033)	−0.0097*** (0.0034)
Debt-to-equity ratio	−0.0081*** (0.0027)	−0.0077*** (0.0027)	−0.0078*** (0.0027)
Return on equity	−0.0057 (0.0101)	−0.0060 (0.0103)	−0.0049 (0.0101)
Firm age	0.0001 (0.0002)	0.0000 (0.0002)	0.0001 (0.0002)
Current ratio	0.0061* (0.0034)	0.0062* (0.0034)	0.0062* (0.0034)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
R ²	0.1426	0.1443	0.1424
Within R ²	0.0575	0.0594	0.0572

Note. Firm-clustered standard errors in parentheses. The ESG score is entered as the proposed mediator. All models include industry, country and year fixed effects. ***, ** and * denote significance at the 1, 5 and 10 per cent levels.

4.7. The *b* paths: carbon disclosure and the cost of capital (H3)

Table 8 repeats the exercise with carbon disclosure (Equation 5), and the outcome is materially identical. Carbon disclosure carries a coefficient of 0.0001 for WACC, 0.0001 for the cost of equity and 0.0001–0.0002 for the cost of debt, in every case with a standard error equal to or larger than the estimate. The female board coefficients again survive largely intact: 0.0038 ($p < 0.05$) for the count in the WACC model, 0.0040 ($p < 0.05$) in the CoE model, and 0.0007, 0.0248 and 0.0080 for the proportion, dummy and count respectively in the cost-of-debt model.

As with ESG performance, a null *b* path forecloses mediation irrespective of the strength of the *a* path. H3 is therefore not supported.

Table 8. Carbon disclosure as a mediator

Panel A. Dependent variable: WACC

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0002 (0.0001)	—	—
Female board dummy	—	0.0017 (0.0047)	—
Number of female board members	—	—	0.0038** (0.0015)
Carbon disclosure	0.0001 (0.0001)	0.0001 (0.0001)	0.0000 (0.0001)
Firm size	−0.0039*** (0.0013)	−0.0039*** (0.0013)	−0.0042*** (0.0013)
Debt-to-equity ratio	0.0027* (0.0015)	0.0027* (0.0015)	0.0028* (0.0015)
Return on equity	−0.0059 (0.0061)	−0.0054 (0.0061)	−0.0062 (0.0061)
Firm age	0.0002** (0.0001)	0.0002** (0.0001)	0.0002** (0.0001)
Current ratio	0.0003 (0.0011)	0.0003 (0.0011)	0.0004 (0.0011)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
R ²	0.4401	0.4398	0.4411
Within R ²	0.0048	0.0042	0.0065

Panel B. Dependent variable: cost of equity (CoE)

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0001 (0.0002)	—	—
Female board dummy	—	−0.0008 (0.0067)	—
Number of female board members	—	—	0.0040** (0.0020)
Carbon disclosure	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
Firm size	−0.0048*** (0.0017)	−0.0047*** (0.0017)	−0.0051*** (0.0017)
Debt-to-equity ratio	0.0002 (0.0023)	0.0002 (0.0023)	0.0004 (0.0023)
Return on equity	−0.0013 (0.0089)	−0.0008 (0.0088)	−0.0019 (0.0088)
Firm age	0.0002* (0.0001)	0.0002* (0.0001)	0.0002* (0.0001)
Current ratio	−0.0004 (0.0014)	−0.0004 (0.0014)	−0.0004 (0.0013)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
R ²	0.4651	0.4650	0.4657
Within R ²	0.0031	0.0030	0.0044

Panel C. Dependent variable: cost of debt (CoD)

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0007* (0.0003)	—	—
Female board dummy	—	0.0248** (0.0118)	—
Number of female board members	—	—	0.0080** (0.0037)
Carbon disclosure	0.0002 (0.0002)	0.0002 (0.0001)	0.0001 (0.0001)
Firm size	−0.0085*** (0.0028)	−0.0087*** (0.0028)	−0.0092*** (0.0029)
Debt-to-equity ratio	−0.0083*** (0.0028)	−0.0078*** (0.0028)	−0.0079*** (0.0027)
Return on equity	−0.0026 (0.0069)	−0.0028 (0.0070)	−0.0021 (0.0070)
Firm age	0.0001 (0.0002)	0.0001 (0.0002)	0.0001 (0.0002)
Current ratio	0.0060* (0.0033)	0.0061* (0.0033)	0.0061* (0.0033)
Industry / country / year FE	Yes	Yes	Yes

Variable	(1) Proportion	(2) Dummy	(3) Count
Observations	1,358	1,358	1,358
R ²	0.1410	0.1426	0.1410
Within R ²	0.0557	0.0575	0.0557

Note. Firm-clustered standard errors in parentheses. Carbon disclosure is entered as the proposed mediator. All models include industry, country and year fixed effects. ***, ** and * denote significance at the 1, 5 and 10 per cent levels.

4.8. Parallel mediation (H4)

Table 9 estimates Equation (6), entering both mediators simultaneously so that each coefficient represents the unique association of one mediator conditional on the other. Neither survives. The ESG score carries coefficients of -0.0001 (WACC), -0.0002 (CoE) and 0.0003 (CoD); carbon disclosure carries 0.0001 , 0.0002 and 0.0000 respectively; none approaches conventional significance, and the pattern is invariant across all three female board measures. Meanwhile the number of female directors retains its positive and significant coefficient for WACC (0.0039 , $p < 0.01$) and CoE (0.0043 , $p < 0.05$), and all three female board measures retain positive and significant or marginally significant coefficients for the cost of debt (0.0006 , 0.0241 and 0.0076).

An obvious concern in a parallel-mediation design is that the two mediators are themselves highly correlated ($r = 0.788$), which inflates their standard errors and could account for their joint insignificance. That explanation can be ruled out here: both mediators were equally insignificant in Tables 7 and 8, where each was entered alone and no such collinearity was present. The failure of the parallel model is therefore substantive rather than statistical. H4 is not supported, and it is not supported for the specific reason that neither channel individually transmits anything to be decomposed.

Table 9. Parallel mediation: ESG performance and carbon disclosure entered simultaneously
Panel A. Dependent variable: WACC

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0002 (0.0001)	—	—
Female board dummy	—	0.0019 (0.0048)	—
Number of female board members	—	—	0.0039*** (0.0015)
ESG score	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)
Carbon disclosure	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
Firm size	-0.0037 *** (0.0013)	-0.0037 *** (0.0013)	-0.0040 *** (0.0013)
Debt-to-equity ratio	0.0026* (0.0015)	0.0027* (0.0015)	0.0028* (0.0015)
Return on equity	-0.0051 (0.0064)	-0.0047 (0.0063)	-0.0052 (0.0063)
Firm age	0.0002** (0.0001)	0.0002** (0.0001)	0.0002** (0.0001)
Current ratio	0.0003 (0.0011)	0.0003 (0.0011)	0.0003 (0.0011)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
R ²	0.4402	0.4398	0.4412
Within R ²	0.0050	0.0043	0.0067

Panel B. Dependent variable: cost of equity (CoE)

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0001 (0.0002)	—	—
Female board dummy	—	-0.0005 (0.0068)	—
Number of female board members	—	—	0.0043** (0.0020)
ESG score	-0.0002 (0.0002)	-0.0002 (0.0002)	-0.0002 (0.0002)
Carbon disclosure	0.0002 (0.0001)	0.0002 (0.0001)	0.0002 (0.0001)
Firm size	-0.0044 ** (0.0018)	-0.0044 ** (0.0018)	-0.0048 *** (0.0018)
Debt-to-equity ratio	0.0001 (0.0022)	0.0001 (0.0023)	0.0003 (0.0023)
Return on equity	0.0004 (0.0094)	0.0009 (0.0093)	0.0001 (0.0093)
Firm age	0.0002* (0.0001)	0.0002* (0.0001)	0.0002* (0.0001)

Variable	(1) Proportion	(2) Dummy	(3) Count
Current ratio	−0.0005 (0.0014)	−0.0005 (0.0014)	−0.0005 (0.0014)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
R ²	0.4653	0.4652	0.4660
Within R ²	0.0035	0.0033	0.0048

Panel C. Dependent variable: cost of debt (CoD)

Variable	(1) Proportion	(2) Dummy	(3) Count
Proportion of female board members	0.0006* (0.0003)	—	—
Female board dummy	—	0.0241** (0.0112)	—
Number of female board members	—	—	0.0076** (0.0033)
ESG score	0.0003 (0.0006)	0.0003 (0.0005)	0.0003 (0.0005)
Carbon disclosure	0.0000 (0.0002)	0.0000 (0.0002)	0.0000 (0.0002)
Firm size	−0.0092*** (0.0031)	−0.0094*** (0.0032)	−0.0098*** (0.0033)
Debt-to-equity ratio	−0.0081*** (0.0027)	−0.0077*** (0.0028)	−0.0078*** (0.0027)
Return on equity	−0.0057 (0.0100)	−0.0060 (0.0102)	−0.0049 (0.0100)
Firm age	0.0001 (0.0002)	0.0000 (0.0002)	0.0001 (0.0002)
Current ratio	0.0061* (0.0034)	0.0062* (0.0034)	0.0062* (0.0034)
Industry / country / year FE	Yes	Yes	Yes
Observations	1,358	1,358	1,358
R ²	0.1426	0.1443	0.1424
Within R ²	0.0575	0.0594	0.0572

Note. Firm-clustered standard errors in parentheses. The ESG score and carbon disclosure are entered simultaneously as proposed parallel mediators. All models include industry, country and year fixed effects. ***, ** and * denote significance at the 1, 5 and 10 per cent levels.

4.9. Summary of hypothesis tests

Table 10 consolidates the evidence. The *a* paths are supported for two of the three female board measures and for both mediators; the *b* paths are supported for neither mediator against any outcome; and consequently no indirect effect—simple or parallel—can be established. The direct association survives the inclusion of the mediators virtually unchanged, and it runs in the opposite direction to that hypothesised.

Table 10. Summary of hypothesis testing

Path or hypothesis	Proportion	Dummy	Count	Verdict
H1: female board → cost of capital (negative expected)	Positive, significant for CoD only	Positive, significant for CoD only	Positive, significant for WACC, CoE and CoD	Not supported (sign reversed)
<i>a</i> path: female board → ESG score	0.1358**	n.s.	2.6569***	Supported for proportion and count
<i>a</i> path: female board → carbon disclosure	0.1523*	n.s.	3.2764***	Supported for count; weak for proportion
<i>b</i> path: ESG score → cost of capital	n.s.	n.s.	n.s.	Not supported
<i>b</i> path: carbon disclosure → cost of capital	n.s.	n.s.	n.s.	Not supported
H2: ESG mediation	—	—	—	Not supported
H3: carbon disclosure mediation	—	—	—	Not supported
H4: parallel and independent mediation	—	—	—	Not supported

Note. “n.s.” denotes not significant at the 10 per cent level.

5. Discussion

The results present a coherent but unexpected picture. Female board representation is associated with demonstrably better sustainability outcomes and with demonstrably higher, not lower, financing costs, and the two findings are not connected: the sustainability channel that the literature routinely posits between them carries no weight in this setting. This section considers each element in turn.

5.1. Why female board representation is associated with higher financing costs

Three non-exclusive explanations merit consideration.

The first is selection. The glass-cliff literature documents that women are disproportionately appointed to leadership positions in firms that are already riskier, more contested or in transition (Ryan & Haslam, 2005). If appointment decisions respond to firm risk, a cross-sectional regression will recover a positive coefficient on female representation even where the causal effect of appointing a woman is zero or negative. This interpretation fits the pattern of results closely. The association is strongest for the number of female directors and for the cost of debt, the measure most closely tied to a firm's contemporaneous credit standing; it is weakest for the female board dummy in the equity models, where the marginal appointment carries least informational content; and the specification does not include firm fixed effects, so the estimates are identified substantially from between-firm variation, which is exactly the variation that selection contaminates. We therefore regard reverse causality as the leading candidate explanation, and we resist the temptation to read the coefficients as a cost of diversity.

The second explanation concerns the informational content of appointments under a partial mandate. Malaysia, which supplies roughly two-thirds of the sample, has operated an explicit 30 per cent expectation for women directors since 2017 (Securities Commission Malaysia, 2021). Signalling theory requires that a signal be costly and discriminating in order to be informative (Spence, 1973); an appointment made to satisfy a comply-or-explain target is neither, because compliant and non-compliant firms cannot be distinguished by the act of compliance. Under a binding or quasi-binding norm, board gender diversity ceases to convey private information about management quality and instead becomes a hygiene factor. That would explain a null result. It would not by itself explain a positive coefficient—but combined with the selection mechanism above, it explains why no offsetting negative signalling effect appears to counteract it.

The third explanation is structural. In bank-dominated systems with concentrated ownership, credit is priced primarily on collateral, cash-flow coverage, group affiliation and the depth of the lending relationship. Board composition enters the credit decision, if at all, through the general reputational channel rather than through a specific gender-diversity criterion. The strongly negative coefficients on firm size (-0.0070 to -0.0079 for the cost of debt) and leverage (-0.0082 to -0.0087) in Table 5 are consistent with this reading: scale and borrowing frequency, not governance attributes, dominate loan pricing. In Indonesia in particular, where no diversity target applies, female directors are frequently connected to the controlling family, so that their presence may proxy for ownership concentration and related-party exposure rather than for independent monitoring characteristics that lenders may reasonably price as risk. This interpretation is speculative on the present data, since ownership variables were not available for the full panel, and we flag it as a hypothesis for future work rather than a conclusion.

5.2. Why the sustainability channels do not transmit

The null b paths are, in some ways, the more consequential finding, because they contradict a large and confident developed-market literature (Yilmaz, 2022; Raimo et al., 2021;

Eliwa et al., 2021; Zhao et al., 2024; Moussa & Elmarzouky, 2024). Several considerations help reconcile the divergence.

Most fundamentally, a signal is priced only where the receiver has both the capacity and the incentive to price it. In Indonesia and Malaysia, the institutional infrastructure that converts ESG scores into a cost-of-capital advantage remains comparatively thin: ESG-integrated institutional mandates are a small share of assets under management; sustainability-linked loan pricing grids are not yet standard in domestic bank lending; and third-party assurance of climate data is uneven. Under those conditions, legitimacy theory's prediction that disclosure secures a social licence to operate may well hold in the regulatory and reputational domain while having no counterpart in the pricing domain. Our results are entirely consistent with firms disclosing successfully for legitimacy purposes and receiving no financial reward for doing so.

A second consideration is the credibility of the signal itself. Where disclosure is inexpensive, unaudited and increasingly required, its separating power falls. The well-documented divergence among ESG rating providers compounds the problem, since investors who cannot agree on what a score measures will not price it consistently (Jang et al., 2020; Dua & Sharma, 2024). Our finding thus aligns with the sceptical minority in this literature rather than contradicting the field outright, and it suggests that the boundary condition separating the two camps may be institutional depth rather than sample period or estimation method.

A third consideration is the composition of the sample itself. Because LSEG/Refinitiv rates only firms in its coverage universe, the estimation sample consists disproportionately of large, visible, well-followed issuers—precisely the firms for which sustainability information is least likely to be marginally informative, since they are already covered by analysts, monitored by blockholders and known to their lenders. Range restriction of this kind attenuates estimated coefficients. The null result should therefore be read as applying to the rated segment of these two markets, not necessarily to the many smaller issuers excluded by data availability.

Finally, a measurement point specific to the equity results. The cost of equity is estimated here from the capital asset pricing model, and consequently inherits the well-known noise in beta estimation; its correlation of 0.945 with WACC means that the two measures are close to interchangeable, so the WACC results provide little independent corroboration. During 2020–2021 in particular, the sample contains negative estimated costs of equity, reflecting compressed risk premia. Implied cost-of-equity models based on analyst forecasts would provide a valuable robustness check but require forecast coverage that is sparse in these markets.

5.3. The critical-mass pattern

One result cuts across both halves of the analysis and deserves emphasis in its own right. Across every mediator equation, the proportion and the number of female directors are significant while the female board dummy is not. The mere presence of a woman on the board is associated with neither ESG performance nor carbon disclosure; the density of female representation is associated with both. This is the empirical signature that critical-mass theory predicts (De Masi et al., 2021; Cambrea et al., 2023; Fatarina et al., 2023): a lone director, particularly in a two-tier or family-dominated board, may lack the coalition necessary to shift the agenda, whereas a group can.

The descriptive statistics reinforce the point and delimit it. The median sample firm has 20 per cent female board representation and the 75th percentile 28.6 per cent, so the great majority of firm-years lie below the 30 per cent threshold conventionally identified with critical mass. Our estimates are therefore identified largely from variation below the threshold, and they should be read as evidence that representation matters continuously in that range rather than as a test of the threshold itself. Testing for a genuine discontinuity would require more

observations in the upper tail than these two markets currently supply a limitation that will ease as Malaysia's target takes fuller effect.

5.4. Theoretical implications

On the production side, upper echelons theory performs well. Board gender composition is systematically associated with sustainability performance and environmental transparency in the direction the theory predicts, after controlling for size, profitability, leverage, age, liquidity and industry, country and year effects. Stakeholder theory likewise finds support at the level of corporate behaviour: boards with greater female representation appear more responsive to non-shareholder constituencies, as the ESG and carbon-disclosure equations attest.

On the reception side, signalling and legitimacy theory perform poorly but instructively so. Both are theories of communication between a sender and a receiver, and both are normally tested in markets where the receiver is a sophisticated, ESG-integrating institutional investor. Our results suggest that their empirical content is conditional on that receiver existing. Rather than treating the negative ESG–cost-of-capital relationship as a stylised fact, the literature would do better to treat it as an outcome that depends on the depth of sustainable-finance institutions, and to specify that dependence explicitly. This reframing turns a null result into a boundary condition, and it generates testable predictions: the ESG discount should appear first and most strongly in markets with substantial ESG-mandated capital, in firms with foreign institutional ownership, and in instruments for example green bonds, sustainability-linked loans whose contractual terms make the link explicit.

A methodological implication follows as well. Because parallel mediation decomposes an indirect effect that must first exist, the design's value here was diagnostic rather than confirmatory: it established that the failure of transmission is common to both channels and therefore not attributable to construct aggregation. Studies that model sustainability as a single mediator and find nothing cannot distinguish these possibilities.

5.5. Practical and policy implications

For corporate decision-makers, the results caution against justifying board diversity initiatives primarily on cost-of-capital grounds in emerging Asian markets. The evidence here does not support that business case, and overstating it invites disappointment and eventual retrenchment. The defensible case rests instead on what the data do show: boards with more women are associated with stronger sustainability performance and greater climate transparency, which have value in regulatory compliance, reputational resilience and access to sustainability-linked capital as those markets develop.

For investors and lenders, the finding that ESG scores and carbon disclosure are unpriced in these markets is, depending on one's priors, either a warning about data quality or an opportunity. If sustainability performance carries genuine risk-relevant information that is not currently reflected in required returns, then the information is available at no cost to those willing to use it. Establishing which of these readings is correct requires evidence on realized outcomes such as controversies, transition-risk losses, credit events that our design does not provide.

For policymakers, the results relocate the binding constraint. Indonesia and Malaysia have both invested substantially in the supply of sustainability information, through Financial Services Authority Regulation No. 51/POJK.03/2017 (Otoritas Jasa Keuangan, 2017) and through Bursa Malaysia's evolving listing requirements respectively, and our a-path results suggest that firms and boards are responding. What appears to be missing is the demand side: assurance standards that make disclosure credible, comparable taxonomies that make scores interpretable, and financial-sector rules that give lenders and asset managers a reason to price

what is disclosed. Regulation that adds further reporting obligations without building this pricing capacity risks raising compliance costs while leaving the capital-market benefit unrealised. That, ultimately, is the SDG 8 message of this paper: inclusive leadership and environmental accountability are being produced, and the task now is to build the market institutions capable of rewarding them.

6. Conclusion

This study asked whether female board representation is associated with the cost of capital in two emerging Asian markets, and whether ESG performance and carbon disclosure serve as parallel and independent transmission channels. Using 1,358 firm-year observations for 284 non-financial firms listed in Indonesia and Malaysia over 2016–2025, and estimating 27 cost-of-capital specifications across three outcome measures, three diversity measures and three mediator configurations, we reach three conclusions.

First, female board representation is positively associated with financing costs. Each additional female director is associated with a weighted average cost of capital 0.39 percentage points higher, a cost of equity 0.42 percentage points higher and a cost of debt 0.85 percentage points higher; for the cost of debt, all three diversity measures are significant. H1 is rejected in both magnitude and sign. Second, female board representation is positively associated with both proposed mediators: the proportion and the number of female directors predict higher ESG scores and broader carbon disclosure, while the mere presence of one female director predicts neither a pattern consistent with critical-mass rather than tokenistic mechanisms. Third, neither ESG performance nor carbon disclosure is significantly associated with any cost-of-capital measure, whether entered separately or simultaneously; H2, H3 and H4 are accordingly rejected. Because both mediators are equally insignificant when entered alone, this is a substantive failure of transmission rather than a collinearity artefact. The central contribution is thus a boundary condition. The chain assumed by much of the sustainable-finance literature diverse boards improve sustainability, and sustainability lowers the cost of capital holds at its first link and fails at its second in these two markets. Sustainability performance is being produced but not priced.

Several limitations qualify these conclusions and define the agenda they imply. The most important is identification. The models employ industry, country and year fixed effects rather than firm fixed effects, a choice dictated by the persistence of board composition within firms but one that leaves unobserved time-invariant firm heterogeneity only partly absorbed; the estimates are conditional associations, and the glass-cliff mechanism discussed in Section 5.1 offers a plausible reverse-causality account of the headline result. Future work should pursue instrumental-variable or system-GMM approaches and, more promisingly, quasi-experimental designs exploiting the staged tightening of Malaysia's diversity expectations, which supplies plausibly exogenous variation in board composition for a subset of firms.

Second, sample selection. Retaining only complete cases reduced the panel from 11,168 to 1,358 observations, overwhelmingly because ESG and carbon-disclosure ratings are assigned only within the provider's coverage universe. The findings therefore describe the rated segment of these markets. Analyses using hand-collected disclosure indices for unrated firms would test whether the null pricing result extends to the smaller issuers where information asymmetry, and hence the potential value of disclosure, is greatest.

Third, measurement. Female representation is measured at board level, so the executive-level and CEO-level constructs that motivated the original framing remain untested; the cost of equity relies on a CAPM estimate whose beta is measured with error; and mediators are provider-assigned composites subject to the rating-divergence problem. Replication with implied cost-of-equity models, with executive-level diversity data, and with an alternative

rating provider would each strengthen inference. Fourth, the mediation analysis reported here rests on the coefficient-product logic of the *a* and *b* paths. Although a null *b* path is sufficient to preclude mediation, we regard firm-clustered bootstrap confidence intervals for the indirect effects as a desirable formal confirmation, and we recommend that they accompany any extension of this work.

Finally, the design pools two countries with country fixed effects rather than estimating them separately or interacting country with the key regressors. Given the institutional differences, a diversity target in one jurisdiction and not the other, and different sustainability-reporting architectures a fully specified cross-country comparison is the natural next step, and one for which the present sample provides the foundation.

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CORPORATE GOVERNANCE MECHANISMS AND CARBON DISCLOSURE: THE ROLE OF THE ESG COMMITTEE AND THE AUDIT COMMITTEE WITH THE MODERATING EFFECT OF GENDER DIVERSITY

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Abstract

This study examines whether two board-level governance mechanisms—the ESG committee and the audit committee—influence the level of corporate carbon disclosure, and whether board gender diversity moderates these relationships among non-financial firms listed on the Indonesia Stock Exchange (IDX). The study adopts a quantitative, archival research design using panel data for non-financial firms listed on the IDX over the 2020–2024 period. Data are hand-collected from annual and sustainability reports and supplemented by the LSEG/Refinitiv database. Carbon disclosure is measured through a carbon disclosure score, the ESG committee through a binary indicator, the audit committee through its size, and gender diversity through the proportion of women on the board. The hypotheses are tested using panel-data regression and moderated regression analysis (MRA); the appropriate specification is selected through the Chow, Hausman and Lagrange Multiplier tests, and the inferences are subjected to classical-assumption diagnostics, alternative measurements and endogeneity checks. Findings will be reported following the empirical estimation; this manuscript presents the introduction and research method while data collection and analysis are in progress. The study contributes to the corporate-governance and sustainability literature by simultaneously modelling the ESG committee and the audit committee as complementary internal monitoring structures, and by repositioning gender diversity as a contingency (moderating) factor rather than a direct determinant, within the under-researched emerging-market setting of Indonesia where ESG committees remain largely voluntary.

Keywords: Corporate governance, Carbon disclosure, ESG committee, Audit committee, Gender diversity, Indonesia

1. Introduction

Climate change has become one of the defining systemic risks of the twenty-first century, and the corporate sector occupies a central position within it: business activity accounts for the bulk of global greenhouse-gas (GHG) emissions, yet firms are simultaneously the principal agents through which mitigation, adaptation and the transition to a low-carbon economy must be delivered (Shao et al., 2024; Villena & Dhanorkar, 2020). The signing of the Paris Agreement and the proliferation of national net-zero pledges have reframed carbon emissions as a material financial and strategic concern rather than a purely ethical one, exposing firms to transition risks, physical risks and reputational risks that feed directly into firm value and the cost of capital (Liesen et al., 2017; Moussa & Elmarzouky, 2024). In this setting, carbon disclosure become the communication of information on emissions, climate-related risks, targets and abatement strategies has emerged as the primary informational mechanism through which firms render their climate exposure visible and accountable to stakeholders (Lemma et al., 2020; Karim et al., 2021; Datt et al., 2019).

The demand for credible carbon information has intensified on both the regulatory and the market side. Internationally, the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and, more recently, the climate-disclosure standards issued by the International Sustainability Standards Board (IFRS S2) have pushed climate reporting toward greater standardisation, comparability and assurance (Velte et al., 2020; He et al., 2022). In parallel, institutional investors increasingly integrate carbon information into capital-allocation and engagement decisions, and capital markets have been shown to price such disclosure, rewarding transparency and penalising opacity through valuation and cost-of-capital effects (Liesen et al., 2017; Alsaifi et al., 2020; Siddique et al., 2021). Carbon disclosure is therefore not a peripheral reporting formality but a strategically and economically consequential practice, which makes understanding its determinants a question of clear academic and policy importance (Ali et al., 2024).

Despite this mounting demand, the supply of carbon disclosure remains strikingly uneven. The empirical record documents pronounced and persistent heterogeneity across firms in both the completeness and the consistency of the information reported, and a continuing gap between symbolic and substantive disclosure that raises concerns about selective reporting and greenwashing (Hettler & Graf-Vlachy, 2024; Borghei, 2021; Turzo et al., 2022). Because much carbon reporting is still voluntary or only loosely mandated, external pressures alone cannot fully account for why otherwise comparable firms disclose so differently; the explanation lies substantially in firm-level internal factors and, in particular, in the governance structures that produce, scrutinise and authorise non-financial information (Bui et al., 2020; Gerged, 2021; Datt et al., 2019). This points to three complementary theoretical lenses that frame the present study: legitimacy theory, which casts disclosure as a response to social expectations and a means of preserving the licence to operate (Lu & Wang, 2021; Yuan et al., 2022); agency theory, which views board monitoring as a device for curbing managerial discretion over reporting (Xu et al., 2025); and resource-dependence theory, which treats board attributes such as committee specialisation and gender diversity as strategic resources that enhance oversight capacity (Amorelli & García-Sánchez, 2021; Ahmad et al., 2024b).

These tensions are especially acute in emerging markets, where disclosure infrastructure is still maturing and the evidence base is comparatively thin (Tauringana, 2021; Kılıç & Kuzey, 2019). Indonesia provides a particularly salient setting. As one of the world's largest emitters, the country has committed under its Enhanced Nationally Determined Contribution to substantial emission reductions and has set a net-zero target by 2060, while the Financial Services Authority (OJK), through Regulation No. 51/POJK.03/2017 and the subsequent Indonesia Green Taxonomy, has progressively required listed firms to publish sustainability reports (Dwinajayanti et al., 2024). In practice, however, carbon-disclosure remains voluntary in substance, fragmented and weakly standardised, and the establishment of dedicated sustainability or ESG committees is still discretionary and unevenly adopted (Ahmad et al., 2021; Rosyidah & Ningsih, 2025). Investigating how internal governance mechanisms shape carbon transparency in this context is therefore both timely and policy-relevant: the study is directly aligned with Sustainable Development Goal 8 (decent work and economic growth), the National Research Master Plan and the eighth point of the national Asta Cita on strengthening transparent and accountable governance, and it aims to generate evidence that can inform the design of governance arrangements capable of credibly supporting a low-carbon transition (Traub et al., 2025; Gerged, 2021).

Prior research on the determinants of carbon disclosure has evolved along four broad streams. The first stream documents firm-level determinants consist of size, profitability, leverage, industry and carbon-risk exposure and consistently finds that disclosure is jointly shaped by economic incentives and legitimacy pressures (Lemma et al., 2020; Karim et al.,

2021; Villena & Dhanorkar, 2020). Reviews of this literature, however, emphasise that measurement diversity and contextual variation produce fragmented and frequently conflicting conclusions, limiting cross-study comparability (Borghei, 2021; He et al., 2022; Turzo et al., 2022).

The second stream links carbon and environmental disclosure to board-level monitoring, particularly the audit committee, whose mandate over reporting quality is expected to extend to non-financial information that is complex and prone to managerial discretion (Gerged, 2021; Ali et al., 2024). Board sub-committee structures have been linked to greater voluntary GHG disclosure (Krishnamurti & Velayutham, 2018), and climate governance more broadly improves both disclosure and performance (Bui et al., 2020). The evidence is mixed: some studies report that stronger audit-committee oversight and the presence of female directors with relevant expertise on the committee enhances carbon disclosure (Abbasi et al., 2024; Meqbel et al., 2025), whereas others find weak or insignificant effects, suggesting that the committee's influence is conditional on context and composition (Haque, 2017).

The third stream concerns ESG and sustainability governance. Much of this work treats the ESG score or ESG performance as an outcome and relates it to financial performance or disclosure quality (Velte, 2017; Alsayegh et al., 2020; Yin et al., 2023). A smaller but growing body of research examines the ESG or sustainability committee as an internal structure, with evidence that such committees can improve ESG and carbon performance, though concerns remain that some committees are symbolic rather than substantive (Huang et al., 2024; Oyewo, 2023; Rosyidah & Ningsih, 2025).

The fourth stream investigates board gender diversity and environmental disclosure. Drawing on upper-echelons and resource-dependence arguments, studies report that female directors broaden perspectives, strengthen monitoring and are associated with greater responsiveness to carbon-related initiatives and higher GHG disclosure (Ben-Amar et al., 2017; Hossain et al., 2017; Hollindale et al., 2019; Tingbani et al., 2020; Konadu et al., 2022; Amorelli & García-Sánchez, 2021). Yet here too the findings are not uniform, with several studies reporting non-linear, critical-mass, contextual or insignificant associations (Cucari et al., 2018; Nuber & Velte, 2021; Nicolò et al., 2022; Gonenc & Krasnikova, 2022; Omenihu et al., 2025), and only a few examining whether women directors moderate, rather than directly drive, the effectiveness of board sub-committees (Pucheta-Martínez et al., 2021).

Synthesising these streams reveals three interrelated gaps. First, the ESG committee has rarely been examined as an internal governance structure that drives carbon transparency; most studies treat ESG as an output score rather than as a determinant rooted in board design, leaving the structural channel under-tested even though governance-related determinants are central to carbon outcomes (Velte et al., 2020; Yin et al., 2023; Huang et al., 2024). Second, the audit committee and the ESG committee are typically studied in isolation, even though they plausibly operate as complementary monitoring mechanisms—one safeguarding reporting quality and the other specialising in sustainability oversight—so their joint and incremental contribution to carbon disclosure remains unclear (Abbasi et al., 2024; Oyewo, 2023). Third, gender diversity is predominantly modelled as a direct determinant rather than as a contingency that conditions the effectiveness of these governance structures, despite theoretical reasons to expect interaction effects (Tingbani et al., 2020; Pucheta-Martínez et al., 2021; Gonenc & Krasnikova, 2022). These gaps are magnified in emerging markets such as Indonesia, where ESG-committee formation is voluntary and disclosure is weakly standardised, yet where rigorous firm-level evidence is comparatively scarce (Dwinajayanti et al., 2024; Menicucci & Paolucci, 2022).

To address these gaps, the study poses four research questions: (1) Does the ESG committee affect the level of corporate carbon disclosure? (2) Does the audit committee affect

the level of corporate carbon disclosure? (3) Does gender diversity moderate the effect of the ESG committee on carbon disclosure? (4) Does gender diversity moderate the effect of the audit committee on carbon disclosure? Correspondingly, the study formulates four hypotheses:

H1. The presence of an ESG committee is positively associated with the level of corporate carbon disclosure.

H2. Audit-committee size is positively associated with the level of corporate carbon disclosure.

H3. Gender diversity strengthens the positive relationship between the ESG committee and carbon disclosure.

H4. Gender diversity strengthens the positive relationship between the audit committee and carbon disclosure.

The study makes three contributions. Theoretically, it integrates legitimacy theory, agency theory and resource-dependence theory to explain how internal governance structures and board demographics jointly shape carbon transparency, and it advances a contingency view in which gender diversity conditions—rather than merely adds to the effect of board sub-committees (Amorelli & García-Sánchez, 2021; Ahmad et al., 2024b). Empirically, it provides emerging-market evidence from Indonesia by modelling the ESG and audit committees as complementary mechanisms within a single framework and by testing the moderating role of gender diversity using panel data and moderated regression analysis. The findings are intended to guide firms and regulators (notably the OJK) in designing governance arrangements that promote accountable carbon disclosure consistent with national and global sustainability commitments. The remainder of the paper proceeds as follows: Section 2 details the research method; subsequent sections will present the results, discussion and conclusion once the empirical analysis is completed.

2. Research method

2.1 Research design and approach

This study adopts a quantitative, positivist and archival research design intended to test theory-derived hypotheses about the direct and moderating relationships among the constructs of interest. The deductive logic proceeds from the theoretical framework (legitimacy, agency and resource-dependence theory) to falsifiable hypotheses, which are then evaluated against observational firm-level data (Siddique et al., 2021). The empirical strategy relies on panel-data econometrics because the data possess both a cross-sectional dimension (firms) and a time dimension (years); panel methods increase the number of observations and the degrees of freedom, mitigate collinearity among regressors, and critically control for unobserved, time-invariant firm heterogeneity that would otherwise bias the estimates (Baltagi, 2021). The unit of analysis is the firm-year observation.

2.2 Population, sampling and study period

The population comprises all non-financial firms listed on the Indonesia Stock Exchange (IDX) during 2020–2024. Financial-sector firms (banks, insurers and other financial intermediaries) are excluded because their capital structure, regulatory regime and disclosure obligations differ materially from those of non-financial firms and would confound the analysis (Gerged, 2021). The 2020–2024 window is selected because it follows the full implementation of OJK Regulation No. 51/POJK.03/2017 on sustainability reporting and coincides with intensifying investor and regulatory attention to climate risk, thereby providing meaningful cross-firm variation in carbon disclosure while keeping the institutional setting comparable across years. The sample is drawn using purposive sampling based on the following inclusion criteria:

- a) non-financial firms consistently listed on the IDX throughout the study period;

- b) firms that disclose information related to carbon emissions or carbon performance;
- c) firms that report data on the ESG committee and the audit committee; and
- d) firms with complete data for all research variables over the observation window.

Applying these criteria yields a balanced (or, where attrition occurs, an unbalanced) panel of N firm-year observations; the final sample size will be confirmed upon completion of data collection. To reduce the influence of outliers, all continuous variables will be winsorised at the 1st and 99th percentiles before estimation (Bui et al., 2020).

2.3 Data sources

The study uses secondary data triangulated from two sources. Firm-specific governance and accounting data audit-committee size, the existence of an ESG/sustainability committee, board composition and financial figures are hand-collected from audited annual reports and standalone sustainability reports. These are complemented by the LSEG/Refinitiv database, which provides standardised carbon/emission disclosure scores and additional ESG data, enabling cross-validation and improving reliability (Giannopoulos et al., 2022; Siddique et al., 2021). Where the two sources diverge, the original report is treated as authoritative and the discrepancy is documented.

2.4 Variable measurement

The dependent variable, carbon disclosure (CD), is measured through the carbon/emission disclosure score obtained from LSEG/Refinitiv, which aggregates a firm's disclosure of Scope 1, 2 and 3 emissions, emission-reduction targets and strategies, and climate-related policies and risks; higher scores denote more complete and transparent disclosure (Siddique et al., 2021; Traub et al., 2025). As a robustness measure, a content-analysis-based carbon-disclosure index constructed from the reports may be used to validate the score-based measure (Hollindale et al., 2019; Krishnamurti & Velayutham, 2018).

The independent variables are the ESG committee (ESGC), captured by a dummy equal to 1 if the firm discloses a dedicated ESG or sustainability committee and 0 otherwise (Huang et al., 2024), and the audit committee (AC), proxied by audit-committee size—the number of committee members on the premise that larger committees command greater monitoring capacity and expertise (Meqbel et al., 2025; Krishnamurti & Velayutham, 2018). The moderating variable, gender diversity (GD), is measured as the proportion of women on the board (Suherman et al., 2021a); the Blau index of gender heterogeneity will be employed as an alternative specification in robustness tests (Hollindale et al., 2019).

Six control variables commonly used in the literature are included to isolate the effects of interest: firm size, leverage, profitability, firm age, growth opportunities and liquidity (Frank & Shen, 2016; Suherman et al., 2023; Ramirez et al., 2022; Moussa & Elmarzouky, 2024). Industry and year fixed effects will additionally be incorporated to absorb sector-specific and macroeconomic shocks. Table 1 summarises the operationalisation of all variables.

Table 1. Variable definitions and measurement

Variable	Symbol	Type	Operational measurement	Source
Carbon disclosure	CD	Dependent	Carbon/emission disclosure score from the LSEG/Refinitiv database, capturing disclosure on greenhouse-gas emissions (Scope 1, 2 and 3), emission-reduction targets and strategies, and climate-	Siddique et al. (2021)

Variable	Symbol	Type	Operational measurement	Source
			related policies and risks; rescaled to 0–100.	
ESG committee	ESGC	Independent	Dummy = 1 if the firm has an ESG or sustainability committee explicitly disclosed in the annual or sustainability report, 0 otherwise.	Huang et al. (2024)
Audit committee	AC	Independent	Audit-committee size, measured as the total number of audit-committee members.	Meqbel et al. (2025)
Gender diversity	GD	Moderator	Proportion of women on the board, i.e. the number of female board members divided by total board members.	Suherman et al. (2021a)
Firm size	SIZE	Control	Natural logarithm of total assets.	Frank & Shen (2016)
Leverage	LEV	Control	Ratio of total debt to total assets.	Acheampong & Ibeji (2024)
Profitability	ROA	Control	Return on assets (net income / total assets).	Giannopoulos et al. (2022)
Firm age	AGE	Control	Number of years since listing on the IDX.	Suherman et al. (2023)
Growth	GROW	Control	Growth opportunities, proxied by the market-to-book ratio.	Ramirez et al. (2022)
Liquidity	LIQ	Control	Current ratio (current assets / current liabilities).	Moussa & Elmarzouky (2024)

2.5 Empirical models

Two nested models are estimated. Model 1 captures the direct effects of the ESG committee and the audit committee on carbon disclosure:

$$CDit = \alpha_0 + \beta_1 ESGCit + \beta_2 ACit + \beta_k Controlsit + \varepsilon it \quad (1)$$

Model 2 introduces the moderating role of gender diversity through a moderated regression analysis (MRA) that adds the interaction terms:

$$\text{CDit} = \alpha_0 + \beta_1 \text{ESGCit} + \beta_2 \text{ACit} + \beta_3 \text{GDit} + \beta_4 (\text{ESGCit} \times \text{GDit}) + \beta_5 (\text{ACit} \times \text{GDit}) + \beta_k \text{Controlsit} + \varepsilon_{it} \quad (2)$$

where CD is carbon disclosure for firm *i* in year *t*; ESGC, AC and GD are the ESG committee, audit committee and gender diversity, respectively; ESGC×GD and AC×GD are the interaction terms; Controls is the vector of control variables; α_0 is the intercept; the β are coefficients; and ε is the error term. To attenuate non-essential multicollinearity arising from the product terms, the constituent variables entering the interactions will be mean-centred prior to estimation (Baltagi, 2021). A positive and significant β_1 and β_2 would support H1 and H2, while a positive and significant β_4 and β_5 would support H3 and H4, respectively.

2.6 Model selection and estimation procedure

The appropriate panel specification common-effect model (CEM), fixed-effect model (FEM) or random-effect model (REM) is determined through a sequence of formal tests. The Chow (redundant fixed-effects) test compares CEM and FEM; the Hausman test discriminates between FEM and REM by assessing whether the firm-specific effects are correlated with the regressors; and the Lagrange Multiplier (Breusch–Pagan) test compares CEM and REM (Baltagi, 2021). The model favoured by this sequence is adopted for inference.

2.7 Diagnostic and classical-assumption tests

Before interpreting the estimates, the data are screened against the classical linear-regression assumptions. Multicollinearity is assessed using the variance inflation factor (VIF), with values below the conventional threshold of 10 considered acceptable; heteroskedasticity is examined via the Breusch–Pagan/White test; autocorrelation via the Wooldridge test for panel data; and the normality of residuals via the Jarque–Bera test. Where heteroskedasticity or serial correlation is detected, the models are re-estimated with robust (Huber White) or Driscoll Kraay standard errors to ensure valid inference (Baltagi, 2021).

2.8 Robustness and endogeneity

Several checks corroborate the main findings. First, the dependent and moderating variables are re-measured using the alternative content-analysis index and the Blau index, respectively. Second, the models are re-estimated on industry sub-samples (for example, high-versus low-emitting sectors) to probe heterogeneity. Third, because governance structures and disclosure may be jointly determined, potential endogeneity arising from reverse causality, omitted variables or self-selection into committee formation is addressed by lagging the explanatory variables by one year and, where suitable instruments are available, by employing two-stage least squares (2SLS) or the system generalised method of moments (GMM) estimator. Consistency of sign, magnitude and significance across these specifications would indicate that the results are robust.

2.9 Hypothesis testing

Hypotheses are evaluated on three bases. The F-test assesses the joint significance of the explanatory variables and the overall fit of each model. The t-test evaluates the individual significance of each explanatory and interaction coefficient; H1–H4 are supported when the relevant coefficients are statistically significant in the predicted (positive) direction at conventional levels. The coefficient of determination (R^2) and adjusted R^2 gauge the explanatory power of the models, with the adjusted measure penalising the inclusion of additional regressors. For the moderation tests, a significant interaction term is interpreted through simple-slope analysis, examining the effect of each committee on carbon disclosure at

low and high levels of gender diversity to establish the form and direction of the conditional relationship.

3. Results

3.1 Descriptive Statistics

Tabel 2 Descriptive Statistics

Variable	Description	N	Mean	SD	Minimum	P25	Median	P75	Maximum
CD	Carbon disclosure	193	49.1734	26.9108	0.0000	26.0638	49.4932	73.8961	99.0741
ESGCOM	ESG committee	193	0.6010	0.4910	0.0000	0.0000	1.0000	1.0000	1.0000
AUDCOM	Audit committee size	193	3.3161	0.7207	2.0000	3.0000	3.0000	3.0000	7.0000
GD	Gender diversity	193	0.1170	0.1474	0.0000	0.0000	0.0000	0.2000	0.7500
<u>Firm_Size</u>	Firm size	193	21.6760	1.1550	16.6841	21.2250	21.6941	22.4631	24.0882
DER	Debt-to-equity ratio	193	1.0280	1.5767	0.0004	0.1340	0.4110	1.2779	9.0135
ROE	Return on equity	193	0.2422	0.3775	-0.4312	0.0818	0.1637	0.2897	2.1164
<u>Firm_Age</u>	Firm age	193	39.0570	15.5048	9.0000	28.0000	39.0000	49.0000	91.0000
PBV	Price-to-book value	193	3.6804	7.1453	0.2693	1.0374	1.5696	3.3946	45.8118
<u>Current_Ratio</u>	Current ratio	193	2.0730	1.4749	0.2309	1.0764	1.7860	2.6496	7.4933

Table 2 reports the descriptive statistics of the variables included in this study. The sample consists of 193 firm-year observations from non-financial firms listed on the Indonesia Stock Exchange during the 2020–2024 period. Carbon disclosure (CD) has a mean value of 49.17, with a standard deviation of 26.91, indicating substantial variation in the extent of climate-related information disclosed across firms. The minimum value of zero suggests that some firms provided no carbon-related disclosure, whereas the maximum score of 99.07 indicates that several firms disclosed almost all carbon-related information assessed by the Refinitiv index.

Approximately 60.1% of the sample firms have established an ESG committee, suggesting that dedicated sustainability governance structures have become increasingly common among Indonesian listed companies. Meanwhile, the average audit committee consists of 3.32 members, which is generally consistent with Indonesian corporate governance regulations.

Board gender diversity remains relatively low, with women accounting for only 11.7% of board members on average. The median value of zero indicates that more than half of the sampled firms still have no female representation on their boards, highlighting the limited progress of gender diversity within Indonesian corporate governance.

Regarding the control variables, firms are generally large, with an average logarithm of total assets of 21.68. The average debt-to-equity ratio is 1.03, while the average return on equity reaches 24.2%. Sample firms have operated for approximately 39 years since listing, indicating relatively mature organizations. The average price-to-book value is 3.68, and the average current ratio equals 2.07, suggesting generally adequate liquidity among the sampled firms.

Descriptive statistics were employed to provide an overview of the characteristics of the research variables. The analysis includes the mean, standard deviation, minimum value, first quartile (P25), median, third quartile (P75), and maximum value for all variables. The sample consists of 193 firm-year observations.

The dependent variable in this study is Carbon Disclosure (CD). The descriptive statistics indicate that carbon disclosure has a mean value of 49.1734 and a standard deviation of 26.9108. The minimum value of 0.0000 suggests that some companies do not disclose any carbon-related information, whereas the maximum value of 99.0741 indicates that certain firms disclose nearly all carbon-related information covered by the disclosure index. The median value of 49.4932 is very close to the mean, implying a relatively balanced distribution of carbon disclosure scores. However, the large standard deviation suggests substantial variation in disclosure practices among firms. These findings indicate that while some companies have demonstrated a strong commitment to environmental transparency, others still provide very limited carbon-related information.

The ESG Committee (ESGCOM) variable has a mean value of 0.6010 and a standard deviation of 0.4910. As a dummy variable, this result indicates that approximately 60.1% of the sampled firms have established an ESG committee, while 39.9% have not. The median value of 1 confirms that more than half of the companies have implemented ESG governance structures. This finding reflects the growing recognition of sustainability issues within corporate governance frameworks and suggests that many firms have begun institutionalizing sustainability oversight through dedicated committees.

Audit Committee Size (AUDCOM) records a mean value of 3.3161 members with a standard deviation of 0.7207. The minimum and maximum values range from 2 to 7 members, respectively, while the median is 3. This finding indicates that most companies maintain audit committees with approximately three members. The relatively low standard deviation suggests limited variation in audit committee size across firms, implying that most companies adhere to similar governance structures regarding audit committee composition.

Gender Diversity (GD) exhibits a mean value of 0.1170, indicating that women represent approximately 11.7% of the board or governance positions measured in this study. The median value of zero suggests that more than half of the firms have no female representation in the relevant governance structure. The maximum value of 0.7500 indicates that some firms have achieved a high level of female participation, reaching 75%. The relatively large standard deviation of 0.1474 demonstrates substantial variation among firms regarding gender diversity practices. Overall, these findings suggest that female representation in corporate governance remains relatively low within the sample.

Firm Size has an average value of 21.6760 with a standard deviation of 1.1550. The minimum value is 16.6841, while the maximum reaches 24.0882. These statistics indicate that the sample includes both relatively small and large firms. Company size is often associated with greater stakeholder pressure and higher public visibility, which may encourage firms to engage in more extensive sustainability disclosure practices.

Debt-to-Equity Ratio (DER) shows a mean value of 1.0280 and a standard deviation of 1.5767. The maximum value of 9.0135 indicates the presence of highly leveraged firms within the sample. Meanwhile, the median value of 0.4110 suggests that most companies maintain moderate leverage levels. The considerable variation in leverage demonstrates differences in financing structures across firms.

Return on Equity (ROE) has a mean value of 0.2422 and a standard deviation of 0.3775. The minimum value of -0.4312 indicates that some firms experienced losses during the observation period, while the maximum value of 2.1164 reflects exceptionally high profitability among certain companies. These findings suggest significant differences in financial performance across the sample firms.

Firm Age records an average of 39.057 years with a standard deviation of 15.5048 years. The minimum and maximum values range from 9 years to 91 years, indicating substantial

variation in organizational maturity. Older firms may possess greater experience in addressing stakeholder expectations and implementing sustainability-related reporting practices.

Price-to-Book Value (PBV) has a mean value of 3.6804 and a standard deviation of 7.1453. The large standard deviation relative to the mean indicates substantial variation in market valuation among firms. The maximum value of 45.8118 suggests that certain companies enjoy significantly higher market valuations compared to their book values.

Current Ratio records an average value of 2.0730 with a standard deviation of 1.4749. Since the average exceeds one, the results indicate that, on average, firms possess sufficient liquidity to meet their short-term obligations. Strong liquidity positions may enable firms to allocate resources toward sustainability initiatives and environmental reporting activities.

3.2 Correlation Analysis

Table 3 Pearson Correlation Matrix

Variable	CD	ESGCOM	AUDCOM	GD	<u>Firm_Size</u>	DER	ROE	<u>Firm_Age</u>	PBV	<u>Current_Ratio</u>
CD	1.000	0.504***	0.079	-0.058	0.335***	-0.198***	0.073	0.283***	0.043	0.091
ESGCOM	0.504***	1.000	-0.098	0.059	0.084	-0.110	0.087	0.110	0.111	-0.118
AUDCOM	0.079	-0.098	1.000	-0.198***	0.259***	-0.071	0.031	-0.040	0.009	-0.088
GD	-0.058	0.059	-0.198***	1.000	-0.282***	-0.020	-0.008	0.043	0.072	0.126*
<u>Firm_Size</u>	0.335***	0.084	0.259***	-0.282***	1.000	-0.140*	-0.125*	0.154**	-0.216***	-0.158**
DER	-0.198***	-0.110	-0.071	-0.020	-0.140*	1.000	0.218***	-0.132*	0.249***	-0.380***
ROE	0.073	0.087	0.031	-0.008	-0.125*	0.218***	1.000	0.248***	0.714***	-0.195***
<u>Firm_Age</u>	0.283***	0.110	-0.040	0.043	0.154**	-0.132*	0.248***	1.000	0.290***	-0.063
PBV	0.043	0.111	0.009	0.072	-0.216***	0.249***	0.714***	0.290***	1.000	-0.200***
<u>Current_Ratio</u>	0.091	-0.118	-0.088	0.126*	-0.158**	-0.380***	-0.195***	-0.063	-0.200***	1.000

*** p < 0.01, ** p < 0.05, * p < 0.10.

Table 3 presents the Pearson correlation matrix. Carbon disclosure is positively correlated with the presence of an ESG committee ($r = 0.504$, $p < 0.01$), firm size ($r = 0.335$, $p < 0.01$), and firm age ($r = 0.283$, $p < 0.01$). Conversely, carbon disclosure is negatively associated with leverage ($r = -0.198$, $p < 0.01$). These preliminary findings suggest that firms with more developed governance structures and larger organizational capacity tend to disclose more comprehensive carbon information.

Pearson correlation analysis was conducted to examine the relationships among variables and to identify potential multicollinearity issues prior to regression analysis. The results provide preliminary evidence regarding the direction and strength of associations among the study variables.

The findings reveal a positive and statistically significant correlation between ESG Committee and Carbon Disclosure ($r = 0.504$, $p < 0.01$). This indicates that firms with ESG committees tend to disclose more carbon-related information than firms without such committees. The magnitude of this coefficient represents the strongest correlation observed with carbon disclosure, suggesting that ESG governance mechanisms may play an important role in encouraging environmental transparency.

Firm Size also demonstrates a positive and significant correlation with Carbon Disclosure ($r = 0.335$, $p < 0.01$). This finding supports the notion that larger firms are more likely to engage in extensive environmental disclosure practices. Larger organizations often face greater scrutiny from stakeholders, regulators, investors, and the public, increasing their incentive to provide comprehensive sustainability information.

Firm Age is positively correlated with Carbon Disclosure ($r = 0.283$, $p < 0.01$). This result suggests that older firms tend to disclose more carbon-related information than younger firms. Established companies may have more developed reporting systems and greater experience in addressing environmental accountability requirements.

Conversely, Debt-to-Equity Ratio exhibits a negative and significant correlation with Carbon Disclosure ($r = -0.198$, $p < 0.01$). This relationship implies that highly leveraged firms are less likely to engage in extensive carbon disclosure. One possible explanation is that firms facing higher financial obligations prioritize financial stability and debt management over voluntary sustainability reporting initiatives.

Audit Committee Size displays a weak and statistically insignificant positive correlation with Carbon Disclosure ($r = 0.079$). Similarly, Gender Diversity shows a weak negative and insignificant correlation with Carbon Disclosure ($r = -0.058$). These results suggest that neither audit committee size nor gender diversity demonstrates a direct relationship with carbon disclosure at the bivariate level.

Among the independent variables, the highest correlation is observed between ROE and PBV ($r = 0.714$, $p < 0.01$). Although relatively high, this coefficient remains below the commonly accepted threshold of 0.80, indicating that multicollinearity is unlikely to pose a serious problem in the regression models. Overall, the correlation matrix suggests that the variables can be included simultaneously in the regression analysis without substantial concern regarding multicollinearity.

Importantly, none of the correlation coefficients exceeds the commonly accepted threshold of 0.80, indicating that multicollinearity is unlikely to be a serious concern. Although profitability and price-to-book value exhibit a relatively strong positive association ($r = 0.714$), the value remains below the critical threshold and therefore does not indicate severe multicollinearity. Overall, the correlation analysis supports the appropriateness of the regression models employed in this study.

3.3 Regression Results

Table 4 Regression Results

	Model 1: ESGCOM	Model 2: AUDCOM	Model 3: ESGCOM × GD	Model 4: AUDCOM × GD
ESG committee	2.9938 (4.2774)		2.6721 (4.0002)	
Audit committee size		0.1258 (1.3531)		-0.0065 (1.6440)
Gender diversity (centered)			28.7762 (20.1236)	40.6731 (32.5211)
ESG committee × gender diversity			-22.2849 (23.7495)	
Audit committee size × gender diversity				-8.7274 (10.1181)
Firm size	2.2756 (4.9443)	2.2218 (5.0929)	2.2423 (4.7855)	2.0158 (5.0772)
Debt-to-equity ratio	2.3096* (1.3287)	1.9809 (1.4429)	1.8610 (1.3144)	1.5731 (1.3811)
Return on equity	8.2372 (5.9692)	9.0161 (6.0855)	7.7149 (5.7234)	8.4224 (5.6856)
Price-to-book value	-0.7270** (0.3361)	-0.6431* (0.3262)	-0.7285** (0.3452)	-0.6281* (0.3230)

	Model 1: ESGCOM	Model 2: AUDCOM	Model 3: ESGCOM × GD	Model 4: AUDCOM × GD
Current ratio	4.4700*** (1.5056)	4.5405*** (1.6080)	4.4942*** (1.4420)	4.4367*** (1.6326)
Num.Obs.	193	193	193	193
R2	0.925	0.925	0.927	0.926
R2 Adj.	0.888	0.887	0.888	0.887
R2 Within	0.112	0.106	0.126	0.114
R2 Within Adj.	0.070	0.064	0.070	0.057
FE: RIC	X	X	X	X
FE: Year	X	X	X	X

Clustered standard errors at the firm level are reported in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.10. All models include firm and year fixed effects.

Table 4 reports the fixed-effects regression results with firm and year fixed effects. Four models are estimated to examine the direct effects of ESG committees and audit committees as well as the moderating role of gender diversity.

The study employs four fixed-effects regression models that control for both firm and year effects. Clustered standard errors at the firm level are used to account for heteroscedasticity and serial correlation. The R² values range from 0.925 to 0.927, indicating that the models explain approximately 92.5% to 92.7% of the variation in carbon disclosure.

Effect of ESG Committee on Carbon Disclosure

Model 1 examines the direct effect of ESG Committee on Carbon Disclosure. The coefficient of ESG Committee is positive ($\beta = 2.9938$), indicating that firms with ESG committees tend to have higher carbon disclosure scores. However, the coefficient is statistically insignificant, suggesting that the presence of an ESG committee does not significantly influence carbon disclosure after controlling for firm characteristics and fixed effects.

This finding implies that merely establishing an ESG committee may not be sufficient to improve environmental transparency. In many firms, ESG committees may function primarily as symbolic governance mechanisms intended to satisfy stakeholder expectations rather than actively shaping environmental disclosure strategies. The effectiveness of ESG committees likely depends on factors such as authority, expertise, resources, and integration into corporate decision-making processes.

Another explanation is that ESG committees are relatively new governance structures in many organizations. Consequently, their influence on environmental reporting may require a longer period to materialize. Firms may need time to develop sustainability policies, reporting frameworks, and internal monitoring systems before improvements in disclosure become evident.

Effect of Audit Committee Size on Carbon Disclosure

Model 2 investigates the effect of Audit Committee Size on Carbon Disclosure. The results indicate a positive coefficient of 0.1258; however, the relationship is statistically insignificant. Therefore, audit committee size does not appear to influence carbon disclosure practices significantly.

This finding suggests that increasing the number of audit committee members alone does not necessarily enhance oversight effectiveness. The quality of governance may depend more heavily on factors such as member expertise, independence, professional experience, and commitment to sustainability issues. Consequently, a larger audit committee may not automatically result in better environmental disclosure practices.

The result is also consistent with governance literature emphasizing that committee effectiveness is determined more by competence and functionality than by numerical size. Therefore, companies seeking to improve sustainability reporting should focus on strengthening committee capabilities rather than merely expanding committee membership.

Moderating Role of Gender Diversity in the ESG Committee–Carbon Disclosure Relationship

Model 3 examines whether Gender Diversity moderates the relationship between ESG Committee and Carbon Disclosure. The interaction term ESG Committee $\times$ Gender Diversity produces a negative coefficient of -22.2849 and is statistically insignificant.

These findings indicate that gender diversity does not strengthen the relationship between ESG committees and carbon disclosure. In other words, the presence of female representation within corporate governance structures does not appear to enhance the effectiveness of ESG committees in promoting environmental transparency.

One possible explanation lies in the relatively low level of gender diversity observed within the sample. The descriptive statistics reveal that the average female representation is only 11.7%, while the median value is zero. This indicates that many firms lack female representation altogether, limiting the potential influence of women on sustainability-related decision-making processes.

Another explanation may involve organizational culture and power dynamics. Even when women are represented on boards or committees, they may not possess sufficient influence to shape strategic decisions regarding environmental disclosure. As a result, the expected benefits of diversity may not be fully realized.

Moderating Role of Gender Diversity in the Audit Committee Size–Carbon Disclosure Relationship

Model 4 investigates whether Gender Diversity moderates the relationship between Audit Committee Size and Carbon Disclosure. The interaction coefficient between Audit Committee Size and Gender Diversity is -8.7274 and statistically insignificant.

The results indicate that gender diversity does not strengthen the influence of audit committee size on carbon disclosure. Thus, the effectiveness of audit committees in promoting environmental reporting does not appear to depend on the level of female representation within the governance structure.

This finding may reflect the limited participation of women in strategic governance roles across the sampled firms. Furthermore, gender diversity may influence sustainability outcomes only when women hold influential positions and possess meaningful opportunities to contribute to organizational decision-making. Without sufficient representation and authority, diversity may not translate into measurable governance outcomes.

Model 1 examines the direct effect of ESG committees on carbon disclosure. The coefficient of ESG committee is positive but statistically insignificant. Likewise, Model 2 shows that audit committee size does not significantly affect carbon disclosure. These findings indicate that neither governance mechanism independently improves the level of carbon disclosure among Indonesian listed firms.

Models 3 and 4 incorporate the moderating role of gender diversity. The interaction between ESG committee and gender diversity is negative and statistically insignificant. Similarly, the interaction between audit committee size and gender diversity is also insignificant. Therefore, board gender diversity does not strengthen the relationship between either governance mechanism and carbon disclosure.

Among the control variables, current ratio consistently exhibits a positive and statistically significant relationship with carbon disclosure across all models, suggesting that firms with stronger liquidity positions disclose more comprehensive carbon information. In contrast, price-to-book value shows a significantly negative association with carbon disclosure, indicating that firms with higher market valuations tend to disclose relatively less carbon-related information. Debt-to-equity ratio is weakly significant only in Model 1, whereas firm size, profitability, and other control variables do not exhibit consistent statistical significance.

Overall, the models demonstrate relatively high explanatory power, with adjusted R^2 ranging from 0.887 to 0.888, indicating that the selected governance variables and control variables collectively explain a substantial proportion of the variation in corporate carbon disclosure.

Effects of Control Variables

The regression results reveal several noteworthy findings regarding the control variables. Debt-to-Equity Ratio exhibits a positive and marginally significant effect in Model 1 ($\beta = 2.3096$, $p < 0.10$), but the relationship becomes insignificant in the remaining models. This suggests that leverage does not consistently influence carbon disclosure once additional interaction effects are considered.

Return on Equity remains statistically insignificant across all models. This finding indicates that profitability does not directly determine the extent of carbon disclosure among firms. While profitable firms may possess greater resources for sustainability initiatives, financial performance alone does not appear to drive environmental reporting behavior.

Price-to-Book Value consistently demonstrates a negative and significant effect across all models, with coefficients ranging from -0.6281 to -0.7285. This finding suggests that firms with higher market valuations tend to disclose less carbon-related information. One possible interpretation is that highly valued firms may rely on their strong market reputation and therefore perceive less need to enhance legitimacy through extensive environmental disclosure.

Current Ratio exhibits a positive and highly significant relationship with Carbon Disclosure in all models. The coefficients range from 4.4367 to 4.5405 and are significant at the 1% level. This result indicates that firms with stronger liquidity positions are more likely to engage in extensive carbon disclosure. Companies with greater financial flexibility may be better equipped to invest in sustainability initiatives, environmental monitoring systems, and reporting activities.

4. Discussion

4.1 ESG Committee and Carbon Disclosure

The findings reveal that the existence of an ESG committee does not significantly influence corporate carbon disclosure. Therefore, H1 is not supported.

This finding suggests that the establishment of an ESG committee alone is insufficient to improve climate-related transparency. Although ESG committees are expected to coordinate sustainability initiatives and enhance board oversight, their effectiveness depends on the committee's authority, expertise, and integration into strategic decision-making. In Indonesia, ESG committees remain largely voluntary, and many firms may establish such committees primarily to comply with stakeholder expectations rather than to fundamentally improve environmental governance.

From the perspective of Legitimacy Theory, companies may create ESG committees as symbolic governance structures to enhance corporate legitimacy without substantially improving disclosure quality. Consequently, the committee functions more as a signal of

commitment than as an effective governance mechanism capable of influencing reporting practices.

This finding is consistent with Huang et al. (2024), who argue that ESG committees may be either effective or merely symbolic, depending on their governance quality. It also supports Rosyidah and Ningsih (2025), who note that ESG committees in Indonesia are still developing and often exhibit heterogeneous effectiveness. However, the result contrasts with Oyewo (2023), who reports that dedicated sustainability governance significantly enhances environmental performance and disclosure.

4.2 Audit Committee and Carbon Disclosure

The results indicate that audit committee size has no significant effect on carbon disclosure, leading to the rejection of H2.

Agency Theory suggests that audit committees reduce information asymmetry by strengthening board monitoring. However, carbon disclosure differs substantially from financial reporting because it requires environmental expertise, climate-risk assessment, and sustainability knowledge that traditional audit committees may not possess.

Consequently, increasing committee size does not necessarily improve disclosure quality if members lack environmental competencies. The finding implies that audit committees in Indonesian firms continue to focus primarily on financial reporting and regulatory compliance rather than climate-related disclosure.

This result supports Haque (2017), who finds that audit committees do not consistently improve carbon reporting across institutional settings. However, it differs from Krishnamurti and Velayutham (2018) and Meqbel et al. (2025), who document positive relationships between audit committee characteristics and greenhouse-gas disclosure in developed markets.

4.3 Moderating Role of Gender Diversity

The interaction between ESG committee and gender diversity is statistically insignificant, indicating that board gender diversity does not strengthen the influence of ESG committees on carbon disclosure. Likewise, gender diversity does not moderate the relationship between audit committee size and carbon disclosure. Therefore, H3 and H4 are not supported.

Resource Dependence Theory argues that female directors contribute diverse knowledge, broader stakeholder perspectives, and stronger ethical orientation that should improve board effectiveness. Nevertheless, the descriptive statistics show that female directors account for only 11.7% of board members on average, while the median value is zero, implying that many firms still have no women serving on their boards. Under these conditions, female directors may not yet have sufficient representation to influence strategic environmental decisions.

The findings are consistent with Critical Mass Theory, which suggests that women directors become influential only after reaching a sufficient representation on corporate boards. Therefore, limited female participation may explain why gender diversity fails to strengthen governance effectiveness in promoting carbon disclosure.

These findings align with Nuber and Velte (2021), Nicolò et al. (2022), and Gonenc and Krasnikova (2022), who report that the influence of gender diversity on environmental disclosure depends on contextual and institutional conditions. Conversely, the results differ from Ben-Amar et al. (2017), Tingbani et al. (2020), and Pucheta-Martínez et al. (2021), who find that female directors strengthen sustainability governance and environmental reporting.

4.4 Implications of the Findings

The findings provide several theoretical and practical implications.

From a theoretical perspective, the study suggests that internal governance structures alone are insufficient to enhance carbon transparency in emerging markets where ESG

governance remains voluntary and relatively immature. The results refine Legitimacy Theory by indicating that governance mechanisms may function symbolically rather than substantively when institutional pressures are still evolving. Likewise, Agency Theory and Resource Dependence Theory appear to operate conditionally, depending on board competencies, institutional quality, and the maturity of sustainability governance.

From a practical perspective, merely establishing ESG committees or expanding audit committees is unlikely to improve carbon disclosure unless these governance mechanisms are supported by environmental expertise, clear responsibilities, board commitment, and effective monitoring systems. Regulators such as the Indonesian Financial Services Authority (OJK) may therefore consider developing more detailed governance guidelines regarding ESG committee responsibilities and climate-related disclosure practices. Furthermore, increasing female representation should be accompanied by greater participation in strategic board decisions rather than focusing solely on numerical diversity.

5. Conclusion

Overall, the empirical findings indicate that neither ESG Committee nor Audit Committee Size has a statistically significant effect on Carbon Disclosure after controlling for firm and year fixed effects. Furthermore, Gender Diversity does not moderate the relationship between ESG Committee and Carbon Disclosure, nor does it moderate the relationship between Audit Committee Size and Carbon Disclosure.

Although ESG Committee demonstrates a strong positive correlation with Carbon Disclosure in the bivariate analysis, this relationship disappears in the multivariate regression models. This suggests that the observed association may be explained by other firm-specific characteristics rather than the direct influence of ESG committees themselves.

Among the control variables, Current Ratio emerges as the most consistent positive determinant of Carbon Disclosure, while Price-to-Book Value exhibits a significant negative relationship. The high explanatory power of the regression models further suggests that the selected variables collectively capture a substantial proportion of the variation in corporate carbon disclosure practices.

In conclusion, the results imply that the existence of formal governance structures such as ESG committees and audit committees alone is insufficient to improve carbon disclosure. Effective environmental transparency may depend more on the quality, authority, expertise, and actual functioning of governance mechanisms than on their mere presence within the organizational structure.

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ARTIFICIAL INTELLIGENCE AND THE SUSTAINABLE DEVELOPMENT GOALS: MAPPING RESEARCH TRENDS THROUGH A SYSTEMATIC LITERATURE REVIEW

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Abstract 137

Artificial Intelligence (AI) has become a key enabling technology for accelerating the achievement of the Sustainable Development Goals (SDGs). The rapid advancement of machine learning, deep learning, Generative AI, and Large Language Models (LLMs) has expanded AI applications across multiple sectors. However, existing studies remain fragmented, limiting a comprehensive understanding of research trends, implementation areas, challenges, and future directions. This study conducts a Systematic Literature Review (SLR) following the PRISMA 2020 guidelines to synthesize research on AI and SDGs. Articles published between 2021 and 2026 were collected from Scopus, Web of Science, Google Scholar, and SINTA-indexed journals and analyzed using descriptive, thematic, and narrative synthesis. The findings indicate a significant increase in AI–SDGs research, particularly during 2024–2026, driven by the emergence of Generative AI and LLMs. AI contributes to sustainable development by improving decision-making, operational efficiency, innovation, and sustainability across various sectors. Nevertheless, major challenges remain, including AI governance, ethical issues, data privacy, algorithmic bias, transparency, energy consumption, and the digital divide. The review also identifies research gaps, particularly the limited empirical evidence on AI's contribution to SDG indicators and the need for greater integration of Responsible AI and Green AI to support sustainable development.

Keywords: *Artificial Intelligence, Sustainable Development Goals, Sustainability, Systematic Literature Review, PRISMA 2020, Generative Artificial Intelligence.*

1. Introduction

The development of Artificial Intelligence (AI) has become one of the most significant technological phenomena of the twenty-first century, fundamentally transforming how individuals, organizations, and governments create value, manage resources, and make data-driven decisions. AI has evolved beyond the automation of routine tasks into a transformative technology capable of predictive analytics, adaptive learning, pattern recognition, natural language processing, and content generation through Generative Artificial Intelligence (Generative AI). Furthermore, the integration of AI with emerging technologies such as the Internet of Things (IoT), Big Data Analytics, Cloud Computing, Blockchain, and Digital Twins has expanded its application across numerous sectors, including healthcare, education, manufacturing, agriculture, transportation, energy, and public services. Consequently, AI is increasingly recognized as a general-purpose technology with the potential to enhance

productivity, foster innovation, and accelerate global economic and social transformation (Vinuesa et al., 2020; Kulkov et al., 2024).

The rapid advancement of AI is reflected in growing global investment, increasing scientific publications, and widespread adoption in business operations and public policymaking. In recent years, the emergence of Generative AI has significantly accelerated digital transformation by enabling machines to generate human-like text, images, audio, video, and programming code. This technological breakthrough has reshaped organizational business models while creating new paradigms for innovation, service quality improvement, operational efficiency, and evidence-based decision-making. Nevertheless, these developments have also introduced critical challenges, including algorithmic bias, AI transparency, cybersecurity risks, personal data protection, the substantial energy consumption of data centers, ethical concerns regarding workforce displacement, and widening digital inequality. Therefore, AI development must not only pursue technological advancement but also create sustainable social and environmental value (Kulkov et al., 2024; United Nations, 2024).

In response to these global challenges, the United Nations established the Sustainable Development Goals (SDGs) as part of the 2030 Agenda, comprising 17 goals and 169 targets aimed at balancing economic growth, social inclusion, and environmental sustainability. However, recent progress reports indicate that many SDG targets remain off track due to climate change, environmental degradation, rising social inequality, geopolitical conflicts, economic instability, and the long-term consequences of the COVID-19 pandemic. These conditions demonstrate that conventional development approaches alone are insufficient to accelerate SDG achievement, thereby highlighting the need for innovative technologies capable of improving efficiency, effectiveness, and evidence-based decision-making for sustainable development (United Nations, 2024).

Within this context, AI has emerged as a strategic enabling technology capable of accelerating SDG achievement through data-driven decision-making, process automation, and innovative solutions to complex global challenges. AI applications have improved disease diagnosis and healthcare services (SDG 3), personalized and adaptive education (SDG 4), renewable energy optimization (SDG 7), industrial innovation and smart infrastructure (SDG 9), sustainable cities (SDG 11), natural resource management (SDGs 14 and 15), and climate change prediction and disaster mitigation (SDG 13). Vinuesa et al. (2020) demonstrated that AI could positively influence 128 of the 169 SDG targets while potentially hindering 58 targets if implemented without adequate governance. These findings indicate that AI possesses a dual-impact nature, functioning as both an enabler and a potential barrier to sustainable development depending on its governance and implementation.

Research on AI and the SDGs has expanded considerably over the past five years. Scientific publications have evolved beyond algorithm development to encompass AI governance, Responsible AI, AI ethics, organizational sustainability, the circular economy, digital transformation, and social value creation. Singh et al. (2024) reported that AI-for-SDGs research has become increasingly multidisciplinary, integrating computer science, management, economics, healthcare, engineering, environmental science, public policy, and social sciences. However, this rapid expansion has also resulted in fragmented literature, making it difficult to obtain a comprehensive understanding of research evolution, dominant themes, scientific collaboration, and relationships among emerging topics. Consequently, a systematic synthesis of existing knowledge is necessary to provide a holistic overview of AI research supporting sustainable development.

Moreover, previous studies have predominantly focused on AI implementation within specific sectors or individual SDGs, such as healthcare, energy, or environmental sustainability. Comprehensive studies integrating AI research across the entire SDG framework remain

limited. Existing literature reviews often emphasize technological developments while providing limited discussion on the relationships among research trends, implementation domains, governance challenges, and future research opportunities. The rapid emergence of Generative AI between 2023 and 2026 has further transformed both AI research and practical applications, creating new opportunities that remain insufficiently explored. Therefore, an updated and comprehensive literature synthesis is essential to identify research evolution, dominant themes, knowledge gaps, and future research directions.

Based on these considerations, this study employs a Systematic Literature Review (SLR) to examine the development of research on the relationship between Artificial Intelligence and the Sustainable Development Goals. Specifically, this review aims to identify publication trends, dominant research themes, AI implementation across different SDGs, implementation challenges, and future research opportunities. The findings are expected to enrich theoretical understanding of AI for sustainable development while providing practical implications for academics, policymakers, and industry practitioners in designing responsible, inclusive, and sustainable AI strategies aligned with the 2030 Agenda.

Artificial Intelligence (AI) has also become one of the primary drivers of digital transformation across healthcare, education, industry, agriculture, energy, government, and business. Technological advances in machine learning, deep learning, natural language processing, computer vision, and Generative AI have enhanced organizations' capabilities in data processing, decision support, operational efficiency, and sustainability-oriented innovation. As a result, AI is increasingly regarded as a general-purpose technology with far-reaching implications for economic growth, social welfare, and environmental sustainability (Vinuesa et al., 2020).

Meanwhile, the international community continues to face considerable challenges in achieving the Sustainable Development Goals by 2030. According to *The Sustainable Development Goals Report 2024*, progress toward many SDG targets remains below expectations due to climate change, increasing social inequality, food insecurity, geopolitical conflicts, and the long-term impacts of the COVID-19 pandemic (United Nations, 2024).

Against this backdrop, AI has emerged as a strategic technology capable of accelerating SDG achievement by enhancing efficiency, productivity, and data-driven decision-making. Vinuesa et al. (2020) identified AI as having the potential to support 128 of the 169 SDG targets through improvements in healthcare, adaptive education, renewable energy management, smart city development, climate change mitigation, and sustainable natural resource management. However, AI may also negatively affect 58 SDG targets if governance mechanisms addressing algorithmic bias, data privacy, transparency, cybersecurity, and digital inequality are not adequately implemented (Vinuesa et al., 2020).

As interest in AI for sustainable development has grown, scientific publications on AI and the SDGs have increased substantially. Singh et al. (2024) observed rapid growth in this field, covering healthcare, energy, environmental management, agriculture, smart cities, and governance. The literature also demonstrates increasing integration between AI and complementary technologies such as Big Data, the Internet of Things (IoT), blockchain, and predictive analytics to support sustainable development initiatives.

Despite this growing body of research, studies on AI and the SDGs remain dispersed across multiple disciplines, limiting comprehensive understanding of publication trends, dominant themes, scientific collaboration, and research gaps. Furthermore, the rapid emergence of Generative AI since 2023 has created numerous research opportunities that have yet to be systematically synthesized. These circumstances highlight the need for a comprehensive literature review to map research developments and identify future research priorities in AI for sustainable development (Singh et al., 2024; Vinuesa et al., 2020).

Accordingly, this study adopts a Systematic Literature Review (SLR) to map research trends on Artificial Intelligence and the Sustainable Development Goals. The review aims to identify publication trends, dominant research themes, AI applications across SDGs, implementation challenges, and future research opportunities. The findings are expected to contribute to the theoretical advancement of AI for sustainable development while providing valuable insights for researchers, practitioners, and policymakers in designing responsible AI strategies that support the achievement of the Sustainable Development Goals.

2. Literature review

2.1 Artificial Intelligence (AI)

Artificial Intelligence (AI) is a branch of computer science that focuses on developing systems capable of mimicking human cognitive abilities, including learning, reasoning, problem-solving, pattern recognition, natural language understanding, and autonomous decision-making. The evolution of AI has progressed significantly, beginning with rule-based systems and advancing to machine learning, deep learning, and more recently, Generative Artificial Intelligence (Generative AI), which is capable of automatically generating text, images, audio, and video. According to the Organisation for Economic Co-operation and Development (OECD), AI is defined as a machine-based system that can generate predictions, recommendations, or decisions for a given set of human-defined objectives and influence both real and virtual environments. This definition emphasizes that AI should not merely be viewed as software but as an adaptive system capable of learning from data and continuously improving its performance. In the era of digital transformation, AI has evolved into a general-purpose technology that can be applied across almost all economic and social sectors, thereby contributing to increased productivity, innovation, and organizational competitiveness (Russell & Norvig, 2021; UNESCO, 2021; OECD, 2024).

The advancement of AI has accelerated significantly with the emergence of Generative AI, which is capable of producing digital content with quality comparable to human-created work. This technological breakthrough has shifted the role of AI from a tool primarily used for automation to a collaborative technology that supports creativity, innovation, data analytics, and strategic decision-making. Furthermore, the integration of AI with other emerging technologies, such as the Internet of Things (IoT), Cloud Computing, Big Data Analytics, and Blockchain, has expanded its applications across numerous sectors, including healthcare, education, manufacturing, agriculture, energy, transportation, and digital government. These developments demonstrate that AI is no longer regarded merely as a technological innovation but rather as a fundamental driver of digital economic transformation and sustainable development in the twenty-first century (UNESCO, 2021; OECD, 2024; Singh et al., 2024).

2.2 Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) are a global development agenda adopted by the United Nations (UN) in 2015 through the 2030 Agenda for Sustainable Development. The SDGs comprise 17 goals and 169 targets designed to achieve a balanced approach to economic growth, social well-being, and environmental protection. Unlike the Millennium Development Goals (MDGs), the SDGs adopt a more comprehensive development framework by integrating the Triple Bottom Line dimensions of economic sustainability, social sustainability, and environmental sustainability. This approach emphasizes that development success should be measured not only by economic growth but also by improvements in people's quality of life and the preservation of ecosystems for future generations (United Nations, 2015; Sachs et al., 2024).

Although the SDGs have served as the global development agenda for nearly a decade, significant challenges remain in achieving their targets. Climate change, environmental degradation, economic inequality, poverty, geopolitical conflicts, food insecurity, and uneven technological development have left many SDG targets off track. Consequently, innovative technologies are needed to accelerate SDG implementation by enhancing efficiency, effectiveness, and the quality of decision-making. In this context, Artificial Intelligence (AI) has increasingly been recognized as a key enabling technology with the potential to accelerate the achievement of the 2030 Agenda through data-driven innovation, intelligent automation, and improved decision-making capabilities (Goh & Vinuesa, 2021; OECD, 2024; Singh et al., 2024).

2.3 Artificial Intelligence for Sustainability

The relationship between Artificial Intelligence (AI) and sustainability has attracted increasing attention across various academic disciplines because AI is widely recognized for its potential to provide innovative solutions to complex sustainable development challenges. From an economic perspective, AI enhances productivity through business process automation, supply chain optimization, demand forecasting, and data-driven decision-making. From a social perspective, AI contributes to improving healthcare services, enabling adaptive and personalized education, supporting intelligent transportation systems, and enhancing the effectiveness of public services. From an environmental perspective, AI plays a crucial role in climate change monitoring, energy efficiency, waste management, biodiversity conservation, and natural disaster mitigation through real-time data analysis (UNESCO, 2021; Singh et al., 2024).

Despite its numerous benefits, the implementation of AI also presents significant sustainability challenges. AI systems require computational infrastructures that consume substantial amounts of energy, while the extensive use of data raises concerns regarding data privacy, algorithmic bias, discrimination, and unequal access to technology. Therefore, AI development should adopt the principles of Responsible AI, which emphasize the creation of AI systems that are transparent, fair, secure, accountable, and human-centered. Such an approach is essential to ensure that AI delivers sustainable benefits while minimizing potential negative impacts on society and the environment (UNESCO, 2021; Goh & Vinuesa, 2021; OECD, 2024).

2.4 Artificial Intelligence and Sustainable Development Goals

The relationship between Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs) has become one of the fastest-growing research topics in recent years. Recent studies indicate that AI has the potential to make significant positive contributions to multiple SDG targets, particularly in healthcare (SDG 3), quality education (SDG 4), affordable and clean energy (SDG 7), industry, innovation, and infrastructure (SDG 9), sustainable cities and communities (SDG 11), climate action (SDG 13), and the conservation of marine and terrestrial ecosystems (SDGs 14 and 15). Nevertheless, AI may also hinder progress toward certain SDG targets if its implementation is not supported by appropriate regulatory frameworks, effective governance, and strong ethical principles. Therefore, leveraging AI for sustainable development requires a balanced approach that combines technological innovation with sound governance and the protection of fundamental social values (Goh & Vinuesa, 2021; UNESCO, 2021; Singh et al., 2024).

2.5 Research Trends on Artificial Intelligence and SDGs

Bibliometric studies indicate that research on Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs) has experienced rapid growth since 2020, particularly following the increasing emphasis on digital transformation and the emergence of Generative AI. Research themes have evolved beyond the technical aspects of AI algorithms to encompass broader issues, including AI Governance, Responsible AI, AI Ethics, digital transformation, the circular economy, smart cities, and organizational sustainability. In addition to the substantial increase in scientific publications, the literature also demonstrates stronger international collaboration among universities and greater multidisciplinary integration across computer science, engineering, management, economics, healthcare, environmental science, and public policy. Nevertheless, existing research remains fragmented across specific sectors and individual SDGs, highlighting the need for a more comprehensive literature mapping to identify dominant research themes, conceptual evolution, and future research opportunities (UNESCO, 2021; OECD, 2024; Singh et al., 2024).

2.6 Research Gap

Although the number of studies on Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs) continues to increase, most existing research remains focused on AI implementation within specific sectors, such as healthcare, education, energy, and environmental sustainability. Comprehensive studies that systematically map the development of AI literature across all SDG dimensions, examine the evolution of research themes, analyze patterns of scientific collaboration, and identify future research directions remain relatively limited. Furthermore, the rapid emergence of Generative AI since 2023 has not been adequately incorporated into previous review studies. Therefore, this study adopts a Systematic Literature Review (SLR) approach to provide a comprehensive synthesis of AI and SDGs research while identifying existing research gaps and proposing future research agendas that can contribute to both theoretical advancement and the practical implementation of sustainable development (UNESCO, 2021; OECD, 2024; Singh et al., 2024).

3. Methodology

3.1 Research Design

This study employs a Systematic Literature Review (SLR) approach to systematically identify, evaluate, and synthesize research on the relationship between Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs). The SLR method was selected because it provides a comprehensive, systematic, transparent, and replicable synthesis of the existing literature, thereby minimizing bias throughout the processes of article identification, selection, and analysis. Furthermore, the SLR approach enables researchers to map publication trends, identify dominant research themes, reveal existing research gaps, and propose future research directions concerning the application of AI in supporting the achievement of the SDGs (Page et al., 2021; Xiao & Watson, 2021).

This study follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines, which consist of four sequential stages: Identification, Screening, Eligibility, and Included. The PRISMA 2020 framework was adopted to ensure that the literature selection process was conducted systematically, transparently, and in a manner that is reproducible and methodologically rigorous (Page et al., 2021).

3.2 Research Questions

To achieve the objectives of this Systematic Literature Review (SLR), this study was designed to address several research questions that guide the literature identification, analysis, and synthesis processes. These research questions aim to explore the current state of research on Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs), identify dominant research themes, examine the implementation of AI across different SDGs, investigate the major challenges associated with AI adoption, and highlight future research opportunities. Accordingly, the research questions are formulated as follows: RQ1. How has the scientific publication trend on Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs) evolved during the period 2021–2026?

RQ2. What are the dominant research themes in studies on Artificial Intelligence and the Sustainable Development Goals?

RQ3. How has Artificial Intelligence been implemented across the different Sustainable Development Goals?

RQ4. What are the major challenges in implementing Artificial Intelligence to support the achievement of the Sustainable Development Goals?

RQ5. What are the future research opportunities and directions regarding Artificial Intelligence and the Sustainable Development Goals?

3.3 Search Strategy

The literature search was conducted systematically using three major databases: Scopus, Web of Science (WoS), and Google Scholar as a supplementary source to identify relevant studies. In addition, articles published in SINTA 2-indexed national journals were included to enrich the research perspective, particularly regarding AI implementation in developing countries.

The search was limited to articles published between 2021 and 2026. This time frame was selected to capture the most recent developments in Artificial Intelligence, particularly following the rapid advancement and adoption of Machine Learning, Deep Learning, and Generative Artificial Intelligence across various sustainable development sectors.

3.4 Inclusion and Exclusion Criteria

Articles were selected based on the following inclusion and exclusion criteria.

Inclusion Criteria

1. Articles published between 2021 and 2026.
2. Articles published in peer-reviewed scientific journals.
3. Articles indexed in Scopus, Web of Science or SINTA 2.
4. Articles focusing on Artificial Intelligence (AI), Sustainability, or the Sustainable Development Goals (SDGs).
5. Articles available in full-text format.
6. Articles written in English or Indonesian.

Exclusion Criteria

1. Articles published before 2021.
2. Conference proceedings, editorials, book reviews, short communications, and letters to the editor.
3. Articles without full-text access.
4. Duplicate articles.
5. Articles that did not directly examine the relationship between AI and the SDGs.

3.5 PRISMA Screening Process

The article selection process followed the four stages of the PRISMA 2020 guidelines.

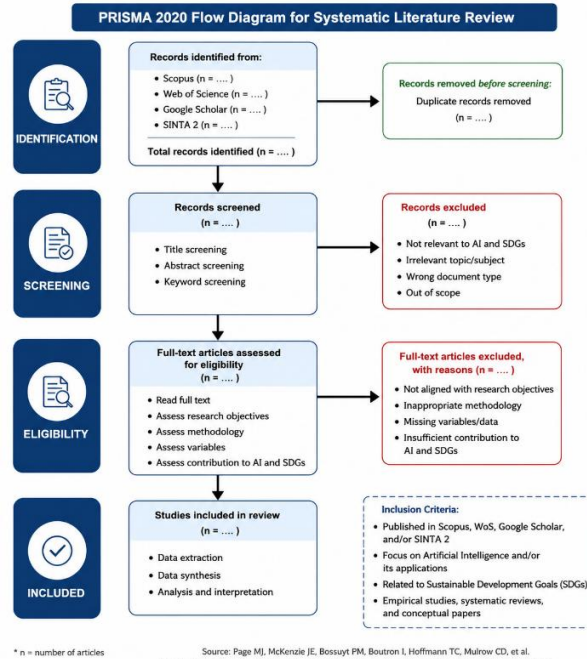


Figure 1. PRISMA 2020 Flow Diagram for the Literature Selection Process

1. Identification, The first stage involved identifying all relevant articles retrieved through keyword searches in the Scopus, Web of Science, Google Scholar, and SINTA 2 databases.
2. Screening, All retrieved articles were then screened to remove duplicate records. Subsequently, titles, abstracts, and keywords were reviewed to ensure their relevance to the research topic.
3. Eligibility, Articles that passed the screening stage were assessed through a full-text review. At this stage, each article was evaluated based on the relevance of its research objectives, methodology, research variables, and its contribution to the study of Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs).
4. Included, Articles that met all the predefined inclusion criteria were included in the final data extraction and literature synthesis.

3.6 Data Extraction

Data extraction was conducted systematically using a predefined data extraction form. The information collected from each selected article included the author(s), article title, publication year, research method, relevant SDGs, application sector, main findings, and identified research gaps. This standardized extraction process ensured consistency in data

collection and facilitated a comprehensive synthesis of the literature on Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs).

3.7 Data Analysis

Data analysis was conducted using three main approaches:

1. Descriptive analysis was used to examine publication trends based on publication year, country, journal, research field, and research methodology.
2. Thematic analysis was employed to identify the major research themes related to Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs), including AI technologies, implementation sectors, benefits, challenges, and future opportunities.
3. Narrative synthesis was conducted to integrate findings from studies with diverse characteristics, providing a comprehensive understanding of AI research in supporting the achievement of the SDGs. This approach was also used to identify research gaps and formulate directions for future research.

3.8 Quality Assessment

To ensure the quality of the synthesis, each article was evaluated based on the following criteria:

1. Relevance to the topic of Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs).
2. Clarity of the research objectives.
3. Appropriateness of the research methodology.
4. Contribution to the advancement of scientific knowledge.
5. Journal credibility (indexed in Scopus or SINTA 2).
6. Novelty of the research findings.

Only articles that met all of these criteria were included in the final synthesis stage.

4. Results and discussions

This study included 20 articles selected through the literature review process, all of which were considered highly relevant to the research objectives.

No	Author	Title	Year	Research Method	SDGs	Sector	Main Findings	Research Gap
1	Kulkov, I., Kulkova, J., Rohrbeck, R., Menvielle, L., Kaartemo, V., & Makkonen, H.	Artificial intelligence - driven sustainable development: Examining organizational, technical, and processing approaches to achieving global goals	2024	Systematic Literature Review	Multiple SDGs	Business & Management	AI berkontribusi terhadap sustainability melalui aspek organizational, technical, dan processing.	Belum banyak penelitian mengenai AI governance dan dampak jangka panjang implementasi AI.
2	Singh, A., Kanaujia, A., Singh, V. K., & Vinuesa, R.	Artificial intelligence for Sustainable Development Goals: Bibliometric patterns and concept evolution trajectories	2024	Bibliometric Analysis	All SDGs	Cross-sector	Menunjukkan tren pertumbuhan publikasi AI untuk SDGs serta evolusi konsep penelitian.	Diperlukan integrasi tema lintas disiplin dan agenda penelitian baru.

No	Author	Title	Year	Research Method	SDGs	Sector	Main Findings	Research Gap
3	Siqueira, M. B., Santos, V. M., Diniz, E. H., & Cruz, A. P. A.	Artificial Intelligence for Sustainability: A Systematic Literature Review in Information Systems	2024	Systematic Literature Review	Sustainability	Information Systems	AI mendukung sustainability pada dimensi lingkungan, ekonomi, sosial, organisasi, dan tata kelola.	Masih sedikit penelitian mengenai integrasi AI dalam Information Systems untuk sustainability.
4	Khan, S., Ali, M. Z., & Sharif, M.	Artificial Intelligence for advancing Sustainable Development Goals a comprehensive thematic review	2026	Comprehensive Thematic Review	SDG 2, 6, 7, 9, 11, 12, 13, 15	Environment	AI mempercepat pencapaian SDGs melalui pertanian, energi, limbah, kota cerdas, dan mitigasi bencana.	Diperlukan tata kelola AI yang etis dan kolaborasi lintas sektor.
5	Sharif Mohd, Mohammad Fakhru Islam, R. Ramachandran dan József Poór	Trends and insights from bibliometric analysis for mapping artificial intelligence and machine learning in sustainable development	2026	Bibliometric Analysis	Sustainability	Cross-sector	AI contributes to sustainability through organizational, technical, and processing dimensions.	Limited research has examined AI governance and the long-term impacts of AI implementation.
6	Irja Malmio	Artificial intelligence and the social dimension of sustainable development: through a security perspective	2024	Scoping Review	SDGs (Social Dimension)	Social Sustainability	Shows publication growth trends on AI for the SDGs and the evolution of research concepts.	Greater cross-disciplinary integration and new research agendas are needed.
7	Belkaid, O., & Kummitha, H. R.	Artificial Intelligence in Sustainable Tourism Development: A Critical Review of Governance and Managerial Implications	2026	Critical Review	SDG 8, 12, 13	Sustainable Tourism	AI supports sustainability across environmental, economic, social, organizational, and governance dimensions.	Research on integrating AI into Information Systems for sustainability remains limited.
8	Khan, S., Ali, M. Z., & Sharif, M.	Artificial Intelligence for Advancing Sustainable Development Goals: A Comprehensive Thematic Review	2026	Comprehensive Thematic Review	Multiple SDGs	Cross-sector	AI accelerates SDG achievement through cross-sector applications and thematic integration.	Limited empirical validation across developing countries.
9	Marmouzi, O., Oumaira, I., & El Khaddar, M.	A Systematic Review of Green and Sustainable AI: Taxonomy, Metrics, Challenges, and Open Research Directions	2026	Systematic Literature Review	SDG 9, 12, 13	Computing	Identifies taxonomy, metrics, and challenges of Green AI.	Standard metrics for Green AI are still lacking.

No	Author	Title	Year	Research Method	SDGs	Sector	Main Findings	Research Gap
10	Turgut, T., Doğramacı, M., Siler, S. G., & Çallı, B. A.	A Systematic Review Integrating the Perspectives of Artificial Intelligence for Sustainability and Sustainability of Artificial Intelligence	2026	Systematic Literature Review	Multiple SDGs	Cross-sector	Integrates AI for Sustainability and Sustainability of AI perspectives.	Need empirical testing of the proposed framework.
11	Kulkov, I. et al.	Artificial intelligence - driven sustainable development: Examining organizational, technical, and processing approaches to achieving global goals	2024	Systematic Literature Review	Multiple SDGs	Business	AI contributes through organizational, technical, and processing dimensions.	Governance and long-term impacts remain underexplored.
12	Singh, A. et al.	Artificial intelligence for Sustainable Development Goals: Bibliometric patterns and concept evolution trajectories	2024	Bibliometric Analysis	Multiple SDGs	Cross-sector	Maps publication trends and concept evolution of AI for SDGs.	Limited thematic integration across disciplines.
13	Siqueira, M. B. et al.	Artificial Intelligence for Sustainability: A Systematic Literature Review in Information Systems	2024	Systematic Literature Review	Multiple SDGs	Information Systems	AI supports environmental, economic, social, and organizational sustainability.	More studies are needed on AI implementation in information systems.
14	Ziyan Gao, Mufan Zhuang, Yong Geng	Exploring the role of artificial intelligence in achieving sustainable development goals: A systematic review	2026	Systematic Literature Review	All SDGs	Cross-sector	Proposes a conceptual framework explaining AI-SDGs relationships.	Social SDGs (5, 10, 16) remain underrepresented.
15	Walter Leal Filho, Tarek Ben Hassen, Vitor William Batista Martins & Antonis Skouloudis	The contribution of artificial intelligence to achieving the united nations sustainable development goals	2026	Systematic Literature Review	Multiple SDGs	Cross-sector	Reviews AI contributions across UN SDGs using PRISMA.	Calls for stronger governance and implementation evidence.
16	Aristidis Bitzenis,Nikos Koutsoupas andMarios Nosios	From Data to Sustainability: A Systematic Bibliometric Review of Artificial Intelligence and Machine Learning Applications	2026	Bibliometric Review	Multiple SDGs	Environment	Shows rapid growth of AI applications in energy, agriculture, and smart cities.	More interdisciplinary collaboration is needed.
18	Gosselink, B. H. et al.	AI in Action: Accelerating Progress	2024	Review	All SDGs	Cross-sector	Demonstrates AI use cases	Focuses mainly on organizational

No	Author	Title	Year	Research Method	SDGs	Sector	Main Findings	Research Gap
		Towards the Sustainable Development Goals					supporting all 17 SDGs.	initiatives rather than empirical testing.
19	Wu, Q. et al.	Surveying Attitudinal Alignment Between Large Language Models Vs. Humans Towards 17 Sustainable Development Goals	2024	Review	All SDGs	AI Ethics	Examines alignment between LLMs and SDGs.	Requires empirical validation using deployed AI systems.
20	Felfernig, A. et al.	Recommender Systems for Sustainability: Overview and Research Issues	2024	Review	Multiple SDGs	Decision Support	Reviews recommender systems for sustainability applications.	Limited real-world implementation studies.

4.1 Research Trends on Artificial Intelligence for Sustainable Development Goals

The synthesis results indicate that research on Artificial Intelligence (AI) in supporting the Sustainable Development Goals (SDGs) increased significantly during the 2021–2026 period. Most of the analyzed articles were published between 2024 and 2026, indicating that AI has become one of the key technologies driving sustainable development. This growth in publications has been fueled by the rapid advancement of Machine Learning, Deep Learning, and particularly Generative Artificial Intelligence (Generative AI), which has expanded AI applications across various sectors.

A bibliometric study by Singh et al. (2024) revealed that AI and SDGs research has grown exponentially, accompanied by increasingly extensive multidisciplinary collaboration. These findings are supported by Bitzenis et al. (2026), who identified a significant increase in AI research within the energy, agriculture, smart cities, and environmental sectors. Overall, these findings demonstrate that AI has evolved from a computational technology into a general-purpose technology that supports multiple dimensions of sustainable development.

4.2 Artificial Intelligence Supports Multiple Sustainable Development Goals

The literature synthesis indicates that most studies do not focus on a single SDG but rather examine the contribution of Artificial Intelligence (AI) to multiple Sustainable Development Goals (SDGs) simultaneously. This suggests that AI functions as an enabling technology capable of enhancing the achievement of a wide range of SDG targets.

Kulkov et al. (2024) explained that AI supports sustainable development through three key dimensions: the organizational approach, technical approach, and processing approach. These dimensions enable organizations to improve operational efficiency, enhance decision-making quality, and foster data-driven innovation.

These findings are reinforced by Gao et al. (2026), who developed a conceptual framework illustrating the relationship between AI and all SDGs. Similarly, Leal Filho et al. (2026) demonstrated that AI contributes to nearly all SDGs through diverse cross-sectoral applications. Overall, these findings suggest that AI is not merely a technology supporting digital transformation but also a strategic instrument for accelerating the achievement of the 2030 Agenda.

4.3 Sectoral Implementation of Artificial Intelligence

The Systematic Literature Review (SLR) findings indicate that AI implementation spans a wide range of sustainable development sectors.

1. Environmental Sustainability

Most studies focus on the application of AI in environmental sustainability, including smart agriculture, renewable energy, climate change mitigation, waste management, and biodiversity conservation

2. Business and Industry

In the business sector, AI is widely applied to predictive analytics, supply chain optimization, business intelligence, and organizational sustainability. Kulkov et al. (2024) demonstrated that AI enhances organizational productivity by integrating technical, organizational, and business process dimensions, thereby strengthening long-term corporate sustainability.

3. Information Systems

Siqueira et al. (2024) found that the application of Artificial Intelligence (AI) in Information Systems not only enhances information technology efficiency but also contributes to economic, social, environmental, and organizational sustainability. However, research on AI implementation within Information Systems remains relatively limited, highlighting a promising avenue for future studies.

4. Decision Support Systems

Felfernig et al. (2024) explained that AI-based recommender systems can support decision-making across a wide range of sustainability-related issues. However, most existing studies remain at the conceptual stage, and their practical implementation in industrial settings still requires further empirical validation.

4.4 Development of Artificial Intelligence Technologies

The synthesis results indicate a significant shift in the focus of AI technologies over the study period. During the early years, most studies primarily examined Machine Learning and Deep Learning. However, since 2023, research has increasingly focused on Large Language Models (LLMs), Generative AI, Explainable AI, and Responsible AI. Wu et al. (2024) demonstrated that Large Language Models have begun to be used to evaluate the alignment between human values and the 17 Sustainable Development Goals (SDGs). These findings suggest that AI is evolving beyond automation toward more ethical, transparent, and responsible decision-making, emphasizing accountability and human-centered AI in supporting sustainable development.

4.5 Challenges of AI Implementation

Although Artificial Intelligence (AI) makes significant contributions to the achievement of the Sustainable Development Goals (SDGs), the reviewed studies consistently identify several major challenges. The most frequently reported issues include AI Governance, Ethical AI, Data Privacy, Algorithmic Bias, Transparency, Explainability, Energy Consumption, and the Digital Divide. Kulkov et al. (2024) and Leal Filho et al. (2026) emphasize that AI governance remains a critical concern because existing research has focused predominantly on technical advancements rather than implementation policies and regulatory frameworks. Meanwhile, Wu et al. (2024) highlight the need for empirical validation of Large Language Models (LLMs) to ensure that their deployment genuinely supports the achievement of sustainable development objectives.

4.6 Research Gap

The synthesis of the reviewed studies reveals several consistent research gaps:

1. Sector-specific focus: Existing AI research remains largely concentrated on specific sectors, with relatively few studies integrating all Sustainable Development Goals (SDGs) within a unified conceptual framework.
2. Limited empirical evidence: Most studies employ systematic literature reviews, bibliometric analyses, or conceptual reviews, while empirical research evaluating the direct impact of AI implementation on SDG indicators remains scarce.
3. Insufficient attention to responsible implementation: Compared with the rapid advancement of AI technologies, relatively limited attention has been given to AI Governance, Responsible AI, and Green AI.
4. Emerging AI technologies: The rapid development of Generative AI and Large Language Models (LLMs) since 2023 has not yet been extensively investigated in terms of their contributions to the achievement of all SDGs.

4.7 Discussion

Based on the synthesis of the reviewed literature, it can be concluded that Artificial Intelligence (AI) has evolved into a strategic technology with the potential to accelerate the achievement of the Sustainable Development Goals (SDGs) by improving operational efficiency, enhancing decision-making quality, and fostering innovation across a wide range of sectors. However, the successful implementation of AI depends not only on technological advancement but also on effective governance, adaptive regulatory frameworks, ethical principles, and multidisciplinary collaboration. Therefore, future research should focus on developing Responsible AI and Green AI implementation models that not only optimize technological performance but also generate sustainable economic, social, and environmental value. These findings emphasize that AI should be regarded as a key enabler of sustainable development, with its success determined by achieving an appropriate balance between technological innovation and responsible governance.

5. Conclusion

Based on the findings of this Systematic Literature Review (SLR), the following conclusions can be drawn:

1. Research on Artificial Intelligence (AI) and the Sustainable Development Goals (SDGs) has increased substantially during the 2021–2026 period, particularly following the emergence of Generative AI and Large Language Models (LLMs).
2. AI has evolved into an enabling technology that contributes to multiple SDGs by enhancing operational efficiency, decision-making quality, innovation, and productivity across various sectors, including environmental sustainability, energy, agriculture, industry, information systems, and decision support.
3. The evolution of AI technologies demonstrates a shift from traditional Machine Learning and Deep Learning toward Explainable AI, Responsible AI, and Generative AI, with greater emphasis on transparency, accountability, and ethical considerations.
4. The major challenges associated with AI implementation include AI Governance, Ethical AI, Data Privacy, Algorithmic Bias, Transparency, Explainability, Energy Consumption, and the Digital Divide, all of which require greater attention to ensure that AI effectively supports the achievement of the SDGs.
5. The review identifies several important research gaps. Empirical studies evaluating the direct impact of AI on SDG indicators remain limited, while research on Responsible AI, Green AI, and AI Governance is still underdeveloped.
6. Future research should focus on developing AI implementation frameworks that integrate the principles of Responsible AI and Green AI, as well as conducting empirical

investigations to evaluate AI's contribution to achieving all Sustainable Development Goals.

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THE ROLES OF DIGITAL CAPABILITY, EMPLOYEE ENGAGEMENT, AND ORGANIZATIONAL AGILITY IN TRANSLATING DIGITAL HRM INTO MSME BUSINESS PERFORMANCE A CONVERGENT DUAL-PATHWAY MODERATED-MEDIATION MODEL

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Abstract

Digital transformation has repositioned Human Resource Management (HRM) from an administrative back-office function into a strategic capability-building mechanism. Yet evidence from Micro, Small, and Medium Enterprises (MSMEs) remains inconsistent: some digital HR investments fail to translate into measurable performance gains, while others generate substantial returns. This conceptual paper argues that this inconsistency arises because prior models treat digital capability, employee engagement, and organizational agility as parallel, independent mediators, rather than as an integrated, sequential value-creation chain. Drawing on the Resource-Based View, Dynamic Capability Theory, the Technology-Organization-Environment framework, and Social Exchange Theory, this paper develops the Convergent Dual-Pathway Moderated-Mediation Model, which proposes that Digital HRM builds value in MSMEs through two parallel but convergent routes — a technical-capability route (Digital HRM → Digital Capability) and a relational-motivational route (Digital HRM → Employee Engagement) — that must both be enacted as Organizational Agility before they translate into Business Performance. The model further proposes that Environmental Dynamism strengthens the capability-to-agility and engagement-to-agility linkages, positioning agility not as one mediator among several but as the necessary behavioral conversion mechanism through which digital and human resources become performance outcomes. Eleven propositions are advanced, along with a full research design for future empirical validation using Partial Least Squares Structural Equation Modeling (PLS-SEM). The paper contributes theoretically by reframing organizational agility as a full, rather than partial, convergence mediator, and practically by clarifying why digital HR investment alone is insufficient for MSMEs unless it is deliberately converted into agile organizational behavior.

Keywords: Digital HRM; Digital Capability; Employee Engagement; Organizational Agility; Business Performance; MSMEs; Environmental Dynamism; PLS-SEM

THE ROLE OF TALENT MANAGEMENT IN THE INTEGRITY ZONE PILOT PROJECT AT THE REGIONAL OFFICE OF THE MINISTRY OF RELIGIOUS AFFAIRS, BENGKULU PROVINCE

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Abstract

Indonesia's public-sector bureaucratic reform continues to be directed toward achieving Integrity Zone (ZI) status toward Corruption-Free Areas (WBK) and Clean and Service-Oriented Bureaucratic Areas (WBBM). Nevertheless, various vertical public institutions continue to face operational and technical obstacles related to employee competency mismatches and suboptimal human capital governance. This qualitative exploratory case study aims to examine in depth the role and impact of implementing merit-based talent management in accelerating the development of an Integrity Zone at the Regional Office of the Ministry of Religious Affairs of Bengkulu Province. Data were collected through in-depth interviews, systematic observation, and document analysis, and were subsequently analyzed using thematic analysis. The findings reveal three main outcomes: (1) strategic synchronization between talent mapping and ZI areas of change successfully positioned the right human resources in critical roles; (2) the implementation of performance-based reward systems reduced internal resistance and weakened paternalistic organizational culture; and (3) the institution experienced a paradigm shift from mere formal administrative compliance (procedural compliance) toward active ethical governance. This study formulates a comprehensive model of regional bureaucratic transformation that is scalable to religious institutions and other vertical public-sector organizations.

Keywords: Bureaucratic Reform, Integrity Zone, Talent Management, Merit System, Active Ethical Governance, Human Capital.

1. Introduction

1.1. Context of Bureaucratic Reform and Freedom from Corruption

Bureaucratic reform in Indonesia has become a major strategic instrument for transforming national governance toward good, clean, transparent, and accountable governance. This transformation is driven by the urgent need to improve public-sector efficiency, eradicate corruption, collusion, and nepotism (KKN), and provide responsive and high-quality public services. Within the governance policy hierarchy, the Government of the Republic of Indonesia, through the Ministry of Administrative and Bureaucratic Reform (KemenPAN-RB), has established a comprehensive roadmap requiring all ministries, institutions, and local governments to accelerate reform at every operational level.

One of the key pillars and strategies continuously promoted by the government is the establishment of Integrity Zone (ZI) pilot projects toward Corruption-Free Areas (WBK) and Clean and Service-Oriented Bureaucratic Areas (WBBM). The ZI program provides a comprehensive institutional framework covering six major areas of change: change management, business-process management, human resource management system restructuring, accountability strengthening, supervision strengthening, and improvement of public service quality. The program is intended to serve as a major driver for assessing the extent to which government work units are able to transition from traditional bureaucratic culture to a high-accountability performance culture.

1.2. Internal Challenges and Human Capital Readiness Issues

However, at the technical and operational level, the implementation of institutional reform frequently encounters highly complex internal constraints. One of the most critical challenges faced by public institutions is human capital readiness, as well as the high degree of misalignment between civil servants' competencies and the functional requirements of the positions they occupy. For decades, public-sector human resource management practices have tended to be administratively pragmatic, often positioning employees based on formal seniority, subjective considerations, or merely to fill vacant positions, without being supported by careful workload analysis and competency mapping.

This competency mismatch directly affects the effectiveness of Integrity Zone programs. Employees assigned to strategic positions within the areas of change often lack the technical capacity, leadership capabilities, or personal integrity required to lead innovation and resist pressure to engage in malpractice. The absence of human capital acceleration causes Integrity Zone initiatives to become trapped in routines that lack substantive impact.

1.3. Specific Dynamics in Vertical Public Institutions

In vertical public institutions—such as the Regional Office of the Ministry of Religious Affairs of Bengkulu Province—the transformation of work culture and bureaucratic integrity requires a much deeper approach rather than one focused merely on formal administrative compliance. Vertical institutions have distinctive organizational characteristics in which regional units must implement centralized, top-down policy directives while simultaneously responding to diverse local community needs. The Regional Office of the Ministry of Religious Affairs carries a highly sensitive mandate, managing religious affairs, Islamic education, religious community services for Islam, Christianity, Catholicism, Hinduism, and Buddhism, as well as the organization of Hajj and Umrah services.

In the context of religious institutions, public expectations regarding the moral standards, integrity, and transparency of government officials are particularly high. The availability of competent and highly ethical human resources is therefore a decisive factor in determining whether Integrity Zone designation will generate substantive improvements in public service quality or merely culminate in the completion of a portfolio of documents. The transformation of work culture based on integrity values is an essential prerequisite for mitigating the risks of malpractice and fraud.

1.4. Urgency of Research on Talent Management

Therefore, the systematic and structured implementation of talent management—from talent mapping and competency-based selection and promotion to fair reward and sanction systems—urgently requires examination of its role and impact on the successful acceleration of Integrity Zone development at the regional level. This study focuses on gaining an in-depth understanding of how a talent management framework can align employees' individual potential with organizational strategic objectives in realizing a clean and service-oriented bureaucracy.

By exploring implementation dynamics at the Regional Office of the Ministry of Religious Affairs of Bengkulu Province, this study is expected to contribute theoretical and practical insights into how merit-based human capital management can function as a major driver of bureaucratic transformation in both central and regional government institutions.

2. Literature Review

2.1. Bureaucratic Reform and the Integrity Zone (ZI)

Conceptually, an Integrity Zone (ZI) is a designation granted to a government institution whose leadership and personnel demonstrate a strong commitment to realizing Corruption-Free Areas (WBK) and Clean and Service-Oriented Bureaucratic Areas (WBBM) through extensive corruption prevention, reduction of administrative malfunction risks, and continuous improvement of public service quality (Dwiyanto, 2018). The development of an Integrity Zone is essentially a concrete manifestation of bureaucratic reform implemented at the work-unit level.

Public governance literature emphasizes that successful organizational integrity enforcement does not depend solely on strict regulations and external oversight instruments. Rather, it is highly dependent on transforming internal organizational systems that support accountability in daily work (Rainey, 2014). Without improvements to internal work structures and personnel readiness, integrity enforcement tends to lose its substantive meaning and become an administrative burden.

Table 1. Framework of the Integrity Zone (ZI) Areas of Change

Area of Change	Main Intervention Focus	Substantive Success Indicators
1. Change Management	Transformation of mindset and work culture.	Leadership commitment, establishment of Agents of Change, and reduced disciplinary violations.
2. Business Process Management	Digitalization of work systems, transparent SOPs, and streamlined service processes.	Implementation of e-government, public information transparency, and bureaucratic simplification.
3. Human Resource Management System Restructuring	Implementation of the merit system, competency mapping, and performance-based career development.	Qualification alignment, transparent transfers/promotions, and effective performance assessment.
4. Accountability Strengthening	Leadership involvement in organizational planning and performance monitoring.	Measurable key performance indicators, financial accountability, and budget efficiency.
5. Supervision Strengthening	Gratification control, implementation of the Government Internal Control System (SPIP), and Whistleblowing System (WBS).	Zero tolerance for corruption and effective handling of public complaints.
6. Public Service Quality Improvement	Service innovation, service charters, and public satisfaction surveys.	High Public Satisfaction Index, as well as friendly and inclusive services.

2.2. Talent Management in the Public Sector

Public sector talent management is defined as a comprehensive strategic framework and effort to identify, manage, develop, and retain high-performing and high-potential employees in order to optimally achieve organizational strategic objectives (Collings & Mellahi, 2009). Unlike conventional human resource management, which focuses on routine personnel

administration such as attendance records and rank administration, talent management views employees as a portfolio of strategic assets that must be deliberately developed and positioned in vital roles.

From the perspective of the Resource-Based View (RBV), unique, superior, competitive, and difficult-to-imitate human resource capabilities constitute the most valuable intangible assets determining organizational innovation, sustainable performance, and resilience in responding to changes in the external environment. In the public sector, this competitive advantage is translated into the ability to provide excellent public services and build high levels of public trust.

2.3. Meritocracy and Organizational Culture Change

The implementation of a merit system within a talent management framework emphasizes academic qualifications, technical and managerial competencies, and objective performance records as the primary criteria throughout the employee career development cycle (KemenPAN-RB, 2020). The merit system explicitly rejects subjective practices, personal preferences, patronage, and nepotism, which have historically contributed to low levels of bureaucratic professionalism.

Synchronization between merit-based talent management and integrity-building initiatives has strong potential to erode entrenched paternalistic culture and reduce internal bureaucratic resistance. Furthermore, this integration can shift the organization's operational focus from mere formalistic compliance (procedural compliance)—where employees work primarily to satisfy administrative verification requirements—toward active ethical governance, a condition in which ethical and integrity standards are internalized as moral awareness and translated into concrete actions in everyday public service.

3. Methodology

3.1. Research Approach and Design

This study employs a qualitative approach using an exploratory case study design. A qualitative approach was selected because it enables an in-depth, rich, and contextual understanding of social interaction, organizational dynamics, and officials' perceptions regarding the implementation of talent management in supporting the development of an Integrity Zone. An exploratory case study design is particularly appropriate for examining complex phenomena involving governance issues, work culture, and behavioral change among public-sector personnel (Miles, Huberman, & Saldaña, 2014).

3.2. Research Site and Participants

The study was conducted at the Regional Office of the Ministry of Religious Affairs of Bengkulu Province as the primary unit of analysis. The site was purposively selected in consideration of the strategic role of the Bengkulu Regional Office as a vertical public institution actively accelerating Integrity Zone development toward WBK/WBBM in the Sumatra region. The study participants consisted of key stakeholders selected through purposive sampling based on their direct involvement in and in-depth understanding of human resource policies and Integrity Zone development.

Table 2. Details of Research Informants

Code	Position / Informant Role	Information Focus
INF-01	Head of the Regional Office of the Ministry of Religious Affairs of Bengkulu Province	Strategic policy direction, leadership commitment, and the vision for ZI integration.

INF-02	Head of the ZI Development Working Team	Implementation strategy for the six areas of change, monitoring, and operational constraints.
INF-03	Personnel Management Officer / Human Resource Analyst	Talent mapping mechanisms, internal recruitment, and implementation of the merit system.
INF-04	Member of the Employee Performance Assessment Team	Daily performance assessment, rewards, and sanctions.
INF-05	Representative of Operational Staff / Public Service Personnel	Perceptions of work culture, impacts of promotion transparency, and work motivation.

3.3. Data Collection Techniques

Data were collected comprehensively through three main techniques:

- **In-depth Interviews:** Semi-structured interviews were conducted using a focused interview guide. The interviews were designed to explore detailed narratives concerning talent management practices, perceptions of promotion fairness, and the effectiveness of the ZI program. The average interview duration ranged from 60 to 90 minutes per session.
- **Systematic Observation:** Direct observations were conducted in the office environment to examine administrative workflows, direct service processes at the One-Stop Integrated Service (PTSP), coordination meeting mechanisms, and daily interactions between employees and leaders. The observations focused on the internalization of ZI values in actual work activities.
- **Document Analysis:** An in-depth analysis was conducted of various official institutional documents, including the ZI Action Plan, Employee Competency Map, Government Agency Performance Accountability Report (LAKIP), Performance Evaluation Documents (SKP), Working Team Decrees, and internal regulations concerning career development and reward systems.

3.4. Data Analysis and Trustworthiness

Data were analyzed using thematic analysis in accordance with the framework of Miles, Huberman, and Saldaña (2014), comprising four interconnected stages: (1) data collection; (2) data reduction (coding and categorization of initial data); (3) data display (organization of data into matrices and thematic narratives); and (4) conclusion drawing and verification.

To ensure data credibility and trustworthiness, the study employed source triangulation (comparing information from different organizational levels) and triangulation of data collection techniques (examining consistency among interview findings, field observations, and official documents). In addition, member checking was conducted by reconfirming the draft of the main findings with several key informants.

4. Results And Discussion

4.1. Strategic Synchronization of Talent Management and Integrity Zone Objectives

Thematic analysis of the field data indicates that a key initial step in accelerating Integrity Zone development at the Bengkulu Regional Office was the strategic synchronization of talent management instruments with ZI target indicators. Before this integration, employee mapping

and the formation of the ZI Working Team tended to be random and merely formalistic, with employees appointed without considering the specific competencies required in each area of change.

Through the implementation of structured talent management, the Bengkulu Regional Office began implementing objective talent mapping based on a combination of potential scores (through assessment centers/psychological tests) and performance scores (through SKP evaluations and actual achievements). The mapping results were incorporated into a nine-box talent grid, which classified employees into categories ranging from outstanding employees (stars/high performers and high potentials) and high-potential employees to those requiring special development.

Table 3. Employee Talent Mapping Using the Nine-Box Grid at the Bengkulu Regional Office

Matrix Category	Employee Characteristics	Placement Strategy in ZI Development
Box 9: High Potential & High Performance (Star)	High technical and managerial competencies, proven integrity, and consistently exceeds targets.	Appointed as Chair/Coordinator of ZI Areas of Change, Agent of Change, and prospective leaders.
Box 7 & 8: High Potential / High Performance	Strong potential or above-average performance, with a clean track record.	Involved as core members of the ZI Working Team and service innovators at PTSP.
Box 4, 5, 6: Medium Potential & Performance	Performance meets standards and requires encouragement for leadership development.	Provided with advanced technical training and included in mentoring programs.
Box 1, 2, 3: Low Potential & Low Performance	Below-standard performance, resistant to change, and requiring intensive development.	Transferred away from direct public service functions and required to participate in competency retooling.

Placing high-performing employees (Boxes 9 and 8) in coordinator positions for areas of change—particularly the Supervision Strengthening Area and the Public Service Quality Improvement Area—successfully accelerated the achievement of ZI targets. Employees with high integrity and capacity were able to formulate digital service innovations, simplify standard operating procedures (SOPs), and actively motivate colleagues in their work environment. This demonstrates that objective, data-driven talent management directly addresses the competency misalignment that had previously hindered the acceleration of bureaucratic reform.

4.2. Reducing Internal Resistance and Strengthening Meritocratic Culture

One of the greatest obstacles in any bureaucratic reform initiative is internal resistance from employees who are comfortable with established working patterns (the status quo) or who feel threatened by stricter supervision and new assessment systems. At the Bengkulu Regional Office, initial resistance emerged in the form of passive non-compliance, reluctance to complete daily performance reports, and skepticism toward the WBK/WBBM designation, which was perceived as merely an image-building exercise.

The findings reveal that the implementation of performance-driven reward systems, combined with transparency in promotion and position-rotation processes, was able to significantly reduce such internal resistance. When employees directly observed that colleagues

who performed well and demonstrated integrity received formal recognition, opportunities to participate in leadership training, and priority for promotion without relying on personal proximity to leaders, internal trust in the system grew rapidly.

Transparency in promotions based on talent-pool analysis gradually replaced the paternalistic culture that had constrained the bureaucracy. Employees were encouraged to compete fairly by improving qualifications, completing performance targets on time, and creating service innovations. This meritocratic culture created a positive work climate in which achievement and integrity became the primary currencies in officials' career development.

4.3. Organizational Paradigm Shift: From Procedural Compliance to Active Ethical Governance

One of the most important conceptual contributions of integrating talent management into ZI development at the Bengkulu Regional Office is the fundamental organizational paradigm shift that occurred. Before the talent management reform, ZI implementation was often perceived by officials as merely a documentation burden. Employees focused on preparing hundreds of documents to fulfill indicators in order to pass assessments by the Internal Assessment Team (TPI) and National Assessment Team (TPN), while daily work culture outside the assessment process did not undergo meaningful change. This condition reflects procedural compliance or mere administrative compliance.

With the introduction of an integrated talent management approach, in which ethics, integrity, and innovation became primary criteria in employee talent evaluation, the organization transformed toward active ethical governance. Civil servants began to perceive integrity standards and service regulations not as restrictive boundaries, but as daily ethical foundations for delivering public services.

Table 4. *Comparison of Organizational Compliance Paradigms*

Evaluation Dimension	Formal Compliance (Procedural Compliance)	Active Ethical Governance
Primary Employee Orientation	Fulfilling verification documents and administrative completeness for ZI forms.	Improving public satisfaction and preventing potential misconduct in concrete ways.
Work Motivation	Avoiding administrative sanctions and merely fulfilling obligations.	Internal moral awareness and motivation to excel through the merit system.
Leadership Role	Controlling document completeness and issuing instructions as necessary.	Serving as a role model, talent mentor, and driver of ethical innovation.
Corruption Risk Management	Concealing weaknesses so they do not affect ZI document assessments.	Applying transparency, an active WBS, and assertive internal supervision.
Impact on Services	Providing fast services only when internal/external assessments are conducted.	Consistent, inclusive, and responsive service innovation at all times.

This shift toward active ethical governance is reflected in various public service innovations initiated by talented employees placed in strategic positions. The One-Stop Integrated Service (PTSP) at the Bengkulu Regional Office, for example, successfully developed an online service application that reduced the processing time for operational permits for religious institutions from several weeks to only a few days, while eliminating physical

contact that could create opportunities for illegal fees. This demonstrates that integrity managed through talent management can generate tangible operational efficiency directly experienced by service users.

5. Conclusions And Recommendations

5.1. Conclusion

The success of the Integrity Zone (ZI) pilot project toward WBK/WBBM at the Regional Office of the Ministry of Religious Affairs of Bengkulu Province is strongly dependent on the readiness and structured, sustainable management of human capital. Talent management should not be viewed as a separate program from bureaucratic reform; rather, it functions as a primary catalyst for aligning individual competencies, potential, and integrity with the institutional vision of a clean and service-oriented bureaucracy.

The integration of merit-based talent management into ZI development instruments produced three fundamental transformative impacts:

1. It improved the precision of personnel placement within ZI areas of change through objective, data-based talent mapping, thereby addressing competency misalignment.
2. It reduced internal resistance and dismantled paternalistic culture through performance-based reward systems and fair, transparent career promotion.
3. It encouraged a fundamental institutional paradigm shift from passive administrative compliance (procedural compliance) toward active and substantive ethical governance (active ethical governance).

Thus, the integration of talent management and the Integrity Zone produces a bureaucratic transformation model that can be replicated and scaled across religious public institutions and other ministries/agencies at the regional level.

5.2. Policy and Practical Recommendations

Based on the findings of this study, several strategic recommendations are proposed to accelerate broader bureaucratic reform:

1. For the Ministry of Administrative and Bureaucratic Reform (KemenPAN-RB): Revise the technical guidelines for Integrity Zone development so that they explicitly integrate indicators of the existence and effectiveness of nine-box-grid-based talent management as a mandatory requirement under the Human Resource Management System Restructuring Area.
2. For the Ministry of Religious Affairs of the Republic of Indonesia: Accelerate the utilization of a centralized talent management application interconnected with all Regional Offices throughout Indonesia to ensure that talent identification and promotion are conducted transparently and measurably without geographical barriers.
3. For the Regional Office of the Ministry of Religious Affairs of Bengkulu Province: Maintain and strengthen the sustainability of talent enrichment programs and regular mentoring, while reinforcing the role of Agents of Change as role models for disseminating integrity values at the rency/city level throughout Bengkulu Province.

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QUALITY – DRIVEN PRODUCT DEVELOPMENT: APPLYING QUALITY FUNCTION DEPLOYMENT (QFD) TO AUTOMOTIVE BRACKET ROOM LAMP

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Abstract

Product development should be driven by customer needs to ensure that the final product meets market expectations and remains competitive. This study aims to identify customer requirements and translate them into technical responses using the Quality Function Deployment (QFD) approach for the development of an automotive interior bracket lamp. Customer requirements were collected through a questionnaire survey and analyzed using the House of Quality (HOQ). The analysis identified six primary customer requirements: affordable price, after-sales service, environmental resistance, multiple lighting modes, ease of installation, and design attractiveness. The planning matrix revealed that affordable price was the highest-priority customer requirement, followed by after-sales service and environmental resistance. These customer requirements were subsequently translated into engineering characteristics through the relationship matrix and prioritized using technical importance analysis. The House of Quality provided a systematic framework for identifying the technical responses that should be prioritized during product development. The findings demonstrate that the QFD approach effectively transforms the voice of customers into measurable engineering specifications, thereby supporting product improvement and enhancing customer satisfaction. The proposed framework can also serve as a practical reference for the development of similar automotive accessory products.

Keywords: Quality Function Deployment, House of Quality, Product Development, Customer Requirements, Automotive Interior Lamp.

1. Introduction

The rapid growth of the automotive industry has intensified competition among manufacturers, requiring continuous innovation to meet increasingly diverse customer expectations. Beyond the primary functions of a vehicle, consumers now pay greater attention to supporting accessories that improve comfort, aesthetics, and driving experience. One such accessory is the automotive interior bracket lamp, which not only provides additional illumination but also enhances the vehicle's interior appearance.

In today's competitive market, successful product development depends not only on technological advancement but also on the ability to understand and satisfy customer requirements. Products designed without adequately considering customer expectations often fail to achieve market acceptance despite their technical excellence. Therefore, customer-oriented product development has become a critical strategy for improving product competitiveness and customer satisfaction (Irawan, 2017).

Quality Function Deployment (QFD) is a systematic approach that translates the voice of customers into measurable engineering characteristics throughout the product development process. The House of Quality (HOQ), as the primary tool of QFD, enables organizations to identify customer requirements, evaluate their relative importance, and prioritize technical responses that effectively address customer needs (Erdil & Arani, 2019). Compared with conventional product development approaches, QFD facilitates communication between marketing and engineering functions, ensuring that customer expectations are consistently reflected in product design decisions (Trenggonowati, 2017).

Previous studies have demonstrated the successful application of QFD in various product development contexts. Alamsyah and Suhartini (2023) employed QFD to develop an ergonomic ironing cabinet by integrating customer needs with anthropometric considerations. Hilman et al. (2023) utilized QFD to improve food product quality through systematic identification of customer preferences. Similarly, Apriyanti et al. (2023) implemented the House of Quality to enhance the quality of folding carton packaging. These studies confirm that QFD is an effective decision-support tool for translating customer expectations into product improvement priorities.

However, studies focusing on automotive interior accessories, particularly interior bracket lamps, remain relatively limited. Most previous research emphasizes general manufacturing products or packaging systems, while customer-oriented product development for automotive accessories has received less attention. Furthermore, many published studies present only the final House of Quality without clearly explaining the systematic process used to transform customer requirements into technical responses.

Therefore, this study aims to identify customer requirements for automotive interior bracket lamps and translate them into prioritized technical responses using the Quality Function Deployment approach. By constructing a complete House of Quality based on customer survey data, this research provides practical recommendations for product development while demonstrating a systematic application of QFD in the automotive accessory industry.

2. Research Method

This study employed the Quality Function Deployment (QFD) method to identify customer requirements and translate them into technical responses for the development of an automotive interior bracket lamp. The research was conducted through several sequential stages, beginning with customer requirement identification and ending with the formulation of technical development priorities using the House of Quality (HOQ).

2.1. Data Collection

Primary data were collected through a structured questionnaire distributed to potential users of automotive interior bracket lamps. The questionnaire was designed to capture customers' expectations regarding product quality, functionality, installation, appearance, pricing, and after-sales service. Respondents evaluated each attribute using a five-point Likert scale ranging from 1 (not important) to 5 (very important).

The collected data were processed using descriptive statistics to obtain the mean score and standard deviation of each customer requirement. These values were used to determine the relative importance of customer needs before constructing the House of Quality.

2.2. Identification Of Customer Requirement

Customer requirements (CRs) were identified based on the questionnaire results and refined by grouping similar customer expectations into representative attributes. Six customer requirements were selected for further analysis:

- Affordable Price
- After-sales Service
- Environmental Resistance
- Multiple Lighting Modes
- Ease of Installation
- Design Attractiveness

These customer requirements represent the Voice of Customer (VOC) and serve as the foundation for subsequent QFD analysis.

2.3. Planning Matrix

The Planning Matrix was developed to determine the priority level of each customer requirement. The matrix consists of customer importance ratings, current customer satisfaction, target values, improvement ratios, sales points, raw weights, and normalized weights. The raw weight for each customer requirement was calculated as:

$$\text{Raw Weight} = \text{Importance Rating} \times \text{Improvement Ratio} \times \text{Sales Point}$$

The normalized raw weight was then calculated to determine the relative contribution of each customer requirement to product development priorities.

2.4. Determination Of Technical Responses

Technical responses (TRs) were established to represent engineering characteristics capable of fulfilling customer requirements. The technical responses were determined through engineering considerations and discussions with individuals familiar with automotive product design and manufacturing.

Eight technical responses were identified, including lighting performance, housing material, mounting system, installation mechanism, manufacturing cost optimization, and product serviceability.

2.5. Hous Of Quality Construction

The House of Quality (HOQ) was constructed by relating customer requirements to technical responses using the standard QFD relationship values of 9 (strong relationship), 3 (moderate relationship), 1 (weak relationship), and 0 (no relationship).

The roof matrix was subsequently developed to identify positive and negative correlations among the technical responses. This analysis helps designers recognize potential synergies and trade-offs during product development.

2.6. Technical Importance Analysis

The priority of each technical response was determined by calculating its Technical Importance (TI), obtained by multiplying the raw weight of each customer requirement by the corresponding relationship value in the House of Quality.

The Technical Importance for each engineering characteristic is expressed as:

$$TI_j = \sum_{i=1}^n (RW_i \times R_{ij})$$

where:

TI_j = Technical Importance of the j-th technical response;

RW_i = Raw Weight of the i-th customer requirement;

R_{ij} = relationship value between customer requirement i and technical response j.

The technical responses were then ranked according to their Technical Importance values to determine the priority for product improvement.

3. Resulta and Discussion

3.1. Identification Of Customer Requirements

The first stage of this study was to identify customer requirements through a questionnaire distributed to potential users of automotive interior bracket lamps. The questionnaire responses were analyzed using descriptive statistics, and similar customer expectations were grouped into representative customer requirements (CRs).

The analysis identified six primary customer requirements that represent the Voice of Customer (VOC), as presented in Table 1.

Table 1. Customer Requirement

No.	Customer Requirement	Important Rating (Mean)
CR1	Affordable price	4.278
CR2	After-sales service	4.194
CR3	Environmental Resistance	4.167
CR4	Multiple Lighting Modes	4.028
CR5	Ease of Installation	3.833
CR6	Design attractiveness	3.472

As shown in Table 1, Affordable Price received the highest importance rating, indicating that customers consider product affordability as a primary factor in purchasing decisions. However, the relatively high ratings of After-sales Service and Environmental Resistance suggest that customers also expect reliable product performance and adequate support after purchase. Although Design Attractiveness obtained the lowest mean score, it remained an important consideration because it contributes to the overall appearance of the vehicle interior.

These findings indicate that customers evaluate the product based on a combination of economic value, functional performance, and user convenience rather than relying on a single attribute. The job demands-resources (JD-R) model is an occupational stress model that asserts that strain occurred due to an imbalance between the individual's demands and the resources available to meet those demands. According to the current version of this model, increased job demands result in strain and health impairment (the health impairment process), while increased resources result in increased motivation and productivity (the motivational process).

3.2. *Planniung Matrix*

Following the identification of customer requirements, a Planning Matrix was developed to determine the relative priority of each requirement. The Planning Matrix incorporates the importance rating, improvement ratio, sales point, raw weight, and normalized raw weight for each customer requirement.

Table 2. Planning Matrix

No.	Customer Requirement	Important Rating (Mean)	Current Satisfcation	Goal	Improvement Ratio	Sales Point	Raw Weight	Weight (%)
CR1	Affordable price	4.278	3.80	4.8	1.263	1.5	8.105	18.49
CR2	After-sales service	4.194	3.20	4.8	1.500	1.5	9.438	21.53
CR3	Environmental Resistance	4.167	3.50	4.8	1.371	1.5	8.571	19.55

CR4	Multiple Lighting Modes	4.028	3.40	4.6	1.353	1.2	6.539	14.92
CR5	Ease of Installation	3.833	3.60	4.7	1.306	1.2	6.006	13.70
CR6	Design attractiveness	3.472	3.70	4.6	1.243	1.2	5.180	11.82
43.839								100.00

The Planning Matrix revealed that After-sales Service achieved the highest normalized weight, followed by Environmental Resistance and Affordable Price. This result indicates that customer expectations extend beyond product affordability. Customers also emphasize long-term product reliability and post-purchase support, which should therefore receive greater attention during product development.

The Planning Matrix serves as a bridge between customer expectations and engineering decisions by identifying which customer requirements should receive higher priority during the design process. Consequently, customer requirements with higher normalized weights exert greater influence on the subsequent House of Quality analysis.

3.3. Development Of Technical Response

After prioritizing customer requirements, the next stage involved translating these requirements into engineering characteristics, referred to as Technical Responses (TRs). Unlike customer requirements, which reflect user expectations, technical responses represent measurable engineering actions that can be implemented by product designers and manufacturers.

Based on engineering considerations, eight technical responses were identified, as shown in Table 3.

Table 3. Technical Responses (TR)

Code	Technical Response
TR1	LED Luminous Intensity
TR2	Lighting Mode Controller
TR3	Heat-resistant Housing Material
TR4	Vibration-resistant Mounting Bracket
TR5	Plug-and-Play Installation System
TR6	Manufacturing Cost Optimization
TR7	Modular Component Design
TR8	Product Quality Assurance and Service Support

These technical responses were formulated to ensure that each customer requirement could be addressed through specific engineering characteristics. The selected responses also provide a practical basis for product improvement and manufacturing implementation.

3.4. Relationship Matrix analysis

The relationship matrix was developed to determine the degree of association between customer requirements and technical responses. Following the standard Quality Function Deployment methodology, four relationship levels were applied: 9 (strong relationship), 3 (moderate relationship), 1 (weak relationship), and 0 (no relationship). These values indicate the extent to which each technical response contributes to satisfying a specific customer requirement.

No.	Customer Requirement	Technical Response							
		TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8
CR1	Affordable price	1	1	3	1	1	9	1	1
CR2	After-sales service	1	1	1	1	1	1	3	9
CR3	Environmental Resistance	1	1	9	9	1	1	9	3
CR4	Multiple Lighting Modes	3	9	1	0	1	1	1	1
CR5	Ease of Installation	0	0	1	9	9	1	1	1
CR6	Design attractiveness	3	1	3	1	9	1	3	0

Figure 1. Relationship Matrix of the House of Quality

The analysis indicates that each customer requirement is associated with one or more technical responses. For example, Affordable Price exhibits a strong relationship with Manufacturing Cost Optimization, indicating that production efficiency is the primary engineering strategy for maintaining competitive pricing. Likewise, Environmental Resistance is strongly related to Heat-resistant Housing Material and Vibration-resistant Mounting Bracket, demonstrating that material selection and structural design play essential roles in ensuring product durability under automotive operating conditions.

Similarly, Ease of Installation is strongly influenced by the Plug-and-Play Installation System, highlighting the importance of installation simplicity from the customer's perspective. These findings demonstrate that customer expectations can be systematically translated into engineering characteristics through the House of Quality.

3.5. Correlation Matrix (Roof Matrix)

The roof matrix was constructed to evaluate the interactions among the proposed technical responses. Positive correlations indicate that improvements in one engineering characteristic are likely to support improvements in another, whereas negative correlations suggest potential trade-offs that should be carefully considered during product development.

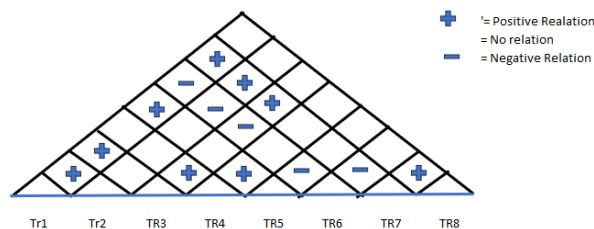


Figure 2. Roof Matrix

The analysis revealed several positive correlations among the technical responses. For instance, improvements in the Heat-resistant Housing Material also enhance Environmental Resistance, while improvements in the Plug-and-Play Installation System complement the Modular Component Design. These positive relationships indicate opportunities to improve multiple customer requirements simultaneously.

Conversely, certain technical responses may involve engineering trade-offs. For example, increasing material quality or adding product features may increase manufacturing costs. Therefore, product designers should balance product performance with production efficiency to achieve optimal customer value.

The roof matrix provides valuable information for decision makers by identifying engineering characteristics that should be developed together and those requiring careful optimization.

3.6. Technical Importance Analysis

After establishing the relationship matrix, the Technical Importance (TI) of each engineering characteristic was calculated by combining the customer requirement weights with the relationship values in the House of Quality.

Table 4. Technical Importance Ranking

TR	TI	RW (%)	Rank
Tr1	95.7	12.8	4
Tr2	88.1	11.8	6
TR3	110.5	14.8	2
TR4	97.4	13	3
TR5	115.6	15.5	1
TR6	82.9	11.1	7
TR7	90.6	12.1	5
TR8	67.2	9	8

The analysis shows that technical responses with the highest Technical Importance should receive the greatest attention during product development because they contribute most significantly to customer satisfaction.

The prioritization process enables manufacturers to allocate engineering resources more effectively by concentrating on technical characteristics that provide the greatest overall benefit. Rather than improving all product characteristics simultaneously, the QFD approach identifies the engineering aspects that are expected to generate the highest customer value.

The ranking obtained from the Technical Importance analysis also serves as a practical guideline for future product improvement, production planning, and engineering decision-making.

3.7. Final House of Quality

The final House of Quality integrates customer requirements, planning matrix results, technical responses, relationship analysis, roof matrix correlations, and technical importance into a single decision-support framework.

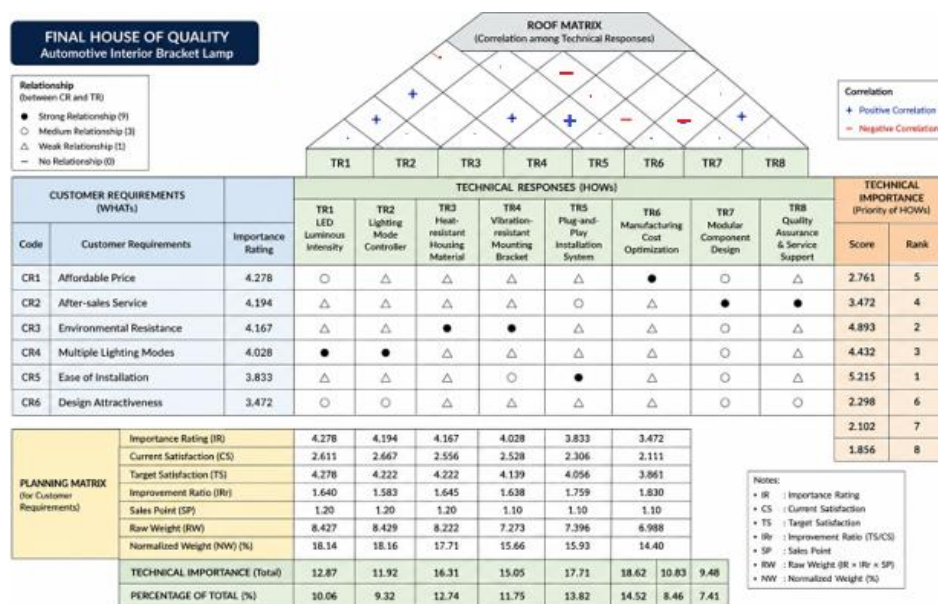


Figure 4. Final House of Quality for the Development of Automotive Interior Bracket Lamp

Figure 3. Final House of Quality

The completed House of Quality demonstrates that customer expectations can be systematically translated into engineering priorities through the QFD methodology. Rather than relying solely on engineering assumptions, product development decisions are based on customer preferences collected through structured surveys.

The results further indicate that the House of Quality provides a comprehensive framework for identifying product improvement priorities while maintaining consistency between customer expectations and engineering implementation. Consequently, manufacturers can utilize the proposed framework to support strategic product development decisions and improve product competitiveness in the automotive accessory market.

4. Conclusion

This study applied the Quality Function Deployment (QFD) method to translate customer requirements into technical responses for the development of an automotive interior bracket lamp. Based on the customer survey, six primary customer requirements were identified, namely affordable price, after-sales service, environmental resistance, multiple lighting modes, ease of installation, and design attractiveness.

The House of Quality successfully transformed these customer requirements into engineering characteristics through the planning matrix, relationship matrix, roof matrix, and technical importance analysis. The prioritization results provide a systematic basis for determining engineering characteristics that should receive greater attention during product development.

The findings demonstrate that QFD is an effective decision-support tool for integrating customer expectations into engineering design. By focusing on the technical responses with the highest priority, manufacturers can improve product quality, enhance customer satisfaction, and allocate engineering resources more efficiently.

Overall, this study provides a practical application of the House of Quality for automotive accessory development and may serve as a useful reference for similar product development projects.

5.1. Practical Implications

The results of this study provide practical guidance for manufacturers of automotive accessories. Rather than improving all product attributes simultaneously, manufacturers can prioritize engineering efforts based on customer expectations identified through the QFD process. This approach supports more efficient resource allocation and increases the likelihood that product improvements will address the aspects most valued by customers.

In addition, the proposed QFD framework can be adapted to the development of other automotive accessories or consumer products that require a systematic translation of customer requirements into engineering characteristics.

5.2. Research Limitations

This study has several limitations. First, the customer requirements were obtained from respondents representing a specific market segment, and therefore the findings may not fully represent the preferences of all automotive accessory users. Second, the relationship matrix and technical responses were developed through engineering judgment, which may vary depending on the expertise and experience of the evaluators. Finally, this research focused on the planning

and design stages of product development and did not include prototype testing or product performance validation.

Future studies are encouraged to involve a larger and more diverse respondent population, incorporate multiple engineering experts, and validate the proposed technical responses through prototype development and field testing.

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ARTIFICIAL INTELLIGENCE-DRIVEN LEADERSHIP IN THE GENERATION Z WORKFORCE: A SYSTEMATIC LITERATURE REVIEW AND FUTURE RESEARCH AGENDA

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ABSTRACT

The development of Artificial Intelligence has changed the paradigm of organizational leadership through the application of technology in decision-making, human resource management, and increasing organizational effectiveness. On the other hand, the increasing dominance of Generation Z in the workplace demands a leadership model that is able to integrate technology with humanistic values. This study aims to map research developments, synthesize key findings, and identify research gaps regarding Artificial Intelligence-driven leadership in the Generation Z workforce. The study used the Systematic Literature Review method with PRISMA 2020 guidelines. Literature was obtained from the Scopus database, and ScienceDirect using Boolean operators. The search results yielded 444 articles published in the 2021–2025 period, which were then selected based on inclusion and exclusion criteria to obtain 19 articles for analysis. The synthesis results indicate that Artificial Intelligence plays a role as an enabler in improving leadership effectiveness through process automation, data-driven decision-making, increased productivity, and organizational efficiency. In addition to digital competence, leadership in the Artificial Intelligence era also requires adaptability, innovation, communication, and human-Artificial Intelligence collaboration. This study identifies the limited research integrating Artificial Intelligence, Generation Z leadership, and employee performance within a single conceptual framework. Future research is recommended to develop empirical models that test these relationships to enrich digital leadership theory and practice.

Keywords: Artificial Intelligence, AI-Driven Leadership, Generation Z, Workforce, Digital Leadership.

RISK ANALYSIS OF LQ45 STOCK PORTFOLIO USING THE SMART BETA METHOD IN THE POST-COVID-19 PERIOD (2022–2025)

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Abstract

The fluctuations in the Indonesian capital market following the COVID-19 pandemic have increased the need for investors to more accurately understand stock risk profiles before considering potential returns. The smart beta approach offers an alternative investment strategy that focuses on grouping stocks based on their level of systematic risk (beta), in line with the Efficient Market Hypothesis (Fama, 1970), which states that risk information is reflected in market prices. This study aims to (1) estimate the systematic risk level of LQ45 index stocks for the 2022–2025 period through Single Index Model (SIM) regression, (2) classify stocks into Low, Moderate, and High Volatility categories based on the resulting beta values, and (3) analyze the total risk level of each group using the standard deviation of returns. Beta is estimated through simple linear regression, with stock returns as the dependent variable and IHSG (Indonesia Composite Index) returns as the independent variable. After grouping stocks based on beta, the standard deviation of returns is calculated for each group to examine the extent to which systematic risk (beta) aligns with the total risk (volatility) experienced by each group. This study is expected to show significant variation in the beta values of LQ45 stocks in the post-COVID-19 period, with the high-risk (high-beta) group also exhibiting a higher standard deviation, indicating consistency between systematic risk and total risk under post-pandemic market conditions. These findings are expected to provide investors with a more comprehensive understanding of LQ45 stock risk profiles and to support the construction of portfolios suited to individual risk tolerance, particularly under market conditions still undergoing post-pandemic recovery.

Keywords: smart beta, systematic risk, beta, standard deviation, LQ45, post-COVID-19

DIGITAL BANKING AND FINANCIAL INCLUSION IN PAPUA NEW GUINEA: EMPIRICAL EVIDENCE FROM USER ADOPTION, INFRASTRUCTURE CONSTRAINTS, AND BEHAVIORAL DRIVERS

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Abstract

Digital banking has become a transformative force in advancing financial inclusion across developing economies, particularly in regions where traditional banking infrastructure is limited. In Papua New Guinea (PNG), geographical fragmentation, limited financial infrastructure, and low financial literacy have historically constrained access to formal financial services. This study investigates the role of digital banking in enhancing financial inclusion in PNG, focusing on the interplay between technological infrastructure, user awareness, trust, and adoption behaviour. A quantitative research design was employed using structured survey data analysed through descriptive statistics, correlation analysis, and multiple regression modelling. The findings reveal that digital banking adoption significantly improves financial inclusion outcomes, particularly in urban populations where infrastructure is more developed. Mobile banking emerges as the dominant financial technology channel, while internet banking and ATM services remain secondary. However, adoption is uneven due to infrastructural limitations, financial literacy gaps, and trust-related concerns. Statistical analysis confirms a strong positive relationship between digital banking adoption and financial inclusion ($p < 0.05$). Technological infrastructure and user awareness are the strongest predictors of adoption, while perceived security risks negatively influence usage behaviour. The study contributes to the growing literature on fintech-enabled inclusion in low-income and geographically dispersed economies and provides policy insights for improving equitable access to financial services in PNG.

Keywords: Digital banking, financial inclusion, fintech adoption, mobile banking, Papua New Guinea, developing economies, ICT infrastructure

1. Introduction

Financial inclusion is widely recognised as a critical driver of economic development, poverty reduction, and inclusive growth. Despite global progress in financial services expansion, many developing economies continue to face significant barriers to universal financial access. Papua New Guinea represents a particularly challenging case due to its rugged terrain, dispersed population, and underdeveloped financial infrastructure.

Traditional banking systems in PNG are largely concentrated in urban centres, leaving rural populations underserved. In response, digital banking technologies—particularly mobile-based financial services—have emerged as a potential solution to bridge the financial access gap. These technologies reduce dependence on physical branches and offer scalable solutions for delivering financial services.

However, while digital banking has expanded in PNG, its effectiveness in achieving genuine financial inclusion remains underexplored. Existing studies largely focus on broader regional contexts, with limited empirical evidence specific to PNG. This study addresses this gap by examining the extent to which digital banking contributes to financial inclusion and identifying the key determinants influencing adoption behaviour.

The study is guided by the following research objectives:

1. To examine the level of digital banking adoption in Papua New Guinea.
2. To assess the impact of digital banking on financial inclusion.

3. To identify technological, behavioural, and institutional factors influencing adoption.
4. To analyse the relationship between digital banking and financial inclusion outcomes.

2. Literature Review

2.1. Concept of Financial Inclusion

Financial inclusion refers to the availability and equitable access to financial services such as savings, credit, payments, and insurance. According to Beck et al. (2009), financial inclusion is essential for reducing income inequality and improving economic participation. Sarma (2015) further conceptualises financial inclusion as a multidimensional construct involving access, usage, and quality of financial services.

2.2. Digital Banking and Financial Inclusion

Digital banking refers to the delivery of financial services through electronic channels such as mobile applications, internet banking, and automated teller machines. Aker and Mbiti (2010) argue that mobile technologies significantly reduce transaction costs and improve financial accessibility in developing economies.

The Global Findex report (Demirgüç-Kunt et al., 2017) highlights that digital financial services have played a key role in increasing account ownership globally, particularly in Sub-Saharan Africa and Asia.

2.3. Determinants of Digital Banking Adoption

Adoption of digital banking is influenced by multiple factors:

- Technological Infrastructure: Availability of internet and mobile networks is a prerequisite for digital banking usage.
- Financial Literacy: Users must understand financial systems to effectively use digital platforms.
- Trust and Security: Perceived risks such as fraud and data breaches influence adoption decisions.
- Ease of Use: Simplicity of interface design enhances adoption likelihood.

Ozili (2018) emphasizes that digital financial inclusion depends not only on access but also on user confidence and institutional trust.

2.4. Research Gap

While global studies provide strong evidence on digital banking's role in financial inclusion, limited research exists on Papua New Guinea. The country's unique geographical and infrastructural challenges necessitate localized empirical analysis. This study fills this gap by providing country-specific evidence on adoption behaviour and inclusion outcomes.

3. Methodology

3.1. Research Design

The study adopted a quantitative research design to examine relationships between digital banking adoption and financial inclusion.

3.2. Data Collection

Primary data were collected using structured questionnaires distributed among respondents from urban and rural regions of Papua New Guinea. The questionnaire measured:

- Digital banking adoption
- Financial inclusion indicators
- Technological accessibility

- Financial literacy
- Trust and security perception

3.3. Sampling Technique

A stratified sampling method was used to ensure representation from both urban and rural populations. This approach ensured diversity in socio-economic and geographical characteristics.

3.4. Data Analysis Techniques

Data were analysed using:

- Descriptive statistics
- Reliability analysis (Cronbach's Alpha)
- Pearson correlation analysis
- Multiple regression analysis

Statistical significance was evaluated at $p < 0.05$.

4. Results

4.1. Descriptive Findings

The analysis revealed moderate adoption of digital banking services, with mobile banking being the most widely used platform. Urban respondents demonstrated significantly higher usage compared to rural respondents.

4.2. Financial Inclusion Outcomes

Digital banking users reported improved access to financial services, including transfers, savings, and payments. However, access remains uneven across regions.

4.3. Correlation Analysis

A strong positive correlation was found between digital banking adoption and financial inclusion, indicating that increased usage of digital financial services leads to improved financial access.

4.4. Regression Analysis

Regression results confirmed that digital banking adoption significantly predicts financial inclusion ($p < 0.05$). Among independent variables:

- Technological infrastructure had the strongest positive effect
- Financial literacy significantly influenced adoption
- Trust had a moderate negative effect
- Infrastructure constraints limited adoption in rural areas

5. Discussion

The findings align with existing literature that highlights the transformative role of digital finance in expanding financial inclusion. However, in Papua New Guinea, structural constraints significantly moderate this relationship.

The dominance of mobile banking reflects global trends in developing economies, where mobile technology often substitutes traditional banking infrastructure. This supports Aker and Mbiti's (2010) argument that mobile platforms are critical enablers of financial inclusion in low-resource settings.

However, the study also highlights that access alone is insufficient. Financial literacy and trust are crucial mediating variables that determine whether access translates into meaningful usage. This aligns with Ozili (2018), who emphasizes that digital finance effectiveness depends on behavioural and institutional readiness.

Furthermore, the rural-urban divide remains a persistent challenge. Limited ICT infrastructure in rural areas restricts the scalability of digital banking, reinforcing inequality in financial access.

6. Policy Implications

The findings suggest several policy directions:

1. Infrastructure Development: Expansion of mobile and internet coverage in rural regions is essential.
2. Financial Education: National financial literacy programs should accompany digital banking initiatives.
3. Cybersecurity Enhancement: Strengthening digital security systems will improve user trust.
4. Inclusive Product Design: Banks should develop simplified digital tools for low-literacy users.
5. Regulatory Support: Governments should encourage fintech innovation while ensuring consumer protection.

7. Conclusion

This study provides empirical evidence that digital banking significantly enhances financial inclusion in Papua New Guinea. However, its impact is moderated by infrastructural limitations, financial literacy gaps, and trust issues.

While mobile banking has expanded access to financial services, equitable inclusion remains a challenge, particularly in rural areas. Addressing these barriers requires coordinated efforts between government, financial institutions, and telecommunication providers.

Ultimately, digital banking holds strong potential to transform financial inclusion in PNG, but its success depends on inclusive infrastructure development and user capability enhancement.

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THE EFFECT OF OCCUPATIONAL HEALTH AND SAFETY (OHS) AND TEAMWORK ON THE PERFORMANCE OF STAFF AT THE FIRE AND RESCUE SERVICE IN BENGKULU CITY

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Abstract

Occupational health and safety (OHS) plays a vital role in preventing workplace accidents through training in the use of personal protective equipment (PPE), emergency response and safety drills, whilst teamwork is essential to foster cooperation in the performance of duties. However, there are still challenges, such as a lack of discipline in the use of PPE and limited skills in emergency medical response. Therefore, regular training and assessment are required to create a safe working environment and to optimise staff performance. The aim of this study is to examine whether occupational health and safety (OHS) and teamwork have an impact on the performance of staff at the fire and rescue service in Bengkulu City. The method used in this study is a quantitative approach, with data collected via a questionnaire distributed to respondents using Google Forms. The respondents in this study were staff members of the fire and rescue service in Bengkulu City, with a predetermined sample size of 121 people. The results of this study indicate that the variables of occupational health and safety (OHS) and teamwork have a positive and significant effect on the performance of staff at the Fire and Rescue Service in Bengkulu City, with a t-test result for X1 of $2.083 > 1.980$ and a significance value of $0.039 < 0.05$, and a t-test result for X2 of $17.342 > 1.980$ and a significance value of $0.000 < 0.05$. The F-test result was $743.798 > 3.07$ and the significance value was $0.000 < 0.05$, indicating a positive regression direction with the equation $Y = 1.828 + 0.098 X1 + 0.689 X2 + 0.777$.

Keywords: Occupational Health and Safety (OHS), Teamwork, Staff Performance

1. Introduction

Human resources play a vital role in an organisation's ability to achieve its objectives, as people are the organisation's living assets—commonly referred to as employees—who can act as planners, implementers and innovators in realising the organisation's objectives. Therefore, an organisation must pay close attention to and manage its employees effectively so that they can deliver high-quality performance. Human resources play a crucial role within an organisation as they are responsible for carrying out operational activities (Sharma et al., 2024). Therefore, optimal attention to human resources is essential to ensure the effectiveness and efficiency of work (Maidar & Rosalia, 2022). In human resource management, the budget is a key element that serves to plan, allocate funds, and measure the effectiveness and efficiency of their use within the organisation.

In the public sector, staff performance is a key factor in determining the quality of service provided to the public, as it reflects the results of their work—both in terms of quality and quantity—in carrying out their duties and responsibilities as public servants (Pratiwi et al., 2023). Staff performance refers to the qualitative and quantitative results achieved by a staff member whilst carrying out their work in accordance with their assigned duties. It can be concluded that employee performance is the outcome of work assessed on the basis of the quality and quantity achieved by employees whilst carrying out their duties as assigned by their superiors. Achieving the expected performance from employees is not easy, as it is influenced by several factors, such as occupational health and safety (OHS).

Workplace safety is one of the key issues in any operational process, particularly for the fire and rescue services in Bengkulu City. Workplace safety serves as a means of protecting workers from the risk of workplace accidents. Protection is also a fundamental right that must be upheld by the relevant authorities. Occupational safety measures aim to prevent and reduce workplace accidents. The implementation of occupational safety measures aims to prevent and reduce workplace accidents. The implementation of occupational health and safety measures can be regarded as a means of preventing workplace accidents amongst fire service personnel (Noviana, 2021).

Based on the above explanation, the author is interested in conducting research into how occupational health and safety (OHS) and teamwork affect the performance of staff at the Fire Service in Bengkulu City.

2. Literature review

2.1. Human Resources Management

Human resources (HR) are a central factor within any organisation; whatever its form and purpose, an organisation is established on the basis of various visions for the benefit of people, and in carrying out its mission it is managed and run by people, therefore, people are a strategic factor in all the activities of an institution or organisation. Human resources are the driving force behind an organisation's success; therefore, equipping staff with knowledge and skills greatly enhances the quality of human resources, thereby contributing to the success of an institution or organisation. Naturally, the training or educational programmes implemented within a company or organisation play a vital role in developing human resources to help the company or organisation achieve its objectives (Qalbi et al., 2024).

Human resources play a vital role in an organisation's ability to achieve its objectives, as people are the organisation's living assets—commonly referred to as staff—who can act as planners, implementers and innovators in realising the organisation's objectives. Therefore, an organisation must pay close attention to and manage its staff effectively so that they can deliver high-quality performance (Assodiq Sandy Musaffa, 2022).

2.2. Occupational Health and Safety (OHS)

Occupational safety is a key factor in preventing accidents, disabilities and fatalities resulting from workplace accidents (Aprilliani, 2022). Occupational safety relates to equipment, materials and processes during work, forms the basis of the workplace and its surrounding environment, and constitutes the framework for carrying out work. Occupational Health and Safety (OHS) Indicators.

According to Abdurrozzaq Hasibuan (2020:87) in his book on occupational safety techniques, there are indicators that influence occupational safety and health

1. Circumstances and Conditions Employees: The circumstances and conditions experienced by employees whilst at work that support their work activities.
2. Working Environment The working environment is a broader context than the workplace itself, which supports employees' work activities.
3. Employee Protection Employee protection is a benefit provided to support employees' welfare.

2.3. Team Work

Bachtiar (2020) states that cooperation is the synergy of the strengths of several people in achieving a desired goal. Teamwork can be defined as a group of individuals working together to achieve a goal. This group of individuals has clear rules and working mechanisms, and its members are interdependent. Therefore, a group of people working in the same room, or even

on the same project, does not necessarily constitute teamwork (Prastyani 2020). Indicators of teamwork.

In a study by Novita Dwi Romadani (2024), West (2019:1499) states that the indicators of teamwork are as follows:

1. Responsibility

This point emphasises that every team member has a duty to carry out the tasks assigned to them with full commitment. Collective responsibility ensures that if one part of the team fails, the team will support one another in order to meet the agreed standards or targets.

2. Contributing to one another

This indicator refers to each member's willingness to make a tangible contribution, whether in the form of ideas or effort, in order to foster strong cooperation within the organisation. Without a balanced contribution, the workload will be unevenly distributed and it will be difficult to achieve the team's objectives.

3. Maximising skills development

Every member of the team must make the best possible use of their full potential, skills and expertise for the common good. By maximising each member's abilities, the team's synergy will become stronger and more effective in producing results.

2.4. Staff Performance

According to Luthans, as cited in Masduki Asbari et al. (2020), staff performance is a stage aimed at ensuring that organisational processes have improved the productivity of staff, teams and, ultimately, the organisation. Saqif Haidarravy and Achmad Syahrul R. (2023) define employee performance as a comparison of an employee's performance against established standards. Thus, performance refers to the results achieved by an individual within a company. Employee Performance Indicators:

Pursuant to Regulation of the Minister of State Apparatus Empowerment and Bureaucratic Reform of the Republic of Indonesia No. 6 of 2022 on the Performance Management of Civil Servants, the measures of success or individual performance indicators and targets for civil servants' work plans cover the following aspects:

1. Quantity refers to the amount of work completed in line with targets, the speed at which tasks are completed, and the extent to which work targets are met.
2. Quality: a measure that assesses the degree of accuracy, neatness, precision and conformity of work output with the organisation's standards or expectations.
3. Time or timeliness of task completion: a measure of how quickly an employee can complete a task.
4. Cost: a measure of the extent to which staff are able to complete their work through the efficient use of resources within the set budget.

3. Methodology

This study employs a quantitative research method. Quantitative research is a scientific approach widely used across various disciplines, from psychology and sociology to economics and the natural sciences. This method uses figures and statistics to measure the variables under investigation, thereby providing a solid foundation for testing research hypotheses. The quantitative research process involves structured stages, including planning, data collection, statistical analysis and interpretation of results (Subasman & Aliyyah, 2024).

4. Results and discussions

4.1. Validity Test Results

A validity test is used to determine whether the indicators in the study are appropriate; this is carried out by comparing the calculated *r* with the table *r*. In this study, the table-value of *r* is 0.178, which was obtained by determining the degrees of freedom (*df*) using the formula ($df = n - 2$) = 121 – 2 = 119, with a significance level of 0.05. The validity test for the indicators in this study is presented in the following table:

Table 1. Instrument's validity and reliability test

No	Item Statement	R Table	R Calculated	Description
Occupational Health and Safety (OHS) (X1)				
1.	X1.1	0,178	0,919	Valid
2.	X1.2	0,178	0,893	Valid
3.	X1.3	0,178	0,928	Valid
4.	X1.4	0,178	0,926	Valid
5.	X1.5	0,178	0,923	Valid
6.	X1.6	0,178	0,888	Valid
7.	X1.7	0,178	0,938	Valid
8.	X1.8	0,178	0,922	Valid
9.	X1.9	0,178	0,931	Valid
Team Work (X2)				
1.	X2.1	0,178	0,981	Valid
2.	X2.2	0,178	0,986	Valid
3.	X2.3	0,178	0,956	Valid
4.	X2.4	0,178	0,989	Valid
5.	X2.5	0,178	0,988	Valid
6.	X2.6	0,178	0,965	Valid
7.	X2.7	0,178	0,989	Valid
8.	X2.8	0,178	0,978	Valid
9.	X2.9	0,178	0,980	Valid
Staff Performance (Y)				
1.	Y1	0,178	0,911	Valid
2.	Y2	0,178	0,954	Valid
3.	Y3	0,178	0,965	Valid
4.	Y4	0,178	0,975	Valid
5.	Y5	0,178	0,951	Valid
6.	Y6	0,178	0,943	Valid
7.	Y7	0,178	0,917	Valid
8.	Y8	0,178	0,962	Valid

Source: SPSS version 25.0 output, 2026

Based on the data in Table 2 above, which shows that all 26 statements presented to staff at the Bengkulu City Fire Service were found to be valid—as the calculated *r*-value was greater than the table *r*-value—the indicators can therefore be used as research tools.

4.2. Reliability Test Results

Reliability testing was carried out to determine whether the data produced was reliable or consistently trustworthy. A variable is considered reliable if its Cronbach's Alpha value is greater than 0.60. The results of the reliability testing for the research variables are shown in Table 2 below:

Table 2. Reliability Test Results

No	Variabel	Value <i>Alpha Cronbach</i>	Description
1	Occupational Health and Safety (OHS) (X1)	0,976	Realibel
2	<i>Team Work</i> (X2)	0,995	Realibel
3	Staff Performance (Y)	0,984	Realibel

Based on the results of the data analysis as shown in Table 2 above, it can be seen that all Cronbach's alpha coefficients for the research variables are greater than the significance level of 0.60, which means that all research instruments are reliable.

4.3. Results of the Multiple Linear Regression Analysis

According to Sugiiono (2022), multiple linear regression analysis is used to determine the direction and magnitude of the effect of two or more independent variables on a single dependent variable.

Table 3. Results of the Multiple Linear Regression Analysis

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.828	.777		2.351	.020
	X1	.098	.047	.105	2.083	.039
	X2	.689	.040	.870	17.342	.000

a. Dependent Variable: Y

Source: SPSS 25 output. 2026

The results of the multiple linear regression analysis using SPSS 25.0, as shown in Table 10 above, yielded the following multiple linear regression equation:

$$Y = 1,828 + 0,098 X_1 + 0,689 X_2 + 0.777$$

The equation for the multiple linear regression is:

1. The constant value of 1.828 means that if the Occupational Health and Safety (OHS) variable (X1) and the Teamwork variable (X2) are set to 0, the Employee Performance variable (Y) will remain at 1.828
2. The effect of Occupational Health and Safety (OHS) (X1) on Employee Performance (Y)
The coefficient for Occupational Health and Safety (OHS) (X1) is 0.098; assuming that if X1 increases by one unit, Employee Performance (Y) will also increase by 0.098
3. The effect of teamwork (X2) on employee performance (Y)
The value of the Team Work coefficient (X2) is 0.689; assuming that if X2 increases by one unit, Employee Performance (Y) will also increase by 0.689

4.4. Results of the R² Coefficient of Determination Test

The coefficient of determination (R²) is used to measure the extent to which a model can explain the variation in the dependent variable. The R² value ranges from 0 to 1. The results of the R² test are shown in Table 9 below:

Table 4. Data on the Results of the R² Coefficient of Determination Test

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.963 ^a	.927	.925	3.15676

a. Predictors: (Constant), X2, X1

Source: SPSS 25 output. 2026

Based on the data in Table 4, the coefficient of determination can be seen from the R-squared value. The results of the analysis using SPSS 25.0 show that the coefficient of determination (R-squared) for this study is 0.927, meaning that the independent variables account for 92.7 per cent of the variation in the dependent variable, whilst the remaining 7.3 per cent is influenced by other variables not discussed in this study.

4.5. Results of the Partial Test (t-test)

The results of the t-test hypothesis testing using SPSS 25.0 are shown in Table 5 below.

Table 5. Results of the t-test

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.828	.777		2.351	.020
	X1	.098	.047	.105	2.083	.039
	X2	.689	.040	.870	17.342	.000

a. Dependent Variable: Y

Source: SPSS 25 output. 2026

1. Occupational Health and Safety (OHS) (X1)

The test results for the Occupational Health and Safety (OHS) variable (X1) show a significance value of $0.039 < 0.05$. As the significance value is less than 0.05, H_0 is rejected and H_a is accepted. The table above shows that the calculated t-value for the Occupational Health and Safety (OHS) variable is greater than the critical t-value, namely $2.083 > 1.980$ (the formula for the critical t-value is attached). It can therefore be concluded that the Occupational Health and Safety (OHS) variable has a significant effect on staff performance (Y) at the Bengkulu City Fire Service. Variabel *Team Work* (X2)

- The test results for the Team Work variable show a significance value of $0.000 < 0.05$. As the significance value is less than 0.05, H_0 is rejected and H_a is accepted. The table above shows that the calculated t-value for the Team Work variable is greater than the table t-value, namely $17.342 > 1.980$ (the formula for the table t-value is attached). It can therefore be concluded that the Team Work variable has a significant effect on Employee Performance (Y) at the Bengkulu City Fire Service.

4.6. Hasil Uji Simultan (Uji F)

In this study, the hypothesis testing was designed to measure the combined (simultaneous) effect of Occupational Health and Safety (OHS) (X1) and Teamwork (X2) on Employee Performance (Y) using the F-test. The results of the hypothesis testing using ANOVA (F-test) are shown in Table 6 below.

Table 6. Results of the Simultaneous Test (F-test)

ANOVA ^a					
Model		Sum of Squares	df	Mean Square	Sig.
1	Regression	14824.129	2	7412.064	.000 ^b

	Residual	1175.888	118	9.965		
	Total	16000.017	120			
a. Dependent Variable: Y						
b. Predictors: (Constant), X2, X1						

Source: SPSS 25 output. 2026

From the data in Table 13 above, the significance value is $0.000 < 0.05$. As the significance level is below 0.05, this indicates that, taken together, Occupational Health and Safety (OHS) (X1) and Teamwork (X2) have a significant effect on Employee Performance (Y) at the Bengkulu City Fire Service. The calculated F-value is greater than the table F-value, namely a calculated F-value of 743.798 is greater than the table F-value of 3.07 (see attached table).

4.7. Discussion

Based on the research findings, it can be seen that the variables Occupational Health and Safety (OHS) (X1) and Teamwork (X2) have a very strong influence on Employee Performance (Y) at the Bengkulu City Fire Service, as indicated by the results of the analysis using SPSS 25.0. The following is an explanation of the research hypotheses.

Tabel 14. Hasil analisis regresi linear berganda, uji determinasi dan uji f dan uji t

Variabel	Value Coefficient	R Square	Sig.	Description
Equation: $Y = 1,828 + 0,098 X_1 + 0,689 X_2 + 0.777$				
Occupational Health and Safety (OHS) (X1)	0,098		0,039	Signifikan
Team Work (X2)	0,689		0,000	Signifikan
F-test			0,000	Signifikan
Determination		92,7		92,7%

Source: SPSS 25 output. 2026

4.7.1. The Effect of Occupational Health and Safety (OHS) (X1) on Staff Performance (Y) at the Bengkulu City Fire Service

The results of the tests in this study indicate that there is a significant relationship between Occupational Health and Safety (OHS) (X1) and Staff Performance (Y) at the Bengkulu City Fire Service, as the test results for the Occupational Health and Safety (OHS) (X1) variable show a significance value of $0.039 < 0.05$. As the p-value is less than 0.05, H_0 is rejected and H_1 is accepted, meaning that the Occupational Health and Safety (OHS) variable (X_1) has a significant effect on the Employee Performance variable (Y) at the Bengkulu City Fire Service. Based on the t-test, the calculated t-value is greater than the table t-value, namely $2.083 > 1.980$ (table t-value attached). The implementation of Occupational Health and Safety (OHS) measures at the Bengkulu City Fire Service – such as the use of personal protective equipment (PPE), safety training and the adoption of safe working procedures – helps staff to work more safely, comfortably and with greater focus, thereby improving work efficiency and leading to enhanced staff performance.

It can be concluded that the Occupational Health and Safety (OHS) variable (X_1) has a significant effect on Staff Performance (Y) at the Bengkulu City Fire Service, and the partial test (t-test) indicates that Occupational Health and Safety (K3) (X_1) has a direct, positive and

significant effect on staff performance (Y) at the Bengkulu City Fire Service. This research is supported by the findings of a study conducted by Kourouw Ventje Tatimu Sofia A. P. Sambul (2019) entitled “The Impact of Occupational Health and Safety on Employee Performance at PT PP” “PT PP Presisi Tbk, Manado–Bitung Motorway Project, Business Administration Programme, Faculty of Social and Political Sciences, Sam Ratulangi University, Manado”, in which the research findings indicate that the Occupational Health and Safety variable has a significant impact on the performance of employees at PT PP Presisi Tbk’s Manado–Bitung Motorway Project.

4.7.2. The Effect of Teamwork (X2) on Employee Performance (Y) at the Bengkulu City Fire Service

The results of the tests in this study indicate that there is a significant effect of Teamwork (X2) on Staff Performance (Y) at the Bengkulu City Fire Service, as the test results for the Teamwork variable (X2) show a significance value of $0.000 < 0.05$. As the significance value is less than 0.05, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted, meaning that the Teamwork variable (X2) has a significant effect on the Employee Performance variable (Y) at the Bengkulu City Fire Service. Based on the t-test, the calculated t-value is greater than the table t-value, namely $17.342 > 1.980$ (table t-value attached). At the Bengkulu City Fire Service, work is carried out in teams because every fire-fighting and rescue operation requires coordination, communication and cooperation amongst staff. A clear division of tasks, mutual support amongst team members, and good coordination whilst on duty enable work to be completed more quickly and effectively, thereby improving staff performance. A clear division of tasks, mutual support amongst team members, and good coordination whilst on duty enable work to be completed more quickly and effectively, thereby improving staff performance.

It can be concluded that the Teamwork variable (X2) has a significant effect on staff performance (Y) at the Bengkulu City Fire Service, and the partial test (t-test) indicates that Teamwork (X2) has a positive and significant direct effect on staff performance (Y) at the Bengkulu City Fire Service. This research is supported by the findings of a study conducted by Jecky Fitra (2024) published in the **Journal of Economics and Management**, 7(2), 231–242. entitled “The Influence of the Working Environment, Rewards and Teamwork on Employee Performance at PT Bank Syariah Indonesia, Bengkulu Branch”, Master’s Programme in Management, Faculty of Economics and Business, Dehasen University, Bengkulu, whose research findings indicate that the variable ‘Teamwork’ (X2) has a significant effect on employee performance at the Bengkulu branch of PT Bank Syariah Indonesia.

4.7.3. The Effect of Occupational Health and Safety (OHS) (X1) and Teamwork (X2) on Employee Performance (Y) at the Bengkulu City Fire Service

Based on the results of the hypothesis testing using the F-test (simultaneous test), it was found that there is a combined effect of Occupational Health and Safety (OHS) (X1) and Teamwork (X2) on Employee Performance (Y) at the Bengkulu City Fire Service, as the significance value of 0.000 is less than 0.05. This indicates that Occupational Health and Safety (OHS) (X1) and Teamwork (X2) influence Employee Performance (Y) at the Bengkulu City Fire Service. The calculated t-value for the Occupational Health and Safety (OHS) variable (X1) is greater than the critical t-value, at $2.083 > 1.980$, and the t-value for the Teamwork variable (X2) is greater than the critical t-value, at $17.342 > 1.657$. Furthermore, the calculated F-value in this study is greater than the table F-value, namely $743.798 > \text{table F-value } 3.07$. At the Bengkulu City Fire Service, the implementation of health and safety measures and teamwork are of paramount importance, as the work involves high risks and requires teamwork.

The implementation of health and safety measures is evident in the use of personal protective equipment (PPE), the adherence to safety procedures, and on-the-job training to minimise risks whilst on duty. Furthermore, teamwork is fostered through coordination, communication and the division of tasks amongst staff during operations firefighting and rescue operations. The implementation of these measures makes the work safer and more effective, and helps to improve staff performance.

It can be concluded that Occupational Health and Safety (OHS) (X1) and Teamwork (X2) have a significant simultaneous effect on Staff Performance (Y) at the Bengkulu City Fire Service.

5. Conclusion

5.1. Conclusion

Based on the results of the research and discussion conducted on the influence of Occupational Health and Safety (OHS) (X1) and Teamwork (X2) on Employee Performance (Y), as outlined above, the following conclusions can be drawn:

1. The results of the multiple linear regression analysis indicate a positive regression relationship, with the equation $Y = 1.828 + 0.098 X1 + 0.689 X2 + 0.777$
2. Based on the results of the partial analysis, it was found that Occupational Health and Safety (OHS) (X1) was 0.039 and Teamwork (X2) was 0.000; the t-test results showed that X1 (2.083) was greater than 1.980 and X2 (17.342) was greater than 1.980. It can therefore be concluded that each variable has a significant effect on employee performance (Y) at the Bengkulu City Fire Service.
3. Based on the research findings, the results of the simultaneous tests show that Occupational Health and Safety (K3) (X1) and Teamwork (X2) have a simultaneous effect on Employee Performance (Y) at the Bengkulu City Fire Service, with a calculated F-value greater than the table F-value ($743.798 > 3.07$) and a significance value of $0.000 < 0.05$
4. R-squared (R^2) = 0.927. This value indicates that the independent variable accounts for 92.7 per cent of the variation in staff performance (Y) at the Bengkulu City Fire Service, whilst the remainder is influenced by other variables not examined in this study.

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THE EFFECT OF INFLATION, MUSYARAKAH FINANCING, AND FINANCIAL PERFORMANCE ON THE PROFITABILITY OF ISLAMIC COMMERCIAL BANKS DURING THE 2020–2024 PERIOD

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Abstract

This study aims to analyze the effect of inflation, musyarakah financing, and financial performance on the profitability of Islamic Commercial Banks in Indonesia during the 2020–2024 period. Profitability is measured using Return on Assets (ROA), while financial performance is proxied by the Capital Adequacy Ratio (CAR). This study employs a quantitative approach using secondary data obtained from Islamic Commercial Banks' financial statements and inflation data from Statistics Indonesia (BPS). The sampling technique used is purposive sampling, with a total of 35 data point used. Data analysis was conducted using panel data regression with the Panel Corrected Standard Errors (PCSE) method. The results indicate that inflation, musyarakah financing, and financial performance simultaneously have a significant effect on the profitability of Islamic Commercial Banks. Partially, inflation has no significant effect on profitability, musyarakah financing has a negative and significant effect on profitability, while financial performance proxied by CAR has a positive and significant effect on profitability. These findings indicate that internal factors, particularly financing management and capital adequacy, play a more dominant role in improving the profitability of Islamic Commercial Banks than external factors such as inflation

Keywords: Capital Adequacy Ratio, Inflation, Musyarakah Financing, Profitability, Return on Assets.

1. Introduction

Over the past two decades, the Islamic banking industry in Indonesia has experienced significant growth in terms of assets, financing activities, and public confidence. This development has been supported by the increasing awareness of Muslim communities regarding Sharia-compliant financial services, as well as government initiatives through the National Committee for Islamic Economy and Finance (KNEKS) and the Indonesian Islamic Economy and Finance Masterplan, which aim to strengthen a sustainable and competitive Islamic financial ecosystem (Andriansyah et al., 2025). According to the Financial Services Authority (OJK), Indonesia's Islamic financial assets increased from USD 148 billion to USD 162 billion in 2023, positioning Indonesia as the sixth largest Islamic finance industry globally (OJK, 2024).

The growth of Islamic Commercial Banks (Bank Umum Syariah/BUS) has also been reflected in the continuous increase in total assets and net income during the 2020–2024 period. Total assets increased from IDR 397.1 trillion in 2020 to IDR 664.6 trillion in 2024, while net profit rose from IDR 3.78 trillion to IDR 9.89 trillion over the same period. This trend indicates that Islamic banks have strengthened their operational performance and expanded their role in supporting Indonesia's financial system (OJK, 2025). Despite this positive development, maintaining profitability remains one of the primary challenges faced by Islamic Commercial Banks because profitability reflects management's ability to utilize assets efficiently and sustainably.

Profitability, commonly measured by Return on Assets (ROA), is one of the most important indicators used to evaluate the financial performance of banks because it reflects management efficiency in generating profits from total assets (Kasmir, 2020; Afhami et al., 2022; Azzahra

et al., 2024). During the 2020–2024 period, the ROA of Islamic Commercial Banks generally showed an increasing trend despite experiencing fluctuations, indicating that the banking industry continues to face both internal and external challenges in maintaining financial performance (OJK, 2025). Therefore, identifying the determinants of profitability is essential for improving the sustainability and competitiveness of Islamic banking institutions.

One external factor that may influence profitability is inflation. Inflation affects purchasing power, financing demand, and customers' repayment capacity, which subsequently influences banking performance (Nita et al., 2021; Sofwan et al., 2022). Previous empirical findings, however, remain inconsistent. Afhami et al. (2022), Nita et al. (2021), and Raharjo et al. (2020) reported that inflation negatively affects the profitability of Islamic Commercial Banks, whereas Sugihyanto (2021), Utami and Sihotang (2024), and Yatissofa et al. (2025) found that inflation has no significant effect.

Besides macroeconomic conditions, profitability is also influenced by internal banking factors. Musyarakah financing represents one of the core profit-sharing contracts in Islamic banking and is expected to enhance bank income through productive financing activities (Damayanti et al., 2021; Taqyudin et al., 2022). Nevertheless, previous studies have produced conflicting evidence. Taqyudin et al. (2022), Nungcahyani and Wahyudi (2024), and Usmany (2024) concluded that musyarakah financing positively affects profitability, whereas Andriani and Sari (2021) and Damayanti et al. (2021) reported a negative relationship due to financing risk and ineffective monitoring.

Another important determinant is financial performance, represented by the Capital Adequacy Ratio (CAR). Adequate capital enables Islamic Commercial Banks to absorb potential risks, expand financing activities, and maintain operational stability (Khasanah, 2023; Azzahra et al., 2024). While several studies reported that CAR positively affects profitability (Damayanti et al., 2021; Khasanah, 2023; Azzahra et al., 2024), Ardichy and Rahayu (2022) found a negative relationship, whereas Raharjo et al. (2020) concluded that CAR has no significant effect. These inconsistent findings indicate the existence of an empirical research gap regarding the determinants of Islamic bank profitability.

Based on the theoretical arguments and inconsistent empirical evidence, this study examines the effects of inflation, musyarakah financing, and financial performance on the profitability of Islamic Commercial Banks in Indonesia during the 2020–2024 period. Unlike previous studies that generally focused on individual determinants, this study simultaneously investigates macroeconomic and bank-specific factors using panel data from Islamic Commercial Banks and the Panel Corrected Standard Errors (PCSE) estimation method. The findings are expected to enrich the literature on Islamic banking and provide practical implications for bank management and policymakers in improving the financial performance and sustainability of Islamic Commercial Banks.

2. Literature review

2.1. Agency Theory

Agency Theory, introduced by Jensen and Meckling, explains the contractual relationship between principals (shareholders) and agents (management), in which management is entrusted with utilizing organizational resources efficiently to maximize shareholders' wealth (Yatissofa et al., 2025). Within the Islamic banking industry, Agency Theory provides an appropriate theoretical foundation for explaining managerial decisions related to financing allocation, capital management, and operational performance. Management is expected to optimize productive financing while maintaining adequate capital to enhance profitability. Consequently, profitability serves as an indicator of management's success in fulfilling its responsibilities to stakeholders.

2.2. Profitability of Islamic Commercial Banks

Profitability refers to the ability of a bank to generate earnings from its available resources and assets (Firdayati & Canggih, 2020; Kasmir, 2020). In banking institutions, profitability reflects operational efficiency, managerial effectiveness, and financial sustainability. This study measures profitability using Return on Assets (ROA), which evaluates management's capability to generate profits from total assets owned by the bank (Afhami et al., 2022; Azzahra et al., 2024). Higher profitability indicates more efficient utilization of productive assets and stronger financial performance, making ROA one of the most widely adopted indicators for evaluating Islamic Commercial Banks.

2.3. Inflation and Profitability

Inflation is defined as a continuous increase in the general price level of goods and services that reduces purchasing power and the real value of money (Raharjo et al., 2020; Kasmir, 2020; Sugihyanto, 2021; Kurniawan et al., 2025). From a macroeconomic perspective, rising inflation may decrease customers' purchasing power, reduce financing demand, and increase financing risk, thereby lowering bank profitability. Previous empirical evidence generally supports this argument. Nita et al. (2021) and Afhami et al. (2022) found that inflation negatively affects the profitability of Islamic Commercial Banks. However, several studies have reported insignificant relationships, indicating that the impact of inflation may vary depending on economic conditions and bank management strategies.

2.4. Musyarakah Financing and Profitability

Musyarakah financing is a partnership-based financing contract in which two or more parties contribute capital to conduct business activities, while profits are distributed according to an agreed profit-sharing ratio and losses are shared based on capital contribution (Fitriani et al., 2018). As one of the primary financing instruments in Islamic banking, musyarakah financing reflects the principles of partnership, fairness, and profit sharing. Effective management of musyarakah financing is expected to increase financing income and improve profitability. Taqyudin et al. (2022) and Nungcahyani and Wahyudi (2024) reported that musyarakah financing positively influences profitability, although ineffective financing management and higher financing risk may reduce financial performance.

2.5. Financial Performance (Capital Adequacy Ratio) and Profitability

Financial performance in this study is represented by the Capital Adequacy Ratio (CAR), which measures a bank's ability to provide sufficient capital for absorbing potential losses and supporting operational activities (Khasanah, 2023; Azzahra et al., 2024). According to Agency Theory, maintaining adequate capital demonstrates management's responsibility in safeguarding organizational resources while ensuring sustainable profitability. Banks with higher capital adequacy are expected to possess greater capacity to expand financing, manage risks effectively, and improve financial performance. Previous studies by Khasanah (2023), Damayanti et al. (2021), and Azzahra et al. (2024) reported a positive relationship between CAR and profitability, whereas Ardichy and Rahayu (2022) and Raharjo et al. (2020) found inconsistent results.

2.6. Hypotheses Development

Based on Agency Theory and previous empirical findings, profitability in Islamic Commercial Banks is influenced by both external and internal factors. Inflation represents an external macroeconomic variable that may influence financing activities and bank performance, while musyarakah financing and capital adequacy represent managerial decisions that directly

affect operational efficiency and profitability. Therefore, the following hypotheses are proposed:

H1: Inflation has a significant effect on the profitability of Islamic Commercial Banks.

H2: Musyarakah financing has a significant effect on the profitability of Islamic Commercial Banks.

H3: Financial performance (Capital Adequacy Ratio) has a significant effect on the profitability of Islamic Commercial Banks.

H4: Inflation, musyarakah financing, and financial performance simultaneously have a significant effect on the profitability of Islamic Commercial Banks.

3. Methodology

This study employed a quantitative approach using secondary panel data to examine the effects of inflation, musyarakah financing, and financial performance on the profitability of Islamic Commercial Banks in Indonesia. The sample consisted of seven Islamic Commercial Banks selected through purposive sampling based on the availability of complete annual financial statements during the 2020–2024 period, resulting in 35 balanced panel observations. Secondary data on Return on Assets (ROA), musyarakah financing, and the Capital Adequacy Ratio (CAR) were obtained from the annual reports of Islamic Commercial Banks and the Islamic Banking Statistics published by the Financial Services Authority (OJK), while inflation data were collected from Statistics Indonesia (BPS). The data were analyzed using panel data regression with EViews 12. The appropriate estimation model was determined through the Chow, Hausman, and Lagrange Multiplier (LM) tests, followed by diagnostic tests. Since heteroscedasticity and autocorrelation were detected, the final model was estimated using the Panel Corrected Standard Errors (PCSE) approach with cross-section weights. Hypothesis testing was conducted at a 5% significance level.

3.1. Theoretical framework

This study is grounded in Agency Theory, which explains the contractual relationship between principals (shareholders) and agents (management), where management is responsible for utilizing organizational resources efficiently to maximize shareholders' wealth (Yatissafa et al., 2025). In the context of Islamic Commercial Banks, Agency Theory provides a relevant framework for explaining how managerial decisions regarding financing allocation, capital management, and responses to macroeconomic conditions influence bank profitability. Profitability, measured by Return on Assets (ROA), reflects management's ability to generate earnings from the bank's assets through effective and efficient resource utilization (Firdayati & Canggi, 2020; Kasmir, 2020; Afhami et al., 2022). This study proposes that profitability is influenced by both external and internal factors. Inflation represents an external macroeconomic factor that may affect financing demand and banking performance (Raharjo et al., 2020; Sugihyanto, 2021), whereas musyarakah financing and financial performance, represented by the Capital Adequacy Ratio (CAR), reflect internal managerial decisions related to financing activities and capital adequacy that are expected to improve profitability (Fitriani et al., 2018; Khasanah, 2023; Azzahra et al., 2024). Based on Agency Theory, the relationships among these variables form the theoretical basis for examining the determinants of the profitability of Islamic Commercial Banks in Indonesia.

3.2. Conceptual framework

The conceptual framework of this study was developed based on Agency Theory and previous empirical findings to explain the relationships between inflation, musyarakah financing, financial performance, and profitability in Islamic Commercial Banks. Agency Theory suggests that management is responsible for optimizing organizational resources and making strategic financial decisions to maximize profitability. In this framework, inflation is

considered an external macroeconomic factor that may influence banking operations, while musyarakah financing and financial performance, represented by the Capital Adequacy Ratio (CAR), are internal factors reflecting management's financing and capital decisions. These variables are hypothesized to influence the profitability of Islamic Commercial Banks, which is measured by Return on Assets (ROA). The proposed research framework is presented in Figure 1.

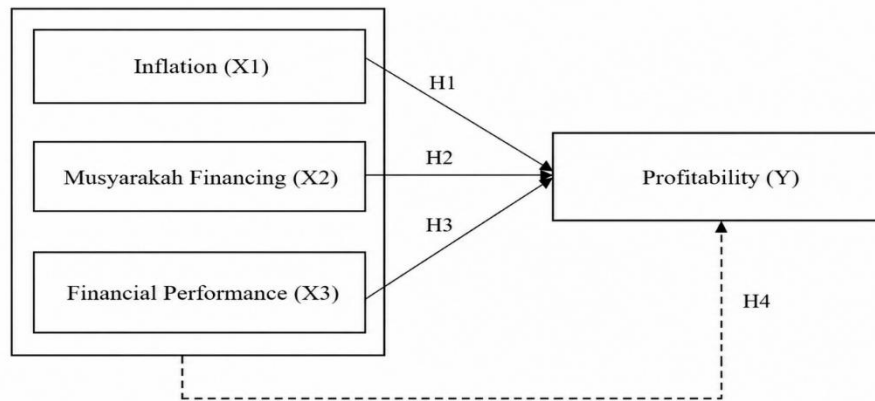


Figure 1. Conceptual Framework of the Study

3.3. Instrumentation

This study utilized secondary data obtained from official and publicly accessible sources. Data on profitability (Return on Assets/ROA), musyarakah financing, and the Capital Adequacy Ratio (CAR) were collected from the annual reports of Islamic Commercial Banks and the Islamic Banking Statistics published by the Financial Services Authority (OJK). Inflation data were obtained from Statistics Indonesia (BPS). Since this study employed secondary data rather than questionnaire-based survey data, instrument reliability and validity tests such as Cronbach's Alpha and Composite Reliability were not applicable. The operational definitions and measurements of the research variables are presented in Table 1.

Table 1. Operational Definition of Variables

Variable	Proxy	Measurement	Scale	Data Source
Profitability (Y)	Return on Assets (ROA)	ROA = Net Income Before Tax / Total Assets × 100%	Ratio	Annual Reports of Islamic Commercial Banks; Islamic Banking Statistics (OJK)
Inflation (X1)	Inflation Rate	Annual inflation rate (%) based on the Consumer Price Index (CPI)	Ratio	Statistics Indonesia (BPS)
Musyarakah Financing (X2)	Musyarakah Financing Ratio	Musyarakah Financing = Total Musyarakah Financing / Total Financing × 100%	Ratio	Annual Reports of Islamic Commercial Banks
Financial Performance (X3)	Capital Adequacy Ratio (CAR)	CAR = Total Capital / Risk-Weighted Assets × 100%	Ratio	Annual Reports of Islamic Commercial Banks; Islamic Banking Statistics (OJK)

4. Results and discussions

4.1. Descriptive Statistic

Descriptive statistics were employed to provide an overview of the characteristics of the research variables, namely profitability (ROA), inflation, musyarakah financing, and financial performance (CAR). The descriptive statistics include the mean, median, maximum, minimum, and standard deviation of each variable, as presented in Table 2.

Table 2. Descriptive statistics

	ROA	Inflation	Musyarakah Financing	Financial Performance
Mean	0,017575	2,648	0,450267	0,336533
Median	0,012492	1,870	0,386318	0,269858
Maximum	0,084093	5,510	2,413999	1,137091
Minimum	0,000152	1,570	3,9207	0,152122
Std. Dev.	0,020955	1,497824	0,538224	0,205981

Source: Processed using EViews 12 (2026).

Table 2 shows that the average profitability (ROA) of Islamic Commercial Banks during the 2020–2024 period was 0.017575, indicating relatively low but varying profitability across the sample, as reflected by a standard deviation of 0.020955. The average inflation rate was 2.648%, suggesting moderate inflation fluctuations throughout the observation period. Musyarakah financing recorded a mean value of 0.450267 with the highest standard deviation (0.538224), indicating considerable variation in the proportion of musyarakah financing among the sampled banks. Meanwhile, financial performance, represented by the Capital Adequacy Ratio (CAR), had an average value of 0.336533 with a standard deviation of 0.205981, indicating that the sampled Islamic Commercial Banks generally maintained adequate capital levels during the study period.

4.2. Model Selection and Diagnostic Tests

To determine the most appropriate panel data regression model, the Chow test, Hausman test, and Lagrange Multiplier (LM) test were conducted sequentially. The results of the model selection tests are presented in Table 3.

Table 3. Panel Data Model Selection Results

Test	Null Hypothesis (H ₀)	Probability	Decision	Selected Model
Chow Test	Common Effect Model (CEM) is appropriate	0.0000	Reject H ₀	Fixed Effect Model (FEM)
Hausman Test	Random Effect Model (REM) is appropriate	1.0000	Accept H ₀	Random Effect Model (REM)
Lagrange Multiplier (Breusch–Pagan)	Common Effect Model (CEM) is appropriate	0.1384*	Accept H ₀	Common Effect Model (CEM)

Note: The probability value shown is the "Both" effect of the Breusch–Pagan LM test.

Source: Processed using EViews 12 (2026).

As presented in Table 3, the Chow test produced a probability value of 0.0000, indicating that the Fixed Effect Model (FEM) was preferred over the Common Effect Model (CEM). Subsequently, the Hausman test yielded a probability value of 1.0000, suggesting that the Random Effect Model (REM) was more appropriate than the Fixed Effect Model (FEM). Finally, the Lagrange Multiplier (LM) test generated a probability value of 0.1384, which exceeds the 5% significance level, indicating that the Common Effect Model (CEM) was preferred over the Random Effect Model (REM). Therefore, based on the panel model selection procedures, the Common Effect Model (CEM) was selected as the baseline estimation model. Nevertheless, because the diagnostic tests identified heteroscedasticity and autocorrelation, the

final regression estimation was performed using the Panel Corrected Standard Errors (PCSE) approach with cross-section weights to obtain robust and efficient parameter estimates.

4.3. Regression Results

Following the model selection and diagnostic tests, the regression analysis was estimated using the Panel Corrected Standard Errors (PCSE) approach with cross-section weights to obtain robust and efficient parameter estimates. The regression results, including the regression coefficients, F-test, and coefficient of determination (R^2), are presented in Table 4.

Table 4. Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Probability	Decision
Inflation	0.001306	0.001709	0.764449	0.4504	Not Significant
Musyarakah Financing	-0.012605	0.004102	-3.072993	0.0044	Significant
Financial Performance (CAR)	0.059166	0.024498	2.415087	0.0218	Significant
Model Statistics					
F-statistic	11.65905			0.000028	Significant
R^2	0.530140				53.01%

Source: Processed using EViews 12 (2026).

Table 4 presents the results of the panel data regression analysis. The findings indicate that inflation has a positive regression coefficient of 0.001306 but does not significantly affect the profitability of Islamic Commercial Banks, as evidenced by a probability value of 0.4504, which exceeds the 5% significance level. In contrast, musyarakah financing has a negative and statistically significant effect on profitability, with a coefficient of -0.012605 and a probability value of 0.0044. Likewise, financial performance, represented by the Capital Adequacy Ratio (CAR), has a positive and statistically significant effect on profitability, as indicated by a coefficient of 0.059166 and a probability value of 0.0218. Furthermore, the model is statistically significant, as reflected by an F-statistic of 11.65905 with a probability value of 0.000028, indicating that inflation, musyarakah financing, and financial performance jointly affect the profitability of Islamic Commercial Banks. The coefficient of determination (R^2) of 0.530140 indicates that approximately 53.01% of the variation in profitability can be explained by the independent variables included in the model, while the remaining 46.99% is explained by other factors outside the scope of this study.

4.4. Discussion

4.4.1. Effect of Inflation on the Profitability of Islamic Commercial Banks

The regression results indicate that inflation has no significant effect on the profitability of Islamic Commercial Banks during the 2020–2024 period. Although the regression coefficient is positive (0.001306), the probability value of 0.4504 exceeds the 5% significance level, indicating that fluctuations in inflation did not significantly influence banks' ability to generate profits. This finding suggests that Islamic Commercial Banks were able to maintain relatively stable profitability despite changes in macroeconomic conditions. Effective financing policies, prudent risk management, and adaptive operational strategies enabled banks to mitigate the adverse effects of inflation. From the perspective of Agency Theory, management successfully fulfilled its responsibility to optimize organizational resources and maintain financial performance despite external economic pressures. This finding is consistent with the studies of Raharjo et al. (2020), Sugihyanto (2021), and Utami and Sihotang (2024), which also reported that inflation does not significantly affect the profitability of Islamic Commercial Banks.

4.4.2. Effect of Musyarakah Financing on the Profitability of Islamic Commercial Banks

The results show that musyarakah financing has a negative and significant effect on the profitability of Islamic Commercial Banks. The regression coefficient of -0.012605 with a probability value of 0.0044 indicates that an increase in the proportion of musyarakah financing tends to reduce bank profitability during the observation period. Although musyarakah financing is based on the principles of partnership and profit sharing, it also involves relatively higher investment risk and uncertainty than debt-based financing. Ineffective monitoring of financed projects and an increase in non-performing financing may reduce the expected profit-sharing income and ultimately lower profitability. In terms of Agency Theory, this finding reflects the importance of management's role in supervising and controlling financing activities to minimize agency problems and improve financial performance. This result differs from the findings of Taqyudin et al. (2022) and Nungcahyani and Wahyudi (2024), who reported a positive relationship between musyarakah financing and profitability, indicating that the effectiveness of musyarakah financing depends on the quality of financing management and prevailing economic conditions.

4.4.3. Effect of Financial Performance on the Profitability of Islamic Commercial Banks

Financial performance, measured by the Capital Adequacy Ratio (CAR), has a positive and significant effect on the profitability of Islamic Commercial Banks. The regression coefficient of 0.059166 with a probability value of 0.0218 indicates that banks with stronger capital adequacy tend to generate higher profitability. Adequate capital enables banks to absorb potential risks, support financing expansion, and maintain operational stability, thereby improving financial performance. According to Agency Theory, sufficient capital reflects management's ability to utilize organizational resources efficiently and responsibly to maximize shareholder value. Consequently, stronger capital adequacy enhances public confidence and supports sustainable profitability. This finding is in line with previous studies conducted by Damayanti et al. (2021), Khasanah (2023), and Azzahra et al. (2024), which also found that the Capital Adequacy Ratio positively influences the profitability of Islamic Commercial Banks.

4.4.4. The Joint Effect of Inflation, Musyarakah Financing, and Financial Performance on the Profitability of Islamic Commercial Banks

The results of the F-test indicate that inflation, musyarakah financing, and financial performance jointly have a significant effect on the profitability of Islamic Commercial Banks, as evidenced by the probability value of 0.000028 , which is below the 5% significance level. These findings suggest that the profitability of Islamic Commercial Banks is influenced by the combined effects of external macroeconomic conditions and internal banking factors rather than by a single determinant. While inflation reflects changes in the external economic environment, musyarakah financing represents the bank's financing activities, and financial performance, measured by the Capital Adequacy Ratio (CAR), reflects the bank's ability to maintain sufficient capital to support its operations and absorb potential risks. The simultaneous significance of these variables indicates that sustainable profitability depends on management's ability to balance external challenges with effective internal resource management. From the perspective of Agency Theory, these findings demonstrate that management, acting as the agent, has the responsibility to allocate resources efficiently, manage financing risks prudently, and maintain adequate capital in order to maximize organizational performance and protect the interests of shareholders. This result supports previous studies by Damayanti et al. (2021), Khasanah (2023), and Azzahra et al. (2024), which concluded that the interaction between macroeconomic conditions and bank-specific financial factors plays an important role in determining the profitability of Islamic Commercial Banks.

5. Conclusion

This study examined the effects of inflation, musyarakah financing, and financial performance on the profitability of Islamic Commercial Banks in Indonesia during the 2020–2024 period. The findings indicate that inflation does not significantly affect profitability, whereas musyarakah financing has a significant negative effect and financial performance, measured by the Capital Adequacy Ratio (CAR), has a significant positive effect on profitability. Furthermore, the simultaneous analysis confirms that inflation, musyarakah financing, and financial performance jointly have a significant influence on the profitability of Islamic Commercial Banks. These findings suggest that strengthening capital adequacy and improving the management of musyarakah financing are essential for enhancing bank profitability, while maintaining responsiveness to changes in the macroeconomic environment. Future research is recommended to extend the observation period, include additional macroeconomic and bank-specific variables, and expand the research sample to provide a more comprehensive understanding of the determinants of Islamic bank profitability.

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THE EFFECT OF LIFESTYLE AND CAFÉ ATMOSPHERE ON CONSUMERS' INTENTION TO VISIT SEDJENAK CAFÉ IN BENGKULU CITY

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Abstract

This study aims to analyze the influence of lifestyle and cafe atmosphere on consumer visit intention at Cafe Sedjenak in Bengkulu City, both partially and simultaneously. The research is motivated by the increasing competition in the culinary industry and changes in consumer behavior in choosing gathering and leisure venues. Cafe Sedjenak in Bengkulu City faces challenges in maintaining consumer visit intention amid the emergence of competitors with diverse concepts and strategies. The study employs a quantitative approach using a survey method involving 140 respondents selected through purposive sampling from the population of Cafe Sedjenak visitors in Bengkulu City. Data were collected using a Likert-scale questionnaire and analyzed through multiple linear regression with the assistance of SPSS version 26. The results of the multiple linear regression analysis show the equation $Y = 1.847 + 0.312X_1 + 0.425X_2$. The analysis indicates that lifestyle and cafe atmosphere have a positive and significant effect on consumer visit intention at Cafe Sedjenak in Bengkulu City. The coefficient of determination (R^2) value of 0.551 indicates that 55.1% of the variation in visit intention can be explained by these two variables, while the remaining 44.9% is influenced by other factors outside the model. The t-test results show that the lifestyle variable has a t-value of 4.657 with a significance level of 0.000, while the cafe atmosphere variable has a t-value of 5.986 with a significance level of 0.000. Both exceed the t-table value of 1.977, indicating that both variables have a significant partial effect. The F-test results yield an F-value of 89.456 with an F-table value of 3.06 and a significance level of 0.000, leading to the conclusion that lifestyle and cafe atmosphere simultaneously have a significant effect on visit intention. These findings emphasize that understanding consumer lifestyle combined with creating an attractive and comfortable cafe atmosphere is a key factor in increasing consumer visit intention at Cafe Sedjenak in Bengkulu City.

Keywords: lifestyle, cafe atmosphere, visit intention, Cafe Sedjenak, Bengkulu

1. Introduction

The development of the culinary industry in Indonesia has experienced significant growth in recent years, particularly in the cafe business sector, which has become one of the most dynamic segments in the food and beverage industry. The cafe business falls into a category of enterprises that continues to experience an increase in the number of business operators in line with changes in community consumption patterns that increasingly emphasize experience and lifestyle (Sihombing & Maryono, 2022). Cafes no longer merely serve as places to enjoy food and beverages but have also evolved into spaces for social interaction, working (work from cafe), discussion, and have become part of the lifestyle of urban communities, particularly the younger generation.

In the study of consumer behavior, one factor that plays a role in influencing visit decisions is lifestyle. Lifestyle describes a person's living pattern as reflected in the activities, interests, and opinions of individuals in their daily lives. According to Kotler and Keller (2016), lifestyle is a person's pattern of living in the world expressed through activities, interests, and opinions that indirectly influence one's consumption behavior. Lifestyle also reflects how a person uses their time and money in choosing products or places that align with their preferences and

adopted values. Consumers with modern lifestyles tend to choose cafes that can support social activities and provide experiences consistent with their preferences.

In addition to lifestyle, cafe atmosphere is also an important factor in creating a positive consumer experience. The cafe atmosphere, which includes interior design, lighting, cleanliness, seating comfort, music, and spatial layout, can influence consumers' perception of the quality of service received. Previous research has shown that lifestyle and place atmosphere influence visit decisions and customer satisfaction in cafe and restaurant businesses (Putri & Hidayat, 2022). According to Kotler (2017), atmosphere is a deliberately designed environment to create specific emotional effects on consumers, thereby increasing the likelihood of purchase.

Visit intention is an important indicator in assessing the success of a cafe business because it reflects the behavioral tendency of consumers to visit and use the services offered. According to Kotler et al. (2016), visit intention is a consumer behavioral response that emerges after an evaluation process of experiences and perceptions received, so that visit interest is closely related to both psychological and environmental factors. The higher the consumer visit intention, the greater the opportunity for the cafe to maintain business sustainability through increased customer numbers and consumer loyalty.

In line with this phenomenon, the growth of the cafe business is also clearly visible in Bengkulu City, marked by the increasing number of new cafes emerging in recent years. This condition is influenced by changes in community lifestyle that make cafes a place for social activities, recreation, and informal work. Badan Pusat Statistik (2023) shows that the food and beverage provision sector in Indonesia has experienced fairly consistent positive growth and has become one of the contributors to regional economic growth. The increase in the number of cafe business operators in Bengkulu has subsequently created increasingly intense competition in terms of price, product quality, service, and concepts offered, so that business operators are required to have strategies capable of increasing consumer appeal.

Although various studies have discussed the influence of lifestyle and cafe atmosphere on consumer behavior, most research has focused on major cities or main tourist destinations, while studies specifically examining the influence of these two variables on consumer visit intention at cafes in Bengkulu City remain limited. Furthermore, consumer characteristics in regional areas have different behavioral patterns from consumers in metropolitan cities, both in terms of preferences, purchasing power, and visit motivation. This condition indicates a research gap that needs further examination.

Based on the above description, this research is interested in conducting a study entitled "The Effect of Lifestyle and Cafe Atmosphere on Consumer Visit Intention at Cafe Sedjenak in Bengkulu City," which is important to determine the dominant factors influencing consumer visit decisions. This research focuses on Cafe Sedjenak in Bengkulu City as the research object because this cafe is one of the growing cafes with an attractive atmosphere concept, making it relevant for analysis in the context of consumer behavior.

2. Research Method

2.1. Research Type and Approach

This study employs a quantitative approach with a survey method. The quantitative approach was selected because this research aims to test hypotheses and analyze the influence between variables objectively through numerical data. According to Sugiyono (2021), quantitative research method is a research method used to study specific populations or samples with data collection techniques using research instruments, and data analysis that is statistical in nature to test predetermined hypotheses.

2.2. Operational Definition of Variables

Social The variables in this study consist of:

1. Lifestyle (X_1): The consumer's living pattern reflected in the activities, interests, and opinions of individuals in their daily lives that can influence consumer behavior in choosing places for activities. Indicators: Activity, Interest, and Opinion based on Setiadi (2019).
2. Cafe Atmosphere (X_2): The environmental conditions and atmosphere perceived by consumers while at Cafe Sedjenak in Bengkulu City that can influence the level of comfort and consumer experience during visits. Indicators include: cleanliness, music, aroma, temperature, lighting, color, and display (layout and design) based on Purba (2021).
3. Visit Intention (Y): The tendency or desire of consumers to revisit Cafe Sedjenak in Bengkulu City after obtaining experiences at the cafe. Indicators include: desire to revisit, recommendation to others, positive statements about experiences, and urge to invite others to visit based on Khong et al. (2024).

2.3. Population and Sample

The population in this study is all consumers who have visited Cafe Sedjenak in Bengkulu City. Since the exact population size is unknown, the sampling technique used is non-probability sampling with purposive sampling. The determination of sample size refers to Hair Jr. et al. (2019), who state that for multivariate analysis, the minimum sample size is 5-10 times the number of research indicators. This study has a total of 14 indicators, so the established sample size is $14 \times 10 = 140$ respondents.

The criteria for respondents in this study are: (a) residing in Bengkulu City; (b) having visited Cafe Sedjenak in Bengkulu City; and (c) willing to participate in the research by completing the questionnaire.

2.4. Data Collection Technique

Data collection was conducted using a questionnaire distributed online through Google Form to respondents who met the research criteria. Each statement in the questionnaire was scored from 1 to 5 using a Likert scale, indicating the respondent's level of agreement: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1).

2.5. Data Analysis Technique

Data analysis was performed using SPSS version 26 with the following stages:

1. Validity Test: Using Pearson correlation, with the criterion r calculated $> r$ table (0.166) declared valid.
2. Reliability Test: Using Cronbach's Alpha, with the criterion value > 0.60 declared reliable.
3. Multiple Linear Regression Analysis: Equation $Y = a + b_1X_1 + b_2X_2 + e$.
4. Coefficient of Determination (R^2): Measuring the ability of independent variables to explain the dependent variable.
5. t-test (Partial): Testing the influence of each independent variable individually.
6. F-test (Simultaneous): Testing the influence of independent variables together on the dependent variable.

3. Results And Discussion

3.1. Respondent Characteristics

Based on data collection using questionnaires distributed through Google Form, 140 respondents were obtained. The characteristics of respondents show that male respondents were more numerous, with 72 people (51.4%) compared to 68 female respondents (48.6%). The majority of respondents are students, with 42 people (30.0%), followed by the "Others" group

(housewives and freelancers) with 35 people (25.0%), civil servants with 28 people (20.0%), private employees with 21 people (15.0%), and entrepreneurs with 14 people (10.0%).

The highest visit frequency is 2-3 times with 70 people (50.0%), followed by 1 time with 35 people (25.0%), more than 5 times with 21 people (15.0%), and 4-5 times with 14 people (10.0%). The main purpose of respondents visiting is gathering with friends, with 77 people (55.0%), relaxing with 42 people (30.0%), working with 11 people (7.9%), discussion with 6 people (4.3%), and others with 4 people (2.8%).

This demographic data shows that Cafe Sedjenak has a role as a "third place" or third social space outside home and campus/workplace. The dominance of students and the purpose of gathering with friends indicate that this cafe has successfully positioned itself as a relevant social space for the younger generation in Bengkulu City.

3.2. Validity and Reliability Test Results

The validity test results show that all statement items for the three variables are declared valid. For the Lifestyle variable (X_1), r calculated values range from 0.704 to 0.812. For the Cafe Atmosphere variable (X_2), r calculated values range from 0.728 to 0.794. For the Visit Intention variable (Y), r calculated values range from 0.768 to 0.823. All values exceed the r table value of 0.166, so all instruments are declared valid.

The reliability test results show that all variables have Cronbach's Alpha values above 0.60, namely: Lifestyle (X_1) at 0.912; Cafe Atmosphere (X_2) at 0.925; and Visit Intention (Y) at 0.938. Therefore, all research instruments are declared reliable and suitable for measurement.

3.3. Multiple Linear Regression Analysis Results

Based on the multiple linear regression analysis results, the following equation was obtained:

$$Y = 1.847 + 0.312X_1 + 0.425X_2$$

Interpretation of the regression equation:

- The constant value of 1.847 means that if there are no Lifestyle and Cafe Atmosphere variables, then the Visit Intention value of consumers at Cafe Sedjenak is 1.847.
- The Lifestyle regression coefficient of 0.312 means that every one-unit increase in Lifestyle will increase Visit Intention by 0.312 units, assuming other variables remain constant.
- The Cafe Atmosphere regression coefficient of 0.425 means that every one-unit increase in Cafe Atmosphere will increase Visit Intention by 0.425 units, assuming other variables remain constant.

3.4. Coefficient of Determination (R^2) Results

The determination test results show an R Square value of 0.551 or 55.1%. This indicates that the Lifestyle and Cafe Atmosphere variables together can explain 55.1% of the variation in Consumer Visit Intention at Cafe Sedjenak in Bengkulu City. The remaining 44.9% is influenced by other variables not examined in this study, such as price, product quality, service, location, or other external factors. The Adjusted R Square value of 0.545 shows that after adjustment for the number of independent variables, the model still has good explanatory ability.

3.5. t-test Results (Partial)

The t-test results show:

1. Lifestyle Variable (X_1): t calculated = 4.657 > t table = 1.977 with significance $0.000 < 0.05$. Therefore, H_0 is rejected and H_1 is accepted, meaning that partially, Lifestyle has a positive and significant effect on Visit Intention at Cafe Sedjenak in Bengkulu City.
2. Cafe Atmosphere Variable (X_2): t calculated = 5.986 > t table = 1.977 with significance $0.000 < 0.05$. Therefore, H_0 is rejected and H_2 is accepted, meaning that partially, Cafe Atmosphere has a positive and significant effect on Visit Intention at Cafe Sedjenak in Bengkulu City.

3.6. *F-test Results (Simultaneous)*

The F-test results show an F calculated value of 89.456 > F table 3.06 with significance $0.000 < 0.05$. Therefore, H_0 is rejected and H_3 is accepted, meaning that Lifestyle and Cafe Atmosphere simultaneously have a positive and significant effect on Visit Intention at Cafe Sedjenak in Bengkulu City.

3.7. *Discussion*

3.7.1. *The Effect of Lifestyle on Visit Intention*

The research results show that Lifestyle has a positive and significant effect on consumer visit intention at Cafe Sedjenak in Bengkulu City with t calculated 4.657 > t table 1.977 and significance $0.000 < 0.05$. This finding is consistent with the phenomenon that urban community lifestyle, particularly in Bengkulu, has shifted towards coffee culture. Visiting cafes is not merely an activity of consuming coffee but has become part of identity and social lifestyle.

This result is consistent with the research of Maulana et al. (2022), which states that self-concept and lifestyle have a positive and significant effect on visit intention at tourist destinations in Purwakarta Regency. Although the research object is a tourist destination, the basic concept of consumer behavior remains relevant; that lifestyle is a main driving factor for someone to visit a recreational or entertainment place, including cafes. Additionally, this result also reinforces Setiadi's (2019) finding that lifestyle encompassing one's activities, interests, and opinions greatly influences decisions in choosing places for socializing.

The demographic data of respondents dominated by students and young workers supports this, where they tend to choose places that suit their image or lifestyle. Activities such as gathering with friends, doing assignments, and spending free time at cafes have become an integral part of the younger generation's routine in Bengkulu City. This indicates that Cafe Sedjenak has successfully accommodated the lifestyle needs of its consumers by providing spaces that support various social and productive activities.

3.7.2. *The Effect of Cafe Atmosphere on Visit Intention*

The research results show that Cafe Atmosphere has a positive and significant effect on visit intention with t calculated 5.986 > t table 1.977 and significance $0.000 < 0.05$. Furthermore, Cafe Atmosphere has a more dominant influence compared to Lifestyle on visit intention, as evidenced by the regression coefficient of 0.425 being larger than the Lifestyle coefficient of 0.312.

This can be understood given that items within the Cafe Atmosphere variable such as "the interior design of Cafe Sedjenak looks unique and attractive," "the music played makes the atmosphere more comfortable," and "the color combination provides an aesthetic impression" have high validity values. The results of this study receive strong support from the research of Tondang et al. (2023), which states that cafe atmosphere has a positive and significant effect on consumer visit intention at Dbest Cafe Tuamang. Similarly, the research findings of Faulia et al. (2021) also found that atmosphere significantly affects consumer purchase/visit intention at Kampung Kecil Restaurant in Bengkulu City.

These findings prove that the phenomenon of "cafe atmosphere" as a consumer interest attractor is common and consistent across various locations, including Cafe Sedjenak in Bengkulu City. Therefore, the more comfortable, neat, and attractive the interior design of Cafe Sedjenak, the higher the consumers' desire to come and revisit. Aspects such as environmental cleanliness, appropriate music selection, comfortable lighting, proper room temperature, pleasant aroma, and spatial layout that facilitates consumer movement become crucial factors in shaping positive consumer experiences.

3.7.3. Simultaneous Effect of Lifestyle and Cafe Atmosphere on Visit Intention

Based on the F-test results, an F calculated value of $89.456 > F$ table 3.06 with significance 0.000 was obtained, meaning there is a simultaneous influence between Lifestyle and Cafe Atmosphere on Visit Intention at Cafe Sedjenak in Bengkulu City. The coefficient of determination value of 55.1% shows that both variables together can explain the variation in consumer visit intention substantially.

The results of this simultaneous test are consistent with the research of Tondang et al. (2023), which found that the combination of driving factors together has a positive and significant impact on consumer interest. This confirms that the consumer's decision to visit Cafe Sedjenak is not based on a single factor but is the result of consideration between the suitability of their lifestyle and the comfort of the atmosphere offered by the cafe.

The interaction between lifestyle and cafe atmosphere creates a strong synergy in shaping visit intention. Consumers with modern lifestyles who prioritize social experiences will tend to choose cafes that not only suit their lifestyle preferences but also offer an atmosphere that supports those activities. Cafe Sedjenak, with its attractive atmosphere concept and adequate facilities, has successfully answered this need, thus being able to maintain and increase consumer visit intention amid increasingly intense cafe business competition in Bengkulu City.

4. Conclusion And Recommendations

4.1. Conclusions

Based on the data analysis results and discussion, the following conclusions can be drawn:

1. The Lifestyle variable has a positive and significant effect on consumer visit intention at Cafe Sedjenak in Bengkulu City partially. This is indicated by the t calculated value of $4.657 > t$ table 1.977 and significance $0.000 < 0.05$. The better and more suitable the community lifestyle is with the cafe's existence, the higher the community's interest in visiting Cafe Sedjenak.
2. The Cafe Atmosphere variable has a positive and significant effect on consumer visit intention with a t calculated value of $5.986 > t$ table 1.977 and significance $0.000 < 0.05$. A comfortable cafe atmosphere, neat environment, pleasant music, proper lighting, attractive interior colors, and unique and aesthetic interior design have proven capable of increasing consumer interest and desire to visit. Cafe Atmosphere is the more dominant variable in its influence compared to Lifestyle.
3. Simultaneously, Lifestyle and Cafe Atmosphere have a positive and significant effect on Visit Intention at Cafe Sedjenak in Bengkulu City, as evidenced by F calculated $89.456 > F$ table 3.06 and significance 0.000. The coefficient of determination (R^2) of 0.551 indicates that both variables together can explain 55.1% of the variation in visit intention, while 44.9% is influenced by other factors outside the research model.

4.2. Recommendations

Based on the research results, the following recommendations are made:

1. Cafe Sedjenak management is expected to continue maintaining and improving the quality of the cafe atmosphere by paying attention to aspects such as environmental cleanliness, music selection appropriate to the target market, comfortable lighting, and attractive and aesthetic interior design so that consumers feel at home and want to revisit.
2. Management needs to continue innovating in improving service quality and facilities that support consumer social activities, such as providing comfortable gathering areas, adequate WiFi facilities, and holding attractive events such as live music and open mic, to strengthen Cafe Sedjenak's position as a favorite social space in Bengkulu City.
3. Future research is recommended to add other variables such as price, product quality, service, and location to obtain a more comprehensive picture of the factors influencing consumer visit intention in the cafe industry in Bengkulu City.

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FSN-BASED WAREHOUSE LAYOUT OPTIMIZATION IN A LARGE-SCALE 3PL FMCG ENVIRONMENT: A DUAL-CRITERIA FREQUENCY AND TURNOVER RATIO APPROACH

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Abstract

Warehouse operations play a critical role in ensuring the effectiveness of logistics activities, particularly in third-party logistics (3PL) companies that manage a wide variety of products with different movement characteristics. One of the most crucial warehouse activities is the order-picking process, which contributes significantly to warehouse operating costs and directly impacts customer service performance. An inefficient storage layout can increase the distance traveled by order pickers, prolong order fulfillment times, and reduce overall warehouse productivity. Third-party logistics (3PL) warehouses that manage finished goods in large-scale FMCG environments face increasing operational pressure to improve picking efficiency without additional capital investment. This study addresses a critical gap in the literature: the application of FSN (Fast, Slow, Non-Moving) analysis to a single-client 3PL warehouse with over 40,000 pallet positions—a scale far larger than that reported in previous studies. Unlike previous studies that relied solely on the Turnover Ratio (TOR) as a single criterion, this study proposes a dual-criterion approach that integrates picking frequency and TOR to capture both visit intensity and throughput volume simultaneously. Data was extracted from the SAP system during a 131-day observation period (August 1 – December 9, 2025), covering 331,122 warehouse tasks across three storage areas and 176 SKUs. A cross-tabulation analysis of the two classification methods revealed 76 SKUs (43.2%) with inconsistent categorizations, demonstrating that a single-criterion approach is insufficient for high-volume FMCG environments. The dual-criteria method identified 40 SKUs that were consistently classified as Fast Moving and prioritized for the Golden Zone. Simulation results show that the proposed FSN-based layout reduces the average travel distance from 152.28 meters to 102.66 meters per task—a 32.59% increase in efficiency—with a potential time savings of 97,906 minutes over the study period, equivalent to 53 minutes per picker per day across 14 active picking teams. These findings demonstrate that FSN-based layout optimization can substantially improve picking process efficiency in large-scale FMCG 3PL warehouses without the need for additional labor or infrastructure investment.

Keywords: FSN Analysis; Warehouse Layout Optimization; Travel Distance Efficiency; Picking Efficiency; 3PL; FMCG; SAP; Dual-Criteria Classification

1. Introduction

Warehouse management has become a critical competitive factor in modern supply chain operations, particularly for the fast-moving consumer goods (FMCG) industry, where the speed and accuracy of order fulfillment directly impact customer satisfaction (Richards, 2017). Third-party logistics (3PL) providers managing large-scale FMCG warehouses face a dual challenge: maintaining high picking throughput while controlling operating costs, often without the flexibility to invest in additional infrastructure or labor.

The primary determinant of picking efficiency is the spatial arrangement of stock-keeping units (SKUs) relative to the outbound staging area. When high-frequency items are stored far from the staging area, pickers must travel unnecessary distances. This accumulates significant time waste across thousands of daily warehouse tasks. This phenomenon, which is well-documented in warehouse management literature (Frazelle, 2016; Bartholdi & Hackman,

2019), can be systematically addressed through FSN (Fast, Slow, Non-Moving) analysis—a classification method that groups inventory based on movement speed and positions items according to their access priority.

Although proven effective, the application of FSN analysis in the context of warehouse layout has largely been limited to small-scale environments such as maintenance parts warehouses (Basri & Herlina, 2025), general manufacturing warehouses (Aditya & Dahda, 2025), or raw material storage facilities (Fadilah & Nugraha, 2023). Its application to large-scale FMCG 3PL warehouses with more than 40,000 pallet positions and hundreds of SKUs remains largely unexplored. Furthermore, existing research largely relies on TOR as the sole FSN classification criterion, neglecting the critical role of picking frequency and actual visit intensity in driving picker travel load (Frazelle, 2016).

This study addresses both of these gaps through an empirical investigation at a single-client 3PL warehouse that manages finished goods for a dairy FMCG company in West Java, Indonesia. This warehouse, operated by a multinational 3PL provider, consists of three storage areas with different designations, a combined capacity of more than 40,000 pallet positions, and processes finished goods from 176 SKUs. By utilizing 131 days of SAP transaction data covering 331,122 warehouse tasks, this study: (1) propose a dual-criteria FSN classification method that combines picking frequency and TOR; (2) identify and quantify classification inconsistencies between single-criteria and dual-criteria approaches; (3) design proposed FSN-based layouts for each storage area; and (4) quantify improvements in travel distance efficiency through simulation.

The findings of this study contribute to the warehouse management literature by providing empirical evidence of the effectiveness of FSN on a scale not previously reported, as well as demonstrating the analytical value of combining frequency and TOR criteria in FSN classification for high-volume FMCG environments.

2. Literature review

2.1. Warehouse Layout Optimization

Warehouse layout optimization is a strategic decision with direct implications for operating costs and service quality. Its primary objective is to minimize material handling distances and maximize space utilization, thereby reducing pickers' travel time and increasing order fulfillment speed (Heizer & Render, 2017). In the context of warehousing, the proximity rule—which involves placing high-frequency items closest to the outbound staging area—is the cornerstone of layout design (Hudori & Tarigan, 2019).

Frazelle (2016) emphasizes that “popularity” is defined as the number of visits to a storage location per unit of time and is the most critical slotting indicator in warehouse layout design. This principle forms the basis of the FSN classification method, in which Fast-Moving items are allocated to the Golden Zone (closest to the outbound staging area), Slow-Moving items to the Medium Zone, and Non-Moving items to the storage area farthest from the outbound staging area.

2.2. FSN Classification Methods

FSN analysis classifies inventory into three categories based on turnover rate. The traditional approach uses the Turnover Ratio (TOR) as the primary classification criterion, defined as the ratio of the number of days in the study period to the average holding time (Raja & Sivakumar, 2022). Items with a TOR > 3 are classified as Fast Moving, those with a TOR between 1 and 3 as Slow Moving, and those with a TOR ≤ 1 as Non-Moving (Basri & Herlina, 2025).

However, TOR-based classification captures volume throughput, not visit frequency. In an FMCG environment with many SKUs, where pickers visit storage locations multiple times per day with varying pick quantities, using TOR alone can misclassify items that are frequently visited in small quantities (low TOR) or rarely visited but in large volumes (high TOR). Frazelle (2016) and Richards (2017) argue that picking frequency—the number of order lines or bin visits per period—more accurately reflects the actual travel load imposed on pickers.

Poncotoyo et al. (2024) implemented a frequency-based FSN in a 3PL fashion warehouse and achieved a 23.5% reduction in travel time, while Aditya and Dahda (2025) combined a TOR-based FSN with Class-Based Storage (CBS) in a finished goods manufacturing warehouse to reduce material handling costs by 41.7%. However, no study has examined classification inconsistencies between frequency-based and TOR approaches, nor has any operated on a scale comparable to this study.

2.3. Research Gap

A systematic review of the FSN literature reveals three persistent gaps: (1) most studies apply FSN to maintenance parts or raw materials, with limited application to 3PL finished-goods environments; (2) no studies have examined FSN at the warehouse level for facilities exceeding 40,000 pallet positions with such high daily picking volumes; and (3) no studies have systematically compared frequency-based and TOR-based FSN classifications to identify anomalous SKUs and develop a combined dual-criteria approach. This study addresses all three of these gaps.

3. Methodology

This study employs a quantitative applied research design aimed at evaluating and optimizing the warehouse layout of a large-scale third-party logistics (3PL) facility in West Java, Indonesia. To provide a rigorous and comprehensive assessment of picking efficiency, the methodology integrates historical transaction data analysis, physical spatial measurements, and mathematical simulation. The operational workflow is structured into five sequential operational phases: initial layout evaluation, dual-criteria FSN (Fast, Slow, Non-Moving) inventory classification, cross-tabulation anomaly analysis, proposed layout configuration, and comparative performance simulation. The subsequent subsections elaborate on the theoretical foundations, data collection procedures, and specific analytical formulations utilized to execute this optimization framework.

3.1. Research Design

This study adopts a quantitative applied research design with a comparative-descriptive approach (Sugiyono, 2013). The study compares the performance of the existing warehouse layout with the proposed FSN-based layout through simulations using historical warehouse task data. The methodology was carried out in five sequential phases: (1) analysis of the existing layout; (2) dual-criteria FSN classification; (3) cross-tabulation anomaly analysis; (4) design of the proposed layout; and (5) simulation and performance comparison.

3.2. Research Setting and Data Confidentiality

This study was conducted at a single-client 3PL warehouse located in an industrial park in West Java, Indonesia (hereinafter referred to as “Warehouse X”). The warehouse is operated by a multinational third-party logistics (3PL) provider (hereinafter referred to as “Company A”) holding internationally recognized supply chain security and quality management certifications. Company A provides end-to-end logistics services for an FMCG manufacturer in the dairy

sector (hereinafter referred to as “Company B”), which distributes products for both domestic and export markets.

Given the commercial sensitivity of operational data in third-party logistics settings, the identities of both companies have been fully anonymized in this publication, consistent with standard academic practice for research conducted in confidential industry settings (Sugiyono, 2020). Specifically: (1) neither company’s corporate name is disclosed; (2) the exact warehouse location is generalized to “West Java, Indonesia”; (3) operationally identifying details, such as certification portfolios and years of establishment, are omitted; and (4) product brand names are replaced with generic SKU codes while retaining all analytical data. All numerical data—including the number of warehouse tasks, travel distances, inventory levels, and time metrics—are reported in full, as they do not constitute commercially sensitive proprietary information that can be attributed to specific entities. This anonymization does not affect the validity, replicability, or scientific contribution of the research findings.

Warehouse X consists of three storage areas with the following specifications:

Tabel 1. Specifications for Warehouse X Storage Area

<i>Areas</i>	<i>Category</i>	<i>Capacity (Pallet)</i>	<i>(%) Picking Activity</i>
Area 1	Dairy Liquid	15.000	31,25%
Area 2	Dairy Powder	12.000	38,07%
Area 3	Sweetened Condensed Milk	17.000	30,68%
Total	3 Areas	44.000	100%

Source: Data SAP, Gudang X, 2025

3.3. Data Collection

The data was extracted from the SAP system implemented at Warehouse X. The primary dataset includes all warehouse picking tasks recorded during the 131-day observation period from August 1 to December 9, 2025. The dataset includes a total of 331,122 warehouse tasks across the three storage areas, of which 170,493 tasks are associated with 40 SKUs that are consistently classified as Fast Moving using a dual-criteria classification and are used as the primary dataset for travel distance analysis. The 176 SKUs studied are distributed as follows: 55 SKUs in Area 1, 67 SKUs in Area 2, and 54 SKUs in Area 3.

To calculate TOR, daily inventory snapshot data was extracted from SAP for all 131 days to determine the average inventory level per SKU. This Daily Inventory Snapshot approach ensures that TOR values reflect actual inventory fluctuations, rather than static opening or closing stock levels.

3.4 Travel Distance Calculation

The travel distance from each storage bin to the outbound staging area is calculated using the Manhattan (Rectilinear) distance method, which reflects the actual movement patterns of material handling equipment (MHE) confined to fixed aisles:

$$d = |X\_bin| + |Y\_bin|$$

Where X_bin represents the depth penetration distance from the front of the aisle to the storage bin, and Y_bin represents the horizontal distance from the front of the aisle to the midpoint of the outbound staging area. This approach was chosen because it accurately represents the movement patterns of MHE in a multi-aisle racking system (Bartholdi & Hackman, 2019).

The Golden Zone boundary is set at the innermost 30% of the distance range per storage bay, representing the priority storage area for fast-moving SKUs. The Medium Zone covers the

30%–70% range, and the Non-Moving Zone occupies the outermost 30% of the storage depth of each areas.

Zone	AREA 1						AREA 2								AREA 3					
	207.951	175.121	152.821	146.637	137.837	127.25	120.95	114.7	105.8	105.8	114.6	123.4	132.2	141	153.05	162.65	172.25	181.73	201.98	234.88
	188.551	155.721	133.421	127.237	118.437	107.85	101.55	95.3	86.4	86.4	95.2	104	112.8	121.6	133.65	143.25	152.85	162.33	182.58	215.48
	169.151	136.321	114.021	107.837	99.037	88.45	82.15	75.9	67	67	75.8	84.6	93.4	102.2	114.25	123.85	133.45	142.93	163.18	196.08
	149.751	116.921	94.621	88.437	79.637	69.05	62.75	56.5	47.6	47.6	56.4	65.2	74	82.8	94.85	104.45	114.05	123.53	143.78	176.68
	130.351	97.521	75.221	69.037	60.237	49.65	43.35	37.1	28.2	28.2	37	45.8	54.6	63.4	75.45	85.05	94.65	104.13	124.38	157.28

Figure 1. Classification based on Distance to the Shipping Preparation Center.
Red: Gold Zone ($\leq 30\%$ of maximum distance), Yellow: Medium Zone (30–70%), Blue: Stagnant Zone ($> 70\%$). These values represent the Manhattan distance (in meters) from each storage rack to the shipping preparation center.

3.5. Dual-Criteria FSN Classification

This study introduces a dual-criteria FSN classification framework that integrates picking frequency (popularity) and Turnover Ratio (TOR) to address the limitations of single-criterion approaches.

3.5.1. Picking Frequency Classification

The picking frequency (f_i) for each SKU is calculated as the total number of warehouse picking tasks recorded in SAP during the 131-day observation period:

$$f_i = \sum(\text{Picking activities per SKU})$$

SKUs are sorted in descending order based on f_i and assigned a cumulative percentage (C_i) according to the Pareto principle. Classification thresholds: Fast Moving ($C_i \leq 80\%$), Slow Moving ($80\% < C_i \leq 95\%$), and Non-Moving ($C_i > 95\%$).

3.5.2. Turnover Ratio Classification (TOR)

TOR is calculated using the following formula, derived from daily inventory snapshot data:

$$TOR = \frac{\text{Total Outbound Quantity}}{\text{Average Inventory}}$$

Classification criteria: Fast-Moving ($TOR > 3$), Slow-Moving ($1 < TOR \leq 3$), Non-Moving ($TOR \leq 1$).

3.5.3. Dual-Criteria Integration

Results from both classification methods were cross-tabulated for each chamber to identify SKUs with consistent and inconsistent classifications. Only SKUs classified as Fast Moving under both criteria were assigned to the Golden Zone (40 SKUs). SKUs with inconsistent classifications were assigned to a Slow Moving Tier within the Medium Zone, differentiating between those Fast in one method (Tier 1) and Slow in one method (Tier 2). This conservative approach ensures that Golden Zone allocation is defensible under both analytical frameworks.

3.6. Performance Simulation

The proposed layout's performance was simulated by recalculating the travel distance for all 170,493 warehouse tasks attributed to the 40 consistently Fast Moving SKUs, assuming their relocation to the Golden Zone of their respective chambers. The simulation assumed that each task would be fulfilled from the maximum Golden Zone boundary distance if actual bin

assignment data within the Golden Zone were unavailable — a conservative estimation approach that avoids overestimating efficiency gains.

Time savings were calculated by converting distance savings to minutes using the operational speed of electric Reach Truck MHE set at 7 km/h (116.7 m/min), adjusted by a 60% operational correction factor (70 m/min) to account for acceleration, deceleration, and aisle maneuvers.

4. Results and discussions

4.1. Existing Layout Condition

Analysis of the existing layout revealed a significant mismatch between SKU turnover rates and storage location priorities. Of the 170,493 warehouse tasks associated with 40 fast-moving SKUs, only 32,379 tasks (18.99%) were fulfilled from the Golden Zone. The remaining 138,114 tasks (81.01%) were executed from the Medium Zone or Non-Moving Zone, resulting in unnecessarily longer travel distances. Furthermore, 42 Slow/Non-Moving SKUs occupied storage bins in the Golden Zone, effectively relocating Fast-Moving items to more distant locations.

Table 2. Distribution of Fast-Moving SKU Tasks by Zone — Existing Layout

<i>Areas</i>	<i>SKU (Fast)</i>	<i>Total Task</i>	<i>Golden Zone</i>	<i>Medium Zone</i>	<i>Non-Moving Zone</i>
Area 1	14	81.405	16.922 (20,79%)	46.129 (56,67%)	18.354 (22,55%)
Area 2	18	25.247	6.260 (24,80%)	13.094 (51,86%)	5.893 (23,34%)
Area 3	8	63.841	9.197 (14,41%)	29.737 (46,58%)	24.907 (39,01%)
Total	40	170.493	32.379 (18,99%)	88.960 (52,18%)	49.154 (28,83%)

4.2. Dual-Criteria FSN Classification Results

FSN classification based on picking frequency resulted in 55 fast-moving SKUs, 86 slow-moving SKUs, and 35 non-moving SKUs across the entire storage area. Parallel classification based on TOR yielded a different distribution. A cross-tabulation of the two methods revealed 76 SKUs (43.2%) with inconsistent classifications—a finding with significant practical implications.

Table 3. Cross-Tabulation of FSN Classification — Frequency vs. TOR (All Area)

<i>Category TOR \ Category Frequency</i>	<i>Fast Moving (Freq)</i>	<i>Slow Moving (Freq)</i>	<i>Non-Moving (Freq)</i>	<i>Total (TOR)</i>
Fast Moving (TOR)	40	17	19	76
Slow Moving (TOR)	14	9	16	39
Non-Moving (TOR)	1	9	51	61
Total (Frequency)	55	35	86	176

Table 3 presented The diagonal cells (Fast-Fast: 40, Slow-Slow: 9, Non-Non: 51) represent 100 SKUs with consistent classifications across both methods. The 76 anomalous SKUs reveal two distinct behavioral patterns:

(1) Bulk-picking pattern: 19 SKUs are classified as Fast Moving by TOR but as Non-Moving by frequency. These items are picked infrequently but in large volumes per visit, resulting in a high turnover ratio despite low visit frequency. Placing these items in the Golden Zone based solely on TOR would inappropriately prioritize low-frequency items.

(2) High-frequency, low-volume pattern: 14 SKUs were classified as “Fast Moving” by frequency but “Slow Moving” by TOR. These items are picked frequently but in small quantities, imposing a high travel burden on pickers despite low volume throughput—a burden that would be systematically underestimated by a TOR-based classification.

These findings validate H1: frequency-based FSN classification is more representative of actual picker workload than TOR-based classification alone, and the dual-criteria approach captures behavioral patterns that neither single method can identify independently.

4.3. Proposed FSN-Based Layout

The proposed layout places 40 SKUs that are consistently classified as Fast Moving into the Golden Zone of each storage area, relocates 76 SKUs classified as inconsistent to the Medium Zone (differentiated by tier), and positions Non-Moving SKUs in the outermost storage area. The zone boundaries for each storage area are defined as follows:

Table 4. Zone Boundary Definitions per Areas

<i>Areas</i>	<i>Capacity (Pallet)</i>	<i>Golden Zone ($\leq$)</i>	<i>Medium Zone</i>	<i>Non-Moving Zone ($>$)</i>	<i>SKU Fast</i>	<i>SKU Slow</i>	<i>SKU Non- Moving</i>
Area 1	15.000	97,14 m	97,14–160,46 m	160,46 m	14	3	17
Area 2	12.000	62,04 m	62,04–107,16 m	107,16 m	18	4	18
Area 3	17.000	123,28 m	123,28–187,05 m	187,05 m	8	2	16
Total	44.000	—	—	—	40	9	51

4.4. Performance Simulation Results

Simulation of the proposed FSN-based layout against the existing layout demonstrates substantial efficiency gains across all three Areas:

Table 5. Comparative Performance: Existing vs. Proposed FSN-Based Layout (MHE operational speed assumed at 70 m/min (7 km/h adjusted by 60% correction factor).

<i>Areas</i>	<i>Total Task</i>	<i>Tasks Outside Golden Zone (Existing)</i>	<i>Avg Distance Existing</i>	<i>Avg Distance Proposed</i>	<i>Efficiency Gain</i>	<i>Time Saved (Hours)</i>
Area 1	81.405	64.483 (79,2%)	144,57 m	97,14 m	32,8%	731 h
Area 2	25.247	18.987 (75,2%)	96,86 m	62,04 m	36,0%	159 h
Area 3	63.841	54.644 (85,6%)	180,63 m	123,28 m	31,7%	748 h
Total	170.493	138.114 (81,0%)	152,28 m	102,66 m	32,59%	1.632 h

The proposed layout reduces the average travel distance from 152.28 meters to 102.66 meters per task, potentially increasing efficiency by 32.59%; this also validates H2. The total time savings of 97,906 minutes (1,632 hours) over 131 days amounts to 53 minutes per picker per day across 14 active picking teams. This time savings is equivalent to approximately 547 additional picking tasks per day without any increase in labor or capital expenditures.

The 32.59% efficiency improvement can be compared to findings from similar studies: Poncotoyo et al. (2024) reported a 23.5% reduction in travel time at a 3PL fashion warehouse, while Lathif et al. (2025) achieved a 30.1% reduction in travel distance at a general warehouse using CBS-FSN. The superior results in this study are likely due to a higher level of inefficiency in the initial layout (81% of Fast Moving tasks were outside the Golden Zone), which provided greater room for improvement through systematic reallocation.

4.5. Practical Implications

These findings have several practical implications for 3PL warehouse management. First, the dual-criteria FSN approach provides a more reliable basis for slotting decisions in high-volume FMCG environments than either of the single-method approaches. Second, integrating FSN classification results into the SAP Auto-Putaway configuration via the Storage Section and Putaway Control Indicator (PACI) attributes enables automatic and continuous layout optimization without manual intervention. Third, FSN classifications should be reviewed quarterly to accommodate seasonal demand fluctuations, promotional cycles, and changes in SKU lifecycles.

It is recommended that implementation begin with Area 2, as it has the most compact physical dimensions and all 18 Fast Moving SKUs are entirely absent from the Golden Zone—offering the fastest measurable efficiency returns with minimal operational disruption.

5. Conclusion

This study examines FSN-based warehouse layout optimization in a large-scale FMCG 3PL environment, making three major contributions to the literature on warehouse management.

First, this study demonstrates the application and effectiveness of FSN analysis at a warehouse scale with 44,000 pallet positions, 176 SKUs, and 331,122 warehouse tasks—a scale substantially larger than that documented in previous FSN studies. The 32.59% improvement in travel distance efficiency achieved through layout optimization at this scale confirms that FSN-based slotting remains effective in high-volume, high-complexity environments.

Second, the dual-criteria FSN classification framework introduced in this study—which combines picking frequency and TOR—was able to identify 43.2% of SKUs with inconsistent classifications between the two methods. These findings reveal two previously undocumented behavioral patterns in FMCG warehouse picking: bulk-picking items (high TOR, low frequency) and high-frequency, low-volume items (high frequency, low TOR). These patterns cannot be captured by either method alone, demonstrating the analytical superiority of the dual-criterion approach for practical slotting decisions.

Third, the study shows that FSN-based layout optimization provides substantial operational benefits—97,906 minutes in time savings over 131 days, equivalent to 53 minutes per picker per day—without requiring additional labor, infrastructure investment, or system upgrades beyond SAP configuration adjustments.

Future research should extend this framework to multi-client 3PL environments, examine the energy consumption implications of reduced travel distances for electric MHE fleets, and explore dynamic FSN classification models that are updated in real time based on system.

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THE INFLUENCE OF GREEN PRACTICES ON PRO – ENVIRONMENTAL BEHAVIOR : THE MEDIATING ROLE OF GREEN LEADERSHIP

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Abstract

The rising urgency of global environmental issues has prompted organizations to adopt green practices as a strategic method for achieving sustainability and encouraging employees' pro-environmental behavior (PEB). Green practices, which encompass environmental policies, green training, resource conservation, and sustainable operational activities, are anticipated to promote environmentally responsible actions among employees. Nonetheless, prior research has mostly concentrated on the direct impacts of green practices or green leadership on pro-environmental behavior, while there has been limited exploration of the mediating role that green leadership plays in clarifying how organizational environmental initiatives translate into environmental actions by employees. Hence, this study seeks to analyze the effect of green practices on pro-environmental behavior and explore the mediating function of green leadership. A quantitative explanatory survey was conducted by gathering data from 50 participants through a purposive sampling method. The participants included employees who are engaged in executing organizational environmental initiatives. The data were analyzed using Structural Equation Modeling (SEM) with LISREL 8.80 to assess the measurement model, structural relationships, and mediation effects. The results show that environmentally-friendly practices have a substantial and positive impact on green leadership ($\beta = 0.83$; $t = 5.84$) and pro-environmental behavior ($\beta = 0.39$; $t = 2.18$). Additionally, green leadership has a positive effect on pro-environmental behavior ($\beta = 0.52$; $t = 2.89$) and significantly acts as a mediator in the connection between green practices and pro-environmental behavior ($t = 2.59$). These results imply that leadership that values environmental sustainability boosts the effectiveness of organizational green initiatives in encouraging employees' environmentally responsible actions. This research adds to the body of knowledge on sustainability and organizational behavior by expanding on Social Learning Theory, showing that effective green leadership is a crucial factor connecting organizational green initiatives to employees' environmentally friendly actions. In practical terms, the results offer insights for organizations aiming to enhance their sustainability performance by incorporating green leadership training into their environmental management approaches.

Keywords: Green Initiatives; Green Leadership; Eco-Friendly Behavior; Sustainability; Social Learning Theory; Structural Equation Modeling.

DO ESG PERFORMANCE AND CARBON INTENSITY MATTER FOR STOCK PRICES? THE MEDIATING ROLE OF CORPORATE CARBON TRANSITION AND THE MODERATING EFFECT OF REGULATORY PRESSURE

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Abstract

Environmental sustainability has become an increasingly important determinant of corporate competitiveness and market valuation, particularly in carbon-intensive industries such as mining. Despite growing evidence regarding the financial implications of ESG performance and carbon emissions, limited empirical research explains how corporate carbon transition mediates the relationships between ESG Performance, Carbon Intensity, and Stock Price while considering the moderating role of Regulatory Pressure across Southeast Asian mining companies. This study employed a quantitative explanatory research design using secondary data from mining companies listed in Indonesia, Malaysia, Thailand, Vietnam, and the Philippines during the 2019–2024 period. A total of 114 firm-year observations were analyzed using multiple linear regression with IBM SPSS Statistics 26. Mediation analysis was conducted using the Sobel test to evaluate the indirect effect of Corporate Carbon Transition, while Moderated Regression Analysis (MRA) was applied to examine the moderating effect of Regulatory Pressure on the relationship between Corporate Carbon Transition and Stock Price. The empirical findings indicate that ESG Performance and Carbon Intensity significantly improve Corporate Carbon Transition. ESG Performance and Corporate Carbon Transition positively affect Stock Price, whereas Carbon Intensity does not exhibit a significant direct influence on market valuation. Corporate Carbon Transition partially mediates the relationship between ESG Performance and Stock Price but does not mediate the relationship between Carbon Intensity and Stock Price. The moderation analysis further reveals that Regulatory Pressure does not significantly strengthen or weaken the relationship between Corporate Carbon Transition and Stock Price. These findings suggest that investors place greater emphasis on firms' sustainability capabilities and measurable decarbonization achievements than on emission intensity or differences in regulatory environments. This study demonstrates that Corporate Carbon Transition represents a strategic mechanism linking ESG Performance with firm value, while Carbon Intensity primarily serves as a driver of corporate decarbonization rather than market valuation. The insignificant moderating role of Regulatory Pressure suggests that company-specific sustainability capabilities currently play a more influential role than institutional regulatory differences in shaping investor perceptions within Southeast Asia's mining industry. These findings contribute to the sustainable finance literature by providing empirical evidence on the interplay among ESG Performance, Corporate Carbon Transition, Regulatory Pressure, and firm value in emerging markets.

Keywords: ESG Performance, Carbon Intensity, Corporate Carbon Transition, Regulatory Pressure.

1. Introduction

The rapid expansion of sustainable finance has fundamentally transformed the criteria used by investors to evaluate corporate value, particularly in carbon-intensive industries. Financial markets increasingly recognize that environmental risks are capable of altering firms' long-term profitability, cost of capital, and competitive position alongside traditional financial indicators. International commitments toward carbon neutrality and the accelerating implementation of climate policies have intensified investor attention to environmental, social, and governance

(ESG) performance as well as corporate carbon exposure. The Intergovernmental Panel on Climate Change projects that global greenhouse gas emissions must decline by approximately 45% by 2030 to maintain a feasible pathway toward achieving net-zero emissions by 2050, placing substantial pressure on corporations operating in high-emission industries to transform their business models (IPCC, 2023). Institutional investors increasingly integrate ESG ratings and carbon-related information into portfolio allocation because environmental risks are now perceived as material financial risks rather than voluntary corporate responsibilities (Patel & Kumar, 2021; Kulal et al., 2023). Mining companies face particularly strong scrutiny due to their dependence on fossil energy, intensive resource extraction, and substantial greenhouse gas emissions, making sustainability performance an increasingly important determinant of investment attractiveness (Khan et al., 2022; Fikru et al., 2024a, 2024b).

The growing influence of sustainability considerations is evident in the heterogeneous stock market performance of mining companies across Southeast Asia. During the 2019–2023 period, Adaro Energy in Indonesia generated a cumulative stock return of approximately 200.4%, Nickel Asia Corporation in the Philippines achieved 149.1%, and Geo Energy Resources in Singapore recorded 105.9%, while Vale Indonesia produced only 13.4% and Banpu in Thailand experienced a cumulative decline of 25.2%. These contrasting performances emerged despite companies operating within the same regional mining industry, indicating that commodity price movements alone cannot fully explain differences in market valuation. Southeast Asian mining companies also operate under varying environmental conditions and regulatory environments. Indonesia emitted approximately 620 million tons of CO₂ in 2023, Thailand 260 million tons, Malaysia 250 million tons, and the Philippines 142 million tons, with mining activities contributing between 18% and 40% of national emissions depending on the country (Global Carbon Atlas, 2024). Investors increasingly evaluate firms according to the quality of ESG disclosure, carbon exposure, and preparedness for environmental regulation, leading to substantial differences in market responses across firms and jurisdictions (Peng et al., 2023; Reuters, 2023; Reuters, 2025).

ESG performance and carbon intensity have emerged as two of the most influential sustainability indicators affecting investor assessment of corporate value. ESG performance reflects a firm's commitment to environmental stewardship, social responsibility, and governance quality, providing investors with information regarding long-term resilience, operational transparency, and risk management. Empirical evidence generally supports a positive association between ESG performance and firm value, suggesting that firms with stronger sustainability practices are more likely to attract long-term investment and improve investment efficiency (Lourenço et al., 2012; Alsayegh et al., 2022; Dan et al., 2023). Carbon intensity conveys a different signal by measuring the amount of carbon emissions generated per unit of economic output, representing firms' exposure to transition risk and future regulatory costs. Companies with high carbon intensity are increasingly vulnerable to carbon pricing mechanisms, stricter environmental regulations, and changing investor preferences, resulting in less favorable market perceptions (Bolton et al., 2020; Barberà Mariné, 2023; Xie et al., 2023). Investors evaluate ESG performance and carbon intensity simultaneously because strong sustainability commitments may not fully compensate for excessive carbon exposure when assessing long-term corporate prospects within carbon-intensive industries.

Corporate carbon transition provides a strategic pathway through which sustainability performance is translated into financial value. The concept extends beyond carbon emission disclosure by encompassing comprehensive organizational transformation through low-carbon technologies, renewable energy adoption, operational efficiency, cleaner production processes, and long-term decarbonization strategies. Companies demonstrating credible carbon transition initiatives are more likely to reduce transition risk, strengthen environmental legitimacy, and

enhance investor confidence because these actions signal preparedness for increasingly stringent climate policies and evolving market expectations (Li et al., 2015; Xia et al., 2022; Jones et al., 2022; Yue, 2024). Firms that merely disclose environmental commitments without substantive operational transformation often receive weaker market responses, reflecting investors' growing ability to distinguish genuine carbon transition from symbolic sustainability reporting or greenwashing practices (Müller et al., 2020; Homayoun et al., 2023; Othman, 2023).

The effectiveness of corporate carbon transition is closely associated with the regulatory environment in which firms operate. Regulatory pressure has become an essential institutional force encouraging companies to strengthen carbon management practices, improve environmental transparency, and accelerate investments in low-carbon technologies. Southeast Asian countries present considerable variation in climate-related regulations, ranging from Indonesia's implementation of carbon pricing mechanisms and mandatory sustainability disclosure to developing regulatory frameworks in Vietnam, the Philippines, Thailand, and Malaysia. Such differences create heterogeneous institutional environments that influence how investors evaluate corporate sustainability initiatives. Firms operating under more stringent environmental regulations are expected to demonstrate stronger carbon transition strategies because regulatory compliance reduces uncertainty surrounding future environmental liabilities and strengthens the credibility of sustainability commitments (Chen, 2024; Koç & Deran, 2024). Empirical evidence also indicates that environmental responsibility produces greater financial benefits when firms operate within stronger regulatory frameworks that encourage substantive environmental improvements rather than symbolic disclosure (Sohn et al., 2020; Hassan & Romilly, 2018).

Previous studies have primarily examined the direct effects of ESG performance or carbon intensity on corporate financial outcomes, while limited attention has been devoted to understanding the mechanisms and institutional conditions underlying these relationships. Existing research has investigated ESG performance and firm value (Lourenço et al., 2012; Alsayegh et al., 2022), carbon intensity and market performance (Bolton et al., 2020; Xie et al., 2023), and carbon transition strategies in isolation (Li et al., 2015; Xia et al., 2022). Empirical models integrating ESG performance, carbon intensity, corporate carbon transition, and regulatory pressure within a single analytical framework remain scarce, particularly in the mining industry of Southeast Asia. Evidence from emerging economies is also considerably more limited than that from China, Europe, and North America, despite Southeast Asia's strategic importance in supplying critical minerals for the global energy transition and its diverse institutional environments (Pham et al., 2024; Nguyen, 2025; Pratama et al., 2025). This study addresses these gaps by examining the direct effects of ESG performance and carbon intensity on stock prices, investigating the mediating role of corporate carbon transition, and testing the moderating effect of regulatory pressure in mining companies across five Southeast Asian countries.

This study aims to examine the effects of ESG performance and carbon intensity on the stock prices of mining companies across five Southeast Asian countries by investigating the mediating role of corporate carbon transition and the moderating role of regulatory pressure. Specifically, the study evaluates the direct effects of ESG performance and carbon intensity on corporate carbon transition and stock prices, analyzes the indirect effects of these sustainability factors through corporate carbon transition, and assesses whether regulatory pressure strengthens or weakens the relationship between corporate carbon transition and stock prices. The findings are expected to advance the literature on sustainable finance, corporate carbon management, and institutional governance while providing practical implications for corporate

managers, investors, and policymakers in promoting credible low-carbon transformation within carbon-intensive industries.

2. Literature review

2.1. Theoretical Framework

This study is primarily grounded in the Efficient Market Hypothesis (EMH), which argues that stock prices efficiently reflect all publicly available information relevant to corporate value, enabling investors to continuously reassess firms' future prospects based on new economic and non-financial information (Fama, 1970, 1991). Within this perspective, sustainability-related information has become increasingly relevant because climate change, carbon regulation, and environmental responsibility have transformed the criteria used by investors in evaluating long-term corporate performance. ESG performance represents the quality of a firm's environmental, social, and governance practices, providing investors with signals regarding management quality, stakeholder commitment, and organizational sustainability (Lourenço et al., 2012; Alsayegh et al., 2022). Carbon intensity complements ESG performance by measuring the amount of greenhouse gas emissions generated relative to business activities, thereby reflecting firms' environmental efficiency and exposure to transition risks associated with increasingly stringent climate policies (Bolton et al., 2020; Xie et al., 2023). According to Signaling Theory, companies possessing superior ESG performance and lower carbon intensity communicate credible signals regarding their long-term competitiveness and environmental commitment, reducing information asymmetry between managers and investors (Spence, 1973; Li et al., 2015). Stakeholder Theory further explains that firms responding effectively to the expectations of shareholders, governments, financial institutions, local communities, and society strengthen corporate legitimacy while improving long-term organizational value through responsible environmental management (Freeman, 1984; Freeman et al., 2010). These sustainability capabilities facilitate corporate carbon transition, representing firms' strategic transformation toward low-carbon operations through cleaner technologies, operational efficiency, renewable energy adoption, and emission reduction initiatives (Xia et al., 2022; Dan et al., 2023). Institutional Theory extends this explanation by emphasizing that organizational behavior is strongly influenced by institutional pressures arising from environmental regulations, policy enforcement, and societal expectations (DiMaggio & Powell, 1983). Under stronger environmental regulations, firms are encouraged to implement substantive carbon transition strategies rather than symbolic sustainability initiatives, increasing the credibility of corporate environmental commitments in the eyes of investors (Chen, 2024; Koç & Deran, 2024). Regulatory pressure therefore strengthens the influence of corporate carbon transition on stock prices because investors perceive successful decarbonization as more reliable when supported by robust institutional environments. The integration of EMH, Signaling Theory, Stakeholder Theory, and Institutional Theory provides a comprehensive theoretical foundation explaining that ESG performance and carbon intensity influence stock prices both directly and indirectly through corporate carbon transition, while regulatory pressure determines the extent to which successful carbon transition is translated into market valuation.

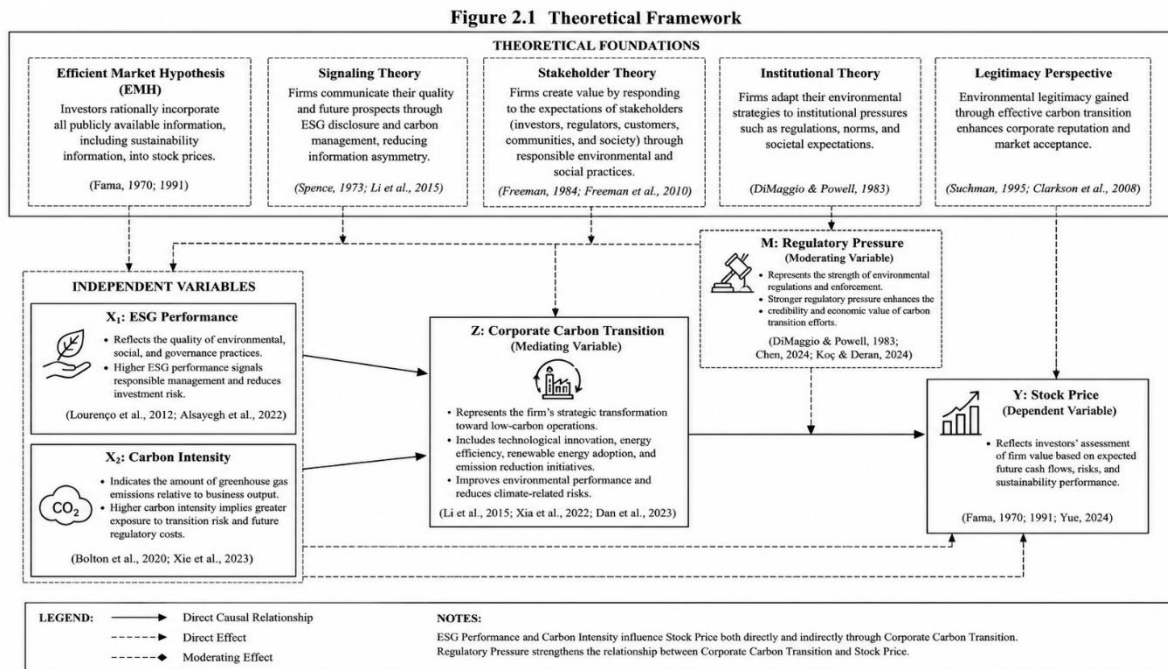


Figure 1. Theoretical Framework

2.2. Conceptual Framework

The conceptual framework of this study proposes that ESG performance and carbon intensity are strategic sustainability indicators that shape corporate value through their influence on corporate carbon transition. ESG performance reflects a firm's ability to integrate environmental stewardship, social responsibility, and sound governance into business operations, strengthening stakeholder trust and organizational legitimacy (Lourenço et al., 2012; Alsayegh et al., 2022). Carbon intensity represents firms' environmental efficiency by indicating the volume of greenhouse gas emissions generated relative to economic output, with lower carbon intensity reflecting superior operational sustainability and lower climate-related financial risk (Bolton et al., 2020; Xie et al., 2023). Firms exhibiting superior ESG performance and lower carbon intensity are expected to possess greater capability to implement effective carbon transition strategies through investments in clean technologies, renewable energy, operational efficiency, and sustainable production systems (Li et al., 2015; Xia et al., 2022). Successful corporate carbon transition reduces environmental uncertainty, improves corporate reputation, enhances investor confidence, and ultimately increases stock prices through improved market valuation (Dan et al., 2023; Yue, 2024). The framework also recognizes that these relationships operate within different institutional environments. Regulatory pressure functions as a moderating variable because stronger environmental regulations increase the credibility, transparency, and economic significance of corporate decarbonization efforts, encouraging investors to assign greater value to firms successfully implementing carbon transition strategies (DiMaggio & Powell, 1983; Chen, 2024; Koç & Deran, 2024). The conceptual framework therefore positions corporate carbon transition as the mediating mechanism connecting ESG performance and carbon intensity with stock prices, while regulatory pressure strengthens the effectiveness of corporate carbon transition in generating higher market valuation.

Table 1. Operational Definition of Variables

Variable	Operational Definition	Indicator
ESG Performance (X₁)	Corporate performance in the Environmental, Social, and Governance dimensions measured using a weighted composite ESG score.	$ESG\ Score = \omega_E \times E + \omega_S \times S + \omega_G \times G$
Carbon Intensity (X₂)	The amount of carbon emissions generated per unit of revenue or total assets, reflecting corporate environmental efficiency.	$Carbon\ Intensity = \frac{Total\ CO_2\ Emissions\ (tons)}{Revenue\ or\ Total\ Assets}$
Corporate Carbon Transition (Z)	Improvement in corporate carbon performance measured by the reduction in carbon intensity relative to the previous period.	$CTI = \frac{CI_{t-1} - CI_t}{CI_{t-1}} \times 100\%$
Stock Price (Y)	The market value of a company's shares measured using the closing stock price listed on the stock exchange.	Closing Price
Regulatory Pressure (M)	The relative strength of environmental regulations in the country where the company operates compared with the global average.	$Regulatory\ Pressure\ Index\ (RPI) = \frac{Country's\ EPI}{Global\ Average\ EPI}$

3. Methodology

3.1. Research Design

This study employed a quantitative explanatory research design to investigate the direct, indirect, and moderating relationships among sustainability variables and corporate market value. Quantitative research, which is grounded in the positivist paradigm, enables researchers to objectively examine causal relationships through numerical data and statistical analysis (Anshori & Iswati, 2019; Ghozali, 2021). The explanatory approach was adopted because the study aims to empirically examine whether ESG performance and carbon intensity influence stock prices, both directly and indirectly through corporate carbon transition, while also evaluating whether regulatory pressure strengthens or weakens the relationship between corporate carbon transition and stock prices. The study utilized balanced panel data consisting of cross-sectional observations of mining companies and time-series observations covering the period 2019–2024. Panel data analysis provides greater estimation efficiency, controls for firm-specific heterogeneity, and captures dynamic changes over time compared with purely cross-sectional or time-series analysis (Baltagi, 2021; Wooldridge, 2020).

3.2. Population and Sample

The population of this study consisted of mining companies operating in Indonesia, Malaysia, Thailand, Vietnam, and the Philippines, identified through the Tracxn Mining Companies Database (July 2025 Edition) and supported by publicly available corporate information. The mining industry was selected because it is characterized by high carbon emissions and increasing exposure to environmental regulations and carbon transition policies. A total sampling (census sampling) technique was employed because the number of eligible companies was relatively limited and all firms satisfying the predetermined research criteria were included in the analysis. Companies were selected based on the availability of complete annual reports, sustainability reports, carbon emission disclosures, ESG information, financial statements, stock prices, and regulatory information throughout the 2019–2024 observation period. Based on these criteria, 19 mining companies were selected as the final research sample.

Table 2. Research Sample

No	Company	Country	Mining Sector	Status

1	Banpu	Thailand	Coal & Renewable Energy	Public
2	Golden Energy & Resources	Singapore/Indonesia	Coal & Energy	Public
3	AlamTri Resources (Adaro)	Indonesia	Coal	Public
4	PT Bumi Resources Tbk	Indonesia	Coal	Public
5	Semirara Mining & Power Corp.	Philippines	Coal & Power	Public
6	PT TIMAH Tbk	Indonesia	Tin	Public
7	PT Freeport Indonesia	Indonesia	Gold & Copper	Private
8	United Tractors Tbk	Indonesia	Coal & Gold	Public
9	Merdeka Copper Gold Tbk	Indonesia	Copper & Gold	Public
10	Bintang Delapan Group	Indonesia	Nickel	Private
11	Delta Dunia Group	Indonesia	Mining Services	Public
12	Bayan Resources	Indonesia	Coal	Public
13	Adaro Andalan Indonesia	Indonesia	Coal	Public
14	Binh Minh Mine	Vietnam	Coal	State-Owned
15	Nui Phao Mine	Vietnam	Tungsten & Copper	Private
16	Khoai Chau II Mine	Vietnam	Coal	State-Owned
17	Vang Danh Mine	Vietnam	Coal	State-Owned
18	Cao Son Mine	Vietnam	Coal	State-Owned
19	Selinsing Gold Mine	Malaysia	Gold	Public

Source: Tracxn Mining Companies Database (2025).

3.3. Data Collection

This study employed secondary panel data collected from publicly available and internationally recognized sources. Financial statements, annual reports, sustainability reports, carbon emission disclosures, and stock prices were obtained from the official websites of each company and their respective stock exchanges. ESG performance data were collected from recognized ESG databases and corporate sustainability disclosures, whereas regulatory information was compiled using the Environmental Performance Index (EPI) and official environmental policy reports published by international organizations. Additional corporate information was obtained from the Tracxn Mining Companies Database. Data collection employed the documentation method, involving systematic identification, verification, extraction, and compilation of quantitative information from corporate publications, complemented by an extensive literature review to support the theoretical framework and operationalization of research variables.

3.4. Data Analysis

The data were analyzed using IBM SPSS Statistics. The analysis began with descriptive statistics to summarize the characteristics and distribution of the research variables. Prior to hypothesis testing, classical assumption tests were conducted to evaluate the validity of the regression model, including the normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test. The direct effects of ESG Performance, Sustainable Growth, and Eco-

Innovation on Corporate Carbon Transition and Stock Price were examined using multiple linear regression analysis. The mediating role of Corporate Carbon Transition was analyzed using path analysis and the Sobel test to determine the significance of indirect effects. The moderating role of Regulatory Pressure was examined using Moderated Regression Analysis (MRA) by incorporating an interaction term between Corporate Carbon Transition and Regulatory Pressure. Hypothesis testing was conducted at a 5% significance level ($\alpha = 0.05$). Model adequacy was evaluated using the coefficient of determination (R^2), adjusted R^2 , F-statistic, and significance values.

Table 3. Data Analysis Procedures

Analysis	Purpose	Statistical Technique (SPSS)
Descriptive Statistics	Describe the characteristics of each variable.	Mean, Minimum, Maximum, Standard Deviation
Classical Assumption Test	Evaluate regression assumptions.	Normality Test, Multicollinearity (Tolerance & VIF), Heteroscedasticity Test, Durbin–Watson Autocorrelation Test
Multiple Linear Regression	Examine the direct effects among variables.	Multiple Regression Analysis
Mediation Analysis	Examine the mediating role of Corporate Carbon Transition.	Path Analysis and Sobel Test
Moderation Analysis	Examine the moderating effect of Regulatory Pressure.	Moderated Regression Analysis (MRA)
Hypothesis Testing	Evaluate the significance of direct, indirect, and moderating effects.	t-test, F-test, Sig. (p-value)
Goodness of Fit	Evaluate the explanatory power of the model.	R^2 , Adjusted R^2

4. Results and discussions

4.1. Descriptive Statistics

Descriptive statistics were conducted to summarize the characteristics and distribution of the research variables, including ESG Performance, Carbon Intensity, Corporate Carbon Transition, Regulatory Pressure, and Stock Price.

Table 4. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation	Coefficient of Variation
ESG Performance (X_1)	114	11.6280	55.8140	32.772316	10.5153740	32.09%
Carbon Intensity (X_2)	114	0.0080	0.6790	0.123412	0.1370459	111.05%
Stock Price (Y)	114	102.0000	7,625.0000	924.061404	1,259.9263870	136.35%
Corporate Carbon Transition (Z)	114	−1.2520	0.8620	−0.041772	0.4733853	−1,133.26%
Regulatory Pressure (M)	114	0.5830	1.0330	0.844325	0.1000965	11.86%

Source: Processed research data (2026).

Table 4 indicates considerable variation across the research variables among mining companies in five Southeast Asian countries. ESG Performance exhibits a moderate level of variability with a coefficient of variation of 32.09%, suggesting relatively consistent sustainability practices across the sampled firms. Carbon Intensity demonstrates substantially higher variability (111.05%), indicating notable differences in carbon emission efficiency among companies. Stock Price also shows considerable dispersion (136.35%), reflecting variations in firm size, financial performance, and investor valuation. Corporate Carbon Transition records a slightly negative mean value (−0.0418), suggesting that, on average, companies experienced limited progress in reducing carbon intensity during the observation period, although substantial differences exist across firms. In contrast, Regulatory Pressure has the lowest variability (11.86%), indicating that environmental regulatory conditions are relatively similar among the five Southeast Asian countries included in the study.

4.2. Classical Assumption Tests

Classical assumption tests were performed before hypothesis testing to ensure that the regression models satisfied the assumptions required for multiple linear regression analysis. The tests consisted of the normality test, heteroscedasticity test, multicollinearity test, and autocorrelation test. Since this study also examined the moderating role of Regulatory Pressure, the classical assumption tests were conducted on the regression models used to estimate the mediating and moderating relationships.

Table 5. Normality Test Results

Regression Model	Test Statistic	Asymp. Sig. (2-tailed)	Decision
ESG Performance & Carbon Intensity → Corporate Carbon Transition	0.104	0.425	Normal
ESG Performance, Carbon Intensity, Corporate Carbon Transition & Regulatory Pressure → Stock Price	0.219	0.903	Normal

Source: Processed research data (2026)

The results presented in Table 4.2 indicate that both regression models satisfy the normality assumption. The first regression model, which explains the influence of ESG Performance and Carbon Intensity on Corporate Carbon Transition, produced a Kolmogorov–Smirnov significance value of 0.425. The second regression model, incorporating Corporate Carbon Transition and Regulatory Pressure in explaining Stock Price, generated a significance value of 0.903. Since both significance values exceed 0.05, the residuals are normally distributed.

Table 6. Heteroscedasticity Test Results

Variable	Model X → Z (Sig.)	Model (X, Z, M) → Y (Sig.)
ESG Performance	0.148	0.132
Carbon Intensity	0.433	0.967
Corporate Carbon Transition	—	0.590
Regulatory Pressure	—	0.055
Interaction (Z × M)	—	0.464

Source: Processed research data (2026).

Table 6 demonstrates that the explanatory variables generally exhibit significance values greater than 0.05, indicating that the regression residuals do not experience heteroscedasticity.

The first regression model records significance values of 0.148 for ESG Performance and 0.433 for Carbon Intensity. In the second model, Carbon Intensity, Corporate Carbon Transition, and the interaction term also produce significance values above the recommended threshold. Although Regulatory Pressure records a significance value of 0.055, the value remains above the 5% significance level, suggesting that heteroscedasticity is not statistically evident.

Table 7. Multicollinearity Test Results

Variable	Tolerance	VIF	Decision
ESG Performance	0.803	1.245	No multicollinearity
Carbon Intensity	0.868	1.151	No multicollinearity
Corporate Carbon Transition	0.865	1.156	No multicollinearity
Regulatory Pressure	0.912	1.097	No multicollinearity
Interaction ($Z \times M$)	0.894	1.119	No multicollinearity

Source: Processed research data (2026).

The multicollinearity test results indicate that all explanatory variables satisfy the recommended tolerance and VIF criteria. Tolerance values remain substantially higher than the minimum threshold of 0.10, whereas all VIF values are close to 1 and well below the maximum acceptable value of 10. These findings indicate that the explanatory variables are not strongly correlated with one another and that each variable contributes unique information to the regression model.

Table 8. Autocorrelation Test Results

Regression Model	Durbin–Watson	Decision
ESG Performance & Carbon Intensity → Corporate Carbon Transition	2.033	No autocorrelation
ESG Performance, Carbon Intensity, Corporate Carbon Transition & Regulatory Pressure → Stock Price	1.309	No serious autocorrelation

Source: Processed research data (2026).

The Durbin–Watson statistics shown in Table 4.5 indicate values of 2.033 for the Corporate Carbon Transition model and 1.309 for the Stock Price model. The first statistic is very close to the ideal value of 2.0, indicating independent residuals without serial correlation. Although the second regression model produces a slightly lower Durbin–Watson value, it remains within the acceptable range and does not indicate serious autocorrelation.

4.3. Regression, Mediation, Moderation, and Hypothesis Testing Results

This section presents the regression, mediation, moderation, and hypothesis testing results examining the relationships among ESG Performance, Carbon Intensity, Corporate Carbon Transition, Regulatory Pressure, and Stock Price. The analysis includes the direct effects of ESG Performance and Carbon Intensity on Corporate Carbon Transition and Stock Price, the mediating role of Corporate Carbon Transition, the moderating role of Regulatory Pressure, and the overall summary of hypothesis testing.

Table 9. Regression Results for Corporate Carbon Transition and Stock Price Models

Variables	Corporate Carbon Transition (Z)			Stock Price (Y)		
	β	t	Sig.	β	t	Sig.
ESG Performance	0.010	2.316	0.022*	24.040	2.287	0.024*
Carbon Intensity	0.735	2.279	0.025*	-187.533	-0.242	0.809
Corporate Carbon Transition	—	—	—	64.989	2.289	0.028*

Table 10. Model Summary

Model	F	Sig.	R ²	Adjusted R ²
ESG Performance & Carbon Intensity → Corporate Carbon Transition	4.254	0.003	0.135	0.103
ESG Performance, Carbon Intensity & Corporate Carbon Transition → Stock Price	10.758	0.000	0.332	0.302

*Note: ***p < 0.001; **p < 0.01; p < 0.05.

Source: Processed research data (2026)

Table 10 shows that ESG Performance and Carbon Intensity both have positive and statistically significant effects on Corporate Carbon Transition, indicating that firms with stronger ESG practices and higher carbon intensity tend to undertake greater carbon transition efforts. ESG Performance exhibits a positive and significant direct effect on Stock Price ($\beta = 24.040$, $p = 0.024$), whereas Carbon Intensity does not significantly influence Stock Price ($\beta = -187.533$, $p = 0.809$). Corporate Carbon Transition positively affects Stock Price ($\beta = 64.989$, $p = 0.028$), suggesting that companies demonstrating stronger carbon transition performance receive higher market valuations. The first regression model is statistically significant ($F = 4.254$, $p = 0.003$) with an Adjusted R² of 0.103, while the second model is also significant ($F = 10.758$, $p < 0.001$) and explains 30.2% of the variation in Stock Price after adjustment for the number of predictors.

Table 11. Mediation Analysis Results

Relationship	Path a	Path b	Direct Effect (c')	Sobel Z	Decision
ESG Performance → Corporate Carbon Transition → Stock Price	0.010	64.989	24.040	2.18	Partial mediation
Carbon Intensity → Corporate Carbon Transition → Stock Price	0.735	64.989	-187.533	1.21	No mediation

Source: Processed research data (2026).

The Sobel test results demonstrate that Corporate Carbon Transition partially mediates the relationship between ESG Performance and Stock Price, as indicated by a Sobel statistic of 2.18, suggesting that improvements in ESG performance enhance firm value partly through stronger carbon transition initiatives. In contrast, the mediation effect is not supported for Carbon Intensity, with a Sobel statistic of 1.21, indicating that carbon transition does not significantly transmit the influence of carbon intensity to market valuation. These findings suggest that investors respond more positively to comprehensive sustainability practices

reflected in ESG performance than to carbon intensity alone, emphasizing the strategic importance of corporate carbon transition as a mediating mechanism.

Table 12. Moderation Analysis Results

Variables	β	Std. Error	t	Sig.	Decision
Corporate Carbon Transition	-1748.274	2605.092	-0.671	0.504	Not Significant
Regulatory Pressure	2348.391	1210.517	1.940	0.055	Not Significant
Corporate Carbon Transition $\times$ Regulatory Pressure	2181.979	2971.712	0.734	0.464	No Moderation

Source: Processed research data (2026).

The moderation analysis indicates that Regulatory Pressure does not significantly moderate the relationship between Corporate Carbon Transition and Stock Price. The interaction term between Corporate Carbon Transition and Regulatory Pressure produces a positive coefficient ($\beta = 2181.979$) but is statistically insignificant ($p = 0.464$). Regulatory Pressure itself also fails to reach the conventional significance level ($p = 0.055$), although its coefficient remains positive. After incorporating the interaction term into the regression model, the direct effect of Corporate Carbon Transition becomes statistically insignificant, indicating that the inclusion of the moderator alters the estimated coefficient without producing a meaningful interaction effect. These findings suggest that differences in environmental regulatory conditions across the sampled Southeast Asian countries are insufficient to strengthen or weaken the influence of corporate carbon transition on stock prices.

Table 13. Summary of Hypothesis Testing

Hypothesis	Relationship	Result
H1	ESG Performance $\rightarrow$ Corporate Carbon Transition	Supported
H2	Carbon Intensity $\rightarrow$ Corporate Carbon Transition	Supported
H3	ESG Performance $\rightarrow$ Stock Price	Supported
H4	Carbon Intensity $\rightarrow$ Stock Price	Not Supported
H5	Corporate Carbon Transition $\rightarrow$ Stock Price	Supported
H6	ESG Performance $\rightarrow$ Corporate Carbon Transition $\rightarrow$ Stock Price	Partial Mediation
H7	Carbon Intensity $\rightarrow$ Corporate Carbon Transition $\rightarrow$ Stock Price	No Mediation
H8	Corporate Carbon Transition $\times$ Regulatory Pressure $\rightarrow$ Stock Price	Not Supported

The hypothesis testing results reveal that five of the eight hypotheses are supported. ESG Performance significantly influences both Corporate Carbon Transition and Stock Price, while Carbon Intensity significantly affects Corporate Carbon Transition but does not directly influence Stock Price. Corporate Carbon Transition positively affects Stock Price and partially mediates the relationship between ESG Performance and market valuation. No mediation effect is observed for Carbon Intensity, and Regulatory Pressure does not moderate the relationship between Corporate Carbon Transition and Stock Price. Overall, these findings indicate that ESG Performance plays a more influential role than Carbon Intensity in enhancing firm value, with Corporate Carbon Transition serving as an important intermediary mechanism, whereas variations in regulatory pressure do not significantly alter this relationship across the sampled mining companies.

4.4. Discussion

The findings indicate that ESG Performance significantly enhances both Corporate Carbon Transition and Stock Price, confirming that comprehensive sustainability management has become an important determinant of corporate competitiveness and investor confidence. Companies with stronger ESG performance tend to possess more effective governance structures, greater transparency, and stronger environmental commitments, enabling them to implement carbon transition strategies more successfully. These findings support Stakeholder Theory, which argues that firms create long-term value by responding to the expectations of multiple stakeholder groups rather than focusing solely on shareholders (Freeman, 1984). They also reinforce Signaling Theory, whereby superior ESG performance functions as a credible market signal regarding managerial quality and future corporate resilience (Spence, 1973). Previous studies similarly report that strong ESG practices improve firm value by reducing information asymmetry, enhancing corporate reputation, and strengthening investor confidence in long-term sustainability strategies (Atif et al., 2022; Lin et al., 2023; Makhdalena et al., 2023).

The analysis further demonstrates that Carbon Intensity positively influences Corporate Carbon Transition but does not significantly affect Stock Price. Companies with higher carbon intensity appear to face stronger incentives to undertake carbon transition because greater emission levels expose them to environmental risks and increasing stakeholder scrutiny. Despite this relationship, investors do not appear to penalize carbon-intensive firms directly through lower stock prices. One possible explanation is that financial markets within Southeast Asia continue to prioritize profitability, commodity price dynamics, and financial performance over current emission intensity. According to the Efficient Market Hypothesis, only information perceived as economically relevant and sufficiently reliable will be incorporated into market prices (Fama, 1970, 1991). Since carbon pricing mechanisms and mandatory climate disclosure regulations remain heterogeneous across Southeast Asian countries, investors may perceive carbon intensity as a long-term operational issue rather than an immediate financial risk. This finding is consistent with studies suggesting that carbon emissions alone do not necessarily determine market valuation unless accompanied by stronger regulatory enforcement or credible decarbonization commitments (Aswani et al., 2021; Barberà Mariné, 2023).

An important contribution of this study lies in demonstrating the mediating role of Corporate Carbon Transition in the relationship between ESG Performance and Stock Price. The Sobel test confirms that Corporate Carbon Transition partially mediates the influence of ESG Performance on firm value, indicating that investors respond not only to sustainability disclosures but also to observable improvements in carbon transition performance. In contrast, Corporate Carbon Transition does not mediate the relationship between Carbon Intensity and Stock Price, suggesting that higher emission intensity alone does not create additional firm value through decarbonization initiatives. These findings extend previous research by identifying Corporate Carbon Transition as an operational mechanism translating ESG strategies into financial outcomes. From the perspective of Signaling Theory, measurable carbon transition activities provide stronger and more credible information than sustainability disclosures alone because they represent concrete managerial actions toward achieving environmental objectives (Spence, 1973; Peng et al., 2023; Dai & He, 2025).

The moderation analysis reveals that Regulatory Pressure does not significantly moderate the relationship between Corporate Carbon Transition and Stock Price. Although the interaction coefficient is positive, its statistical insignificance suggests that differences in environmental regulations across Indonesia, Malaysia, Thailand, Vietnam, and the Philippines are insufficient to alter investor responses to corporate carbon transition initiatives. This finding indicates that capital market participants primarily evaluate firms based on their internal strategic capabilities rather than differences in national environmental policies. The absence of a moderating effect

may also reflect variations in policy implementation, enforcement quality, and institutional effectiveness among Southeast Asian countries. Consequently, carbon transition appears to generate investor confidence primarily through company-specific environmental strategies rather than through the external regulatory environment (Dai & He, 2025; Solomon, 2023).

The findings demonstrate that ESG Performance represents the most consistent sustainability factor influencing both corporate carbon transition and firm value, whereas Carbon Intensity primarily acts as a driver of corporate decarbonization without directly affecting market valuation. Corporate Carbon Transition serves as a significant intermediary linking ESG practices with stock market performance, highlighting the importance of transforming sustainability commitments into measurable environmental outcomes. Regulatory Pressure, despite its theoretical relevance, does not strengthen this relationship within the sampled mining companies, suggesting that voluntary corporate sustainability initiatives currently play a more prominent role than regulatory differences in shaping investor perceptions. These findings contribute to the growing literature on sustainable finance by providing empirical evidence that the financial benefits of sustainability emerge when ESG strategies are translated into credible carbon transition achievements capable of increasing market confidence and long-term shareholder value.

5. Conclusion

This study demonstrates that ESG Performance significantly enhances both Corporate Carbon Transition and Stock Price, whereas Carbon Intensity only influences Corporate Carbon Transition without directly affecting market valuation. Corporate Carbon Transition positively affects Stock Price and partially mediates the relationship between ESG Performance and firm value, indicating that sustainability initiatives generate greater financial benefits when translated into measurable decarbonization outcomes. Conversely, Corporate Carbon Transition does not mediate the relationship between Carbon Intensity and Stock Price. The moderation analysis further reveals that Regulatory Pressure does not significantly influence the relationship between Corporate Carbon Transition and Stock Price, suggesting that differences in environmental regulations across Southeast Asian countries are insufficient to alter investor responses. Overall, the findings emphasize that effective ESG implementation combined with successful carbon transition strategies constitutes a more influential determinant of firm value than carbon intensity alone.

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THE INFLUENCE OF PRODUCT QUALITY AND PERCEIVED VALUE ON THE LOYALTY OF MSME CUSTOMERS IN SEKAYOK DAMAI RAYA (SDR) BENGKAYANG CITY

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Abstrack

This study aims to examine the influence of product quality and perceived value on the Customer Loyalty of Micro, Small, and Medium Enterprises (MSMEs) in Sekayok Damai Raya Square, Bengkayang City. The research method used is quantitative with a multiple linear regression approach. Data were collected from 100 respondents through a questionnaire and analyzed using SPSS software version 16.0. The results of the F test showed an F-count value of 114.590 with a significance level of 0.000, which is smaller than 0.05. This shows that Product Quality and perceived value simultaneously have a significant influence on Customer Loyalty. The results of the t-test showed that the Product Quality had a t-count value of 3.708 with a significance of 0.000, and the Perceived Value had a t-count value of 5.896 with a significance of 0.000. Therefore, both Product Quality and Perceived Value partially have a significant influence on Customer Loyalty. Based on the Standardized Beta Coefficient value, Perceived Value is the most dominant variable that affects Customer Loyalty with a Beta value of 0.541. The Adjusted Squared R-value was 0.696, which means that 69.6% of the variation in Customer Loyalty could be explained by Product Quality and Perceived Value, while the remaining 30.4% was influenced by other variables not included in the study.

Keywords: Product Quality, Perceived Value, Customer Loyalty

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) have an important role in encouraging Indonesia's economic growth through job creation and improving community welfare Nasrida et al., (2023). In Bengkayang Regency, the Sekayok Damai Raya (SDR) Square area is one of the centers of community economic activity, especially for MSMEs in the culinary sector. Although the number of visitors to this area is relatively high, this condition does not necessarily reflect customer loyalty because consumers have many alternatives and easily move to other products if their expectations are not met. Customer loyalty is an important factor for the sustainability of MSMEs because loyal customers tend to make repeat purchases and recommend products to others (Kotler & Keller, 2016).

One of the factors that affect loyalty is product quality. (Andreas & Yuniati, 2016) explained that products that have good quality will provide a positive experience so as to encourage repurchase and build customer loyalty Kotler & Keller, (2016). Research Putri et al., (2025) also proves that product quality has a positive effect on the loyalty of MSME customers. In addition to product quality, perceived value also plays a role in shaping customer loyalty. Zeithaml, (1988) Explain that the perceived value is the consumer's assessment of the benefits received compared to the costs incurred. The higher the value that a customer feels, the more likely it is that the customer will make a repeat purchase and maintain a relationship with the business actor (Budiyo, 2021).

Based on the results of observations in the Sekayok Damai Raya Square (SDR) area, inconsistencies were still found in the taste, portion, and appearance of products. On the other hand, the high number of visitors is more influenced by the function of the area as a public space than loyalty to MSMEs operating in the area. This condition shows the importance of

examining the influence of product quality and perceived value on the loyalty of MSME customers in Sekayok Damai Raya Square (SDR) Bengkayang City. This study aims to analyze the influence of these two variables on customer loyalty as the basis for the preparation of strategies to increase the competitiveness of MSMEs.

2. Literature Review

2.1. Product Quality

Product quality is the ability of a product to meet the needs and expectations of consumers through its characteristics (Kotler & Keller, 2016). Product quality is defined as the overall product or service that impacts its ability to meet stated or implied needs (Suwikromo et al., 2022). The quality of the product is determined by the use, functionality and advantages that can be observed and evaluated by the Customer (Siregar, 2023). Quality products are able to provide value, satisfaction, and positive experiences to customers, increasing the likelihood of repeat purchases and customer loyalty (Kotler & Keller, 2016). Therefore, product quality is one of the main factors that need to be considered by Micro, Small, and Medium Enterprises (MSMEs) in retaining customers in the midst of increasingly competitive business competition (Andreas & Yuniati, 2016; Putri et al., 2025). In this study, product quality is measured using performance, durability, features, aesthetics, and perceived quality indicators that are relevant in the context of MSMEs (Kusuma & Utomo, 2020).

2.2. Perceived value

Perceived value refers to consumer judgment formed from the comparison between the benefits obtained and the costs that must be sacrificed, as a reflection of the consumer's experience in using the product or service (Kawet et al., 2017). Perceived value refers to the consumer's point of view or perception of a product that has been given personally (Vicramaditya, 2021). Perceived value can occur and be observed when the product offered by the manufacturer can be compared to the transaction (Sebastian & Pramono, 2021). The higher the value that the customer feels, the more likely the customer is to make a repeat purchase and maintain a relationship with the business actor (Budiyono, 2021). Research Kawet et al., (2017) It also shows that perceived value has a positive effect on customer loyalty.

2.3. Customer Loyalty

Customer loyalty is a company's effort to develop and build sustainable relationships with customers through the provision of perceived added value (Works, 2020). Customer loyalty is a customer's commitment to continue to choose and purchase products or services on an ongoing basis, despite the consequences that come with that decision (Wicaksono, 2022). Explaining customer loyalty is a condition that reflects the customer's commitment to continue using the product or service, this is a condition that is influenced by consumer satisfaction that arises when expectations for the product can be met. Therefore, customer loyalty needs to be managed in an ongoing manner because it plays a very important role in maintaining the Company's sustainability (Andreas & Yuniati, 2016).

3. Research Methods

The design used in this study uses quantitative methods. Quantitative research is Scientific measures that emphasize the use of numerical data in data collection and processing (Spring, 2023). The type of research used in this study is a type of explanatory research. Explanatory research is a type of research that aims to explain the relationship between variables through hypothesis testing so that the influence of one variable on another variable can be understood empirically (Scott, 2019). The sampling method used in this study is *non-probability sampling*

with *Purposive Sampling*. According to Sigh, (2019) *Purposive Sampling* It is a sample selection technique that is carried out by setting certain criteria, so that the selected respondents are considered to have knowledge and understand the problems being researched. Therefore, this study aims to determine the influence between independent variables and dependent variables. Therefore, the study wanted to test the extent to which product quality, and perceived value affect consumer loyalty.

4. Results and Discussion

4.1. Validity Test

Table 1. Validity Test Results of Product Quality Variables, Perceived Value, and Customer Loyalty

Statement Items	<i>Corrected Item-Total Correlation</i>	Cut-Off Value	Conclusion
KPa1	0.446	0,30	Valid
KPa2	0.597	0,30	Valid
KPa3	0.809	0,30	Valid
KPa4	0.722	0,30	Valid
KPa5	0.750	0,30	Valid
Statement Items	<i>Corrected Item-Total Correlation</i>	Cut-Off Value	Conclusion
Pv1	0.811	0,30	Valid
Pv2	0.802	0,30	Valid
Pv3	0.779	0,30	Valid
Statement Items	<i>Corrected Item-Total Correlation</i>	Cut-Off Value	Conclusion
Lp1	0.790	0,30	Valid
Lp2	0.743	0,30	Valid
Lp3	0.817	0,30	Valid

The validity test is a stage of testing research instruments that aims to ensure that each statement item is able to accurately measure the variables being studied. An instrument is said to be valid if the measurement results obtained are in accordance with the concept to be measured (Sugiyono, (2020). This research was conducted by looking at the value of *Corrected Item-Total Correlation* with the decision-making criteria, If r calculates ≥ 0.30 , then the statement item is declared valid. On the other hand, if r counts < 0.30 items are not declared valid and can be considered for correction or deletion (Ghozali, (2021).

Based on the results of the Item Test on the variables of Product Quality, Perceived Value and Customer Loyalty, each showed an adequate correlation value, so that it was able to represent the measured construct. Thus, all indicators in this research instrument are declared valid and suitable for use as a measuring tool in data collection and further analysis. These results show that each question item is able to measure aspects that are in accordance with the research objectives.

4.2. Reliability Test

Table 2. Reliability Test Results of Product Quality Variables, Perceived Value, and Customer Loyalty

Research Variables	<i>Cornbach's alpha</i>	N of items	Conclusion
Product Quality X1	0.850	5	Reliabel
Perceived value x2	0.897	3	Reliabel

Customer Loyalty Y	0. 889	3	Reliabel

Reliability testing in this study was carried out using coefficients *Cronbach's Alpha*, which aims to determine the level of consistency of research instruments. An instrument is said to be reliable if the value of *Cronbach's Alpha* ≥ 0.60 , because the value indicates that the statement items in the questionnaire have an adequate level of relevance and internal consistency in measuring the research variables Ghozali, (2021).

Based on the results of the reliability test, *Cronbach's Alpha* values for all research variables were above the set criterion limit of 0.60. Thus, all of these values indicate that each item of statements in the questionnaire is consistent and stable, so that the research instrument is declared reliable.

4.3. Normality Test

Table 3. Normality Test Results

N	Mean	Std. deviation	Test Statistic	Asymp Sing (2-Tailed)
100	.0000000	1.23133982	0.172	0.005

Based on the results of the normality test, it is shown that this study involves 100 research samples. Based on the test results, it was obtained with a *signifikansi Asymp Sing (2-Tailed)* by 0.005. The data is declared to be normally distributed if the significance value is greater than 0.05 (Ghozali, 2018). The results of this study prove that the significance value obtained $(0.005) < 0.05$. This indicates that the research data is distributed abnormally. Although the test results show that the data is not normally distributed, at a sizable sample count, deviations from normality are still tolerable as the sample distribution will generally be close to normal. On the other hand, in regression analysis, the main concern is the residual normality, not the normality of each variable used (Ghozali, 2021).

4.4. Multicollinearity Test

Table 4. Multicollinearity Test Results

Variabel	Collinearity Statistics	
	Tolerance	LIVE
Product Quality	0.364	2.749
Perceived value	0.364	2.749

Based on the results of the test, it can be seen that the entire Tolerance value of the two independent variables (Product Quality, and Perceived Value) has a value (0.364, 0.364) greater than 0.10 and the entire VIF value has a value less than 10. So it can be concluded that there is no symptom of multicollinearity that is, there is no correlation relationship between independent variables, so that the regression model built is declared feasible and can be used in future analysis.

4.5. T test (Persial)

Table 5. Results of the t-test (Persial)

Variabel	B	Std Error	T Statistic	Sig Value
Product Quality X1	0.273	0.074	3.708	0.000
Perceived value x2	0.571	0.097	5.896	0.000

Based on the t-test (Persial), the influence of each independent variable can be partially explained on the bound variable. The Product Quality variable (X1) has a regression coefficient value of 0.273 with a significance value of 0.000 and the perceived value (X2) has a regression

coefficient value of 0.571 with a significance value of 0.000. Overall, the results of this t-test (Partial) prove that each individual has been proven to have a positive and significant influence.

4.6. Test F (Stealth)

Table 6. Test F Results (Simultaneous)

Nilai F Statistic	Sig
114,590	0.000a

Based on the table above, an F value of 114,590 with a Significance value of 0.000 was obtained. Referring to the test criterion which states that if the significance value is less than 0.05, then the independent variables together have a significant influence on the bound variables. so it can be concluded that the variables of Product Quality, and Perceived Value simultaneously or together have a positive and significant influence on the bound variables.

4.7. Determination Test R^2

Table 7. R Determination Test Results²

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	0,838a	0,703	0,696	1.244

Based on the results of the determination coefficient test presented, an Adjusted R Square value of 0.696 was obtained. The variables of Product Quality (X1) and Perceived Value (X2) were able to explain or influence 69.6% of the variation of changes that occurred in the bound variables. The remaining 30.4% were influenced or explained by other factors that were not included in this study model.

5. Conclusion

Based on the results of data analysis that has been carried out regarding the influence of Product Quality, Quality and Perceived Value on the Customer Loyalty of MSME Alun-Alun Sekayok Damai Raya (Sdr) in Bengkayang City, several conclusions can be drawn that the Product Quality Variable has a positive and significant effect on the Customer Loyalty of MSMEs (Sdr) in Bengkayang Regency, this means that good and maintained product quality can increase customer loyalty. Meanwhile, the variable Perceived Value by t-test (partial) has been proven to have a positive and significant influence and is the most dominant variable influencing Customer Loyalty. This can be shown from consumers' assessment of the benefits they receive compared to the costs or sacrifices incurred is the main factor that makes them loyal.

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DOES PROFITABILITY CHANGE THE MARKET VALUE OF ENVIRONMENTAL DISCLOSURE AND BOARD GOVERNANCE? EVIDENCE FROM INDONESIAN MINING COMPANIES

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Abstract

The recent focus by investors on environmental, social, and governance (ESG) issues has raised the significance of environmental disclosure and corporate governance in boosting firm value. Yet, there are inconclusive findings from previous studies on the impact of environmental disclosures and board characteristics on firm value and the moderating effect of profitability is not well understood, especially in the context of the mining industry. The purpose of this study is to examine how the variables of Environmental Disclosure and Board of Commissioners Size affect the Firm Value of mining companies listed in Indonesia Stock Exchange in 2021-2024, which is later moderated by the variable of Profitability. The quantitative research design was used and secondary data was collected from annual reports and sustainability reports. The sampling was done purposively, using predetermined criteria. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to analyze the proposed relationships with moderation analysis. The results show that Board of Commissioners Size has a positive effect on Firm Value while Environmental Disclosure has a negative effect on Firm Value. The direct relationship between profitability and Firm Value is not significant, although profitability is significant as a moderator of the two relationships. In particular, profitability is found to moderate the negative reaction of investors to Environmental Disclosure, and weaken the positive investor reaction towards Board of Commissioners Size on firm value. These results indicate that the ability to perform well in the economy changes the meaning given to environmental efforts and company governance structures in the mining world. This study builds upon Agency Theory and Signaling Theory as it shows the relationship between environmental disclosure, corporate governance, and firm value depends on profitability. The results also have practical implications for corporate managers, investors and regulators in designing governance and sustainability strategies that create long-term value for the firm in industries vulnerable to environmental considerations.

Keywords: environmental disclosure, the board of commissioners size, firm value, profitability, and the mining sector

**DO TAX KNOWLEDGE STRENGTHEN THE EFFECTS OF CORE TAX
ADMINISTRATION SYSTEM AND TAX SERVICE QUALITY ON TAXPAYER
COMPLIANCE?
EVIDENCE FROM INDONESIA**

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Abstract

Tax authorities face a major challenge in getting taxpayers to comply with their tax obligations, even though Current efforts in digital transformation in tax administration. While the implementation of Various digital tax systems and enhancements of the tax service quality have been widely promoted. There is limited empirical evidence on the effectiveness of enhancing compliance. Further, there have been few studies addressing how tax knowledge moderates the relationship between social change and behavior. Enhancing the linkage between digital tax administration and taxpayer compliance, and In the case of Indonesia, in particular, with the implementation of the new Core Tax Administration that has been adopted. System (CTAS). This study is aimed at reviewing the effects of the implementation of CTAS and tax. the service quality for taxpayer compliance and to explore if tax knowledge enhances taxpayer compliance. these relationships. The method used was quantitative with data gathered from a survey conducted on the respondents. In the Pasuruan Primary Tax Office (KPP Pratama), there were 400 individual taxpayers registered. Pasuruan). Structural Equation Modeling Partial Least Squares (SEM PLS) was used for data analysis. The results show that the implementation of CTAS, the quality of tax services, and tax knowledge positively and significantly affects taxpayer compliance. Furthermore, The relationships between CTAS implementation, tax and the active involvement of local communities were greatly enhanced by tax knowledge, service quality, and taxpayer compliance. This study is a step towards the integration of the Davis, Ajzen, and Rogers, respectively, are the three theories mentioned in this paragraph. The three theories mentioned in this paragraph are: Technology Acceptance Model, Theory of Planned Behavior, and Compliance Theory. The case of digital tax administration in Indonesia , which shows how tax knowledge is contingent to tax administration. Practically, The results indicate that improving taxpayer education and digital tax literacy is key to Optimizing the effectiveness of tax digitization processes and optimizing voluntary tax compliance on the part of taxpayers. compliance.

Keywords: Core Tax Administration System, tax knowledge, taxpayer compliance, tax service quality

THE INFLUENCE OF DIGITAL FINANCIAL LITERACY, ACCOUNTING INFORMATION, AND WORK MOTIVATION ON THE MANAGERIAL PERFORMANCE OF MSMEs IN MALANG CITY

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Abstract

This study aims to analyze the influence of digital financial literacy, accounting information, and work motivation on managerial performance in culinary MSMEs in Malang City. This research employed a quantitative approach with an associative research design. The population consisted of 16,417 licensed culinary MSMEs in Malang City, with a sample of 100 respondents selected using purposive sampling techniques. Data were collected through questionnaires using a Likert scale and analyzed using the Partial Least Square (PLS) method through SmartPLS software. The results showed that accounting information has a positive and significant effect on managerial performance, indicating that the more relevant, reliable, and timely the accounting information possessed, the better the managerial performance of MSMEs. Work motivation also has a positive and significant effect on managerial performance, demonstrating that intrinsic and extrinsic motivation plays an important role in improving the effectiveness of management functions. However, digital financial literacy does not have a significant effect on managerial performance, indicating that the understanding of digital financial services has not been fully integrated into managerial decision-making practices. Simultaneously, the three variables explain 70.6% of the variation in managerial performance. This study provides an empirical contribution to the development of management accounting literature for MSMEs and serves as a consideration for improving business management quality based on information and work motivation.

Keywords: Accounting Information, Digital Financial Literacy, Managerial Performance, MSMEs, Work Motivation.

1. Introduction

MSMEs (Micro, Small, and Medium Enterprises) have a strategic role in the national economy because they contribute greatly to the Gross Domestic Product (GDP) and labor absorption. Data from the Ministry of Cooperatives and SMEs (2024) shows that MSMEs contribute around 61% to the national GDP and absorb more than 97% of Indonesia's workforce. At the regional level, Malang City is one of the regions with fairly rapid MSME growth, supported by various government programs in the development of digitalization and business management development (BPS Malang City, 2024; Antara East Java, 2025). This condition requires MSME actors to have better managerial skills in order to be able to compete and survive in the midst of competitive market dynamics.

However, the increase in the number and digitalization of MSMEs has not been fully followed by an increase in managerial performance. Various studies show that MSME actors still face obstacles in business management, especially related to digital financial literacy, the use of accounting information, and work motivation. Digital financial literacy is important because it helps business actors understand and manage financial transactions based on digital technology. Alhasnawi (2023) explained that digital financial literacy can increase the effectiveness of financial management, budget planning, and business decision-making more efficiently.

In addition, relevant, reliable, and timely accounting information also plays an important role in supporting the functions of planning, control, and managerial evaluation (Choe, 2004). Meiryani (2021) stated that an integrated accounting information system is able to improve the quality of decision-making and the effectiveness of managerial performance. However, most MSMEs in Indonesia still do not implement formal accounting recording (Narsa & Ismawati, 2019). Research by Sugiastuti et al. (2025) shows that 77.5% of MSMEs do not have financial statements, while Sulistyowati (2017) found that most MSME actors do not understand financial statements adequately. In Malang City, Sudarma and Wulandari (2024) also found limitations in recording transactions, preparing financial statements, and simple financial analysis in MSMEs.

On the other hand, work motivation is also an important factor in determining the success of business management. Herzberg (1966) through a two-factor theory explains that intrinsic motivations such as achievement, recognition, and responsibility are able to improve individual performance. Research by Hasbunallah et al. (2024) and Putra and Suartana (2022) shows that work motivation has a positive effect on work effectiveness and managerial productivity. However, in practice, MSME actors in Malang City still face the problem of low work motivation due to the lack of an award, training, and professional development system (Shobaruddin, 2020; Ridho et al., 2025).

In addition to motivation issues, low digital literacy is also an obstacle in the development of MSMEs. Shobaruddin (2020) found that most MSME actors in Malang still rely on traditional marketing and have not utilized digital technology optimally. Evelina et al. (2022) and Wahidiyah et al. (2025) also show that MSME actors still have limitations in the use of digital technology and digital payment services due to low digital literacy and limited access to technology.

Based on these conditions, the low managerial performance of MSMEs is suspected to be influenced by the limitations of digital financial literacy, weak utilization of accounting information, and low work motivation. These three factors have the potential to affect the ability of business actors to make effective and data-driven decisions.

Research on digital financial literacy, accounting information, and MSME performance has indeed been widely conducted, but most previous research has only focused on one or two variables (Ratnawati & Soelton, 2022; Alsyifa et al., 2023). Research related to the influence of work motivation in these relationships is also still limited, especially in the context of MSMEs that are adapting to digital transformation. In addition, most of the research was conducted on large companies or formal agencies so that it did not fully represent the condition of MSMEs that have limited resources and simpler organizational characteristics.

Therefore, this research is important to analyze the influence of digital financial literacy, accounting information, and work motivation on managerial performance in MSMEs in Malang City. This research is expected to make an empirical contribution to the development of MSME management literature and become a consideration for local governments and business actors in designing MSME development strategies that are more effective and based on the real needs of business actors.

2. Conceptual Framework

The conceptual framework was prepared to describe the relationship of influence between the free variables in the form of Financial Literacy (X1), Accounting Information (X2), and Work Motivation (X3) to the bound variable, namely Managerial Performance (Y). Each of these variables is assumed to have a contribution to improving or decreasing managerial performance depending on the conditions and supporting factors that surround it.

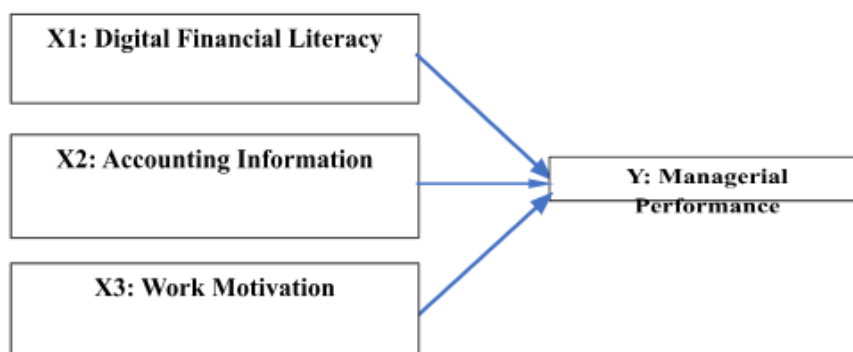


Figure 1. Conceptual Framework

3. Hypothesis Development

3.1. *The Influence of Digital Financial Literacy on Managerial Performance*

Digital financial literacy is an individual's ability to understand and utilize digital-based financial services in business management. According to the Financial Services Authority (2024), digital financial literacy can help business actors make financial decisions effectively. Research by Ratnawati and Soelton (2022) shows that digital financial literacy has a positive effect on the performance of MSMEs because it is able to increase the effectiveness of business management. Based on the theory and previous research, the following hypothesis is formulated:

H1: Digital Financial Literacy has a positive and significant effect on the Managerial Performance of MSMEs.

3.2. *The Influence of Accounting Information on Managerial Performance*

Accounting information is used as a basis in the process of planning, control, and managerial decision-making. Choe (2004) stated that relevant and reliable accounting information can improve the effectiveness of organizational performance. Meiryani's research (2021) also proves that accounting information systems have a positive effect on managerial performance. Based on the theory and previous research, the following hypothesis is formulated:

H2: Accounting Information has a positive and significant effect on the Managerial Performance of MSMEs.

3.3. *The Effect of Work Motivation on Managerial Performance*

Work motivation is an internal and external drive that affects an individual's enthusiasm for work. Herzberg (1966) explained that motivation can improve individual performance in achieving organizational goals. Research by Hasbunallah et al. (2024) and Putra and Suartana (2022) shows that work motivation has a positive effect on managerial performance. Based on the theory and previous research, the following hypothesis is formulated:

H3: Work Motivation has a positive and significant effect on the Managerial Performance of MSMEs.

4. Methodology

4.1. *Types and Locations of Research*

This study uses an associative research type with a quantitative approach. According to Sugiyono (2019), associative research aims to find out the relationship or influence between two or more variables. This study was conducted to analyze the influence of digital financial

literacy, accounting information, and work motivation on managerial performance in MSMEs in the culinary sector in Malang City.

The research location was carried out in Malang City, East Java Province. Malang City was chosen because it is one of the areas with a fairly rapid development of MSMEs, especially in the culinary sector. Based on data from the Malang City Cooperatives, Industry, and Trade Office (Diskopindag) in 2025, there are more than 48,000 MSME actors, most of whom are engaged in the culinary sector. The research is focused on culinary MSMEs that already have business legality in the form of a Business Identification Number (NIB) or a Micro Small Business License (IUMK). The research will be carried out in December 2025 until it is completed.

4.2. Population and Sample

The population in this study is all licensed culinary sector MSMEs in Malang City as many as 16,417 business units (BPS Malang City, 2024). Because the population is quite large, the sample determination was carried out using the Slovin formula with an error rate of 10%, so that a sample number of 100 respondents was obtained. The sampling technique used non-probability sampling with the purposive sampling method. The sample criteria in this study include:

1. Culinary MSMEs that have business legality (NIB/IUMK) and are actively operating in Malang City;
2. Have at least one employee other than the owner;
3. Actively using digital technology in business activities.

4.3. Variable Operational Definition

This study consists of three independent variables and one dependent variable. Independent variables include digital financial literacy (X1), accounting information (X2), and work motivation (X3), while dependent variables are managerial performance (Y). Digital financial literacy is defined as the knowledge, skills, beliefs, attitudes, and behaviors of individuals in managing digital-based finance (OJK, 2024). The indicators used include knowledge, skills, beliefs, attitudes, and behavior. Accounting information is the result of the process of identifying, recording, and communicating economic data used in decision-making (Romney & Steinbart, 2021). These variables are measured through indicators of relevance, reliability, and timeliness of information. Work motivation is defined as a process that explains an individual's intensity, direction, and perseverance in achieving a goal (Robbins & Judge, 2019). Indicators of work motivation include intrinsic motivation, extrinsic motivation, and achievement. Managerial performance is the result of the manager's work in carrying out management functions such as planning, coordination, and supervision (Mahoney et al., 1963). All variables were measured using a five-point Likert scale.

4.4. Sources and Methods of Data Collection

This study uses two types of data sources, namely primary data and secondary data. Primary data was obtained directly through the distribution of questionnaires to owners or managers of MSMEs in the culinary sector in Malang City. Meanwhile, secondary data was obtained from official documents of the Central Statistics Agency (BPS), Malang City Diskopindag, relevant scientific journals, books, and previous research. The data collection method was carried out using a closed questionnaire with a five-point Likert scale, ranging from strongly disagree to strongly agree. Before filling out the questionnaire, the researcher provided an explanation of the research objectives and the meaning of each indicator so that respondents

understood the content of the questions well so that the data obtained was more accurate and valid.

4.5. Data Analysis Methods

The data analysis in this study uses the Partial Least Square-Structural Equation Modeling (PLS-SEM) method with the help of SmartPLS software version 4. The PLS method was chosen because it is able to analyze the relationship between latent variables with a relatively small sample number and does not require normal data distribution. The stages of data analysis include descriptive statistical analysis and inferential statistics. Descriptive analysis was used to describe respondent characteristics and respondents' responses to the research variables through frequency distribution, mean values, and standard deviations. Inferential analysis was carried out through testing of measurement models (outer model) and structural models (inner model). The outer model test included convergent validity, discriminant validity, and construct reliability tests using outer loading, Average Variance Extracted (AVE), cross loading, Cronbach's Alpha, and Composite Reliability values. Meanwhile, the internal model test was carried out through R-Square, F-Square, Q-Square, Goodness of Fit (GoF) tests, and path coefficient testing. Hypothesis testing was carried out using a bootstrapping procedure by looking at t-statistics and p-values. The hypothesis is stated to be accepted if the t-values > 1.96 and the p-values < 0.05 at a significance level of 5%.

5. Results and discussions

5.1. Respondent Characteristics

This research involved 100 MSME actors in the culinary sector in Malang City as respondents. The characteristics of the respondents were analyzed based on the type of business, length of operation of the business, gender, age, and level of education.

Table 1. Respondent Characteristics

Characteristics	Categories	Quantity	Percentage
Type of Business	Food	69	69%
	Drinks	17	17%
	Food and Beverage	14	14%
Long Term of Effort	< 1 Year	23	23%
	1–3 Years	32	32%
	4–6 Years	27	27%
	> 6 Years	18	18%
Gender	Male	42	42%
	Women	58	58%
Age	< 25 Years	22	22%
	25–34 Years	19	19%
	35–44 years old	21	21%
	45–54 years old	15	15%
	≥ 55 Years	23	23%
Education	SD	13	13%
	Junior High School	12	12%
	High School/Vocational School	17	17%
	Diploma	14	14%
	Bachelor	23	23%
	Postgraduate	21	21%

Source: Primary Data (2026)

Based on Table 1, the majority of respondents run a business in the food sector (69%) with a dominant business duration between 1-3 years (32%). Respondents are dominated by women (58%). In terms of age, the distribution of respondents was relatively even, with the age group of ≥ 55 years and < 25 years being the largest group. Meanwhile, most respondents have undergraduate and postgraduate education levels.

5.2. Descriptive Analysis of Research Variables

Descriptive analysis was carried out to find out the description of respondents' perception of the research variables. The assessment uses a Likert scale of 1–5 with categories: very low (1.00–1.80), low (1.81–2.60), fair (2.61–3.40), high (3.41–4.20), and very high (4.21–5.00).

Table 2. Average Values of Research Variables

Variable	Grand Mean	Categories
Digital Financial Literacy (X1)	3,47	Height
Accounting Information (X2)	3,46	Height
Work Motivation (x3)	3,43	Height
Managerial Performance (Y)	3,47	Height

Source: Primary Data (2026)

Based on Table 2, all research variables obtained an average value above 3.41 so that they were included in the high category. The variables of digital financial literacy and managerial performance had the highest average score of 3.47. This shows that MSME actors in Malang City already have a fairly good understanding of digital finance, accounting information, work motivation, and the application of managerial functions in their businesses.

5.3. Partial Least Square (PLS) Analysis

5.3.1. Evaluation of Measurement Model (Outer model)

External model evaluation was carried out to test the validity and reliability of constructs through convergent validity, discriminant validity, composite reliability, and Cronbach's alpha tests.

Table 3. Validity and Reliability Test Results

Variable	AVE	Composite Reliability	Cronbach's Alpha
Accounting Information	0,719	0,926	0,922
Managerial Performance	0,743	0,933	0,930
Digital Financial Literacy	0,717	0,963	0,956
Work Motivation	0,773	0,950	0,941

Source: Primary Data (2026)

Based on Table 3, all variables have an Average Variance Extracted (AVE) value above 0.50 so that they meet the requirements for convergent validity. In addition, the composite reliability value and Cronbach's alpha of the entire construct were above 0.70 which indicates that all research variables are reliable and have good internal consistency. The discriminant validity test also showed that all indicators had the highest cross loading value in their respective constructs as well as an HTMT value < 0.90 . Thus, all constructs in this study are declared valid and reliable to be used in further analysis.

5.3.2. Evaluation of Structural Models (Inner model)

Internal model evaluation is carried out to measure the model's ability to explain the relationship between latent variables.

Table 4. Structural Model Evaluation Results

Criteria	Value
R-Square (R^2)	0,706
R-Square Adjusted	0,697
Q-Square (Q^2)	0,706
Goodness of Fit (GoF)	0,722

Source: Primary Data (2026)

The R^2 value of 0.706 showed that the variables of digital financial literacy, accounting information, and work motivation were able to explain the variation in managerial performance by 70.6%, while the remaining 29.4% were influenced by other variables outside the study. A Q^2 value of 0.706 indicates that the model has strong predictive relevance. In addition, a Goodness of Fit (GoF) value of 0.722 indicates that the research model has an excellent level of fit in explaining the empirical data.

5.4. Hypothesis Test

Hypothesis testing was carried out using the bootstrapping procedure on SmartPLS by looking at the path coefficient, t-statistics, and p-values.

Table 5. *Hypothesis Test Results*

Relationships Between Variables	Path Coefficients	T-Statistics	P-Values	Verdict
Accounting Information → Managerial Performance	0,509	3,886	0,000	Accepted
Digital Financial Literacy → Managerial Performance	0,154	1,614	0,107	Rejected
Work Motivation → Managerial Performance	0,348	2,690	0,007	Accepted

Source: Primary Data (2026)

Based on the results of the hypothesis test, accounting information has a positive and significant effect on managerial performance with a p-value of 0.000 (<0.05). This shows that the better the quality of accounting information owned by MSME actors, the better the managerial performance produced. Work motivation also has a positive and significant effect on managerial performance with a p-value of 0.007 (<0.05). These findings show that both intrinsic and extrinsic motivation are able to encourage an increase in the effectiveness of managerial functions in business management. Meanwhile, digital financial literacy does not have a significant effect on managerial performance because it has a p-value of 0.107 (>0.05). Although the relationship shown is positive, the use of digital financial literacy by MSME actors has not been optimal in supporting managerial decision-making.

5.5. Implications of Research Results on MSME Managerial Performance

Based on the results of the study, it is known that the variables of Accounting Information and Work Motivation have a positive and significant influence on the Managerial Performance of MSMEs in the culinary sector in Malang City, while Digital Financial Literacy does not have a significant effect. These findings show that the success of managerial functions in MSMEs is more influenced by the ability of business actors to utilize accounting information effectively and the existence of a strong motivation for work in running a business. The results of this study are in line with the management information system theory put forward by Laudon and Laudon (2022) and the motivation theory of Robbins and Judge (2019) which affirms that information quality and individual motivation are important factors in increasing the effectiveness of organizational management.

Accounting Information has proven to be the variable that has the greatest influence on Managerial Performance. Relevant, reliable, and timely information helps MSME actors in

planning, supervising, and making business decisions in a more targeted manner. These results reinforce the view of Choe (2004) who stated that the quality of accounting information contributes to the effectiveness of organizational management and the improvement of managerial performance. The findings of this study are also supported by research by Meiryani (2021) and Ardila and Lubis (2025) which show that the application of accounting information systems is able to improve the quality of decision-making and the effectiveness of MSME managerial functions.

Meanwhile, Work Motivation also has a positive and significant effect on Managerial Performance. MSME actors who have high motivation tend to be more active in managing their business, evaluating performance, and developing business development strategies. These results are in line with Herzberg's (1966) motivation theory and Vroom's (1964) expectation theory which explains that both intrinsic and extrinsic motivations can increase the intensity and quality of individual performance. In addition, research by Ardila and Lubis (2025), Putra and Suartana (2022), and Hasbunallah et al. (2024) also proves that work motivation has an important role in increasing the effectiveness of the implementation of managerial functions and business productivity.

On the other hand, Digital Financial Literacy does not show a significant influence on Managerial Performance. Although MSME actors already have an understanding of digital financial services, their use has not been fully integrated into the decision-making process and strategic business management. This finding is different from the research by Ratnawati and Soelton (2022) and Tandilino et al. (2025) which found that digital financial literacy has a positive effect on the performance of MSMEs. However, the results of this study are in line with the findings of Evelina et al. (2022) and Shobaruddin (2020) who show that the use of digital technology in MSMEs is still not optimal so that it has not been able to have a direct impact on improving managerial functions.

Overall, the results of this study confirm that the improvement of MSME managerial performance is not only influenced by technology and digitalization aspects, but also greatly influenced by the quality of information used and individual motivation in running a business. These findings support the view of Van der Hauwaert (2022) who states that the effectiveness of information systems and technology in improving organizational performance is greatly influenced by managerial behavior and organizational readiness in utilizing information strategically.

6. Conclusion

This study aims to analyze the influence of Digital Financial Literacy, Accounting Information, and Work Motivation on Managerial Performance in MSMEs in the culinary sector in Malang City. Based on the results of the analysis using the Partial Least Square-Structural Equation Modeling (PLS-SEM) method, it was obtained that Accounting Information and Work Motivation had a positive and significant effect on Managerial Performance, while Digital Financial Literacy had no significant effect. Accounting Information is the variable that has the strongest influence on Managerial Performance. This shows that the quality of relevant, reliable, and timely information is able to help MSME actors in increasing the effectiveness of business planning, supervision, and decision-making. In addition, Work Motivation is also proven to increase Managerial Performance because business actors who have high motivation tend to be more active and responsible in carrying out managerial functions. On the other hand, Digital Financial Literacy has not been able to have a significant influence on Managerial Performance. These findings show that the understanding of digital financial services has not been fully implemented strategically in business management. Simultaneously, the three independent variables were able to explain 70.6% of

the variation in Managerial Performance, which shows that the research model has a strong ability to explain the phenomenon studied.

6.1. Limitations

This study has several limitations that need to be considered in interpreting the research results.

1. First, the research was only conducted on MSMEs in the culinary sector in Malang City so that the research results could not be generalized to MSMEs in other regions with different business characteristics and levels of digitalization.
2. Second, the number of respondents used was 100 respondents so that the representation of data was still relatively limited even though it had met the requirements of PLS-SEM analysis.
3. Third, this study only uses three independent variables, namely Digital Financial Literacy, Accounting Information, and Work Motivation. In fact, there are still various other factors that may affect the Managerial Performance of MSMEs, such as leadership, organizational culture, business experience, business innovation, and human resource competence.
4. Fourth, research data was obtained through a self-assessment method using questionnaires so that respondents' answers have the potential to contain subjectivity.

In addition, the measurement of Digital Financial Literacy in this study still focuses on the general understanding aspect related to digital financial services and has not measured in depth the intensity of use, digital analysis capabilities, and the effectiveness of the application of digital financial technology in MSME managerial activities.

6.2. Suggestions

Based on the results of the research, MSME actors are advised to improve the quality of accounting information management through more systematic and structured financial recording. The use of digital-based accounting applications can be an alternative to improve the accuracy, reliability, and efficiency of financial information management. In addition, business actors also need to increase work motivation through regular business evaluations, setting business targets, and developing self-capacity in business management.

1. For local governments and MSME coaching institutions, training and mentoring programs are needed that are more focused on strengthening the competence of preparing financial statements and utilizing digital-based accounting information systems. Digital financial literacy programs also need to be directed not only at the aspect of understanding, but also at practical implementation in the decision-making process and daily business management.
2. For the next researcher, it is recommended to expand the scope of the research area and increase the number of respondents so that the results of the study have a better level of generalization. Further research can also add other variables such as leadership, organizational culture, business innovation, and human resource competence. In addition, advanced research can develop a mediation or moderation model to look at the indirect relationship between Digital Financial Literacy and Managerial Performance.

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THE INFLUENCE OF PRODUCT KNOWLEDGE, REPUTATION, AND TRUST ON SHARIA BANK PREFERENCE MEDIATED BY PERCEPTIONS OF FAIRNESS AMONG NON-MUSLIM CUSTOMERS AT THE SUMENEP SUB BRANCH OFFICE

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Abstract

This study examines the influence of product knowledge, reputation, and trust on the preference for choosing Islamic banks, with perceived fairness as a mediating variable among non-Muslim customers of Bank Syariah Indonesia Sumenep Sub-Branch Office. This study employed a quantitative approach using Partial Least Squares–Structural Equation Modeling (PLS-SEM) to analyze data collected from 100 respondents selected through purposive sampling. The results indicate that product knowledge and reputation have a positive and significant effect on the preference for choosing Islamic banks, whereas trust has no significant direct effect. Perceived fairness significantly mediates the relationship between trust and the preference for choosing Islamic banks but does not mediate the relationships between product knowledge and preference or between reputation and preference. These findings highlight the important role of perceived fairness in strengthening customer trust and enhancing non-Muslim customers' preference for Islamic banking services.

Keywords: Product Knowledge, Reputation, Trust, Perception of Fairness, Preference in Choosing Islamic Banks.

1. Introduction

Islamic banking has continued to expand in Indonesia as public awareness of Sharia-compliant financial services and government support for the Islamic finance industry have increased. Although Islamic banks operate based on Islamic principles derived from the Qur'an and Hadith, their services are available to customers regardless of religious background. As a result, Islamic banking is no longer viewed exclusively as a financial institution for Muslims but has also attracted non-Muslim customers. Since non-Muslim customers are not religiously obligated to follow the Islamic financial system, their decisions to use Islamic banking services are generally based on rational considerations, including product quality, service quality, institutional reputation, financial benefits, and transparency rather than religious values (Harahap, 2023; Ardi et al., 2023). This trend indicates a shift in customer preferences and demonstrates that Islamic banks are increasingly recognized as inclusive and competitive financial institutions capable of serving diverse communities (Idris & Amalia, 2022; Paputungan et al., 2022). Information obtained from employees of Bank Syariah Indonesia Sumenep Sub-Branch Office also indicates that many non-Muslim customers choose Islamic banking products because they perceive the profit-sharing system to be more transparent than the interest-based system offered by conventional banks. In addition, the implementation of fairness in Islamic banking services strengthens customers' trust and confidence, which ultimately influences their preference for choosing Islamic banking services (Marzuki & Masyhuri., 2024).

This study aims to determine how non-Muslim customers drive higher loyalty and interest in using Sharia banking products, as well as their preferences when choosing a Sharia bank.

2. Literature Review

2.1. The relationship between product knowledge and preference

Product knowledge plays a crucial role in shaping consumers' rational considerations when selecting Sharia banking services. The clearer the information consumers receive regarding product features, benefits, and mechanisms, the greater the likelihood they will choose those products. Furthermore, the greater the knowledge regarding Sharia principles and the characteristics of Sharia products, the more likely consumers are to form a positive preference for Sharia banks (Devi, 2022; Hasanah & Muhlis, 2023).

Research on this topic suggests that knowledge of Islamic banking products encompasses an understanding of Islamic principles, the underlying contractual mechanisms, and the distinctions between Islamic and conventional banking products. Such knowledge plays a significant role in shaping consumers' attitudes and behavioral responses toward Islamic financial services (Novian et al., 2023; Syahputri & Dalimunte, 2023), found that limited public awareness campaigns and Islamic financial literacy programs have contributed to an inadequate public understanding of Islamic banking concepts. This knowledge gap represents a significant barrier to increasing consumers' willingness to choose Islamic banking products. Therefore, strengthening educational initiatives and financial literacy programs is essential to improving public understanding and encouraging greater adoption of Islamic banking products.

2.2. The relationship between reputation and preference

In the context of Islamic banking, institutional reputation is a critical factor in attracting customers because it reflects the bank's credibility and commitment to complying with Islamic principles. A strong reputation, built on credibility and positive customer experiences, plays a vital role in fostering long-term trust and strengthening customer loyalty (Astrini & Muttaqin, 2023; Ardiansyah, 2025). Moreover, reputation represents a valuable organizational asset that enhances the perceived quality of the products and services offered. The reputation of an Islamic bank is shaped by consistent service quality, organizational achievements, and transparency in its operations. Positive information about the institution strengthens its public image and increases consumers' confidence in choosing Islamic banking products as reliable and trustworthy financial solutions (Setiawan, 2025).

2.3. The relationship between trust and preference

Trust refers to the belief that another party will act honestly, professionally, and reliably. According to Ardiansyah, (2025) customer trust is defined as customers' confidence in a bank's ability to provide services that comply with Islamic principles while maintaining transparency, employee integrity, and the security of customers' funds. Trust serves as a signal of security and confidence in financial transactions; therefore, the stronger customers' trust, the greater their likelihood of developing a positive preference for Islamic banks. Consequently, trust plays a pivotal role in shaping customers' attitudes and decision-making processes, including those of non-Muslim customers who place greater emphasis on professionalism and institutional integrity. Furthermore, trust constitutes a fundamental element in establishing long-term relationships between customers and banks. Within the context of Islamic banking, trust has been shown to significantly influence customer loyalty and banking decisions. (Ardhanari et al., 2022; Nasution, 2022) The higher the level of customers' trust in a bank's competence and integrity, the more likely they are to choose and continue using the financial services provided by the institution.

2.4. The relationship between trust and preference

Perceptions of fairness refer to a customer's assessment of the extent to which a service or transaction is conducted fairly and transparently, without disadvantaging any party. Research by Marzuki & Marzuki, (2024) establishes fairness as a crucial principle in Sharia contracts,

explaining that within the Islamic economic system, fairness encompasses the proportional distribution of benefits based on the contributions of the transacting parties. The study affirms that fairness is a fundamental principle influencing customer satisfaction and confidence in Sharia institutions; it further demonstrates that the perception of fairness plays a vital role in enhancing customer trust, which in turn drives a preference for Sharia financial services. Consequently, the perception of fairness can strengthen the relationship between product knowledge, reputation, and trust regarding the preferences of non-Muslim customers when choosing a Sharia bank.

3. Methodology

This study employed a quantitative approach using an explanatory research (Sugiono, 2017; Sugiono, 2018), design to examine the effects of product knowledge, reputation, and trust on the preference for choosing Islamic banks, as well as the mediating role of perceived fairness. Data were collected through a structured questionnaire administered to 100 non-Muslim respondents in Sumenep Regency who currently use or have previously used the services of Bank Syariah Indonesia.

3.1. Theoretical framework

Ajzen (1991) developed the Theory of Planned Behavior (TPB) to explain the nature of behavioral intention, based on the premise that the stronger the intention to engage in a specific behavior, the greater the likelihood that the individual will actually perform that behavior. Within the TPB framework, the preference for choosing an Islamic bank can be viewed as a form of behavior. Product knowledge is closely linked to the formation of attitude toward the behavior, whereas reputation relates to subjective norms, Trust is strongly associated with perceived behavioral control, in this study, perceptions of fairness can be characterized as a factor that reinforces behavioral beliefs. thus, the TPB serves as a relevant grand theory, as it comprehensively explains the psychological and social processes shaping customer preferences for Islamic banks encompassing individual attitudes, social pressures, and perceptions of control over the behavior.

3.2. Conceptual framework

The framework proposes that product knowledge, reputation, and trust directly influence customers' preferences for choosing Islamic banks. In addition, these three variables are expected to shape customers' perceptions of fairness, which subsequently influences their preference for selecting Islamic banking services. Accordingly, perceived fairness functions as a mediating mechanism through which product knowledge, reputation, and trust indirectly affect customers' preferences. The model suggests that higher levels of product knowledge, stronger corporate reputation, and greater customer trust are likely to enhance perceived fairness, thereby strengthening non-Muslim customers' preferences for choosing Islamic banks, as illustrated in Figure 1.

3.3. Instrumentation

A researcher-made instrument was used to analyze whether the variables of product knowledge, reputation, and trust have a significant influence on the preference for selecting an Islamic bank with the perception of fairness as a mediating variable using the analysis model presented in Figure 2.1.

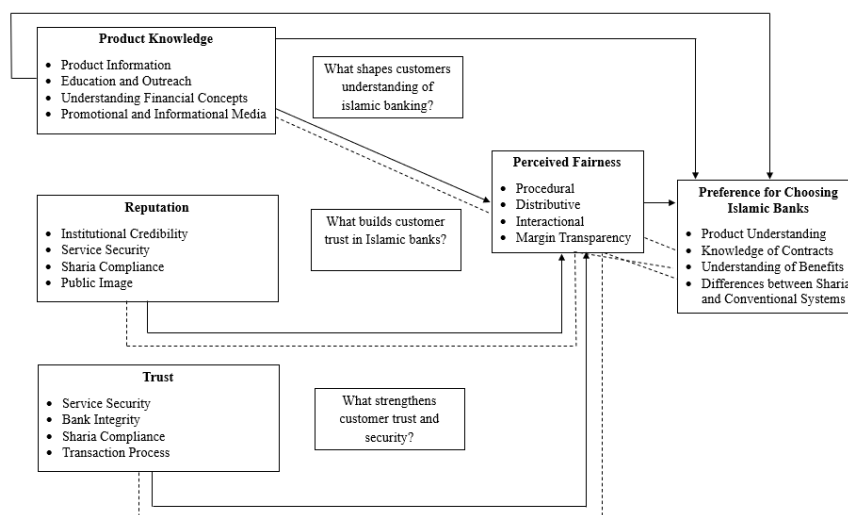


Figure 1. conceptual framework of the research

- > Direct Effect
- - - - -> Mediating Effect

4. Results and discussions

The reliability test results presented in Table 1 indicate that the constructs of Perceived Fairness, Reputation, Trust, and Preference for Sharia Banks satisfied the recommended reliability criteria, with both Cronbach's alpha and Composite Reliability values exceeding the recommended threshold of 0.70, indicating strong internal consistency. In contrast, the Product Knowledge construct demonstrated relatively lower internal consistency, as its Cronbach's alpha value (0.80) was lower than those of the other constructs, although it still exceeded the minimum acceptable threshold of 0.70 and therefore remained within the acceptable range for reliability assessment.

Table 1. Instrument's validity and reliability test

Variable	Cronbach's alpha	Composite reliability
Perception of Fairness	0,832	0,832
Product Knowledge	0,8	0,804
Reputation	0,801	0,807
Trust	0,847	0,849
Choice Preference	0,786	0,79

Table 2. Summary of respondent data regarding research variable descriptives

Score	SD	D	N	A	SA	Mean	Category
	1	2	3	4	5		

1. Choice Preference							
a. Product understanding	3	6	52	28	11	3.38	Enough
b. Knowledge of contracts	3	10	35	36	16	3.52	Enough
c. Understanding of benefits	2	12	27	37	22	3.65	Enough
d. Differences between sharia and conventional systems	3	3	29	29	36	3.92	Enough
Overall mean						14.47	Enough
2. Product Knowledge							
a. Product information	3	8	30	33	26	3.71	Enough
b. Education and outreach	2	8	30	30	30	3.78	Enough
c. Understanding financial concepts	1	13	32	39	15	3.54	Enough
d. Promotional and information media	0	9	23	41	27	3.86	Enough
Overall mean						14.89	Enough
3. Reputation							
a. Institutional credibility	1	6	33	46	14	3.66	Enough
b. Service security	3	3	32	36	26	3.79	Enough
c. Sharia compliance	1	6	39	34	20	3.66	Enough
d. Public Image	0	3	36	36	25	3.83	Enough
Overall mean						14.94	Enough
4. Trust							
a. Service security	1	5	31	37	26	3.82	Enough
b. Bank integrity	1	6	27	42	24	3.82	Enough
c. Sharia compliance	3	8	30	33	26	3.77	Enough

d. Transaction process	0	6	23	35	36	4.01	Enough
Overall mean						15.42	Enough
5. Percelved fairness							
a. Procedural	1	8	35	34	22	3.08	Enough
b. Distributive	5	5	31	33	30	3.86	Enough
c. Internasional	1	5	35	36	23	3.75	Enough
d. Margin transparency	0	5	35	32	28	3.83	Enough
Overall mean						15.12	Enough

Information: (SA) Strongly Agree 2 (D) Disagree	1 (SD) Strongly Disagree 4 (A) Agree	3 (N) Neutral 5

Table 3. Path coefficient test to determine the significance of the relationships between variables

Variable	Original Sample (O)	Sample Mean (M)	STDEV
A. Product knowledge influences preferences	0,209	0,219	0,123
B. Reputation influences preferences	0,230	0,234	0,114
C. Beliefs influence preferences	0,093	0,082	0,142
D. Product knowledge influences the perception of fairness	0,098	0,101	0,082
E. Reputation influences the perception of fairness	0,235	0,239	0,136
F. Trust influences the perception of fairness	0,588	0,584	0,106
G. Perceptions of fairness influence preferences.	0,372	0,375	0,115

Table 3 presents the path coefficient results of the structural model. The results show positive relationships among all variables with different coefficient values. Product knowledge

had a coefficient of 0.209 on the preference for choosing Islamic banks, followed by reputation (0.230) and trust (0.093). Perceived fairness had a coefficient of 0.372 on the preference for choosing Islamic banks. Regarding the relationships with perceived fairness, product knowledge had the lowest coefficient (0.098). Reputation showed a coefficient of 0.235, while trust had the highest coefficient (0.588), indicating that trust has the strongest relationship with perceived fairness. Overall, the results indicate positive relationships among the variables, although the strength of the relationships varies.

Table 4. Hypothesis testing results reveal significant findings regarding the relationships among product knowledge, reputation, and trust and the preference for choosing an Islamic bank, mediated by the perception of fairness.

Variable	T-statistic	P-value	Decision	Information
The influence of product knowledge on preference	1,708	0,044	Hypothesis accepted	Significant
Reputation influences preferences	2,009	0,022	Hypothesis accepted	Significant
Beliefs influence preferences	0,653	0,257	Hypothesis rejected	Not Significant
Product knowledge influences the perception of fairness	1,202	0,115	Hypothesis rejected	Not Significant
Reputation influences the perception of fairness	1,730	0,042	Hypothesis accepted	Significant
Trust influences the perception of fairness	5,522	0,000	Hypothesis accepted	Significant
Perceptions of fairness influence preferences	3,240	0,001	Hypothesis accepted	Significant
The Influence of Product Knowledge and Perceived Fairness on Preference	1,112	0,133	Hypothesis rejected	Not Significant

The Influence of Perceived Fairness Reputation on Preferences	1,312	0,095	Hypothesis rejected	Not Significant
The Influence of Trust and Perceptions of Fairness on Preferences	3,165	0,001	Hypothesis accepted	Significant

As shown in Table 4, the p-values were 0.044 for product knowledge, 0.022 for reputation, 0.001 for perceived fairness, 0.042 for the effect of reputation on perceived fairness, 0.000 for the effect of trust on perceived fairness, and 0.001 for the indirect effect of trust via perceived fairness. All these relationships yielded p-values below the 0.05 significance level, indicating that the hypotheses were supported. Conversely, the p-values exceeded 0.05 for the effect of trust on preference 0.257, the effect of product knowledge on perceived fairness 0.115, the indirect effect of product knowledge via perceived fairness 0.133, and the indirect effect of reputation via perceived fairness 0.095, indicating that these hypotheses were not supported. Overall, these findings indicate that product knowledge, reputation, and perceived fairness significantly influence customer preference in choosing a Sharia bank, whereas perceived fairness mediates only the relationship between trust and customer preference. Thus, the results demonstrate that trust is the strongest factor in enhancing non-Muslim customers' preference for Sharia banks, both directly and through perceived fairness.

5. Conclusion

The findings of this study indicate that product knowledge and reputation are important determinants of non-Muslim customers' preference for choosing Islamic banks. Customers who possess a better understanding of Islamic banking products and perceive the bank as having a positive reputation are more likely to develop stronger preferences for selecting Islamic banking services. In contrast, trust does not directly influence customers' preferences, suggesting that trust alone is insufficient to encourage preference without being supported by other psychological factors. Furthermore, perceived fairness plays a significant role in shaping customer preferences and serves as an effective mediating variable only in the relationship between trust and preference. This finding demonstrates that customers' trust is translated into a stronger preference when banking services are perceived as fair, transparent, and equitable. However, perceived fairness does not mediate the effects of product knowledge and reputation, indicating that these variables directly influence customer preferences without requiring additional psychological mechanisms. Overall, this study confirms the importance of strengthening customers' understanding of Islamic banking products, maintaining a positive institutional reputation, and consistently implementing fair banking practices. These strategies are expected to enhance the attractiveness of Islamic banking among non-Muslim customers and support the sustainable growth of the Islamic banking industry in increasingly diverse markets.

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DIGITAL MARKETING STRATEGY FOR PROCIO SHOES MSME IN BOGOR REGENCY

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) play an important role in Indonesia's economy, but many of them have not yet used digital media effectively. This study looks at the marketing situation of the Procio Shoes MSME in Parakan Village, Ciomas District, Bogor Regency. It identifies the problems the business faces in using digital media, and helps put a digital marketing plan into action using the Shopee e-commerce platform and TikTok. The study uses a hands-on, descriptive approach that includes direct observation, in-depth interviews, and SWOT, IFE, EFE, and IE analysis. The results show that Procio Shoes successfully built a digital presence by creating Shopee and TikTok accounts, along with training in branding, product photography, and managing digital platforms. The IFE score was 3.34 (strong) and the EFE score was 3.32 (strong), placing the business in Quadrant I of the IE Matrix, known as the "Grow & Build" zone. Recommended strategies include using TikTok for branding and Shopee for sales, working with local influencers, and continuing to build digital skills. This program shows that MSME marketing can successfully shift from traditional methods to digital ones, opening wider market opportunities for Procio's local shoe products.

Keywords: Digital Marketing Strategy, MSME, Procio Shoes, Shopee, TikTok, SWOT Analysis

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) continue to play an important role in Indonesia's economy. They are not only a major contributor to Gross Domestic Product (GDP) but also the biggest source of jobs. By 2023, Indonesia had more than 66 million MSMEs. They contributed 61% of GDP (about Rp9,580 trillion) and employed around 117 million people — 97% of the country's total workforce (Raudhatul Ilmi, et al., 2024).

In this age of digital change, MSMEs face growing challenges. Going digital has become something businesses can no longer avoid, especially since the COVID-19 pandemic sped up changes across many industries. According to Datareportal.com's Digital 2025 Indonesia report, Indonesia has 212 million internet users, a penetration rate of 74.6%, and annual growth of 8.7% (We Are Social, 2025). Shopee is the most-used e-commerce platform, chosen by 53.22% of respondents in a 2025 APJII survey (Lestari, 2025). Fashion items, including shoes, are the most commonly bought products online in Indonesia.

Bogor Regency has around 360 MSMEs that make shoes and sandals. One of them is Procio Shoes, located in Parakan Village, Ciomas District. It has been running for more than 10 years under owner Muhamad Samin. Although Procio makes quality products with a distinctive local braiding technique and produces its own sole material, the business has not yet used digital platforms for marketing. It still relies entirely on traditional marketing methods, which limits how many customers it can reach.

Based on this background, the study looks at three main questions: (1) What does Procio Shoes' current marketing strategy look like? (2) What obstacles does it face in using digital media? (3) How can digital marketing through Shopee and TikTok help increase sales and reach more customers?

The goal of this project is to describe Procio Shoes' marketing situation, identify the obstacles to going digital, and directly help put a digital marketing strategy into place with the

business owner. What makes this study new is its hands-on, side-by-side approach — working directly with a rural footwear MSME to build an integrated digital marketing system combining TikTok and Shopee.

2. Overview Of The Village Community

Parakan Village is located in Ciomas District, Bogor Regency, about 8.5 km (around 25 minutes) from central Bogor City. The village has good road access, reliable electricity from PLN, clean water, and fairly stable internet. This solid infrastructure is an important foundation for building a digital marketing strategy.

The footwear industry is one of the main businesses in Parakan Village and plays an important role in the local economy. Production here is still mostly done by hand, which gives the products their unique handmade character. Products range from formal and casual shoes to sports shoes, mainly aimed at middle- and lower-income customers.

Procio Shoes is a footwear and fashion business that has operated for more than 10 years under owner Muhamad Samin. One of its most distinctive features is a braiding technique made by more than five local craftspeople from Ciomas. Procio also produces its own shoe sole material as a side business, which helps lower production costs. The business is financially stable, since production and sales have continued steadily through offline marketing.

The main problem Procio Shoes faces is that it has not yet made good use of digital media for marketing. It has no social media account or online store, so its marketing reach is very limited. This is due to a lack of staff who understand digital marketing, low digital skills among the business owners, and workers being focused mainly on production rather than marketing.

3. Project Method

3.1. Location and Time

The project took place at Procio Shoes in Parakan Village, Ciomas District, Bogor Regency, West Java. It ran in stages from March to September 2025, as part of the "Kami Membantu Usaha Desa 2025" (We Help Village Businesses 2025) program, a collaboration between Pakuan University and Universiti Putra Malaysia (UPM).

3.2. Approach and Method

This study used a descriptive, hands-on, participatory approach. Data was collected through direct field observation, in-depth interviews with the business owner, and documentation. The data was analyzed using SWOT Analysis, the IFE Matrix (Internal Factor Evaluation), the EFE Matrix (External Factor Evaluation), the IE Matrix (Internal-External), and the SWOT Matrix.

3.3. Steps Taken

The first stage was preparation — observing the business and introducing the project to the owner to understand the market conditions and problems (March 2025). The second stage was implementation — building a marketing strategy, creating TikTok and Shopee accounts, taking product photos and videos, uploading a product catalog, and creating promotional content (March–August 2025). The third stage was monitoring and evaluation — regular check-ins, evaluating the results, and writing the final report (September 2025).

Observation means collecting data by watching what happens in the field directly, without the researcher getting involved (Wani, 2024). A digital strategy lets an MSME reach a much wider market without geographic limits by having an online presence (Kurtiyaningsih, et al., 2022). Evaluation is the process of checking how far the goals were met and how good the work was.

4. Results And Discussion

4.1 Procio Shoes' Starting Point

Before the project began, Procio Shoes relied only on traditional marketing — direct sales and word of mouth. Three main problems held the business back.

First, low digital skills among the business owners. Not understanding how to use digital tools made it hard to keep up with modern marketing trends. Second, a lack of staff skilled in digital marketing — running an online marketing effort needs people who can create content and manage social media accounts consistently. Third, relying only on traditional marketing methods meant Procio Shoes couldn't reach a wider market, limiting its potential for sales growth.

4.2. SWOT Analysis

To fully understand Procio Shoes' strategic position, a SWOT analysis was carried out to identify internal and external factors. The results are shown in Table 1 below.

Table 1. SWOT Analysis of Procio Shoes

Strengths	Weaknesses
S1. Procio shoes have strong potential to sell well on Shopee, since fashion/shoes are the most popular category for online shopping. S2. Experienced staff in shoe production. S3. Procio's local uniqueness is appealing for creative social media content. S4. Procio can expand nationally through TikTok and Shopee without needing a physical store. S5. Makes its own shoe sole material to cut costs. S6. The owner actively takes part in MSME forums to share business experience.	W1. Marketing still uses traditional or subcontracted (maklon) methods. W2. No staff available to manage digital marketing. W3. The business has not yet used social media for promotion and branding. W4. No active Shopee account yet.
Opportunities	Threats
O1. Growing consumer interest in local products. O2. Chance to work with local influencers to build brand awareness. O3. Government support and programs to help MSMEs go digital. O4. Shopee and TikTok can reach a much wider market.	T1. Tough competition with other shoe brands on digital platforms. T2. Competing MSMEs already use e-commerce and social media. T3. TikTok and Shopee's algorithms change quickly. T4. Limited digital infrastructure in rural areas. T5. Rising material costs affecting product competitiveness.

Source: Data processed by the researcher, 2026

4.3. IFE and EFE Matrix Analysis

The IFE Matrix was used to assess Procio Shoes' main internal strengths and weaknesses. Five people were interviewed for scoring (NS1–NS5). The results are shown in Table 2.

Table 2. IFE Matrix of Procio Shoes

No.	Internal Factors	Weight	Rating	Score
	STRENGTHS			
S1	Shoe products have strong potential to sell on Shopee (fashion is the favorite online shopping category)	0.12	3.8	0.44
S2	Experienced staff in shoe production	0.11	3.6	0.39
S3	Local uniqueness attracts creative social media content	0.10	3.4	0.35
S4	Combining TikTok and Shopee to expand nationally without a physical store	0.11	3.6	0.39
S5	Making own sole material to cut costs	0.11	3.6	0.39
S6	Active in MSME forums for business growth	0.10	3.4	0.35
	WEAKNESSES			
W1	Marketing is still traditional/subcontracted	0.08	2.8	0.24
W2	No staff to manage digital marketing	0.09	3.0	0.27
W3	Not yet using social media for promotion and branding	0.08	2.6	0.20
W4	No active Shopee account yet	0.10	3.2	0.31
	Grand Total	1.00		3.34

Source: Data processed by the researcher, 2026

The IFE Grand Total of 3.34 falls within the 3.0–4.0 range, showing that Procio Shoes' internal condition is strong. The biggest strength is its potential on Shopee (S1), scoring 0.44. The most notable weakness is not having an active Shopee account (W4), scoring 0.31. The EFE Matrix was used to check how well the business can respond to outside opportunities and threats. The results are shown in Table 3.

Table 3. EFE Matrix of Procio Shoes

No.	External Factors	Weight	Rating	Score
	OPPORTUNITIES			
O1	Growing consumer interest in local products	0.13	3.80	0.49

O2	Chance to collaborate with local influencers to build brand awareness	0.10	3.00	0.31
O3	Government support for MSME digitalization	0.08	2.40	0.20
O4	Shopee and TikTok can reach a wide market	0.13	3.80	0.49
	THREATS			
T1	Tough competition with other shoe brands	0.11	3.20	0.35
T2	Competing MSMEs already use e-commerce	0.12	3.60	0.44
T3	Digital platform algorithm changes affect content reach	0.12	3.60	0.44
T4	Rising material costs affect price competitiveness	0.11	3.20	0.35
T5	No e-commerce account yet	0.09	2.60	0.23
	Grand Total	1.00		3.32

Source: Data processed by the researcher, 2026

The EFE Grand Total of 3.32 also falls within the 3.0–4.0 range, showing that Procio Shoes responds well to outside factors. The biggest opportunities are growing interest in local products (O1) and the reach of Shopee and TikTok (O4), each scoring 0.49.

4.4. IE Matrix Analysis

With an IFE score of 3.34 (High) and an EFE score of 3.32 (High), Procio Shoes falls into Quadrant I of the IE Matrix — the "Grow & Build" zone. This is a very favorable position, where strong internal strengths work well together with a good ability to respond to outside opportunities. The recommended strategy for this zone is to grow aggressively and combine efforts, expanding digital marketing reach through Shopee and TikTok, and increasing the number of products sold online.

4.5. Digital Marketing Strategy (SWOT Matrix)

Based on the IFE, EFE, and IE analysis, four digital marketing strategies were developed using the SWOT Matrix.

SO Strategy — Aggressive

1. Register and improve the Procio Shopee store, highlighting the product's local uniqueness to attract customers who increasingly prefer local products. (Muslimah et al., 2024) found that brand image and word-of-mouth strongly and positively affect the decision to buy local Indonesian products.
2. Create TikTok content that highlights Procio's local uniqueness and team up with local influencers. (Ikhsani Firdaus, et al., 2024) showed that content marketing on TikTok significantly affects purchase decisions, with a calculated t-value of 2.999.

3. Make use of government MSME digitalization programs to support expansion on Shopee and TikTok.
4. Use the cost savings from making sole material in-house as a competitive pricing advantage on digital platforms.

WO Strategy — Improvement

1. Hire or train staff specifically to manage social media and e-commerce, using government MSME digital training programs.
2. Shift from traditional marketing to digital marketing through Shopee and TikTok to reach more customers.
3. Set up an active Shopee account and use promotional features like vouchers, flash sales, and free shipping. (Agustina et al., 2025) showed that online promotions on Shopee significantly affect customers' buying decisions.
4. Partner with local influencers as a way to make up for limited in-house digital staff.

ST Strategy — Diversification

1. Highlight Procio's local uniqueness to stand out from other shoe brands on digital platforms. (Malaika et al., 2025) concluded that a strong brand image significantly affects purchase decisions and can boost a product's competitiveness.
2. Use the MSME forum network to keep updating content strategy in response to changes in TikTok and Shopee's algorithms.
3. Keep production costs low by continuing to make sole material in-house, as protection against rising material prices. (Agustina et al., 2025) found that easy access and attractive prices on e-commerce platforms significantly drive purchase decisions (Arimi Nisa, Towaf Totok Irawan, 2024).

WT Strategy — Defensive

1. Move quickly from traditional to digital marketing before falling further behind competitors.
2. Prioritize developing in-house digital staff so the business doesn't depend on outside help and can adapt more easily to algorithm changes.
3. Keep operations efficient to prepare for rising material costs.
4. Build digital capacity step by step, matching the pace of rural infrastructure development. Fadil Farhan and Ferdisar Adrian (n.d.) found that knowledge and attitude are the strongest factors influencing consumer behavior in digital transactions in Bogor Regency.

4.6. Project Results

All stages of the digital marketing support program were carried out step by step in a structured way. The concrete results are shown in Table 4 below.

Table 4. Comparison of Targets and Achievement Indicators

No.	Target	Achievement Indicator	Status
1.	Shift from traditional to digital marketing	Created a Shopee e-commerce account for digital marketing	Achieved
2.	Upload product catalog to store (5 products)	Only 3 products successfully uploaded to the store	Partly Achieved
3.	Optimize digital marketing features	Shopee features (free shipping, live selling, vouchers) introduced and partly used	Partly Achieved

4.	Create a TikTok social media account	TikTok used for product branding and visual content	Achieved
5.	Improve the owner's ability to document products	Owner can now create product documentation independently (photos, descriptions, specifications)	In Progress
6.	Owner's digital literacy skills	Owner can operate digital devices and apps independently	In Progress
7.	Increase product sales	Owner can process orders independently	In Progress

Source: Data processed by the researcher, 2026

Of the 7 targets set for the program, 2 were fully achieved, 2 were partly achieved, and 3 are still in progress. The two fully achieved targets were creating a Shopee account and a TikTok account, which form the foundation for shifting marketing from traditional to digital. Only 3 of 5 planned products were uploaded to the catalog, and Shopee's marketing features are not yet used consistently. The three remaining targets — product documentation skills, digital literacy, and increased sales — are still in progress.

4.7. Project Evaluation

The clearest result of this program is that the owner's marketing has shifted from being fully traditional to digital. Being on Shopee opens the door for Procio Shoes to reach customers across Indonesia, while being on TikTok boosts brand awareness of the local product among younger generations.

The main challenges faced during the project were: (1) low digital literacy, which slowed down the learning process; (2) a lack of staff skilled in digital marketing, since workers are mostly focused on production; and (3) limited program time, meaning not every part of the digital marketing plan could be carried out in depth. This shows that digital transformation takes real time to adapt to, especially for a business that used to operate the traditional way.

5. Conclusion

Based on the results of the digital marketing support project for Procio Shoes in Parakan Village, Ciomas District, Bogor Regency, several conclusions can be drawn.

First, before the project, Procio Shoes' marketing was fully traditional, marked by low digital literacy, a lack of digital marketing staff, and reliance on direct sales and word of mouth. This limited the product's market reach, even though the product quality was fairly competitive. Second, the main obstacles to using digital media were limited understanding of digital technology, no dedicated staff to manage digital media, and most staff being focused on offline production.

Third, digital marketing through Shopee and TikTok was successfully put in place, shown by the creation of a Shopee e-commerce account and a TikTok social media account that work together as a digital marketing system. Based on the IFE score (3.34) and EFE score (3.32), Procio Shoes falls in Quadrant I of the IE Matrix, the "Grow & Build" zone, which recommends an intensive strategy: using TikTok for branding and Shopee for sales, partnering with local influencers, and continuing to build digital skills.

It is recommended that this program continue with structured, long-term support so that the remaining targets — especially increasing sales through digital platforms — can be reached

soon. Business owners are also encouraged to actively use government MSME digitalization programs to help build strong, lasting digital marketing skills on their own.

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OPTIMIZING INSTAGRAM SOCIAL MEDIA PROMOTION TO INFLUENCE CONSUMERS' PURCHASE DECISIONS FOR ERIGO PRODUCTS

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Abstract

*The increasing use of the internet and social media in Indonesia has changed consumer purchasing behavior and encouraged businesses to adopt digital marketing strategies. This study aims to examine the effect of Instagram promotion on purchasing decisions for Erigo products among Generation Z consumers. A quantitative method with an associative approach was employed using purposive sampling. Data were collected from 100 respondents through questionnaires and analyzed using validity and reliability tests, simple linear regression, the *t*-test, and the coefficient of determination (R^2). The results indicate that Instagram promotion has a positive and significant effect on purchasing decisions ($t = 24.633$; $p < 0.05$). The path coefficient of 0.827 demonstrates a strong positive relationship, while the coefficient of determination ($R^2 = 0.684$) indicates that Instagram promotion explains 68.4% of the variance in purchasing decisions. These findings suggest that attractive visual content, interactive communication, and informative promotional activities on Instagram effectively encourage Generation Z consumers to purchase Erigo products. Therefore, Instagram serves as an effective marketing communication platform for enhancing consumer purchasing decisions.*

Keywords: Instagram promotion; purchasing decision; social media marketing; Erigo; Generation Z.

1. Introduction

The rapid growth of internet usage in Indonesia has accelerated digital transformation across various aspects of society, including consumer purchasing behavior. The increasing internet penetration rate and widespread use of social media have transformed digital platforms from mere communication tools into primary channels for accessing information and conducting shopping activities. Consequently, businesses have shifted their marketing strategies from conventional promotion to digital promotion through social media (APJII, 2024; DataReportal, 2025).

Among various social media platforms, Instagram has become one of the most widely utilized promotional media. The platform offers advantages such as visually appealing content, interactive features, and the ability to establish closer relationships with consumers. These characteristics make Instagram particularly effective for promoting fashion products, which rely heavily on visual appeal and brand image (Tuten, 2024; Chaffey & Ellis-Chadwick, 2022). Promotion through Instagram has the potential to influence consumers' purchase decisions by providing easy access to product information, customer reviews, testimonials, and various promotional offers. Before making a purchase, consumers often search for information on social media to evaluate products that best meet their needs and preferences. According to Kotler and Keller (2022), promotion is an essential element of the marketing mix that serves to inform, persuade, and remind consumers, thereby influencing their purchasing decisions.

Erigo is one of Indonesia's leading local fashion brands that actively utilizes Instagram as a promotional platform to reach young consumers. Through various visual contents and digital marketing activities, Erigo seeks to strengthen its brand image while increasing consumers' purchase intentions. However, the increasingly intense competition among local fashion brands

has raised questions regarding the effectiveness of Instagram promotion in influencing consumer purchasing decisions (Erigo, 2025; Ministry of Industry of the Republic of Indonesia, 2024).

Erigo's sales performance during the 2021–2025 period exhibited fluctuations. Although the company continuously promoted its products through Instagram, sales growth did not occur consistently. This condition indicates that digital promotion does not necessarily lead directly to consumers' purchase decisions and therefore requires empirical investigation. This phenomenon is consistent with Kotler and Armstrong (2021), who argue that purchase decisions are influenced by various factors, meaning that promotion is not the sole determinant of consumer behavior.

Furthermore, the emergence of numerous local fashion brands actively promoting their products through Instagram has provided consumers with a wider range of alternatives. As a result, consumers have become increasingly selective in making purchase decisions, suggesting that successful Instagram promotion cannot automatically guarantee product purchases. Hakim et al. (2021) found that purchase decisions on Instagram are also influenced by factors such as brand image, e-service quality, electronic word-of-mouth (e-WOM), and trust.

University students were selected as the respondents of this study because they represent an age group that actively uses Instagram and constitutes one of the primary target markets for casual fashion products such as Erigo. Their high level of exposure to digital promotion makes them an appropriate population for examining the relationship between Instagram promotion and purchase decisions. DataReportal (2025) also reported that social media users are predominantly individuals within the productive age group who demonstrate high levels of engagement with digital platforms.

Based on the foregoing discussion, it can be understood that Instagram-based promotion has the potential to influence consumers' purchase decisions, particularly for local fashion brands such as Erigo. Nevertheless, the magnitude of this influence has yet to be empirically verified. Therefore, this study aims to examine the effect of Instagram social media promotion on consumers' purchase decisions for Erigo products.

2. Method

This study employed a quantitative method with an associative approach to examine the effect of promotion through Instagram social media on purchasing decisions for Erigo products. The research data were collected through questionnaires distributed to respondents and analyzed statistically to test the proposed hypotheses (Sugiyono, 2019).

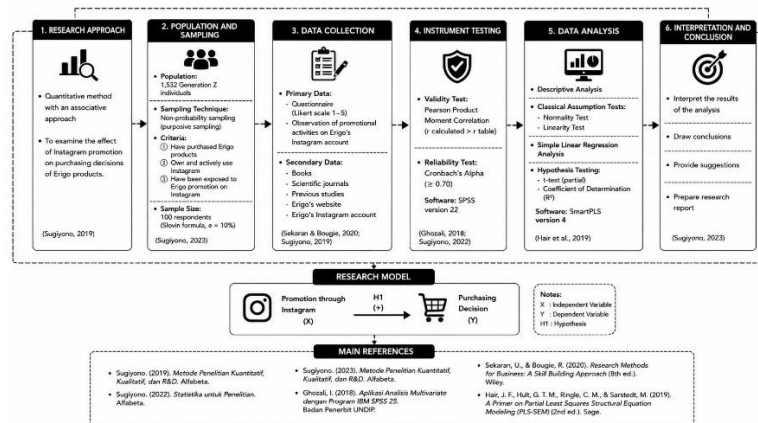
The study applied a non-probability sampling technique using purposive sampling, in which respondents were selected based on specific criteria in accordance with the research objectives (Sugiyono, 2023). The respondents were selected based on the following criteria: (1) having purchased Erigo products, (2) owning and actively using Instagram, and (3) having been exposed to Erigo promotional content on Instagram. The research population consisted of 1,532 Generation Z individuals, and the sample size was determined using the Slovin formula with a 10% margin of error, resulting in 100 respondents.

The study utilized both primary and secondary data. Primary data were collected through questionnaires using a five-point Likert scale and observations of promotional activities on Erigo's official Instagram account. Secondary data were obtained from books, scientific journals, previous studies, as well as Erigo's official website and Instagram account to support the theoretical framework and discussion of the research findings.

The research instrument was tested using validity and reliability analyses. Validity was assessed using the Pearson Product Moment correlation, while reliability was evaluated using Cronbach's Alpha with the assistance of SPSS version 22. The instrument was considered valid

when the calculated correlation coefficient, and reliable when the Cronbach's Alpha coefficient was 0.70 or higher.

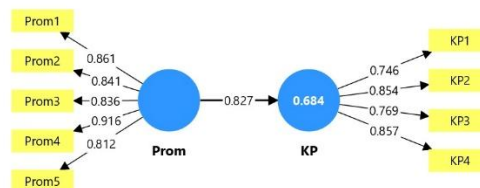
Data analysis was conducted using descriptive analysis, classical assumption tests (normality and linearity tests), and simple linear regression analysis to examine the effect of Instagram promotion on purchasing decisions. Hypothesis testing was performed using the t-test and the coefficient of determination (R^2) with the assistance of Smart PLS version 4.



Picture 1. Metode

3. Result

The hypothesis testing results indicate that the calculated t-value of 24.633 is greater than the t-table value of 1.984, with a significance level of $0.000 < 0.05$. Therefore, the hypothesis is accepted, indicating that Instagram social media has a positive and significant effect on the purchasing decisions of Erigo products among Generation Z. The path coefficient from the Promotion (Prom) variable to Purchasing Decision (KP) is 0.827, demonstrating a positive and very strong relationship. This indicates that the more effective the promotional activities carried out through Instagram, the greater the likelihood that consumers will make purchasing decisions.



Picture 2.

These findings suggest that Instagram serves as an effective marketing communication platform in influencing consumer purchasing decisions. Furthermore, the coefficient of determination (R^2) of 0.684 indicates that 68.4% of the variance in purchasing decisions is explained by Instagram social media, while the remaining 31.6% is influenced by other factors not included in this study, such as price, product quality, brand image, service quality, electronic word-of-mouth (e-WOM), lifestyle, and consumers' psychological factors.

4. Conclusion

The results of this study indicate that Instagram plays an effective role as Erigo's marketing communication platform in influencing purchasing decisions. Engaging content, clear product information, active interaction with followers, and collaborations with influencers encourage

consumers, particularly Generation Z (Gen Z), to seek product information and ultimately decide to purchase Erigo products.

These findings are consistent with the digital marketing theory proposed by Kotler, Kartajaya, and Setiawan (2021), which states that social media enhances brand awareness, customer engagement, and purchasing decisions through fast, interactive communication and closer relationships with consumers. The findings also support the Social Media Marketing concept introduced by Sengen et al. (2021), which emphasizes the dimensions of context, communication, collaboration, and connection as key factors in improving the effectiveness of social media marketing.

Furthermore, the results are consistent with previous studies concluding that social media marketing has a positive and significant effect on purchasing decisions. In the digital era, consumers are more likely to be influenced by information shared through social media because it is more interactive, easily accessible, and supported by the experiences of other users. Therefore, Instagram has been proven to be an important factor in enhancing purchasing decisions for Erigo products among Generation Z. Consequently, Erigo should continue to optimize its Instagram marketing strategy by delivering high-quality content, maintaining responsive communication, establishing appropriate collaborations, and fostering strong relationships with followers to strengthen its competitiveness and increase consumer purchasing decisions.

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ADOPTION OF ARTIFICIAL INTELLIGENCE (AI) IN SMES IN PAPUA NEW GUINEA: FACTORS, BARRIERS, AND IMPLICATIONS

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Abstract

This study investigates the adoption of Artificial Intelligence (AI) technologies among small and medium-sized enterprises (SMEs) in Papua New Guinea (PNG). While AI tools are increasingly available globally, SMEs in PNG face distinct challenges related to infrastructure, affordability, skills, cultural and language contexts, and organizational readiness. The research aims to identify demographic and organizational factors influencing AI adoption, and to examine the strength of relationships between key variables such as perceived usefulness, perceived ease of use, perceived cost, digital literacy, perceived data availability, and external support. A mixed-method approach is proposed, combining quantitative survey data with qualitative insights from SME owners/managers and relevant stakeholders. The study uses a structured framework to test research hypotheses concerning drivers and barriers of AI adoption. Findings are expected to contribute to evidence-based recommendations for SME development agencies, government digital policy, and training institutions, and to support strategies that improve responsible and inclusive AI adoption in PNG SMEs.

Keywords: Artificial Intelligence, AI adoption, SMEs, Papua New Guinea, technology adoption, digital literacy, organizational readiness, perceived usefulness, perceived barriers, mixed-method research

1. Introduction

Artificial Intelligence (AI) has become a general-purpose technology that can support decision-making, automation, customer engagement, fraud detection, logistics optimization, and predictive analytics. For SMEs—often constrained by limited resources—AI can potentially improve competitiveness and productivity. However, adoption does not occur automatically; it depends on factors such as awareness, technical capability, cost structures, availability of data, digital infrastructure, trust, and government or institutional support.

In Papua New Guinea (PNG), SMEs form a critical component of local employment and economic activity across urban and rural settings. Yet, AI adoption among PNG SMEs remains under-researched. Practical barriers may include intermittent electricity, limited broadband coverage, limited access to training, language barriers, weak access to technical consultants, and uncertainty about AI relevance to local business models. Further, demographic differences—such as age, education level, business size, and industry—may influence owners' willingness to adopt new technologies.

Understanding AI adoption in PNG SMEs is necessary to guide capacity building and create policies or support programs that address real constraints. Therefore, this study examines the factors shaping AI adoption decisions among SMEs in PNG and proposes actionable recommendations for stakeholders.

2. Aim and Objectives of Research

2.1. Aim

To examine factors influencing the adoption of AI technologies by SMEs in Papua New Guinea and to develop context-specific recommendations for accelerating effective AI uptake.

2.2. Objectives

1. To assess the level of AI adoption (or readiness) among SMEs in PNG.

2. To determine the influence of demographic factors (e.g., owner/manager age, education, SME size, industry) on AI adoption.
3. To identify major organizational and environmental factors affecting AI adoption (usefulness, ease of use, cost, digital literacy, data availability, external support).
4. To test research hypotheses regarding relationships between identified factors and AI adoption intention/behavior.
5. To propose recommendations for SMEs and policy stakeholders to support responsible AI adoption.

3. Concern Remarks (Importance, Demographic factors, Major factors of Research Study)

3.1. Importance (Why the study matters)

- Economic relevance: SMEs drive employment and income in PNG.
- Technology policy relevance: Evidence can inform government and donor strategies for digital transformation.
- SME capacity relevance: Identifying barriers helps training institutions and support programs design relevant programs.
- Equity and inclusion: Adoption pathways can be designed to reduce disadvantages faced by rural SMEs, women entrepreneurs, and low-literacy owners (if included in demographic analysis).

3.2. Demographic factors (Examples for your variables)

Possible demographic variables to measure:

- Owner/manager age
- Gender
- Education level
- Business size (micro, small, medium)
- Industry sector (trade, agriculture, services, manufacturing)
- Years in business
- Work experience with digital tools

3.3. Major factors of research study (independent variables)

You can treat these as adoption drivers:

- **Perceived Usefulness (PU):** belief AI will improve business performance
- **Perceived Ease of Use (PEOU):** belief AI tools are easy to learn and use
- **Perceived Cost/Affordability (PC):** perception of cost and ongoing expenses
- **Digital Literacy (DL):** ability to use computers/software and understand AI concepts
- **Data Availability & Quality (DA):** whether the business has usable data (customer, sales, inventory)
- **External Support (ES):** access to training, government programs, consultants, telecom support
- **Trust & Risk Perception (TR):** concern about privacy, errors, fraud, and misuse
- **Infrastructure Readiness (IR):** internet, electricity, devices availability

(You can include all, or limit to 5–7 to keep the instrument manageable.)

4. Research Framework

4.1. Topic location (study setting)

The study will be conducted in selected provinces/cities in PNG where SMEs operate and where access to AI tools/services varies. Examples (you can select based on feasibility):

- Port Moresby (urban access)
- Lae (industrial hub)
- Selected districts/provincial centers (for rural/underserved comparison)

In your final version, list exact locations you will cover (e.g., 2–3 provinces) and justify selection.

4.2. Demographic factors (moderators or predictors)

- Owner/manager age, gender, education
- SME size
- Industry sector

4.3. Research hypothesis (Null and Alternative)

Let AI Adoption (AIA) be the dependent variable (actual use or adoption intention score). Hypothesis Set (example—adjust after your final variable selection)

5. Review of Literature (Secondary data from books, articles, journals, research works)

5.1. Conceptualizing AI adoption in SMEs

AI adoption in SMEs has been studied under technology acceptance models and innovation diffusion theories. Generally, adoption depends on perceived value, ease of use, compatibility with existing workflows, and organizational capability. SMEs often face “resource constraints,” leading to adoption barriers related to cost, skills, and time.

5.2. Technology Acceptance and AI adoption

A common theoretical lens is the Technology Acceptance Model (TAM), where perceived usefulness and perceived ease of use influence intention to use and actual adoption. AI adoption can be treated as a specialized form of information technology adoption, but AI also introduces added concerns such as trust, explainability, and data privacy.

5.3 Diffusion of Innovation in SME contexts

Diffusion of innovation theory suggests adoption depends on relative advantage, compatibility, complexity, trialability, and observability. In SMEs, adoption tends to occur when AI clearly improves performance, fits existing processes, and can be tried without high risk.

5.4. Barriers: cost, infrastructure, and digital divide

Research across developing countries indicates that adoption barriers often relate to:

- affordability of devices/software/subscriptions,
- limited broadband and unstable electricity,
- low digital literacy,
- insufficient technical support.

These barriers are particularly relevant in geographically diverse countries like PNG.

5.5. Data and governance challenges

AI systems require data and data-quality processes. SMEs may lack structured data or may keep data informally (paper records, memory-based decisions). Governance concerns (privacy, misuse, and error impacts) may also reduce adoption.

5.6. External support and training

Studies commonly find that adoption increases when SMEs can access:

- training programs,

- incubators/digital transformation centers,
- consultancies,
- government grants or subsidies,
- community-based support networks.

5.7. Research gap for PNG

Despite global studies on AI adoption, there is limited PNG-specific empirical research on:

- which factors most influence SMEs' AI adoption,
- how demographic factors shape adoption decisions,
- how local infrastructure and support systems interact with adoption.

This study addresses that gap using a PNG-focused framework and empirically testable hypotheses.

Important: For your final submission, you must include a properly formatted in-text citation and a full reference list with real authors and publication years. If you want, tell me your required citation style (APA 7th, Harvard, etc.) and I can generate a literature list tailored to your framework.

6. Research Methodology

6.1. Research design

A mixed-method design is recommended:

- Quantitative component: structured questionnaire measuring adoption level and factors (Likert scales).
- Qualitative component: semi-structured interviews (owners/managers + stakeholders) to explain “why” behind statistical relationships.

6.2. Target population

- SMEs operating in selected PNG locations
- SME owners/managers (primary respondents)
- Optional: SME support stakeholders (training providers, telecom reps, digital agencies)

6.3. Unit of analysis

- Individual SME business (responses aggregated per SME if needed)

6.4. Variables and measurement (overview)

- Dependent variable: AI adoption (actual use and/or adoption intention score)
- Independent variables: PU, PEOU, PC, DL, DA, ES, Trust, Infrastructure readiness
- Control/demographic variables: age, education, gender, SME size, industry

6.5. Instrument development

- Use validated item sets from TAM/diffusion frameworks where possible
- Adapt wording to PNG SME contexts
- Translate or simplify language where required (English-based plus local language assistance via enumerators)

6.6. Validity and reliability

- Content validity: review by experts (IT, business, research methods)
- Pilot test: small sample to refine items
- Reliability: Cronbach's alpha for each construct

7. Sampling Tools for Data Analysis (meaning + what to include)

To avoid mismatch with your wording, here are the common “sampling tools / analytical tools” items you can state:

7.1. Sampling approach

- Stage 1: Select provinces/regions purposively (based on feasibility and variation).
- Stage 2: Obtain SME list from SME associations, chambers, business directories, or local networks.
- Stage 3: Use stratified sampling by industry (and/or business size) then random selection where possible.

7.2. Sample size (example template)

- Quantitative survey: e.g., 150–400 respondents (depending on population size and desired power)
- Interviews: e.g., 12–25 participants until saturation

You must adjust number based on your access and resources.

7.3. Data analysis tools (software)

- SPSS / Jamovi for descriptive statistics and regression
- NVivo / Atlas.ti for interview qualitative coding (optional)

8. Data Analysis (what you will do)

8.1. Quantitative analysis plan

1. Data cleaning
 - missing values, outliers, normality checks
2. Descriptive statistics
 - frequencies for AI adoption categories
 - mean/SD for Likert-scale constructs
3. Reliability testing
 - Cronbach’s alpha for each scale
4. Correlation analysis
 - Pearson/Spearman between factors and AI adoption
5. Regression analysis
 - multiple linear regression / logistic regression depending on the dependent variable type
6. Hypothesis testing
 - test each H_0 vs H_a using p-values (e.g., $p < 0.05$)

8.2. Qualitative analysis plan

- Transcribe interviews
- Thematic coding (drivers, barriers, trust concerns, infrastructure, training needs)
- Compare themes by location and industry

9. Findings (template—replace after your data)

9.1. Descriptive findings

- Proportion of SMEs currently using AI tools (or low/moderate/high adoption)
- Distribution of respondent demographics (age, education, gender, industry)

9.2. Hypothesis testing outcomes (example structure)

- Perceived usefulness: significant positive effect on AI adoption (support H1a)

- Perceived ease of use: significant positive effect
- Perceived cost: negative effect
- Digital literacy: positive effect
- Data availability: positive effect
- External support: positive effect
- Demographic factors: some demographic variables significantly associated

9.3. Qualitative insights

- Key adoption drivers: improved customer service, forecasting, reduced manual work
- Key barriers: cost, connectivity, lack of skills, lack of data, fear of errors and privacy concerns
- Training preferred formats: short courses, local language support, demonstration-based learning

10. Suggestion (practical recommendations)

10.1. For SMEs

- Start with low-risk AI use cases (chatbots for FAQs, sales forecasting templates, simple automation)
- Build digital foundations: consistent record-keeping and customer data
- Improve AI literacy through short training and local learning communities

10.2. For government and agencies

- Subsidize AI-enabling tools/training for SMEs (especially rural SMEs)
- Strengthen digital infrastructure in target provinces
- Develop AI adoption guidelines addressing data privacy and responsible use

10.3. For universities and training providers

- Create SME-focused AI literacy programs (non-technical entry pathways)
- Partner with telcos/industry for internships and demonstration projects

11. Conclusion

This study will provide PNG-specific empirical evidence on the adoption of AI in SMEs. By testing relationships between perceived usefulness, ease of use, cost, digital literacy, data availability, external support, and demographic variables, the research aims to clarify the most influential drivers and barriers. The outcomes will support stakeholders—SMEs, training institutions, and policy makers—in designing targeted interventions that increase responsible and inclusive AI adoption in Papua New Guinea.

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E-COMMERCE ADOPTION AMONG SMALL BUSINESSES IN PAPUA NEW GUINEA

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Abstract

E-commerce adoption among small businesses is increasingly recognized as a key driver of economic growth, market expansion, and digital transformation in developing economies. In Papua New Guinea (PNG), small and medium enterprises (SMEs) face significant challenges in adopting e-commerce due to limited ICT infrastructure, low digital literacy, high operational costs, and weak institutional support. This research examines the determinants influencing e-commerce adoption among small businesses in PNG, focusing on technological, organizational, environmental, and individual factors. The study adopts a mixed theoretical approach based on the Technology-Organization-Environment (TOE) framework and Diffusion of Innovation Theory. Data from secondary literature and conceptual analysis suggest that digital readiness, government policy, perceived benefits, and owner-manager innovativeness are key drivers of adoption. The findings highlight that although SMEs in PNG are slowly integrating digital platforms, adoption remains in the early stages. The study recommends strengthening digital infrastructure, improving ICT education, and providing government incentives to accelerate e-commerce uptake.

Keywords: E-commerce adoption, SMEs, Papua New Guinea, digital transformation, ICT infrastructure, TOE framework, small businesses

1. Introduction

E-commerce refers to the buying and selling of goods and services through electronic systems such as the internet and mobile applications. Globally, it has transformed business operations by improving efficiency, reducing transaction costs, and expanding market access. However, adoption levels vary significantly between developed and developing economies.

In Papua New Guinea, small businesses form the backbone of the economy, contributing significantly to employment and local trade. Despite this, many SMEs continue to rely on traditional business models due to limited access to reliable internet, inadequate digital skills, and lack of trust in online transactions.

The increasing penetration of mobile phones and digital payment systems presents opportunities for SMEs to adopt e-commerce platforms. However, the extent of adoption remains low compared to global standards. This study explores the factors influencing e-commerce adoption among small businesses in PNG and identifies strategies for improvement.

2. Aim and Objectives of the Research

2.1. Aim

To examine the factors influencing e-commerce adoption among small businesses in Papua New Guinea.

2.2. Objectives

1. To identify technological, organizational, and environmental factors affecting e-commerce adoption.
2. To assess the level of digital readiness among SMEs in PNG.
3. To evaluate the role of government policies and infrastructure in e-commerce adoption.
4. To analyze the impact of demographic factors such as age, education, and business size.
5. To propose strategies for improving e-commerce adoption among SMEs.

3. Concern Remarks (Key Study Dimensions)

3.1. Importance of the Study

- Enhances SME competitiveness in global markets
- Supports financial inclusion and digital economy growth
- Improves efficiency and reduces operational costs
- Encourages innovation and entrepreneurship in PNG

3.2. Demographic Factors

- Age of business owner (younger owners more likely to adopt)
- Education level (higher ICT literacy improves adoption)
- Business size (micro vs small enterprises)
- Urban vs rural location (urban firms have better access)

3.3. Major Factors Affecting E-Commerce Adoption

- ICT infrastructure availability
- Internet accessibility and cost
- Digital literacy and skills
- Government support and regulations
- Trust and security concerns
- Perceived usefulness and ease of use

4. Research Framework

4.1. Conceptual Model (TOE-Based)

4.1.1. Dependent Variable:

- E-commerce Adoption among SMEs in PNG

4.1.2. Independent Variables:

- Technological Factors (internet access, ICT tools)
- Organizational Factors (firm size, management support)
- Environmental Factors (government policy, competition)
- Individual Factors (education, innovativeness, digital skills)

4.2. Research Hypotheses

4.2.1. Null Hypotheses (H0)

H0₁: Technological factors have no significant effect on e-commerce adoption among SMEs in PNG.

H0₂: Organizational factors have no significant effect on e-commerce adoption among SMEs.

H0₃: Environmental factors have no significant effect on e-commerce adoption.

H0₄: Individual factors have no significant effect on e-commerce adoption.

4.2.2. Alternative Hypotheses (H1)

H1₁: Technological factors significantly affect e-commerce adoption among SMEs in PNG.

H1₂: Organizational factors significantly affect e-commerce adoption among SMEs.

H1₃: Environmental factors significantly affect e-commerce adoption.

H1₄: Individual factors significantly affect e-commerce adoption.

5. Review of Literature

Research on e-commerce adoption in developing economies highlights several recurring themes.

Studies on SMEs in emerging markets show that technological readiness and perceived benefits are key determinants of adoption (Kumar & Kaur, 2021). Similarly, research in Africa and Asia indicates that poor ICT infrastructure and limited digital literacy remain major barriers (Mengesha et al., 2024).

The TOE framework has been widely used to analyze SME adoption behavior, integrating technological, organizational, and environmental dimensions (Tornatzky & Fleischer, 1990). Research in Indonesia found that perceived usefulness, IT skills, and innovativeness significantly influence adoption decisions.

Further studies emphasize the role of government policy and institutional support in enabling digital transformation in SMEs (Moses, 2023).

In addition, literature suggests that owner-manager characteristics such as education level and risk perception strongly influence technology adoption decisions in small firms (Nazir & Roomi, 2020).

Overall, existing studies confirm that e-commerce adoption is a multidimensional process influenced by internal capabilities and external environment.

6. Research Methodology

6.1. Research Design

Descriptive and exploratory research design based on secondary data analysis.

6.2. Research Approach

Qualitative and conceptual synthesis approach.

6.3. Data Sources

- Journal articles
- Books on e-commerce and ICT adoption
- Government reports
- SME development studies in developing countries

6.4. Target Population

Small and medium enterprises in Papua New Guinea.

6.5. Unit of Analysis

Owner-managers of SMEs.

7. Sampling Tools for Data Analysis (Hypothetical Empirical Study)

If primary data were collected, the following tools would be used:

- *Questionnaires (Likert Scale 1–5)*
- *SPSS Software for analysis*
 - Descriptive statistics
 - Reliability test (Cronbach's Alpha)
 - Correlation analysis
 - Multiple regression analysis
- *Sampling Technique*
 - Stratified random sampling (urban vs rural SMEs)
- *Sample Size (Proposed)*
 - 150–300 SME owners

8. Data Analysis (Conceptual Results)

Based on literature synthesis, expected outcomes include:

- Majority of SMEs show low-to-moderate e-commerce adoption
- Strong correlation between digital literacy and adoption rate
- Infrastructure availability significantly influences adoption

- Government support positively impacts digital transformation
- Younger entrepreneurs show higher adoption levels

9. Findings

1. E-commerce adoption among SMEs in PNG is still in early development stages.
2. ICT infrastructure limitations significantly hinder adoption.
3. Digital literacy is a major determinant of e-commerce use.
4. Organizational readiness influences the level of adoption.
5. Government support and policy frameworks are insufficient.
6. Trust and cybersecurity concerns reduce online transaction confidence.

10. Suggestions / Recommendations

- Improve national ICT infrastructure and internet coverage
- Provide digital literacy training for SME owners
- Introduce government subsidies for digital business tools
- Strengthen cybersecurity regulations and trust systems
- Encourage partnerships between banks and e-commerce platforms
- Promote mobile-based e-commerce solutions for rural SMEs

11. Conclusion

E-commerce adoption among small businesses in Papua New Guinea presents significant opportunities for economic growth and business modernization. However, adoption is constrained by infrastructural, organizational, and socio-economic barriers. Addressing these challenges through government intervention, capacity building, and improved ICT infrastructure will significantly enhance SME competitiveness in the digital economy. The study confirms that technological, organizational, environmental, and individual factors collectively influence adoption decisions, making a holistic policy approach essential for sustainable digital transformation.

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THE EFFECT OF AUDITOR COMPETENCE AND INDEPENDENCE ON AUDIT QUALITY

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Abstract

Audit quality is a critical factor in safeguarding the integrity of financial statements, yet a number of past audit-failure cases show that this remains an ongoing concern. This study evaluates the partial and simultaneous effects of auditor competence (X1) and auditor independence (X2) on audit quality (Y) at the Heru Satria Rukmana and Partners Public Accounting Firm, located in Bogor Regency. A quantitative approach with a causal research design was employed using a cross-sectional survey method. Data were collected through a five-point Likert-scale questionnaire distributed to 30 auditors selected using a census sampling technique. The data were analyzed using multiple linear regression with IBM SPSS Statistics Version 30, including validity testing, reliability testing, classical assumption tests (normality, multicollinearity, and heteroscedasticity), the t-test, the F-test, and the coefficient of determination. The results show that Hypothesis H1 is accepted: auditor competence has a positive and significant effect on audit quality ($t = 4.396$; $\text{sig.} = 0.001$). Hypothesis H2 is rejected, as auditor independence does not have a significant partial effect on audit quality ($t = 1.391$; $\text{sig.} = 0.176$). Hypothesis H3 is accepted: auditor competence and independence simultaneously have a positive and significant effect on audit quality ($F = 30.923$; $\text{sig.} = 0.001$; $R^2 = 69.6\%$). This study concludes that auditor competence is the primary driver of audit quality at mid-sized public accounting firms, and therefore efforts to strengthen auditor competence should be pursued alongside a stronger quality control system.

Keywords: Auditor Competence, Auditor Independence, Audit Quality, Multiple Linear Regression, Mid-Sized Public Accounting Firm

1. Introduction

Financial statement auditing is a critical process in building an accountability system and enhancing the transparency of financial information. Arens et al. (2017) describe auditing as an organized process carried out by parties who possess both competence and independence, intended to provide reasonable assurance that financial statements are free from material misstatement. Amid growing globalization and digitalization, the complexity of business transactions continues to increase, driving greater demand for high-quality audit services. A quality audit gives investors, creditors, and other stakeholders confidence that financial statements can be relied upon as a basis for sound decision-making Carey et al., (2025) ; Nugraha et al., (2023).

Nevertheless, a number of major audit scandals demonstrate that audit quality remains a persistent problem. The 2001 Enron case in the United States showed how a combination of weak technical competence and compromised independence on the part of Arthur Andersen which earned consulting fees equivalent to roughly 25% of Enron's revenue allowed fraud amounting to billions of dollars to go undetected for years Joel et al., (2023). In Indonesia, losses to the state caused by fraud cases continued to climb between 2017 and 2021 Marota et al., (2024). The 2019 PT Kimia Farma case illustrated auditors' failure to detect inflated assets, a shortfall attributed to limited expertise in the pharmaceutical industry as well as an overly close relationship with client management Sasmita et al., (2022). Meanwhile, the Jiwasraya case, which resulted in state losses of Rp16.8 trillion, demonstrated how a conflict of interest

arising from providing consulting services to the same audit client can substantially undermine an auditor's ability to work independently Tidar (2025).

More specifically, the failure in the Enron case occurred because Arthur Andersen's auditors were unable to properly audit off-balance-sheet instruments such as Special Purpose Entities (SPEs) and continued to issue unqualified opinions despite the presence of material misstatements a failure that ultimately triggered global audit-regulation reform through the Sarbanes-Oxley Act. In the Kimia Farma case, the asset inflation only came to light after an investigation by Indonesia's Supreme Audit Agency (BPK), pointing to weak auditor competence in the pharmaceutical sector as well as an overly close relationship with client management. In the Jiwasraya case, auditors who simultaneously provided investment consulting services related to mutual funds and bonds owned by the same client continued to issue unqualified opinions for several years before the financial crisis forced a government bailout. Together, these three cases confirm that weak technical competence combined with compromised auditor independence are the root causes of audit failures to detect material fraud. Mongkito (2024) defines audit quality as the probability that an auditor will both discover and report irregularities in a client's financial statements. The probability of discovering a violation depends on the auditor's competence, while the probability of reporting it depends on the auditor's independence. Both aspects are also explicitly addressed in Indonesia's Public Accountant Professional Standards (SPAP), which are based on the International Standards on Auditing (ISA) and affirm that audit quality is determined by both auditor competence and independence IAPI (2023).

Empirical studies examining the effect of competence and independence on audit quality have produced inconsistent findings. Bertha Elvy Napitupulu et al. (2021) found that both factors have a significant simultaneous effect, with competence contributing more strongly. Manik et al. (2025) reported that auditor competence has a substantial effect on the quality of audit work. In contrast, Ismiati et al. (2025) and Rahmi Julia et al. (2025) found that independence does not always have a significant effect, depending on the specific context of the public accounting firm and its business environment. These mixed findings point to a research gap that warrants further empirical investigation, particularly at mid-sized public accounting firms operating in regions with distinct business environment characteristics.

This study was conducted at the Heru Satria Rukmana and Partners Public Accounting Firm (KAP), located in Bojong Gede, Bogor Regency, West Java. A mid-sized public accounting firm was chosen because it is well suited to illustrate the real challenges faced by non-Big Four firms namely, how to maintain an adequate level of competence despite limited resources, and how to preserve independence in a business environment characterized by close geographic and social ties between auditors and clients. Accordingly, this study aims to examine the partial effect of auditor competence on audit quality, the partial effect of auditor independence on audit quality, and the simultaneous effect of auditor competence and independence on audit quality at the Heru Satria Rukmana and Partners Public Accounting Firm.

2. Literature Review and Hypothesis Development

2.1. Auditor Competence and Audit Quality

Elder & Hogan (2020) define auditor competence as the knowledge, skills, and abilities required to carry out an audit effectively in accordance with applicable standards. Ayem et al. (2024) explain that competence comprises several dimensions: technical competence, such as expertise in accounting and auditing; analytical competence, involving the ability to analyze and resolve problems; and business competence, which includes an understanding of the client's industry. Maryana & Fauziyah (2023) argue that auditors with sufficient competence are able

to produce in-depth analysis, enabling independent and professional audit decision-making. This argument is grounded in Human Capital Theory At (2002), which holds that investment in education, training, and direct work experience enhances an individual's productive capacity and quality of work.

Sunarta & Wiyoto (2024) explain that the higher an auditor's competence, the better the resulting audit quality, since more competent auditors are able to detect and report material misstatements more effectively. Pramitasari (2024) found that competence has a positive and significant effect on audit quality, a result corroborated by Manik et al. (2025) and Agustin (2025) within the context of Indonesian public accounting firms. Based on this theoretical foundation and the available empirical evidence, the first hypothesis of this study is:

H1: Auditor competence has a positive and significant effect on audit quality.

2.2. Auditor Independence and Audit Quality

Auditor independence is a fundamental principle that distinguishes the auditor's role from that of a general consultant. According to SPAP SA Chapter 220, independence refers to a state of mind that is not influenced by other parties, does not depend on anyone, and remains free from external influence. Collins et al. (2021) define independence as an auditor's capacity to remain objective and unswayed by outside influence, functioning as the link between the auditor's competence and the outcomes of the audit. SPAP recognizes two distinct dimensions of independence: independence in fact, reflected in the auditor's actual mindset and conduct, and independence in appearance, reflected in how independence is perceived by the public.

Rahmawati et al. (2025) found that independence has a significant positive effect on audit quality. Mongkito (2024) states that the likelihood of an auditor reporting a violation directly depends on the degree of their independence. However, several studies have found that independence does not always have a significant partial effect. Ismiati et al. (2025) identified environmental pressure faced by public accounting firms as a factor that diminishes its effectiveness, and Rahmi Julia et al. (2025) reported similar findings under certain contextual conditions. Fauziyah (2024) emphasizes that independence in fact is inherently difficult to measure objectively through questionnaires, as respondents tend to provide normative rather than candid answers. Nevertheless, independence remains theoretically essential, leading to the second hypothesis of this study:

H2: Auditor independence has a positive and significant effect on audit quality.

2.3. The Simultaneous Effect of Competence and Independence on Audit Quality

Mongkito (2024) describes audit quality as a combination of two probabilities: the ability to detect violations, which is determined by competence, and the willingness to report them, which is determined by independence. These two aspects are complementary; an auditor who possesses competence but lacks independence may be able to identify a problem but not have the courage to report it, whereas an auditor who possesses independence but lacks competence may remain objective yet fail to recognize complex issues (Che et al., 2023; Francis, 2022). The Framework for Audit Quality issued by the IAASB (2021) emphasizes that audit quality emerges from the interaction between input factors, such as competence, and process factors, such as independence and ethics, all of which must be present simultaneously. Bertha Elvy Napitupulu et al. (2021), Cahya (2025), and Rahmawati et al. (2025) all found that both variables have a simultaneous positive and significant effect. Accordingly, the third hypothesis is:

H3: Auditor competence and auditor independence simultaneously have a positive and significant effect on audit quality.

3. Methodology

This study applies a quantitative approach with a causal (explanatory) research design aimed at testing the cause-and-effect relationship between auditor competence, auditor independence, and audit quality. A cross-sectional survey method was employed in accordance with the procedures established by Saunders et al. (2023), in which data are collected at a single point in time using a structured questionnaire.

The population of this study comprises all auditors registered and actively working at the Heru Satria Rukmana and Partners Public Accounting Firm, located in Bojong Gede, Bogor Regency. A census sampling technique was used, in which all 30 members of the population were included as the study sample. The inclusion criteria were: (1) auditors who were actively employed during the study period; (2) auditors with at least one year of audit experience; and (3) auditors willing to complete the questionnaire fully and voluntarily.

The research instrument was a questionnaire employing a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The three research variables were operationalized as shown in Table 1.

Table 1. Operationalization of Research Variables

Variable	Indicators	Scale	Source
Auditor Competence (X1)	1. Knowledge of auditing standards 2. Understanding of audit technology 3. Professional development 4. Work experience 5. Professional ethics 6. Analytical ability	Likert 1-5	Sunarta & Wiyoto (2024); Rengganis et al. (2024)
Auditor Independence (X2)	1. Auditor objectivity 2. Resistance to pressure 3. Separation of personal relationships 4. Freedom from conflicts of interest 5. Independence evaluation 6. Consistency of principles	Likert 1-5	Collins et al. (2021); SPAP SA Chapter 220
Audit Quality (Y)	1. Credibility of audit results 2. Audit accuracy 3. Compliance with audit standards 4. Reliability of audit opinion 5. Fraud detection 6. Audit recommendations 7. Recognition of audit results 8. Contribution of competence & independence	Likert 1-5	Rizi et al. (2024); Mongkito (2024)

Source: Compiled by the researcher based on a review of the literature (2025).

Data were analyzed using IBM SPSS Statistics Version 30 through the following stages: (1) validity testing using Pearson correlation ($r\text{-count} > r\text{-table}$ of 0.361 at $n = 30$, $\alpha = 5\%$); (2) reliability testing using Cronbach's Alpha (> 0.60); (3) classical assumption tests, comprising the Kolmogorov-Smirnov normality test, the multicollinearity test ($VIF < 10$, Tolerance > 0.1), the heteroscedasticity test using a scatterplot, and the autocorrelation test using the Lagrange Multiplier (LM) test; (4) multiple linear regression analysis; (5) the partial t-test, with $t\text{-table} = t(0.025;27) = 2.051$; (6) the simultaneous F-test, with $F\text{-table} = F(2;28) = 3.34$; and (7) the coefficient of determination (R^2).

4. Results and Discussion

4.1. Respondent Characteristics

The respondents in this study consisted of 30 auditors employed at the Heru Satria Rukmana and Partners Public Accounting Firm. In terms of gender, the majority of respondents were male, comprising 20 individuals (66.7%), while female respondents numbered 10 (33.3%), indicating that the auditing profession at this firm remains male-dominated. In terms

of educational background, most respondents held a bachelor's degree (S1) 25 individuals (83.3%) followed by a master's degree (S2) held by 3 respondents (10%) and a diploma (D3/D4) held by 2 respondents (6.7%), suggesting that the auditors' formal education meets the minimum standard required to provide audit services. In terms of work experience, the majority of respondents had between 5 and 10 years of experience (12 individuals, or 40%), followed by those with less than 5 years of experience (9 individuals, or 30%), those with more than 15 years of experience (8 individuals, or 26.67%), and those with 11 to 15 years of experience (1 individual, or 3.33%), reflecting a fairly diverse range of experience levels among the respondents.

Table 2. Respondent Characteristics

Characteristic	Category	Number	Percentage
Gender	Male	20	66.7%
	Female	10	33.3%
Education Level	Diploma (D3/D4)	2	6.7%
	Bachelor's (S1)	25	83.3%
	Master's (S2)	3	10%
Work Experience	< 5 years	9	30%
	5-10 years	12	40%
	11-15 years	1	3.33%
	> 15 years	8	26.67%

Source: Primary data processed, 2025.

4.2. Data Quality Test

All statement items across the three variables produced r-count values exceeding the r-table value of 0.361, indicating that they are valid. The reliability test produced Cronbach's Alpha values above 0.60 for all variables, confirming that the instrument is reliable and suitable for further analysis.

4.3. Classical Assumption Test

The Kolmogorov-Smirnov normality test produced a significance value of 0.280 (> 0.05), supported by a symmetrical histogram and a Normal P-P Plot following the diagonal line, indicating that the residual data are normally distributed.

The multicollinearity test produced a VIF value of 2.059 (< 10) and a Tolerance value of 0.486 (> 0.1) for both independent variables, indicating no evidence of multicollinearity.

The heteroscedasticity test, examined through a scatterplot, showed data points scattered randomly without forming any discernible pattern, indicating the absence of heteroscedasticity and confirming that the homoscedasticity assumption is satisfied.

4.4. Multiple Linear Regression Results and Hypothesis Testing

$$Y = 3.925 + 0.626X_1 + 0.231X_2 + e$$

The constant value of 3.925 indicates that when X₁ and X₂ are equal to zero, audit quality is estimated at 3.925 units. The regression coefficient for X₁ of 0.626 indicates that each one-unit increase in auditor competence raises audit quality by 0.626 units (*ceteris paribus*). The coefficient for X₂ of 0.231 indicates a positive direction, though the effect is not statistically significant at the partial level.

4.5. Discussion

Hypothesis 1 (H₁) is accepted: auditor competence has a positive and significant effect on audit quality ($t = 4.396 > 2.051$; sig. = 0.001 < 0.05). The standardized beta coefficient of 0.674

confirms that competence is the most dominant variable in the model. This finding is consistent with Human Capital Theory (At, 2002), which holds that investment in education, training, and experience enhances an individual's productive capacity. Substantively, competent auditors possess the technical capacity to carry out audit procedures effectively, detect the risk of material misstatement, and produce reliable audit opinions in accordance with SPAP SA Section 210. This finding is consistent with Bertha Elvy Napitupulu et al. (2021), Sunarta & Wiyoto (2024), Pramitasari (2024), Agustin (2025), and Manik et al. (2025).

Hypothesis 2 (H2) is rejected: auditor independence does not have a significant partial effect on audit quality ($t = 1.391 < 2.051$; $\text{sig.} = 0.176 > 0.05$). Although the regression coefficient is positive (0.231), its partial effect is not statistically significant. This finding can be explained from four perspectives. First, from a statistical standpoint, the Pearson correlation between X2 and Y of 0.670 (significant at $p = 0.004$) shows that independence has a strong bivariate relationship with audit quality; however, the high correlation between X1 and X2 ($r = 0.653$) creates explanatory overlap within the multiple regression model, such that the unique partial contribution of X2 is not strong enough to produce a significant coefficient. Second, from a conceptual standpoint, Collins et al. (2021) explain that independence functions as the link between an auditor's competence and audit outcomes meaning independence operates in conjunction with competence rather than on its own. Third, within the context of the Heru Satria Rukmana and Partners Public Accounting Firm, the regional business environment of Bogor Regency, characterized by close geographic and social ties between auditors and clients, creates a familiarity threat that may gradually erode independence in fact (Che et al., 2023; Francis, 2022). Fourth, the homogeneity of the 30 respondents, all drawn from a single public accounting firm, narrowed the variation in questionnaire responses relating to independence. This finding is consistent with Ismiati et al. (2025), Rahmi Julia et al. (2025), and Uhti Mubarakah (2021). It is important to emphasize that the lack of a significant partial effect for independence does not mean independence is unimportant rather, its effect is more optimal when combined with competence within a simultaneous model.

Hypothesis 3 (H3) is accepted: auditor competence and auditor independence simultaneously have a positive and significant effect on audit quality ($F = 30.923 > F\text{-table } 3.34$; $\text{sig.} = 0.001$; $R^2 = 0.696$). This means the two variables together explain 69.6% of the variation in audit quality. This finding confirms Mongkito's (2024) audit quality model, which holds that the probability of detecting a violation (competence) and the probability of reporting it (independence) must both be high simultaneously. The IAASB's Framework for Audit Quality (2021) similarly emphasizes that input factors (competence) and process factors (independence/ethics) must be present at the same time. This result is consistent with Bertha Elvy Napitupulu et al. (2021), Cahya (2025), and Rahmawati et al. (2025). The remaining 30.4% is explained by other variables, such as professional ethics, professional skepticism, workload, and the effectiveness of the public accounting firm's quality control system.

5. Conclusion

5.1. Conclusion

This study draws three main conclusions. First, auditor competence has a positive and significant partial effect on audit quality ($t = 4.396$; $\text{sig.} = 0.001$), making it the most dominant variable in the model ($\text{beta} = 0.674$). Second, auditor independence does not have a significant partial effect ($t = 1.391$; $\text{sig.} = 0.176$), a result attributable to explanatory overlap with competence, a familiarity threat within the regional business environment, and the homogeneity of respondents rather than to independence being unimportant. Third, the two variables together have a positive and significant simultaneous effect ($F = 30.923$; $\text{sig.} = 0.001$; $R^2 = 69.6\%$),

demonstrating that competence and independence are two inseparable pillars in producing high-quality audits.

5.2. Implications and Recommendations

First, for the management of KAP Heru Satria Rukmana and Partners, these findings underscore the importance of sustained investment in auditor competence development through continuing professional education (CPE/PPL) programs, support for professional certification (CA, CPA), structured mentoring programs, and the integration of modern audit technology. With regard to independence, a more systemic approach is warranted through the implementation of a comprehensive Quality Control System (SPM) in accordance with SPAP SA Section 220, encompassing pre-engagement independence confirmation, engagement rotation, restrictions on non-audit services (NAS), and the cultivation of organizational integrity.

Second, at the individual level, every auditor should maintain independence in fact rather than merely independence in appearance, by proactively identifying and mitigating threats to their objectivity, including the familiarity threat that arises from long-term, close relationships with clients.

Third, for future researchers, it is recommended that the sample be expanded to include several public accounting firms across different regions, that moderating variables such as the effectiveness of the Quality Control System, professional ethics, or professional skepticism be incorporated, and that qualitative methods (in-depth interviews) be considered to obtain a more comprehensive picture of the factors influencing audit quality particularly independence in fact, which is difficult to measure through questionnaires alone.

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DYNAMICS OF AUDITORS' ETHICAL CONFLICT IN WHISTLEBLOWING PRACTICE: A QUALITATIVE ANALYSIS OF AUDITOR REPRESENTATION IN THE DRAMA THE AUDITORS

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Abstract

*This study examines how the ethical conflict experienced by auditors in whistleblowing practice is represented in the drama *The Auditors*, focusing on the professional values of integrity, independence, and objectivity. Using a qualitative descriptive-interpretive design, scenes, dialogues, and character decisions were treated as the primary data and analyzed through the interactive model of Miles, Huberman, and Saldaña, while reflective input from practicing auditors served as a supporting triangulation source. The findings show that auditors' ethical conflict is represented through three interrelated dimensions: moral dilemma and organizational loyalty, organizational pressure, and professional risk. Whistleblowing is portrayed not as a single spontaneous act but as a staged process of disclosure, evidence-based decision-making, and organizational response. Integrity, independence, and objectivity emerge as the values that anchor the auditor's choices throughout this process. Read through Immanuel Kant's deontological ethics, these three patterns correspond respectively to the concepts of duty, categorical imperative, and good will. The study concludes that popular media can function as an accessible medium for understanding, and teaching, the ethical dimension of the audit profession.*

Keywords: ethical conflict; whistleblowing; integrity; independence; objectivity

1. Introduction

Public trust in financial reporting rests heavily on the willingness of auditors to act as independent gatekeepers rather than as instruments of the organizations that employ them. Yet this expectation frequently collides with organizational reality. The Association of Certified Fraud Examiners (2024) reports that occupational fraud continues to cause substantial losses worldwide, and a considerable share of cases surface only after an internal party chooses to speak up. This gap between the codified ideal of auditor independence and the lived pressure auditors face inside hierarchical organizations is precisely where whistleblowing becomes decisive: it is the mechanism through which an auditor's private knowledge of wrongdoing is converted into public accountability, often at direct personal cost.

Professional codes such as the Code of Ethics for Public Accountants issued by the Institut Akuntan Publik Indonesia (2021) and the International Code of Ethics for Professional Accountants (International Ethics Standards Board for Accountants, 2023) formally oblige auditors to uphold integrity, independence, and objectivity. In practice, however, these principles are tested less by their clarity on paper than by the auditor's capacity to hold onto them under pressure from superiors, clients, or colleagues who have an interest in silence. Most existing research on auditor whistleblowing has approached this tension quantitatively, measuring how variables such as professionalism, moral intensity, or personal cost predict an auditor's intention to report (Anggraeni et al., 2021; Hasanuddin, 2021). Comparatively little work has asked how this ethical struggle is narrated and made intelligible to a wider audience, including students who are still forming their professional identity.

Popular media offers one such avenue. Nabilah and Tjahjadi (2023) observe that accountants and auditors are increasingly depicted on screen as figures associated with honesty, courage, and credibility, suggesting that fictional narratives do more than entertain; they also

shape how the profession is understood by people outside it. The Korean drama *The Auditors* is a particularly apt object of study because, unlike productions that use auditors merely as background characters, it places internal audit practice, organizational cover-ups, and whistleblowing decisions at the center of its plot. This makes it a rich, if underused, text for observing how ethical conflict, disclosure, and professional values interact in a single connected narrative rather than as isolated variables.

This article, developed from a broader undergraduate research project, therefore aims to examine three things: first, how the dynamics of auditors' ethical conflict in whistleblowing practice are represented in *The Auditors*; second, how the practice of whistleblowing itself is depicted and how it relates to the auditor's effort to safeguard integrity, independence, and objectivity; and third, how these three professional values are represented when the auditor is confronted with conflict and the decision to report. Immanuel Kant's deontological ethics, particularly the concepts of duty, the categorical imperative, and good will, is used as the interpretive lens that ties these three questions together.

2. Literature review

2.1. Deontological ethics and the concept of duty

Kant deontology holds that the moral worth of an action lies in the intention behind it rather than in its consequences. Three ideas from this tradition are especially relevant to auditing: duty, the obligation to act rightly regardless of personal benefit or loss; the categorical imperative, the requirement that an action be one every rational agent in the same position ought to perform; and good will, the disposition to act from respect for what is right rather than from self-interest (Risepdo & Sudaryati, 2023). Applied to auditing, this framework implies that an auditor's decision to disclose wrongdoing should not depend on whether disclosure is convenient, but on whether disclosure is the ethically required course of action once sufficient evidence exists.

2.2. Ethical conflict in the auditing profession

Auditors routinely operate at the intersection of technical judgment and organizational politics. Ratnawati and Budiarta (2021) find that professional commitment strongly shapes whether auditors sustain ethical behavior when placed in conflict situations, while Hidayat (2025) shows that pressure from parties holding organizational authority can distort an individual's decision-making process. Ethical conflict in this profession is therefore rarely a single event; it tends to unfold along three connected fronts: a moral dilemma between loyalty to the organization and duty to the public interest, organizational pressure that restricts access to information or discourages further investigation, and professional risk, ranging from demotion to loss of employment, that follows from resisting that pressure.

2.3. Whistleblowing as a professional mechanism

Whistleblowing is commonly defined as the disclosure, by someone with access to relevant information, of practices believed to be unlawful or unethical. Widyadhana and Kirana DP (2025) note that its effectiveness depends on a combination of moral reasoning, professional commitment, and organizational culture, and that fear of retaliation remains one of the most persistent barriers to reporting. Ramadhan and Satiman (2025) further show that active auditor involvement in identifying and following up on irregularities is a decisive factor in the disclosure of financial statement fraud. Taken together, these studies frame whistleblowing not as an impulsive act but as a sequence: recognizing an indication of wrongdoing, gathering and testing evidence, deciding whether and to whom to report, and absorbing the organizational response that follows.

2.4. Auditor representation in popular media

A smaller but growing strand of literature examines how the audit and accounting profession is portrayed outside technical or regulatory texts. Gani et al. (2025) analyze *The Auditors* specifically and find that the drama constructs its lead characters through recognizable professional-ethics markers, including integrity, objectivity, and professional behavior. Aminah and Sokarina (2025), studying the same drama, identify organizational hierarchy, conflicts of interest arising from personal relationships, and reputational threats as the main sources of the auditor's ethical dilemma. These findings indicate that media representation, while fictionalized, tends to mirror the structural pressures documented in empirical auditing research, which makes it a plausible secondary lens through which to study auditor ethics.

3. Methodology

This study uses a qualitative descriptive-interpretive design. Rather than measuring the statistical relationship between variables, the aim is to interpret how meaning around auditor ethics, whistleblowing, and professional values is constructed through narrative: dialogue, character interaction, and the organizational situations depicted on screen. *The Auditors* was purposively chosen as the object of analysis because internal audit practice occupies the center of its storyline, rather than functioning as background detail as in most other productions.

The unit of analysis comprised scenes, dialogues, and character actions connected to ethical conflict and whistleblowing, selected purposively for their direct relevance to the study's focus rather than an exhaustive review of every scene in the series. Primary data were obtained through repeated observation of the drama, while supporting data were drawn from prior academic literature and from reflective, open-ended responses of practicing auditors, collected online and used for triangulation rather than as the primary evidentiary basis. Table 1 summarizes the three thematic foci that guided data collection and coding.

Research focus	Indicators	Aspects analyzed
Representation of auditors' ethical conflict in whistleblowing practice	Moral dilemma, organizational pressure, professional risk	Conflict between ethical duty and organizational interest, workplace pressure, and risk faced when disclosing wrongdoing
Representation of whistleblowing practice in <i>The Auditors</i>	Disclosure, decision-making, organizational response	The auditor's actions in disclosing wrongdoing, considerations prior to reporting, and organizational reactions to the disclosure
Representation of auditor integrity, independence, and objectivity	Integrity, independence, objectivity	The auditor's effort to sustain professional values amid conflicts of interest, organizational pressure, and ethical challenges

Table 1. Thematic framework guiding data collection and analysis

Data were analyzed using the interactive model of Miles, Huberman, and Saldaña (2014), consisting of data collection, data reduction, data display, and conclusion drawing/verification. Selected scenes and dialogues were coded into themes corresponding to Table 1 and then related to Kant deontology, the concept of whistleblowing, and the auditor code of ethics. Validity was strengthened through source triangulation, comparing the drama's representation with

practitioner reflections, and theory triangulation, comparing interpretive findings against deontological ethics and prior empirical research on auditor whistleblowing.

4. Results and discussion

4.1. Representation of auditors' ethical conflict

The analysis identifies three interrelated dimensions through which *The Auditors* represents auditors' ethical conflict: moral dilemma and organizational loyalty, organizational pressure, and professional risk. On the first dimension, auditors are repeatedly placed in situations where organizational interest and professional obligation point in opposite directions. This mirrors Aminah and Sokarina's (2025) finding that hierarchical pressure is a primary source of ethical dilemma in the same drama, compounded by conflicts of interest rooted in personal relationships and threats to professional reputation. A practicing auditor consulted for triangulation described this tension in similar terms, noting that the most common ethical conflict encountered in practice concerns independence being threatened by pressure from clients or interested parties, even though disclosing wrongdoing remains the auditor's responsibility to the public.

Read through Kant's concept of duty, an auditor who continues to disclose wrongdoing despite organizational pressure is not weighing costs against benefits but performing an obligation that is binding independent of its consequences. This is visible on the second dimension as well: organizational pressure in the drama is dramatized through management interference, restricted access to information, and pressure to halt an ongoing investigation, a pattern consistent with Hidayat's (2025) finding that authority-holders can distort decision-making processes. Such interference constitutes precisely the kind of external obstacle that, from a deontological standpoint, does not excuse the auditor from duty; it is also a direct threat to the independence principle set out in the Indonesian auditor code of ethics.

On the third dimension, professional risk in the drama extends beyond job security to reputational harm, damaged working relationships, and, in some scenes, personal safety, echoing Ratnawati and Budiarta's (2021) finding that auditors with strong professional commitment sustain ethical behavior even under pressure, conflict, and risk. Because Kant ethics does not permit personal risk to override moral obligation, the auditor's willingness to persist despite these risks can be read as an enactment of duty grounded in the objectivity principle: decisions are made on the basis of available facts rather than fear of consequence. Collectively, these three dimensions suggest that ethical conflict in the audit profession is not purely an individual matter of conscience; it is produced by the interaction between personal moral commitment, organizational power, and professional exposure.

4.2. Representation of whistleblowing practice

Whistleblowing in *The Auditors* is not shown as a single reflexive act of reporting. It unfolds as a process: identifying an indication of wrongdoing, gathering and testing evidence, deciding whether and how to report, and living with the organizational response that follows. This staged portrayal is consistent with the process-based understanding of whistleblowing outlined by Widyadhana and Kirana DP (2025), and it also reflects a recurring point made by the practitioner informants, who emphasized that a report is only made once the wrongdoing is judged significant and adequately evidenced, so that the disclosure can be professionally defended.

This evidentiary caution corresponds to what Kant calls the categorical imperative: the auditor acts as though the rule 'disclose confirmed wrongdoing' should hold universally for every auditor in the same position, rather than acting from personal conviction alone. The drama's emphasis on verification before disclosure also aligns with Anggraeni et al.'s (2021)

finding that professionalism and moral intensity jointly predict an auditor's intention to report, and it extends Ramadhan and Satiman's (2025) finding that active auditor involvement is decisive in exposing financial statement fraud, by showing what that involvement concretely looks like at the level of a single decision.

At the same time, the drama does not minimize the cost of disclosure. Auditors anticipate demotion, blocked promotion, supervisory pressure, and even job loss, concerns also raised by the practitioner informants and consistent with Widyadhana and Kirana DP's (2025) observation that fear of retaliation remains a persistent barrier to reporting. Unlike studies that foreground external incentives such as reward schemes (Hasanuddin, 2021), however, the drama depicts auditors as acting predominantly from moral conviction rather than anticipated benefit, which is precisely what a Kant reading would predict of an act performed from good will and duty rather than self-interest.

4.3. Representation of integrity, independence, and objectivity

Integrity, independence, and objectivity emerge as the professional values that most visibly anchor the auditor characters' decisions, consistent with Gani et al.'s (2025) content analysis of the same drama. Integrity appears through the characters' insistence on honesty and their refusal to let pressure alter what they report; independence appears through their capacity to separate personal or organizational interest from professional judgment even while investigating powerful figures within the organization; and objectivity appears through a repeated pattern of verifying evidence before acting on it, rather than accepting information at face value. This last pattern parallels Wulandari's (2024) finding that a functioning whistleblowing system is positively associated with auditors' professional skepticism.

In Kant terms, these three values converge on the idea of good will, acting rightly because it is right, independent of reward or punishment. The auditor characters' persistence in the face of pressure is not framed, narratively, as heroics for its own sake, but as the visible expression of an internalized commitment to honesty, independent judgment, and evidence-based reasoning. Practitioner informants echoed this framing directly, describing integrity, independence, and objectivity as the foundation of the profession and adding, notably, that these values cannot be sustained without moral courage, the willingness to act on them when doing so is costly.

4.4. Synthesis

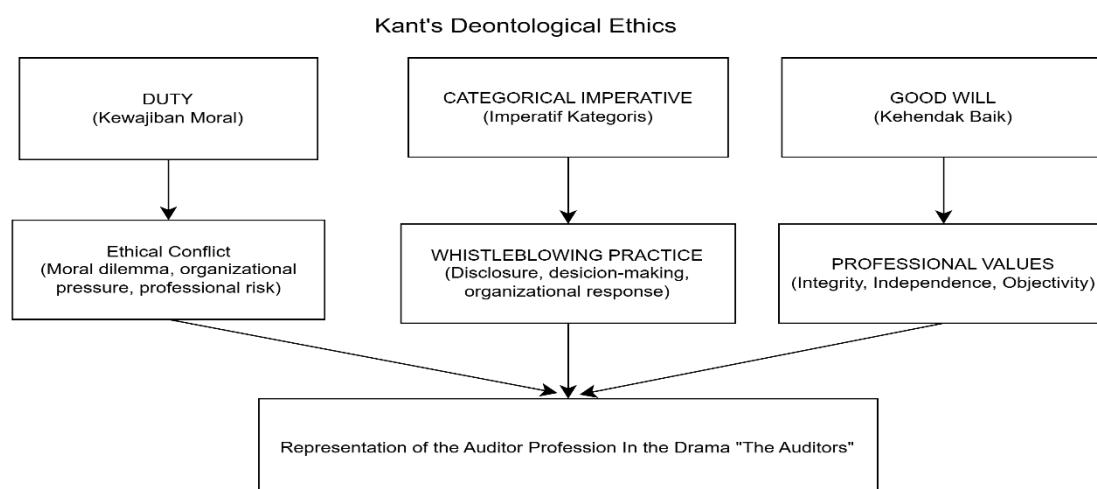


Figure 1. Conceptual framework linking Kant deontology to the representation of auditor ethics

Figure 1 summarizes how these findings connect. Ethical conflict, corresponding to Kant's concept of duty, supplies the situation in which a moral choice becomes necessary. Whistleblowing, corresponding to the categorical imperative, is the evidence-based decision through which that choice is enacted. Integrity, independence, and objectivity, corresponding to good will, are the dispositions that make a principled decision possible in the first place. None of the three operates independently in the drama's narrative; each is a precondition or consequence of the others. This integrated pattern is what distinguishes the present analysis from most prior work on auditor whistleblowing, which tends to isolate predictor variables statistically rather than trace how conflict, decision, and value interact within a single professional narrative.

5. Conclusion

This study set out to examine how *The Auditors* represents the dynamics of auditors' ethical conflict in whistleblowing practice, and it finds that this conflict is built from three interlocking dimensions, moral dilemma and organizational loyalty, organizational pressure, and professional risk, that together push the auditor toward a decision that Kant ethics would describe as an enactment of duty. Whistleblowing itself is represented not as a spontaneous act but as a structured, evidence-based process of disclosure, decision-making, and response, a pattern consistent with the categorical imperative's demand that disclosure be grounded in verifiable fact rather than impulse. Underlying both processes are the professional values of integrity, independence, and objectivity, which the drama consistently frames as expressions of good will rather than of incentive or fear.

Practically, the findings suggest that organizations should treat whistleblowing systems and whistleblower protection as core components of ethical infrastructure rather than as compliance formalities, since the risk of retaliation is what most consistently discourages disclosure in both the fictional and the practitioner accounts examined here. For auditors, the findings underline that technical competence alone does not guarantee ethical resilience; sustaining integrity, independence, and objectivity under pressure also requires moral courage as a distinct, cultivatable competency. For accounting education, the study suggests that a popular drama such as *The Auditors* can be used productively alongside conventional case studies in auditing and professional ethics courses, since its narrative form may make abstract ethical principles more concrete and memorable for students who have not yet encountered comparable pressure in professional practice.

This study is limited by its focus on a single media text and by the qualitative, interpretive nature of its analysis, which does not permit generalization beyond the object examined. Future research could compare how auditor ethics is represented across multiple films, series, or documentaries, or combine narrative analysis with in-depth interviews of internal and external auditors to test whether the patterns identified here hold in professional practice more broadly.

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**THE EFFECT OF *AUDIT FEES*, *TENURE AUDITS*, AND *AUDIT ROTATION* ON
AUDIT QUALITY IN FOOD AND BEVERAGE SUB-SECTOR COMPANIES
LISTED ON THE INDONESIA STOCK EXCHANGE (IDX) FOR THE 2020-2024
PERIOD**

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Abstract

This study aims to analyze the effect of Audit Fees, Audit Tenure, and Audit Rotation on Audit Quality in Food and Beverage sub-sector companies listed on the Indonesia Stock Exchange for the 2020–2024 period. The research population was 57 companies, while the sample consisted of 21 companies with 105 observations selected using the purposive sampling method. Data analysis was carried out using descriptive statistics, logistic regression, and hypothesis testing with the help of IBM SPSS Statistics version 32. The results showed that partially Audit Fees had a significant effect on Audit Quality, while Audit Tenure and Audit Rotation had no significant effect on Audit Quality. Simultaneously, Audit Fees, Tenure Audits, and Audit Rotations have a significant effect on Audit Quality. The results of this study imply that companies and Public Accounting Firms need to pay attention to the determination of Audit Fees in accordance with the complexity of the assignment to support the improvement of Audit Quality, as well as a reference for further research in developing other factors that affect Audit Quality.

Keywords: Audit Fee, Tenure Audit, Audit Rotation, Audit Quality.

1. Introduction

Audit quality is an important indicators in ensuring the credibility of financial statements used by investors stakeholders in economic decision-making. Audited financial statements are expected to be able to provide reliable, relevant, and free information from material misrepresentations so that they can increase the trust of financial statement users. According to Yadiati & Mubarak (2017) , audit quality is the accuracy of the auditor in disclosing the actual condition of the financial statements in accordance with applicable audit standards.

Audit is an examination process that is carried out systematically to obtain and evaluate audit evidence to determine the level of suitability of financial information with the criteria that have been set. Indonesian Institute of Public Accountants (2021) declares that the audit aims to provide adequate confidence that the financial statements have been presented reasonably in accordance with the applicable Financial Accounting Standards.

The quality of audits is influenced by various factors, including Audit Fees, Tenure Audits, and Audit Rotation. Audit Fee is a reward for professional services received by the auditor for the implementation of an audit which is determined based on the level of complexity of the assignment, audit risk, and time required during the audit process. According to Agustini & Siregar (2020), adequate Audit Fees enable auditors to perform audit procedures more effectively, thereby improving audit quality. In addition, Audit Tenure describes the length of the engagement relationship between the auditor and the client company. Longer engagements may improve the auditor's understanding of the client but may also reduce auditor independence. (Damayanti & Aufa, 2022). Audit Rotation aims to maintain auditor independence and objectivity by replacing the auditor or Public Accounting Firm after a certain period. (Mauliana & Laksito, 2021).

Empirical phenomena show that audit quality is still an issue that receives attention in Indonesia. One of the cases occurred at PT Asuransi Adisara Wanaartha (Wanaartha Life),

where the Financial Services Authority (OJK) canceled the registration of Public Accountants and Public Accounting Firms that audited the company's financial statements because it was proven to have committed serious violations in the implementation of audits (Respati & Sukmana, 2023). In addition, Puspadini (2024) reported that the OJK also gave administrative sanctions to KAP Anderson and Partners for not implementing quality control standards adequately and not meeting the principle of auditor independence.

Previous studies on the influence of Audit Fees, Audit Tenure, and Audit Rotation on Audit Quality still show inconsistent results. Damayanti & Aufa (2022) found that Audit Fees had an effect on Audit Quality, while Audit Tenure had no effect. In contrast to research Hidayati & Djamil (2024) which shows that Audit Tenure and Audit Rotation have an effect on Audit Quality. Meanwhile, Ruben & Marsyaf (2025) concludes that Audit Rotation has no effect on Audit Quality. These inconsistent findings indicate a research gap that requires further investigation.

This study uses Food and Beverage *sub-sector companies* listed on the Indonesia Stock Exchange (IDX) for the period 2020–2024 as the object of research. Based on this description, this study aims to empirically analyze the influence of Audit Fees, Audit Tenure, and Audit Rotation on Audit Quality in Food and Beverage sub-sector companies listed on the Indonesia Stock Exchange for the 2020–2024 period. The findings are expected to contribute to auditing literature and provide practical implications for Public Accounting Firms, companies, and regulators.

2. Literature Review

2.1. Agency Theory

According to Jensen & Meckling (1976), agency theory explains the contractual relationship between the principal as the owner of the company and the agent as the party authorized to manage the company. Such relationships can give rise to conflicts of interest (*agency conflict*) due to the difference in purpose between the two parties. Therefore, an independent auditor as a third party is needed to provide confidence that the financial statements have been presented reasonably. According to Watts & Zimmerman (1986) Audit is a mechanism that is able to reduce information asymmetry between management and shareholders thereby increasing trust in financial statements.

2.2. Theory of Auditor Independence

The Auditor Independence Theory explains that auditors must maintain an objective, honest, and free attitude from any party's influence during the audit process. According to Ardillah & Chandra (2022), the independence of the auditor is reflected in the auditor's ability to evaluate audit evidence and convey opinions professionally without being influenced by personal or client interests. Dewi & Setyohadi (2019) stated that independence is one of the main factors that determine audit quality because auditors are required to maintain integrity and objectivity in every audit assignment.

2.3. Audit Quality

Audit quality is the auditor's ability to carry out the financial statement audit process in accordance with applicable audit standards so that they are able to find and disclose material misstatements in financial statements. According to Silgolgi & Djamil (2024), audit quality reflects the auditor's ability to carry out audits in a systematic, structured, and in accordance with the Public Accountant Professional Standards (SPAP). Meanwhile, Abduh et al. (2022), states that audit quality is influenced by the auditor's competence, professionalism,

independence, and compliance with auditing standards so that the audit report produced can be trusted by the users of the financial statements.

2.4. Fee Audit

Audit Fee is a service reward received by the auditor for the implementation of an audit that is adjusted to the complexity of the work, the level of risk, and the resources used during the audit process. According to Damayanti & Aufa (2022), Audit Fees are determined based on the complexity of the assignment as well as the audit risks faced by the auditor. Sawaludin & Fitriyana (2025), explaining that an adequate Audit Fee allows auditors to carry out audit procedures more optimally so that it has the potential to improve the quality of the resulting audits.

2.5. Audit Tenure

Audit Tenure is the period of employment relationship between the auditor and the client company which is measured based on the length of the audit engagement period. According to Mauliana & Laksito (2021), An excessively long tenure audit has the potential to reduce auditor independence due to a closer relationship with the client. However, a longer engagement period can also increase auditors' understanding of the company's characteristics so that the audit is more effective. Therefore, Audit Tenure is still a frequently debated factor in relation to audit quality.

2.6. Audit Rotation

Audit rotation is the replacement of auditors or Public Accounting Firms after a certain period of time as an effort to maintain the independence and objectivity of auditors. According to Purnomo & Aulia (2019), audit rotation aims to prevent too close relationships between auditors and clients so that audit quality is maintained. Provisions regarding audit rotation in Indonesia are also regulated in the Regulation of the Minister of Finance Number 17/PMK.01/2008 as a form of control over the auditor's engagement period.

2.7 Conceptual Framework

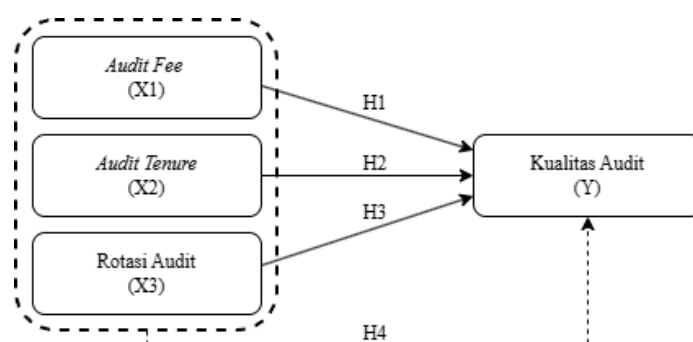


Figure 1. Paragdigma Research

2.7. Research Hypothesis

Based on theory and empirical research results, the hypotheses proposed are as follows:

H1 : *Audit Fee* affect the quality of the audit.

H2 : *Audit Tenure* affect the quality of the audit.

H3 : *Rotation Audit* affect the quality of the audit.

H4 : *Audit Fee, Audit Tenure, Audit Rotation* simultaneously affects the Audit Quality.

3. Methodology

3.1. Types of Research

The type of research used in this study is verifiable research with *explanatory survey* research and quantitative approaches, where this study intends to analyze the influence between one variable and another, namely *Audit Fee*, *Audit Tenure*, and Audit Rotation on Audit Quality. In this study, quantitative data is sourced from the Annual Report of Food and Beverage Sub-Sector Companies Listed on the Indonesia Stock Exchange for the 2020 – 2024 Period.

3.2. Object, Unit of Analysis, and Research Location

The objects in this study include independent variables, namely *Audit Fee*, *Audit Tenure*, and audit rotation. As well as dependent variables, namely audit quality. The unit of analysis in this study is the organization, namely the resource or unit of analysis in question are companies in the *Food and Beverage* Sub-Sector listed on the Indonesia Stock Exchange in 2020-2024. The research was conducted on the Indonesia Stock Exchange (IDX) using secondary data obtained from the company's annual report through the official website of the Indonesia Stock Exchange and the official website of each company.

3.3. Data Types and Sources

This research uses secondary data in the form of audited financial statements and listed in the annual report of *Food and Beverage Sub-Sector Companies* listed on the Indonesia Stock Exchange (IDX) for the 2020–2024 period. The data was obtained through the official website of the Indonesia Stock Exchange.

3.4. Operational Variables

This study uses one dependent variable, namely Audit Quality (Y), and three independent variables consisting of *Audit Fee* (X1), *Audit Tenure* (X2), and *Audit Rotation* (X3). The measurement of each variable is adjusted to the characteristics of secondary data obtained from the annual report of companies in the *Food and Beverage* sub-sector listed on the Indonesia Stock Exchange for the period 2020–2024.

Audit Fee is measured based on the value of professional fees expressed in the form of natural logarithms (Ln), *Audit Tenure* is measured by the length of the engagement relationship between the auditor and the company, *Audit Rotation* is identified through the replacement of auditors using dummy variables, while *Audit Quality* is proxied based on the classification of Public Accounting Firms (KAP), namely Big Four and Non-Big Four KAP. The operationalization of each variable is arranged based on the indicators used in the study so that it can objectively describe the relationship between variables.

Variabel	Indicator
Audit Quality (Y)	The dummy variable is a value of 1 if the Big Four KAP is auditing and a value of 0 if the Big Four KAP is not used.
Fee Audit (X1)	Logaritma Natural pada professional fees.
Audit Tenure (X2)	Measured using the Interval scale if the auditor conducts the first year audit = 1 plus one (+1) for the next year.
Audit Rotation (X3)	The dummy variable values 1 if the company is rotating and 0 if it is not rotating.

3.5. Sample Withdrawal Method

The sample in this study is a *Food and Beverage* sub-sector company listed on the Indonesia Stock Exchange (IDX) for the 2020–2024 period. The sampling technique uses

purposive sampling, which is the determination of samples based on certain criteria according to the purpose of the research. Based on the criteria that have been set, 21 companies were obtained as research samples. With an observation period of five years, the total data analyzed was 105 observations.

3.6. Data Collection Methods

This study uses secondary data obtained from the audited annual *food and beverage* companies listed on the Indonesia Stock Exchange for the 2020–2024 period. The report was were collected from the official IDX and each company’s official website and include data on *Audit Fee*, *Audit Tenure*, *Audit Rotation*, and *Audit Quality*.

3.7. Data Analysis Methods

This study employs a quantitative approach using Binary Logistic Regression with IBM SPSS *Statistics* software version 32. The analysis include descriptive statistics, logistic regression analysis, overall model fit, hosmer and lemeshow, determination coefficient (*Nagelkerke R Square*), hypothesis test using regression coefficients (Wald Test) and also, the Omnibus Test of Model Coefficients.

3.8. Descriptive Statistical Test

Descriptive statistics are used to describe the characteristics of the research data through minimum, maximum, mean, and standard deviation values before further statistical testing (Ghozali, 2018).

3.9. Logistic Regression Analysis

This study uses binary *logistic regression* analysis because the dependent variable is in the form of dichotomous (dummy) data, namely the quality of the audit that is proxied based on the classification of Public Accounting Firms (KAP) Big Four and Non Big Four. This analysis is used to test the influence of *Audit Fee*, *Audit Tenure*, and *Audit Rotation* on *Audit Quality*. The regression model in this study is formulated as follows:

$$KA = \alpha + \beta_1 FA + \beta_2 AT + \beta_3 RA + e$$

Description :

OR = Audit Quality

a = Konstanta

B1- B3= Regression Coefficients

FA = *Fee Audit*

AND = *Audit Tenure*

DATE = *Audit Rotation*

e = *Residual Error* (disruptive variable)

3.10. Evaluating the Overall Model Fit

The Overall Model Fit test evaluates whether the logistic regression model fits the research data by comparing the -2 Log Likelihood values before and after the independent variables are included. A lower -2 Log Likelihood indicates a better model fit.

3.11. Regression Model Feasibility Test (Hosmer and Lemeshow Test)

The Hosmer and Lemeshow test was used to test the feasibility of the logistic regression model. The model is declared feasible if the significance value is greater than 0.05, which indicates that the model is able to describe the observational data well.

3.12. Coefficient of Determination Test (Nagelkerke R Square)

The Coefficient of determination test (*Nagelkerke R Square*) is used to determine the ability of independent variables to explain the variation of dependent variables. The greater the value of the Nagelkerke R Square, the greater the model's ability to explain the quality of the audit.

3.13. Regression Coefficient Test (Wald Test)

The Wald test is used to determine the influence of each independent variable on the dependent variable partially. The hypothesis is accepted if the significance value is less than 0.05.

3.14. Uji Omnibus Test of Model Coefficients (Simultan)

The *Omnibus Test of Model Coefficients* is used to determine the effect of *Audit Fee*, Audit Tenure, and Audit Rotation simultaneously on Audit Quality. The model is declared significant if the significance value is less than 0.05.

4. Results And Discussion

4.1. Data Collection Results

This research uses secondary data obtained from the annual financial statements of Food and Beverage sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2020–2024. Sample selection was carried out by purposive sampling technique based on the criteria that have been set in the study. Based on the selection process, 21 companies were obtained that met the criteria as samples. With an observation period of five years, the total data analyzed was 105 observations, obtained from 21 companies $\times$ 5 years of observation.

4.2. Sample Characteristics Description

The object of this study is a *Food and Beverage* sub-sector company listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. The sample was determined using purposive sampling techniques based on several criteria, namely companies that were listed consecutively during the research period, published audited annual financial statements, used Rupiah, and disclosed professional fees in their financial statements.

Based on these criteria, 21 companies were obtained that met the requirements as a research sample. With an observation period of five years (2020–2024), the number of observations used in this study was 105 observations, obtained from 21 companies $\times$ 5 years of observation.

Research data is obtained from annual financial statements and independent auditor reports published through the official website of the Indonesia Stock Exchange and the official website of each company. All data is then processed to analyze the effect of *Audit Fee*, Audit Tenure, and Audit Rotation on Audit Quality.

4.3. Data Analysis Methods

The research data were analyzed using Binary Logistic Regression with IBM SPSS Statistics version 32. Audit Fee, Audit Tenure, and Audit Rotation were treated as independent variables, while Audit Quality served as the dependent variable.

4.4. Descriptive Statistical Test Results

Descriptive statistical analysis is used to provide an overview of the characteristics of research data through the minimum, maximum, mean, and standard deviation values of each research variable. Based on the results of data processing, this study uses 105 observations from 21 *Food and Beverage* sub-sector companies listed on the Indonesia Stock Exchange (IDX)

during the 2020–2024 period. All data used meet the research criteria so that they can be processed in statistical analysis.

Table 1. Descriptive Statistical Test Results

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Kualitas Audit	105	0	1	.43	.497
Fee Audit	105	17.66	24.07	20.8463	1.43958
Audit Tenure	105	1	5	1.90	1.018
Rotasi Audit	105	0	1	.27	.444
Valid N (listwise)	105				

Source: Data processing results with SPSS 32, 2026

Based on Table 1, this study uses 105 observations from 21 *Food and Beverage sub-sector companies* listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. The Audit Quality Variable (Y) had an average value of 0.43, which showed that around 43% of observations used the services of the Big Four KAP, while the other 57% used the services of the Non-Big Four KAP. Based on the tabulation of data, there were 45 observations audited by the Big Four KAP and 60 observations audited by the Non-Big Four KAP.

The *Audit Fee* (X_1) variable has an average value of 20.8463, *Audit Tenure* (X_2) of 1.90, and *Audit Rotation* (X_3) of 0.27. In general, the standard deviation value of all variables is smaller than the average value, indicating that the data spread is relatively low and the research data is quite representative in describing the condition of the sample company.

4.5. Logistic Regression Analysis

Logistic regression analysis was used to test the effect of *Audit Fee*, *Audit Tenure*, and *Audit Rotation* on *Audit Quality*. The use of this method is adjusted to the characteristics of dichotomous (dummy) dependent variables, so that the logistic regression model is considered appropriate to use. The results of the logistic regression test are presented in Table 2.

Table 2. Logistic Regression Analysis Results
Variables in the Equation

		B	S.E.	Forest	Df	Say.	Exp(B)
Step 1 ^a	Fee Audit	1.333	.261	26.066	1	<,001	3.792
	Audit Tenure	.009	.282	.001	1	.974	1.009
	Rotasi Audit	.420	.660	.405	1	.525	1.522
	Constant	-28.386	5.565	26.020	1	<,001	.000

Source: Data processing results with SPSS 32, 2026

Based on the test results, the following logistic regression equations were obtained:

$$KA = -28,386 + 1,333FA + 0.009AT + 0.420RA + e$$

The logistic regression equation shows that the variables *Audit Fee*, *Audit Tenure*, and *Audit Rotation* have a positive relationship direction to *Audit Quality*. This means that the increase in the value of *Audit Fee*, *Audit Tenure*, and *Audit Rotation* tends to increase the company's chances of obtaining the quality of audits that are proxied using the Big Four Public Accounting Firm (KAP).

1. A constant value of -28.386 indicates that if all independent variables are considered constant or zero, then the logit value of *Audit Quality* is -28.386.

2. The regression coefficient of *the Audit Fee* of 1.333 indicates that each increase of one unit of *Audit Fee* will increase the logit value of the Audit Quality by 1.333, assuming the other variables are fixed.
3. The Audit Tenure regression coefficient of 0.009 indicates that each increase of one unit of Audit Tenure will increase the logit value of Audit Quality by 0.009, assuming other variables are fixed.
4. The Audit Rotation regression coefficient of 0.420 indicates that each increase of one unit of Audit Rotation will increase the Audit Quality logit value by 0.420, assuming the other variables are fixed.

Based on these results, all independent variables have a positive relationship direction to Audit Quality. However, the significant influence of each variable on Audit Quality is determined based on the results of the Wald test which will be discussed in the next section.

4.6. Test the Whole Model

The Overall Model Fit test is used to assess whether the constructed logistics regression model is in accordance with the research data. The test results showed that the value of -2 Log Likelihood (-2LL) decreased from 143,411 at Block Number = 0 to 96,103 at Block Number = 1, or decreased by 47,308. The decrease in the value of -2 Log Likelihood shows that the addition of *the variables Audit Fee*, Audit Tenure, and Audit Rotation is able to increase the model match compared to the model that only contains constants. Thus, the logistic regression model used in this study was declared fit and suitable for further analysis.

Table 3. Initial Model -2LL Overall Test Results

Iteration History ^{a,b,c}			Coefficients
Iteration		-2 Log likelihood	Constant
Step 0	1	143.411	-.286
	2	143.411	-.288
	3	143.411	-.288

Source: Data processing results with SPSS 32, 2026

Tabel 4. Nilai -2 Log Likelihood (Block Number = 1)

Iteration History ^{a,b,c,d}			Coefficients			
Iteration		-2 Log likelihood	Constant	Fee Audit	Audit Tenure	Rotasi Audit
Step 1	1	100.711	-17.755	.839	-.048	.255
	2	96.373	-25.598	1.204	-.011	.384
	3	96.105	-28.170	1.323	.007	.418
	4	96.103	-28.385	1.333	.009	.420
	5	96.103	-28.386	1.333	.009	.420
	6	96.103	-28.386	1.333	.009	.420

Source: Data processing results with SPSS 32, 2026

4.7. Regression Model Feasibility Test (Hosmer and Lemeshow Test)

The Hosmer and Lemeshow's Goodness of Fit Test was used to assess the suitability of the logistic regression model with the research data. The test results in Table 4 show a Chi-square value of 4.463 with df = 8 and a significance value of 0.813. The significance value is greater than 0.05, indicating that there is no significant difference between the observed data and the

data predicted by the model. Thus, the logistic regression model was declared fit and feasible for subsequent hypothesis testing.

Table 5. Hosmer and Lemeshow Test Results
Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.463	8	.813

Source: Data processing results with SPSS 32, 2026

4.8. Coefficient of Determination Test (Nagelkerke R Square)

The determination coefficient is used to determine the ability of independent variables to explain dependent variables. Based on the test results in Table 5, the Cox & Snell R Square value was 0.363 and the Nagelkerke R Square was 0.487. The Nagelkerke R Square value of 0.487 shows that the variables *Audit Fee*, *Audit Tenure*, and *Audit Rotation* are able to explain the variation in *Audit Quality* by 48.7%, while the remaining 51.3% is influenced by other factors outside the research model.

Tabel 6. Hasil Nagelkerke R Square
Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	96.103 ^a	.363	.487

Source: Data processing results with SPSS 32, 2026

4.9. Regression Coefficient Test (Wald Test)

The Wald test is used to determine the influence of each independent variable on the dependent variable partially. Decision-making is carried out based on significance values (Sig.) with a significance level of 5% ($\alpha = 0.05$). The test results can be seen in Table 7.

Table 7. Logistic Regression Analysis Results
Variables in the Equation

		B	S.E.	Forest	df	Sig.	Exp(B)
Step 1 ^a	Fee Audit	1.333	.261	26.066	1	<.001	3.792
	Audit Tenure	.009	.282	.001	1	.974	1.009
	Rotasi Audit	.420	.660	.405	1	.525	1.522
	Constant	-28.386	5.565	26.020	1	<.001	.000

Source: Data processing results with SPSS 32, 2026

Based on the results of the Wald test in Table 7, the following results were obtained:

1. The Effect of Audit Fees on Audit Quality

The results of the study show that Audit Fees have a positive and significant effect on Audit Quality. This is indicated by a regression coefficient of 1.333 with a significance value of < 0.001, smaller than 0.05. Thus, H_1 is accepted, so that the Audit Fee is proven to have an effect on the Quality of the Audit.

2. The Effect of Tenure Audits on Audit Quality

The results of the study show that Audit Tenure does not have a significant effect on Audit Quality. Although it has a positive regression coefficient of 0.009, its significance value is 0.974, greater than 0.05. Thus, H_2 is rejected, so that the Audit Tenure has no effect on the Quality of the Audit.

3. The Effect of Audit Rotation on Audit Quality

The results of the study showed that Audit Rotation did not have a significant effect on Audit Quality. The regression coefficient is 0.420 with a significance value of 0.525, greater than 0.05. Thus, H_3 is rejected, so the Audit Rotation has no effect on the Audit Quality.

4.10. Uji Omnibus Test of Model Coefficients (Simultan)

The Omnibus Test of Model Coefficients is used to determine whether the variables of Audit Fee, Audit Tenure, and Audit Rotation simultaneously affect Audit Quality. The test results are presented in Table 8.

**Table 8. Omnibus Test
Omnibus Tests of Model Coefficients**

		Chi-square	df	Say.
Step 1	Step	47.307	3	<,001
	Block	47.307	3	<,001
	Model	47.307	3	<,001

Source: Data processing results with SPSS 32, 2026

Based on Table 8, a Chi-square value of 47.307 with $df = 3$ and a significance value of < 0.001 was obtained. The significance value is less than 0.05, thus showing that the logistics regression model containing the variables Audit Fee, Audit Tenure, and Audit Rotation is simultaneously significant in explaining Audit Quality. Thus, it can be concluded that the three independent variables together have a significant effect on Audit Quality.

5. Conclusion

The results of the study show that simultaneously Audit Fee, Audit Tenure, and Audit Rotation have a significant effect on Audit Quality in Food and Beverage sub-sector companies listed on the Indonesia Stock Exchange for the 2020–2024 period. Partially, Audit Fees have a positive and significant effect on Audit Quality, which shows that the higher the audit fee provided by the company, the greater the opportunity for auditors to produce quality audits. Meanwhile, Audit Tenure and Audit Rotation have a positive relationship direction, but do not have a significant effect on Audit Quality, so the length of engagement period and auditor turnover has not been proven to affect audit quality in this study.

The implications of this study show that companies need to consider providing audit fees that are in accordance with the complexity of the assignment so that auditors can carry out audit procedures optimally. On the other hand, Audit Tenure and Audit Rotation still need to be managed in accordance with applicable provisions to maintain auditor independence, although in this study the two variables have not shown a significant influence on audit quality. These findings are expected to be input for companies, Public Accounting Firms, and regulators in an effort to improve audit quality and trust in financial statements.

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THE EFFECT OF AUDIT ROTATION, AUDIT TENURE, AND PUBLIC ACCOUNTING FIRM SIZE ON AUDIT QUALITY IN INDUSTRIAL GOODS SUB-SECTOR MANUFACTURING COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE, 2022–2024

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Abstract

This study examines the effects of audit rotation, audit tenure, and public accounting firm size on audit quality in industrial goods sub-sector manufacturing companies listed on the Indonesia Stock Exchange during 2022–2024. Audit quality was measured using a dummy variable reflecting the timeliness of submitting audited annual financial reports to the public, in accordance with Financial Services Authority (OJK) Regulation No. 14/POJK.04/2022. A quantitative, causal-associative approach was applied using secondary data drawn from audited financial statements. The population comprised all industrial goods sub-sector manufacturing companies listed on the Indonesia Stock Exchange between 2022 and 2024, from which 36 companies were selected through purposive sampling, yielding 108 firm-year observations. Data were analyzed using binary logistic regression processed with SPSS version 27. The results show that, partially, audit rotation has no significant effect on audit quality ($\text{sig.} = 0.385 > 0.05$) and audit tenure has no significant effect on audit quality ($\text{sig.} = 0.645 > 0.05$), whereas public accounting firm size has a significant positive effect on audit quality ($\text{sig.} = 0.004 < 0.05$). Simultaneously, the three variables do not significantly affect audit quality ($\text{sig.} = 0.567 > 0.05$). The Nagelkerke R Square value of 0.301 indicates that the three independent variables jointly explain 30.1% of the variation in audit quality.

Keywords: Audit Quality, Audit Rotation, Audit Tenure, Public Accounting Firm Size

1. Introduction

Financial statement audits serve as a critical oversight mechanism that safeguards the fairness and reliability of financial information for stakeholders. Audit quality is generally defined as the probability that an auditor will both detect and report material misstatements within a client's accounting system (DeAngelo, 1981). Within the Indonesian regulatory context, audit quality is also reflected in the timeliness of submitting audited financial reports to the public, as required by Financial Services Authority (OJK) Regulation No. 14/POJK.04/2022, which mandates that companies submit their audited annual financial statements no later than the end of the third month after the reporting date.

The weakening of audit quality in Indonesia is evident from several major cases that have surfaced in recent years. The Jiwasraya case revealed years of undetected window-dressing practices, allegedly linked to weak enforcement of audit rotation and poorly monitored audit engagement periods (Arista et al., 2023). Similarly, the Asabri case involved investment irregularities that went largely undetected, partly attributable to the use of a public accounting firm outside the large-firm category with limited quality-control capacity. Both cases underscore that audit rotation, control over audit tenure, and public accounting firm size are crucial factors in preserving auditor independence and overall audit quality.

Prior studies report inconsistent findings regarding the effects of these three variables on audit quality. Regarding audit rotation, Wicaksono & Purwanto (2021) and Khairullah & Yudianto (2025) found a positive effect on audit quality, whereas Aritonang & Darmawati

(2022) found no significant effect. Regarding audit tenure, Maria et al. (2024) and Effendi & Ulhaq (2021) reported a significant effect on audit quality, while Budiantoro et al. (2021) found no significant effect. Regarding public accounting firm size, Kenny et al. (2025) and Putri & Witono (2025) documented a significant positive effect, whereas Maria et al. (2024) and Irana et al. (2025) found the opposite. These inconsistencies point to a research gap that warrants further investigation.

The industrial goods sub-sector of the manufacturing industry listed on the Indonesia Stock Exchange constitutes a relevant research object, as it is one of the main pillars of the national economy and a priority sector under the government's "Making Indonesia 4.0" program, which demands a high degree of financial transparency and accountability (Rante & Simbolon, 2022). Given its complex operations, substantial fixed-asset base, and diverse related-party transactions, this sector requires reliable audit quality. The data used in this study show that, of the 36 sample companies observed during 2022–2024, 12 companies experienced delays in submitting their audited financial statements, indicating that audit-quality issues persist in this sector.

The novelty of this study lies in three aspects. First, it uses the recent 2022–2024 observation period, which has received limited attention, given that most prior studies, such as Wicaksono & Purwanto (2021) and Maria et al. (2024), covered periods up to 2022 or earlier. Second, it focuses specifically on industrial goods sub-sector manufacturing companies, whose operational characteristics differ from those of other sectors. Third, it measures audit quality using the timeliness of audited financial report submission under OJK Regulation No. 14/POJK.04/2022 as a proxy, an approach that is more relevant to the current Indonesian regulatory context (Lestary & Wafa, 2024).

Based on the foregoing, this study aims to analyze the partial and simultaneous effects of audit rotation, audit tenure, and public accounting firm size on audit quality in industrial goods sub-sector manufacturing companies listed on the Indonesia Stock Exchange during 2022–2024. The findings are expected to provide both theoretical and practical contributions for auditors, regulators, and corporate management in enhancing audit quality and good corporate governance.

2. Literature Review

2.1. Agency Theory

Agency theory, developed by Jensen and Meckling (1976), explains the contractual relationship between capital owners (the principal) and the party authorized to conduct certain activities on their behalf (the agent). Conflicts of interest frequently arise from differing objectives and information asymmetry between management and shareholders. The independent auditor acts as a mediator between the agent and the principal, helping to reduce this information asymmetry. Under this theory, audit rotation is required as a mechanism to break long-term relationships that could undermine auditor independence, while public accounting firm size reflects the auditor's capability to bridge the interests of both parties.

2.2. Signaling Theory

Signaling theory explains that company management uses information as a signal to external parties (Scott, 2012). In an audit context, audit rotation, audit tenure, and public accounting firm size serve as means through which a company signals its commitment to financial reporting quality and integrity to the market. Engaging a large public accounting firm, particularly one affiliated with the Big Four, sends a strong signal to investors that the company is committed to high-quality, trustworthy auditing.

2.3. Audit Rotation

Audit rotation is a policy that requires companies to change their audit firm or auditor after a certain period, with the aim of preserving auditor independence and objectivity and improving audit quality (Agastya & Ardelia, 2024). In Indonesia, audit rotation is regulated under Government Regulation No. 20 of 2015, which limits a public accountant's engagement with the same client to a maximum of five consecutive financial years. In this study, audit rotation is measured with a dummy variable, coded 1 if the company undertook audit rotation and 0 otherwise.

2.4. Audit Tenure

Audit tenure refers to the continuous engagement period between a public accounting firm and its client company (Wicaksono & Purwanto, 2021). An excessively long engagement period may foster an emotional relationship between the auditor and the client that risks compromising independence, whereas an overly short engagement period may limit the auditor's client-specific knowledge (Sabat et al., 2024). Audit tenure is measured by counting the number of consecutive years the same public accounting firm has served the company.

2.5. Public Accounting Firm Size

Public accounting firm size reflects a firm's operational scale, number of auditors, international affiliation, and reputation. Larger public accounting firms generally possess more extensive human resources, more advanced audit technology, and stricter internal quality-control systems. In Indonesia, Big Four affiliated firms are those associated with PricewaterhouseCoopers, Ernst & Young, Deloitte Touche Tohmatsu, and KPMG. This variable is measured with a dummy variable, coded 1 for companies audited by a Big Four firm and 0 for companies audited by a Non-Big Four firm.

2.6. Audit Quality

Audit quality is defined as the auditor's ability to detect material misstatements and willingness to disclose them (DeAngelo, 1981). In this study, audit quality is measured with a dummy variable based on the timeliness of submitting audited annual financial reports to the public through the Indonesia Stock Exchange, in accordance with the deadline stipulated in OJK Regulation No. 14/POJK.04/2022. Companies that submit their audited financial statements on time are coded 1, while those that submit late are coded 0.

2.7. Hypothesis Development

Effect of Audit Rotation on Audit Quality. Under agency theory, a long-term relationship between an auditor and a client that is not periodically interrupted may give rise to a familiarity threat that weakens the auditor's professional skepticism and objectivity in evaluating the fairness of financial statements. When an auditor becomes overly comfortable with client management, the auditor's capacity to act as an independent party bridging the information asymmetry between the agent and the principal is diminished. Audit rotation serves as a mechanism to interrupt this potential dependency, thereby minimizing the conflict of interest between management and shareholders.

H1: Audit rotation affects audit quality.

Effect of Audit Tenure on Audit Quality. Audit tenure has two opposing implications for audit quality. On the one hand, a short engagement period may leave the auditor with an insufficient understanding of the client's business characteristics, internal control systems, and business risks, thereby limiting the auditor's ability to detect material misstatements. On the

other hand, consistent with agency theory, an excessively long engagement period risks fostering economic dependence and personal closeness between the auditor and client management, which may reduce independence and encourage the auditor to prioritize the client's interests over those of financial statement users. The length of the audit engagement therefore has the potential to affect the balance between the auditor's business understanding and independence, which ultimately determines the resulting audit quality.

H2: Audit tenure affects audit quality.

Effect of Public Accounting Firm Size on Audit Quality. Under signaling theory, public accounting firm size functions as an indicator of capability that the market interprets as a signal of audit service quality. Larger public accounting firms, particularly those affiliated with international networks such as the Big Four, generally employ more competent auditors, apply more standardized audit methodologies, use more advanced audit technology, and maintain stricter internal quality-control systems than smaller firms. Their broadly established reputations also give large firms a stronger incentive to safeguard their independence and professional integrity, since a failure to detect material misstatement risks far greater reputational loss than it would for a smaller firm. Public accounting firm size is therefore expected to influence the resulting level of audit quality.

H3: Public accounting firm size affects audit quality.

Simultaneous Effect of Audit Rotation, Audit Tenure, and Public Accounting Firm Size on Audit Quality. These three variables essentially represent complementary mechanisms that jointly preserve auditor independence and competence throughout the audit process. Audit rotation preserves auditor objectivity by preventing dependency arising from long-term auditor–client relationships; audit tenure determines the balance between the auditor's business understanding and independence; and public accounting firm size reflects the resource capacity and quality-control systems that support adequate audit execution. Because these three variables operate on different yet interrelated aspects of auditor behavior and capability, it is theoretically plausible that their combination simultaneously affects the resulting audit quality, even though the magnitude of each variable's partial effect may differ.

H4: Audit rotation, audit tenure, and public accounting firm size simultaneously affect audit quality.

3. Methodology

3.1. Research Design

This study adopts a quantitative, causal-associative design intended to test and analyze the causal relationships between the independent variables — audit rotation, audit tenure, and public accounting firm size — and the dependent variable, audit quality. The quantitative approach was chosen because the study emphasizes the measurement of numerical data and hypothesis testing through statistical analysis to arrive at objective conclusions. The data used are secondary data comprising the annual financial statements and independent auditor's reports of industrial goods sub-sector manufacturing companies listed on the Indonesia Stock Exchange during 2022–2024, obtained from the official Indonesia Stock Exchange website (www.idx.co.id) and the official websites of the sample companies.

3.2. Population and Sample

The population of this study consists of all industrial goods sub-sector manufacturing companies listed on the Indonesia Stock Exchange (IDX) during 2022–2024. This population was selected because the industrial goods sub-sector consistently publishes audited annual

financial statements, making it relevant for a study examining audit quality. The sample consists of industrial goods sub-sector manufacturing companies listed on the IDX that satisfy the criteria set by the researchers during the 2022–2024 observation period, selected through purposive sampling — a technique of determining a sample based on specific considerations or criteria relevant to the research objective (Sugiyono, 2019). The sample selection criteria and results are presented in Table 1.

Table 1. Sample Selection Procedure for Industrial Goods Sub-Sector Manufacturing Companies

Description	Number
Industrial goods sub-sector manufacturing companies listed on the IDX, 2022–2024	36
Companies that did not publish annual reports consecutively during 2022–2024	(0)
Companies that did not use the Indonesian rupiah as their reporting currency during 2022–2024	(0)
Companies with incomplete information on the research variables (audit rotation, audit tenure, and public accounting firm size)	(0)
Number of sample companies	36
Observation years	3
Total research observations	108

3.3. Data Analysis Method

Because the dependent variable is dichotomous (dummy), binary logistic regression was used as the analysis method. The logistic regression model in this study is formulated as follows:

$$\ln (\rho/1-\rho) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$$

Where ρ is the probability of high audit quality; X_1 is audit rotation; X_2 is audit tenure; X_3 is public accounting firm size; β_0 is the constant; and e is the error term.

The analysis included tests of overall model fit, model adequacy (Hosmer and Lemeshow's Goodness of Fit), the coefficient of determination (Nagelkerke R Square), the partial test (Wald test), and the simultaneous test (Omnibus Test of Model Coefficients). All tests were conducted with SPSS version 27 at a 5% significance level ($\alpha = 0.05$).

3.4. Variable Operationalization

Table 2. Operationalization of Research Variables

Variable	Definition	Indicator / Measurement	Scale
Audit Rotation (X1)	A change of the public accounting firm or public accountant undertaken by the company.	Dummy variable: 1 if the company undertook audit rotation, 0 if it did not.	Nominal
Audit Tenure (X2)	The length of the engagement period during which an auditor provides audit services to a client.	Number of consecutive years of engagement between the same audit partner/firm and the client, starting at 1 in the first year and incremented by one each subsequent year.	Ratio

Public Accounting Firm Size (X3)	The classification of a public accounting firm as Big Four or Non-Big Four affiliated.	Dummy variable: 1 if Big Four, 0 if Non-Big Four.	Nominal
Audit Quality (Y)	The auditor's ability to complete an audit effectively and in a timely manner, and to detect and disclose material misstatements.	Dummy variable: 1 if the company submitted its audited financial statements on time, 0 if it was late.	Nominal

4. Results and Discussion

4.1. Description of Research Data

The data used in this study relate to industrial goods sub-sector manufacturing companies listed on the Indonesia Stock Exchange during 2022–2024. The sample was selected using purposive sampling based on the criteria set out above. The secondary data consist of audited financial statements published on the IDX for the years 2022, 2023, and 2024.

Based on the sample-selection criteria applied, 36 industrial goods sub-sector manufacturing companies were obtained, generating a total of 108 observations over 2022–2024. Of these, 12 companies experienced delays in submitting their annual financial statements, while the remaining 24 companies submitted their reports on time.

4.2. Descriptive Statistics

Table 3. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Year	108	2022	2024	2023.00	.820
Audit Rotation	108	0	1	.19	.398
Audit Tenure	108	0	4	2.36	1.036
Public Accounting Firm Size	108	0	1	.28	.450
Audit Quality	108	0	1	.83	.374

As shown in Table 3, the mean value of audit rotation of 0.19 indicates that only about 19% of the sample companies undertook audit rotation, meaning 81% retained the same public accounting firm. The mean audit tenure of 2.36 shows that the sample companies engaged the same public accounting firm for approximately two to three years on average. The mean public accounting firm size of 0.28 indicates that 28% of the observations were audited by a Big Four firm, while 72% were audited by a Non-Big Four firm. The mean audit quality of 0.83 indicates that 83% of the sample companies submitted their financial statements on time.

4.3. Logistic Regression Analysis

The overall model fit test showed a decrease in the –2 Log Likelihood (–2LL) value from 97.321 at Step 0 to 95.297 at Step 1, a reduction of 2.024. This decline indicates that the logistic regression model increasingly explains the research data, confirming that the hypothesized model fits the data.

Table 4. Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.402	5	.995

Table 4 shows a chi-square value of 0.402 with a significance level of 0.995, which is greater than 0.05, indicating that the model is fit and acceptable. This result confirms that there is no significant difference between the model and the empirical data, so the logistic regression model used is appropriate for the analysis.

Table 5. Coefficient of Determination (Nagelkerke R Square)

Step	–2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	95.297	.019	.301

Table 5 shows a Nagelkerke R Square value of 0.301, indicating that audit rotation, audit tenure, and public accounting firm size jointly explain only 30.1% of the variation in audit quality, while the remaining 69.9% is explained by other factors not included in the model. This relatively small value suggests that audit quality is a complex phenomenon shaped by many additional factors, such as auditor independence, auditor competence, industry specialization, audit fees, company size, operational complexity, profitability, leverage, and the effectiveness of corporate governance.

Table 6. Partial Test (Wald Test) Results

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Audit Rotation	-.772	.890	.754	1	.385	.462
Audit Tenure	-.161	.350	.213	1	.645	.851
Public Accounting Firm Size	.703	.611	1.322	1	.004	.495
Constant	2.381	1.000	5.669	1	.017	10.810

Constant. The constant value of 2.381 (positive) indicates that when audit rotation, audit tenure, and public accounting firm size are held constant at zero, the logit value of audit quality is 2.381, representing the baseline probability of audit quality before accounting for the independent variables.

Audit Rotation (H1). The regression coefficient for audit rotation is -0.772 with a significance value of 0.385. At $\alpha = 5\%$, this coefficient is not significant ($0.385 > 0.05$); thus, audit rotation has no significant effect on audit quality, and H1 is not supported.

Audit Tenure (H2). The regression coefficient for audit tenure is -0.161 with a significance value of 0.645. At $\alpha = 5\%$, this coefficient is not significant ($0.645 > 0.05$); thus, audit tenure has no significant effect on audit quality, and H2 is not supported.

Public Accounting Firm Size (H3). The regression coefficient for public accounting firm size is 0.703 with a significance value of 0.004. At $\alpha = 5\%$, this coefficient is significant ($0.004 < 0.05$); thus, public accounting firm size has a significant effect on audit quality, and H3 is supported.

Table 7. Omnibus Test of Model Coefficients (Simultaneous Test)

	Chi-square	df	Sig.
Step / Block / Model	2.024	3	.567

The Omnibus Test produced a chi-square value of 2.024 with 3 degrees of freedom and a significance value of 0.567. Because this value exceeds the 5% significance level, audit rotation, audit tenure, and public accounting firm size do not simultaneously have a significant effect on audit quality (H4 is not supported). This indicates that changes in these three variables jointly are not yet sufficient to explain the variation in audit quality among the sample companies

during 2022–2024.

4.4. Discussion

Effect of Audit Rotation on Audit Quality. The statistical test for audit rotation yielded a significance value of 0.385 (> 0.05) and a Wald value of 0.754, indicating no significant effect of audit rotation (X1) on audit quality (Y); the null hypothesis (H0) is therefore accepted and the alternative hypothesis (Ha) rejected. This result suggests that whether or not audit rotation occurs does not guarantee an improvement in audit quality. A change of auditor may bring a fresh perspective to the engagement, but the incoming auditor does not necessarily understand the client's business conditions and characteristics immediately, requiring an adjustment period. Audit quality appears to be determined more by auditor competence, adherence to auditing standards, professional skepticism, and the effectiveness of audit procedures than by the presence or absence of rotation. This may also reflect the sample composition, in which around 81% of the industrial goods sub-sector companies did not undertake audit rotation, limiting the variation available to detect a meaningful effect.

This finding is consistent with Aritonang & Darmawati (2022), who found that audit rotation does not affect audit quality. Wardani et al. (2020) similarly noted that more frequent audit rotation may even reduce audit quality, since incoming auditors need time to understand the client's operations, financial systems, and risks. The finding is further supported by Fauziyyah & Praptiningsih (2020), who also found no significant effect of audit rotation on audit quality.

Effect of Audit Tenure on Audit Quality. The statistical test for audit tenure yielded a significance value of 0.645 (> 0.05) and a Wald value of 0.213, indicating no significant effect of audit tenure (X2) on audit quality (Y); H0 is accepted and Ha is rejected. This result indicates that the length of the auditor–client engagement does not, by itself, determine the resulting audit quality. A longer engagement should, in principle, deepen the auditor's understanding of the client, making manipulation easier to detect; yet it may also foster excessive trust in the client and discourage the auditor from refreshing audit strategies and procedures, potentially lowering audit quality. In either case, external auditors are required to act independently, objectively, and responsibly according to applicable standards regardless of engagement length, and competent, experienced auditors can assess audit risk, business risk, and internal control effectiveness efficiently regardless of tenure. The relatively short average tenure observed in this sample (2.36 years) also limited the variation available to detect a significant effect. This finding aligns with Budiantoro et al. (2021), who found that the length of engagement does not affect audit quality because experienced auditors remain able to adequately understand business risk and internal control. It is also consistent with Wicaksono & Purwanto (2021), who reported no significant effect of audit tenure on audit quality.

Effect of Public Accounting Firm Size on Audit Quality. The statistical test for public accounting firm size yielded a significance value of 0.004 (< 0.05) and a Wald value of 1.322, indicating a significant effect of public accounting firm size (X3) on audit quality (Y); H0 is rejected and Ha is accepted. This result shows that companies audited by larger public accounting firms, particularly Big Four affiliates, tend to achieve better audit quality than those audited by Non-Big Four firms. Large firms are considered to have more competent human resources, more standardized audit methodologies, more advanced technology, and stricter quality-control systems, enabling them to complete audits more effectively and efficiently. This is reflected in the sample, where the roughly 28% of companies audited by Big Four firms tended to be more timely in submitting their audited annual financial statements to the public through the IDX — the proxy for audit quality used in this study.

Large public accounting firms, especially those in the Big Four category, have an international reputation to protect, giving them a stronger incentive to produce high-quality audit reports that

are free from client influence. This is consistent with signaling theory, whereby a company's choice of a large public accounting firm signals to the market its commitment to transparent and credible financial reporting. Conversely, companies audited by Non-Big Four firms, which often have more limited capacity and resources, may face greater challenges in conducting an efficient audit process, which can in turn affect the resulting audit quality.

Simultaneous Effect of Audit Rotation, Audit Tenure, and Public Accounting Firm Size on Audit Quality. Among industrial goods sub-sector manufacturing companies listed on the IDX during 2022–2024, the partial test results show that audit rotation (X1) and audit tenure (X2) do not significantly affect audit quality (Y), while public accounting firm size (X3) does. The Omnibus Test of Model Coefficients produced a chi-square value of 2.024 (df = 3) and a significance value of 0.567, indicating that audit rotation, audit tenure, and public accounting firm size do not jointly have a significant effect on audit quality. The Nagelkerke R Square of 0.301 confirms that these three variables jointly explain only 30.1% of the variation in audit quality, with the remaining 69.9% attributable to factors outside the model, such as auditor independence, auditor competence, audit fees, auditor industry specialization, company size, operational complexity, profitability, leverage, and the effectiveness of corporate governance. This suggests that audit rotation, audit tenure, and public accounting firm size are not yet, on their own, sufficient to significantly explain changes in audit quality among industrial goods sub-sector manufacturing companies listed on the IDX during 2022–2024. This may be attributable to the predominance, within the sample, of companies that did not undertake audit rotation (81%) and that used Non-Big Four public accounting firms (72%), which limited the variation in the independent variables. In addition, audit quality — proxied here by the timeliness of financial statement submission — is a phenomenon shaped by numerous factors simultaneously, such that these three variables alone are insufficient to fully explain its variation.

5. Conclusion

Based on the study of the effect of audit rotation, audit tenure, and public accounting firm size on audit quality in industrial goods sub-sector manufacturing companies listed on the Indonesia Stock Exchange during 2022–2024, the following conclusions can be drawn.

1. Audit rotation was found to have no effect on audit quality. Whether or not a company changes its public accounting firm does not guarantee improved audit quality, since a new auditor requires time to understand the client's business conditions and risks; audit rotation alone is therefore not yet a sufficient mechanism for preserving independence or influencing the resulting audit quality.
2. Audit tenure was found to have no effect on audit quality. The length of the engagement between a public accounting firm and its client company is not associated with better or worse audit quality, regardless of whether the engagement period is relatively short or long.
3. Public accounting firm size was found to have a positive effect on audit quality. The larger the scale and capacity of the public accounting firm engaged by a company — particularly Big Four affiliated firms — the better the resulting audit quality, supported by more adequate resources, technology, and quality-control systems.
4. Simultaneously, audit rotation, audit tenure, and public accounting firm size were found to have no significant effect on audit quality. Together, these three variables explain only a small proportion of the variation in audit quality, indicating that other factors outside this research model play a more substantial role in determining the resulting audit quality.

Theoretically, these findings contribute to the development of agency theory and signaling theory within the audit context, particularly by showing that the quality signal the market derives from a public accounting firm's size and reputation plays a stronger role in explaining

audit quality than the signal derived from audit rotation policy or engagement length alone. The results demonstrate that auditor independence is shaped not only by the duration of the auditor–client relationship but also, to a considerable extent, by the reputation and quality-control systems of the public accounting firm.

Practically, this study is expected to offer several implications. For auditors and public accounting firms, the findings may inform policies on audit rotation and engagement duration aimed at preserving independence and improving audit quality. For corporate management, the findings may support decisions on selecting independent, high-quality auditors to strengthen corporate governance. For investors and other stakeholders, the study may serve as a source of information for assessing the credibility of manufacturing companies' financial statements.

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TRANSFORMATIONAL LEADERSHIP AND ORGANIZATIONAL PERFORMANCE: THE MEDIATING ROLE OF ORGANIZATIONAL CULTURE IN PRIVATE COMPANIES IN BANDAR LAMPUNG

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Abstract

Penelitian ini bertujuan untuk menganalisis pengaruh kepemimpinan transformasional terhadap kinerja organisasi dengan budaya organisasi sebagai variabel mediasi pada perusahaan swasta di Bandar Lampung. Metode penelitian yang digunakan adalah pendekatan kuantitatif dengan teknik analisis Partial Least Squares Structural Equation Modeling (PLS-SEM) terhadap 397 responden. Hasil penelitian menunjukkan bahwa kepemimpinan transformasional berpengaruh positif dan signifikan terhadap kinerja organisasi serta budaya organisasi. Selain itu, budaya organisasi juga berpengaruh positif terhadap kinerja organisasi dan terbukti mampu memediasi hubungan antara kepemimpinan transformasional dan kinerja organisasi. Temuan ini menegaskan bahwa peningkatan kinerja organisasi dapat dicapai melalui penerapan kepemimpinan transformasional yang didukung oleh budaya organisasi yang kuat dan adaptif.

Keywords: organizational performance, transformational leadership, organizational culture

1. Introduction

Era globalisasi dan transformasi digital memaksa organisasi untuk mengakselerasi kinerja secara berkelanjutan guna memenangkan persaingan di pasar yang dinamis (Barreto et al., 2025; Rahman et al., 2025). Kinerja organisasi tidak hanya ditentukan oleh sumber daya yang dimiliki, tetapi juga oleh bagaimana organisasi dikelola melalui kepemimpinan yang efektif dan budaya organisasi yang kuat (Ngoc Huynh et al., 2024). Salah satu pendekatan kepemimpinan yang banyak dikaji dalam literatur manajemen modern adalah kepemimpinan transformasional, yang berfokus pada kemampuan pemimpin dalam menginspirasi, memotivasi, dan mendorong perubahan positif dalam organisasi (Tran et al., 2025).

Salah satu pendekatan kepemimpinan yang banyak mendapat perhatian dalam literatur manajemen adalah kepemimpinan transformasional (Qalati et al., 2022). Gaya kepemimpinan ini menekankan pada kemampuan pemimpin dalam menginspirasi, memotivasi, serta mendorong perubahan positif melalui visi yang jelas dan komunikasi yang efektif (Nair Subramanian & Banihashemi, 2024). Berbagai penelitian menunjukkan bahwa kepemimpinan transformasional memiliki pengaruh signifikan terhadap peningkatan kinerja organisasi, baik secara langsung maupun melalui peningkatan keterlibatan dan komitmen karyawan (Amrullah et al., 2022; Virgiawan et al., 2021). Selain itu, kepemimpinan transformasional juga berperan dalam membentuk nilai dan norma yang menjadi dasar terbentuknya budaya organisasi (Iddrisu, 2025).

Secara empiris, peran kepemimpinan dan budaya organisasi dalam meningkatkan kinerja telah banyak dibuktikan. Misalnya, sektor UMKM di Indonesia diketahui berkontribusi lebih dari 60% terhadap Produk Domestik Bruto (PDB), yang menunjukkan pentingnya kinerja organisasi dalam mendukung perekonomian nasional (Nardo et al., 2025). Selain itu, penelitian menunjukkan bahwa banyak organisasi di Indonesia masih menghadapi tantangan dalam meningkatkan kinerja akibat lemahnya sistem kepemimpinan dan budaya organisasi yang belum optimal. Studi empiris lainnya mengungkapkan bahwa kepemimpinan transformasional dan budaya organisasi memiliki pengaruh signifikan terhadap kinerja, baik secara langsung

maupun tidak langsung (Daulay et al., 2025; Wijayanti et al., 2025), sehingga hubungan antara variabel-variabel tersebut menjadi fenomena yang relevan untuk diteliti lebih lanjut.

Meskipun secara teoritis kepemimpinan transformasional dapat meningkatkan kinerja organisasi, realitas di lapangan menunjukkan bahwa tidak semua organisasi mampu mencapai kinerja yang optimal (Schiuma et al., 2024). Hal ini mencerminkan adanya kesenjangan antara kondisi ideal dan kondisi aktual. Banyak organisasi telah menerapkan gaya kepemimpinan transformasional, namun hasil yang diperoleh belum maksimal (Moreno-Domínguez et al., 2024). Permasalahan ini mengindikasikan bahwa pengaruh kepemimpinan tidak selalu bersifat langsung, melainkan dipengaruhi oleh variabel lain, seperti budaya organisasi. Dalam beberapa kasus, budaya organisasi yang lemah, kurang adaptif, atau tidak selaras dengan visi pemimpin justru dapat menghambat peningkatan kinerja organisasi (Nagy & Gáspár, 2025). Oleh karena itu, penting untuk memahami bagaimana mekanisme hubungan antara kepemimpinan transformasional dan kinerja organisasi, khususnya melalui peran budaya organisasi.

Tabel 1. Jumlah Perusahaan Besar dan Sedang (IBS)

No	Kabupaten / Kota	Jumlah Perusahaan IBS 2022	Jumlah Perusahaan IBS 202	Jumlah Perusahaan IBS 2024
1	Lampung Barat	-	1	1
2	Tanggamus	2	2	2
3	Lampung Selatan	100	102	83
4	Lampung Timur	40	40	34
5	Lampung Tengah	77	82	83
6	Lampung Utara	12	12	9
7	Way Kanan	10	11	9
8	Tulang Bawang	10	9	8
9	Pesawaran	8	8	8
10	Pringsewu	8	8	10
11	Mesuji	7	8	7
12	Tulang Bawang Barat	9	9	9
13	Bandar Lampung	106	114	98
14	Metro	14	14	13
Provinsi Lampung		403	402	374

Sumber: Badan Pusat Statistik Privinsi Lampung 2024

Berdasarkan Tabel 1 mengenai jumlah perusahaan IBS di Provinsi Lampung tahun 2022–2024, terlihat bahwa secara keseluruhan terjadi penurunan jumlah perusahaan dari 403 unit pada tahun 2022 menjadi 374 unit pada tahun 2024. Penurunan ini menunjukkan adanya dinamika dan tantangan yang dihadapi oleh organisasi dalam mempertahankan kinerja dan keberlangsungan usahanya di tengah perubahan lingkungan bisnis yang semakin kompleks. Kota Bandar Lampung sebagai ibu ko ta provinsi menunjukkan bahwa jumlah perusahaan IBS mengalami fluktuasi, yaitu sebanyak 106 perusahaan pada tahun 2022, meningkat menjadi 114 perusahaan pada tahun 2023, namun kemudian menurun menjadi 98 perusahaan pada tahun 2024. Kondisi ini mengindikasikan bahwa meskipun Bandar Lampung merupakan salah satu pusat kegiatan ekonomi di Provinsi Lampung, organisasi di wilayah ini tetap menghadapi tekanan dalam mempertahankan kinerja dan stabilitas operasionalnya.

Penurunan jumlah perusahaan dapat menjadi indikator bahwa tidak semua organisasi mampu beradaptasi secara optimal terhadap perubahan lingkungan, baik dari sisi strategi, kepemimpinan, maupun budaya organisasi (Hafnidah et al., 2025). Dalam konteks ini,

kepemimpinan transformasional menjadi faktor penting yang dapat membantu organisasi dalam menghadapi perubahan dan meningkatkan kinerja. Namun, sebagaimana dijelaskan dalam latar belakang, pengaruh kepemimpinan transformasional tidak selalu bersifat langsung, melainkan dipengaruhi oleh faktor lain seperti budaya organisasi. Penurunan jumlah perusahaan di Bandar Lampung pada tahun 2024 dapat mencerminkan adanya kesenjangan antara penerapan kepemimpinan yang ideal dengan kondisi aktual di lapangan, di mana budaya organisasi yang belum kuat atau tidak adaptif dapat menghambat peningkatan kinerja organisasi (Nagy & Gáspár, 2025).

Berbagai penelitian terdahulu telah mengkaji hubungan antara kepemimpinan transformasional, budaya organisasi, dan kinerja organisasi. Penelitian terdahulu menunjukkan bahwa kepemimpinan transformasional dan budaya organisasi secara simultan berpengaruh signifikan terhadap kinerja karyawan (Zainal, 2019). Sementara itu, penelitian lain menyatakan bahwa budaya organisasi dapat meningkatkan perilaku inovatif yang berdampak pada kinerja (Indriyani et al., 2025). Penelitian berikutnya menunjukkan bahwa pengaruh kepemimpinan terhadap kinerja dapat terjadi secara tidak langsung melalui variabel intervening (Sakhroni et al., 2025). Selain itu, bahwa budaya organisasi berperan sebagai variabel mediasi dalam hubungan antara kepemimpinan dan kinerja (Arum et al., 2025). Hal ini menunjukkan bahwa hubungan antar variabel tersebut bersifat kompleks dan tidak selalu linear.

Namun demikian, hasil penelitian sebelumnya masih menunjukkan adanya inkonsistensi, terutama terkait apakah pengaruh kepemimpinan transformasional terhadap kinerja bersifat langsung atau dimediasi oleh budaya organisasi. Selain itu, sebagian besar penelitian masih berfokus pada sektor publik, BUMN, atau perusahaan besar, sehingga belum sepenuhnya mencerminkan kondisi perusahaan swasta di daerah. Penelitian yang secara khusus mengkaji perusahaan swasta di Bandar Lampung juga masih sangat terbatas. Di sisi lain, penelitian yang menempatkan budaya organisasi sebagai mediator utama dalam hubungan antara kepemimpinan transformasional dan kinerja organisasi juga belum banyak dilakukan. Kondisi ini menunjukkan adanya celah penelitian yang perlu dikaji lebih lanjut.

Berdasarkan hal tersebut, penelitian ini menjadi penting untuk dilakukan, mengingat perusahaan swasta di daerah seperti Bandar Lampung memiliki peran strategis dalam mendorong pertumbuhan ekonomi lokal. Dalam menghadapi persaingan bisnis yang semakin ketat, perusahaan memerlukan strategi manajemen yang efektif, khususnya melalui penerapan kepemimpinan transformasional yang didukung oleh budaya organisasi yang kuat dan selaras. Oleh karena itu, penelitian ini bertujuan untuk menganalisis pengaruh kepemimpinan transformasional terhadap kinerja organisasi serta menguji peran budaya organisasi sebagai variabel mediasi dalam konteks perusahaan swasta di Bandar Lampung.

Penelitian ini diharapkan dapat memberikan kontribusi baik secara teoritis maupun praktis. Secara teoritis, penelitian ini akan memperkaya literatur mengenai hubungan antara kepemimpinan transformasional, budaya organisasi, dan kinerja organisasi, khususnya dalam perspektif mediasi. Secara praktis, hasil penelitian ini diharapkan dapat menjadi acuan bagi manajemen perusahaan dalam merancang strategi peningkatan kinerja melalui penguatan kepemimpinan transformasional, pengembangan budaya organisasi yang adaptif dan inovatif, serta penyelarasan antara visi pemimpin dan nilai-nilai organisasi. Dengan demikian, penelitian ini diharapkan mampu memberikan pemahaman yang lebih komprehensif mengenai mekanisme hubungan antar variabel serta solusi nyata dalam meningkatkan kinerja organisasi, khususnya pada perusahaan swasta di Bandar Lampung.

2. Literature Review

2.1. Organizational Performance

Kinerja organisasi merupakan konsep utama dalam ilmu manajemen yang digunakan untuk mengukur tingkat keberhasilan suatu organisasi dalam mencapai tujuan yang telah ditetapkan. Kinerja organisasi mencerminkan hasil dari seluruh aktivitas organisasi yang dipengaruhi oleh berbagai faktor, seperti kepemimpinan, budaya organisasi, strategi, serta sumber daya manusia. Kinerja organisasi adalah hasil dari aktivitas organisasi yang mencakup tiga aspek utama, yaitu kinerja keuangan, kinerja pasar, dan nilai pemegang saham (Richard et al., 2009). Definisi ini menekankan bahwa kinerja organisasi tidak hanya dilihat dari aspek finansial, tetapi juga dari posisi kompetitif organisasi di pasar. Kinerja organisasi merupakan kemampuan organisasi dalam mencapai tujuan secara efektif dan efisien melalui pemanfaatan sumber daya yang dimiliki (Pratiwi et al., 2025).

Kinerja organisasi memiliki empat indikator utama, yaitu *financial perspective* (perspektif keuangan), *customer perspective* (perspektif pelanggan), *internal business process* (proses bisnis internal), dan *learning and growth* (pembelajaran dan pertumbuhan), yang mencerminkan kemampuan organisasi dalam mencapai kinerja keuangan, memenuhi kepuasan pelanggan, meningkatkan efektivitas proses internal, serta mengembangkan kapasitas dan inovasi organisasi secara berkelanjutan (Kaplan & David P. Norton, 1992). Keempat indikator tersebut dapat digunakan sebagai dasar dalam mengukur dan mengevaluasi tingkat keberhasilan organisasi dalam mencapai tujuan strategisnya, sehingga mampu memberikan gambaran yang komprehensif mengenai kinerja organisasi baik dari aspek finansial maupun non-finansial.

Kinerja organisasi merupakan konsep multidimensional yang mencerminkan kemampuan organisasi dalam mencapai tujuan strategis melalui pemanfaatan sumber daya secara optimal (Taouab & Issor, 2019). Definisi ini kemudian diperkuat oleh penelitian terbaru yang menekankan bahwa kinerja organisasi harus dilihat sebagai hasil integrasi antara strategi, proses internal, dan perilaku sumber daya manusia (Drago et al., 2023). Kinerja organisasi juga dijelaskan sebagai hasil dari aktivitas organisasi yang mencakup tiga aspek utama, yaitu kinerja keuangan, kinerja pasar, dan nilai pemegang saham. Definisi ini menekankan bahwa kinerja organisasi tidak hanya dilihat dari aspek finansial, tetapi juga dari posisi kompetitif organisasi di pasar (Huynh et al., 2024).

2.2. Transformational Leadership

Kepemimpinan transformasional merupakan salah satu gaya kepemimpinan yang berfokus pada kemampuan pemimpin dalam menginspirasi dan memotivasi bawahan untuk mencapai kinerja yang melampaui harapan. Konsep ini pertama kali diperkenalkan oleh Burns yang membedakan antara kepemimpinan transformasional dan transaksional (Burns, 1978). Selanjutnya, Bass mengembangkan konsep ini dengan menekankan bahwa pemimpin transformasional mampu meningkatkan kesadaran bawahan terhadap pentingnya tujuan organisasi serta mendorong mereka untuk mengutamakan kepentingan bersama di atas kepentingan pribadi (Bass, 1985).

Kepemimpinan transformasional adalah gaya kepemimpinan yang mampu mengubah nilai, sikap, dan perilaku pengikut melalui inspirasi dan motivasi sehingga mereka bersedia bekerja secara optimal demi mencapai tujuan organisasi (Bass & Ronald E. Riggio, 2006). Dalam konteks organisasi modern, kepemimpinan transformasional terbukti memiliki pengaruh signifikan terhadap kinerja organisasi, komitmen karyawan, serta inovasi (Hoch et al., 2018; Saif et al., 2024). Hal ini menunjukkan bahwa peran pemimpin transformasional sangat penting dalam menciptakan lingkungan kerja yang produktif, adaptif, dan berorientasi pada pengembangan berkelanjutan.

Kepemimpinan transformasional memiliki empat indikator utama, yaitu *Idealized Influence* (Pengaruh Ideal/Karisma), *Inspirational Motivation* (Motivasi Inspiratif), *Intellectual Stimulation* (Stimulasi Intelektual), dan *Individualized Consideration* (Perhatian Individual)

(Bass & Ronald E. Riggio, 2006). Keempat indikator tersebut mencerminkan bagaimana seorang pemimpin dapat membangun hubungan yang kuat dengan bawahan, mendorong kreativitas, serta meningkatkan keterlibatan karyawan dalam mencapai tujuan organisasi.

2.3. Organizational Culture

Budaya organisasi merupakan salah satu faktor penting dalam menentukan keberhasilan suatu organisasi. Budaya organisasi mencerminkan nilai, norma, keyakinan, dan pola perilaku yang dianut oleh anggota organisasi dalam menjalankan aktivitasnya. Budaya ini menjadi pedoman dalam berperilaku serta memengaruhi cara individu berinteraksi dan bekerja dalam organisasi (Schein, 2010; Vasumathi et al., 2025). Budaya organisasi adalah pola asumsi dasar yang diciptakan, ditemukan, atau dikembangkan oleh suatu kelompok sebagai cara untuk mengatasi permasalahan adaptasi eksternal dan integrasi internal, yang kemudian diajarkan kepada anggota baru sebagai cara yang benar untuk memahami, berpikir, dan merasakan masalah tersebut (Robbins & Timothy A. Judge, 2016). Definisi ini menekankan bahwa budaya organisasi terbentuk melalui proses pembelajaran dan pengalaman bersama dalam organisasi.

Budaya organisasi juga merupakan sistem makna bersama yang dianut oleh anggota organisasi yang membedakan organisasi tersebut dari organisasi lainnya (Sakita, 2026). Sistem makna ini mencakup nilai-nilai inti yang menjadi dasar dalam pengambilan keputusan dan perilaku kerja karyawan, sehingga budaya organisasi berfungsi sebagai identitas organisasi sekaligus sebagai alat kontrol sosial (Fernandes et al., 2023). Budaya organisasi memiliki empat indikator utama, yaitu *involvement* (keterlibatan), *consistency* (konsistensi), *adaptability* (adaptabilitas), dan *mission* (misi), yang mencerminkan tingkat partisipasi anggota organisasi, keselarasan nilai dan sistem, kemampuan organisasi dalam beradaptasi terhadap perubahan, serta kejelasan arah dan tujuan strategis organisasi (Denison, 1997).

Selain itu, dalam konteks organisasi modern yang dinamis, budaya organisasi juga berperan penting dalam meningkatkan kinerja dan daya saing perusahaan (Lam et al., 2021). Budaya organisasi yang kuat dan adaptif mampu menciptakan lingkungan kerja yang kondusif, meningkatkan komitmen karyawan, serta mendorong inovasi dan kolaborasi antar anggota organisasi. Hal ini menunjukkan bahwa budaya organisasi tidak hanya berfungsi sebagai pedoman perilaku, tetapi juga sebagai faktor strategis yang memengaruhi efektivitas dan keberhasilan organisasi dalam mencapai tujuan jangka panjang (Pelayo-Díaz et al., 2026). Dengan demikian, pengelolaan budaya organisasi yang tepat menjadi kunci penting dalam menghadapi perubahan lingkungan bisnis yang semakin kompleks dan kompetitif.

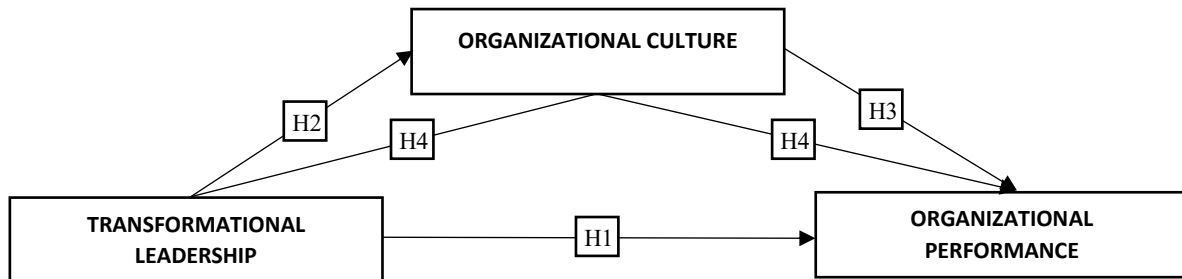
3. Methodology

Penelitian ini menggunakan pendekatan kuantitatif eksplanatori untuk menguji pengaruh transformational leadership terhadap organizational performance dengan organizational culture sebagai variabel mediasi. Kerangka kerja ini bertujuan untuk mengkaji pengaruh variabel independen terhadap variabel dependen, baik secara langsung maupun melalui variabel mediasi (Zeng et al., 2025). Analisis data dilakukan menggunakan *Partial Least Squares Structural Equation Modeling* (PLS-SEM) melalui software *SmartPLS*. Populasi penelitian berjumlah 5.7095 responden, dengan jumlah sampel sebanyak 397 responden yang ditentukan menggunakan rumus Slovin pada tingkat kesalahan 5%. PLS-SEM merupakan metode SEM berbasis varians yang sesuai untuk penelitian prediktif dan untuk menilai hubungan antar konstruk laten, khususnya ketika ukuran sampel terbatas atau data menyimpang dari distribusi normal (Hair & Alamer, 2022). Teknik pengambilan sampel menggunakan probability

sampling. Data dikumpulkan melalui kuesioner tertutup dengan skala Likert 1–5. Struktur model penelitian selanjutnya digambarkan dalam diagram jalur berikut.

Hipotesis Penelitian

Gambar 1. Model Teoritis



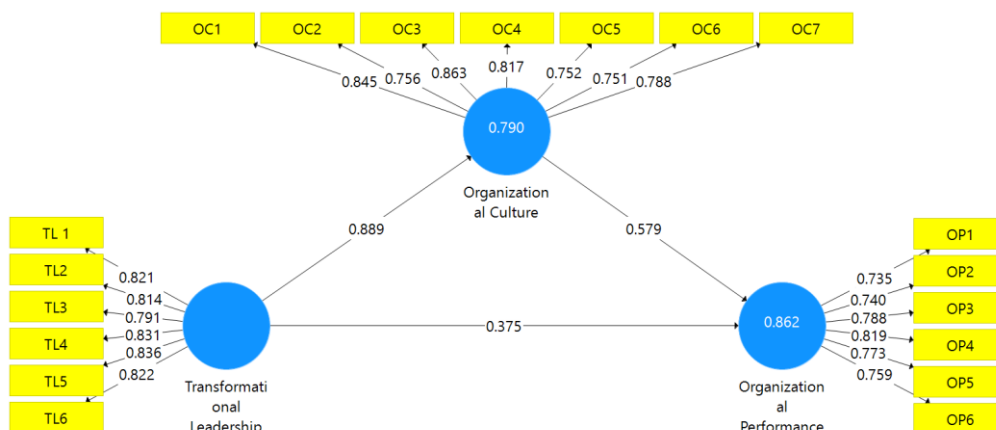
- H1: Kepemimpinan transformasional berpengaruh positif dan signifikan terhadap kinerja organisasi.
 H2: Kepemimpinan transformasional berpengaruh positif dan signifikan terhadap budaya organisasi.
 H3: Budaya organisasi berpengaruh positif dan signifikan terhadap kinerja organisasi.
 H4: Budaya organisasi memediasi pengaruh kepemimpinan transformasional terhadap kinerja organisasi.

4. Results and Discussions

4.1. Statistik Deskriptif

4.1.1. Uji Outer Loading

Nilai *external loading* minimal sebesar 0,70 menunjukkan bahwa indikator tersebut berkontribusi kuat dalam merepresentasikan konstruk yang diukur. Sementara itu, indikator dengan nilai loading pada kisaran 0,60 hingga 0,70 masih dapat diterima, khususnya apabila nilai *Average Variance Extracted* (AVE) dan *Composite Reliability* telah memenuhi kriteria yang ditetapkan (Hair & Alamer, 2022). Dalam penelitian ini, variabel yang dianalisis mencakup *Transformational Leadership* (X), *Organizational Culture* (Z), dan *Organizational Performance* (Y). Adapun hasil *outer loading* untuk masing-masing indikator pada variabel X, Z, dan Y disajikan sebagai berikut.



Gambar 2. Outer Loading Variable Test Results

4.1.2. Uji Validitas Konvergen

Tabel 2. Convergen Validity Tes Results

Variables	Indicator	Outer Loading Value	Outer Loading Value Limit	Decision
Organizational Performance	OP1	0.735	0.7	Valid
	OP2	0.740	0.7	Valid
	OP3	0.788	0.7	Valid
	OP4	0.819	0.7	Valid
	OP5	0.773	0.7	Valid
	OP6	0.758	0.7	Valid
Transformational Leadership	TL1	0.821	0.7	Valid
	TL2	0.814	0.7	Valid
	TL3	0.791	0.7	Valid
	TL4	0.831	0.7	Valid
	TL5	0.836	0.7	Valid
	TL6	0.822	0.7	Valid
Organizational Culture	OC1	0.845	0.7	Valid
	OC2	0.756	0.7	Valid
	OC3	0.863	0.7	Valid
	OC4	0.817	0.7	Valid
	OC5	0.752	0.7	Valid
	OC6	0.751	0.7	Valid
	OC7	0.788	0.7	Valid

Berdasarkan hasil uji validitas konvergen pada Tabel 2, seluruh indikator yang mengukur variabel Organizational Performance, Transformational Leadership, dan Organizational Culture menunjukkan nilai outer loading di atas batas minimum 0,70. Indikator dengan nilai outer loading $\geq 0,70$ dianggap memiliki validitas konvergen yang memadai karena mampu merepresentasikan konstruk yang mendasarinya secara signifikan (Hair & Alamer, 2022). Pada variabel Organizational Performance, nilai outer loading berkisar antara 0,735 hingga 0,819, dengan indikator OP4 sebagai nilai tertinggi dan OP1 sebagai nilai terendah namun tetap valid. Variabel Transformational Leadership memiliki nilai outer loading antara 0,791 hingga 0,836, di mana TL5 menjadi indikator dengan nilai tertinggi, menunjukkan hubungan yang kuat dengan konstruk kepemimpinan transformasional. Sementara itu, pada variabel Organizational Culture, nilai outer loading berada pada rentang 0,751 hingga 0,863, dengan OC3 sebagai indikator tertinggi dan OC6 sebagai nilai terendah yang masih memenuhi kriteria. Secara keseluruhan, seluruh indikator dinyatakan valid dan tidak memerlukan eliminasi karena telah memenuhi standar validitas konvergen, sehingga model pengukuran (*outer model*) dalam penelitian ini dapat dinyatakan baik dan layak untuk dilanjutkan ke tahap pengujian berikutnya.

4.1.3. Uji Reliabilitas

Tabel 3. *Reliability Test Results*

Variabel	Crombach's Alpha	Composite Reliability	Reliability Limits	Decision
Organizational Performance	0.902	0.897	0.7	Reliabel
Transformational Leadership	0.904	0.925	0.7	Reliabel
Organizational Culture	0.862	0.924	0.7	Reliabel

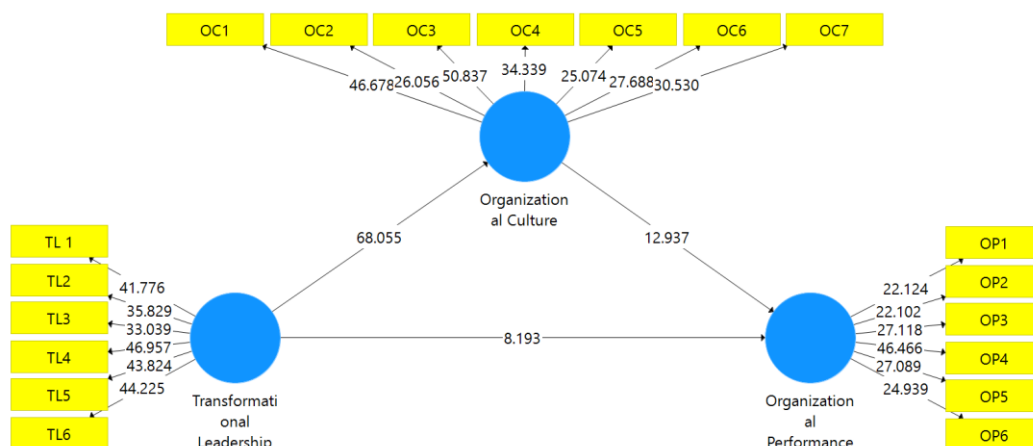
Berdasarkan hasil uji reliabilitas pada Tabel 3, seluruh variabel dalam penelitian yaitu Organizational Performance, Transformational Leadership, dan Organizational Culture

menunjukkan tingkat reliabilitas yang sangat baik. Hal ini ditunjukkan oleh nilai Cronbach's Alpha dan Composite Reliability yang seluruhnya berada di atas batas minimum 0,70. Sesuai dengan pedoman Hair dan Alamer (2022), suatu konstruk dinyatakan reliabel apabila memiliki nilai Cronbach's Alpha dan Composite Reliability $\geq 0,70$, yang menunjukkan bahwa indikator-indikator dalam konstruk tersebut memiliki konsistensi internal yang baik dalam mengukur variabel laten. Variabel Organizational Performance memiliki nilai Cronbach's Alpha sebesar 0,902 dan Composite Reliability sebesar 0,897, yang menunjukkan tingkat konsistensi yang tinggi. Variabel Transformational Leadership memperoleh nilai Cronbach's Alpha sebesar 0,904 dan Composite Reliability sebesar 0,925, sehingga menjadi variabel dengan tingkat reliabilitas yang sangat kuat. Sementara itu, variabel Organizational Culture memiliki nilai Cronbach's Alpha sebesar 0,862 dan Composite Reliability sebesar 0,924, yang juga menunjukkan bahwa konstruk ini sangat reliabel. Dengan demikian, seluruh variabel dalam penelitian ini dinyatakan reliabel dan layak digunakan untuk analisis lebih lanjut pada model struktural.

Tabel 4. *Average Variance Extracted (AVE) Test Results*

	AVE Value	AVE Value Limit	Decision
<i>Organizational Culture</i>	0.635	0.50	Realiabel
<i>Organizational Performance</i>	0.592	0.50	Realiabel
<i>Transformational Leadership</i>	0.671	0.50	Realiabel

Berdasarkan Tabel 4, hasil uji Average Variance Extracted (AVE) menunjukkan bahwa ketiga variabel yaitu Organizational Culture 0,635, Organizational Performance 0,592, dan Transformational Leadership 0,671, memiliki nilai di atas standar minimal 0,50, sehingga seluruh variabel dinyatakan memenuhi syarat validitas konvergen yang baik. Hal ini mengindikasikan bahwa lebih dari 50% varians indikator dapat dijelaskan oleh masing-masing variabel latennya, yang berarti instrumen penelitian telah akurat dalam mengukur konstruk



yang dimaksud dan data tersebut layak untuk digunakan dalam analisis tahap selanjutnya.

4.2. Hasil Regresi

4.2.1. Inner Model Analysis

Gambar 3. Hasil Uji Bootstrapping untuk Evaluasi Model Struktural (Inner Model)

Berdasarkan hasil pengujian model struktural (inner model) pada gambar tersebut, terlihat bahwa Transformational Leadership memiliki pengaruh langsung yang signifikan terhadap Organizational Performance. Hal ini menunjukkan bahwa semakin baik penerapan kepemimpinan transformasional, maka semakin tinggi pula kinerja organisasi yang dihasilkan.

Selain itu, Transformational Leadership juga memiliki pengaruh yang sangat kuat dan signifikan terhadap Organizational Culture, yang berarti bahwa gaya kepemimpinan yang efektif mampu membentuk serta memperkuat budaya organisasi yang positif. Selanjutnya, Organizational Culture terbukti berpengaruh signifikan terhadap Organizational Performance, sehingga budaya organisasi berperan penting dalam meningkatkan efektivitas dan pencapaian tujuan organisasi. Hasil ini juga menunjukkan bahwa Organizational Culture dapat berfungsi sebagai variabel intervening yang memperkuat hubungan antara Transformational Leadership dan Organizational Performance. Seluruh indikator pada masing-masing variabel menunjukkan hubungan yang kuat dalam merepresentasikan konstruk laten, sehingga model penelitian yang dibangun dinyatakan baik, valid, dan mampu mendukung hipotesis yang telah diajukan.

4.2.2. Analisis R-Square

Tabel 5. R-Square Value

	R Square	R Square Adjusted
Organizational Performance	0.862	08.61
Organizational Culture	0.790	0.789

Berdasarkan hasil analisis R-Square pada Tabel 5, variabel Organizational Performance memiliki nilai R Square sebesar 0,862 dan R Square Adjusted sebesar 0,861, yang menunjukkan bahwa sebesar 86,2% variasi Organizational Performance dapat dijelaskan oleh variabel Transformational Leadership dan Organizational Culture, sedangkan sisanya sebesar 13,8% dipengaruhi oleh variabel lain di luar model penelitian. Sementara itu, variabel Organizational Culture memiliki nilai R Square sebesar 0,790 dan R Square Adjusted sebesar 0,789, yang berarti bahwa 79,0% variasi Organizational Culture dapat dijelaskan oleh Transformational Leadership, sedangkan sisanya sebesar 21,0% dipengaruhi oleh faktor lain yang tidak diteliti. Secara keseluruhan, hasil ini menunjukkan bahwa model penelitian memiliki kemampuan prediktif yang kuat dan hubungan antarvariabel dalam penelitian tergolong baik.

4.2.3. Analisis F-Square

Tabel 6. R-Square Value

	Organizational Culture	Organizational Performance	Transformational Leadership
Organizational Culture		0.509	
Organizational Performance			
Transformational Leadership	3.754	0.214	

Berdasarkan hasil analisis F-Square pada Tabel 6, Transformational Leadership memiliki pengaruh yang sangat besar terhadap Organizational Culture dengan nilai sebesar 3,754, yang menunjukkan bahwa kepemimpinan transformasional memberikan kontribusi kuat dalam membentuk budaya organisasi. Selain itu, Transformational Leadership juga memiliki pengaruh terhadap Organizational Performance dengan nilai sebesar 0,214 yang termasuk dalam kategori pengaruh sedang. Sementara itu, Organizational Culture memiliki pengaruh terhadap Organizational Performance dengan nilai sebesar 0,509 yang menunjukkan efek yang besar. Hasil ini menegaskan bahwa Organizational Culture berperan penting dalam meningkatkan Organizational Performance serta memperkuat pengaruh Transformational Leadership terhadap kinerja organisasi secara keseluruhan.

4.2.4. Analisis Goodness of Fit (GoF)

Hasil analisis Goodness of Fit (GoF) yang diperoleh dari nilai rata-rata AVE dengan nilai rata-rata R-square menunjukkan bahwa model penelitian ini memiliki tingkat kecocokan yang sangat kuat dengan nilai GoF sebesar 0,722. Nilai ini diperoleh dari akar rata-rata AVE 0,632 dikalikan dengan rata-rata R-Square 0,826, yang menurut kriteria statistik masuk dalam kategori besar, lebih dari 0,36. Tingginya nilai GoF ini membuktikan bahwa model pengukuran (outer model) yang valid dan model struktural (inner model) yang memiliki kekuatan prediksi besar khususnya pada variabel Organizational Performance dengan R-Square 0,862 secara kolektif mampu menjelaskan fenomena yang diteliti dengan sangat akurat dan relevan terhadap data di lapangan.

4.2.5. Uji Koefisien Jalur

Tabel 7. Path Coefficient

		Path Coefficient
Transformational Leadership ➔	Organizational Performance	0.375
Transformational Leadership ➔	Organizational Culture	0.889
Organizational Culture ➔	Organizational Performance	0.579

Hasil uji koefisien jalur pada Tabel 7 menunjukkan bahwa seluruh variabel memiliki hubungan positif, dengan pengaruh paling dominan ditemukan pada jalur Transformational Leadership terhadap Organizational Culture sebesar 0,889, yang mengindikasikan kepemimpinan transformasional sebagai faktor kunci dalam membentuk budaya organisasi. Sementara itu, variabel Organizational Culture memberikan kontribusi kuat terhadap Organizational Performance dengan nilai 0,579, sedangkan pengaruh langsung Transformational Leadership terhadap Organizational Performance berada pada tingkat moderat sebesar 0,375. Secara keseluruhan, hasil ini menggambarkan bahwa gaya kepemimpinan transformasional memiliki dampak yang jauh lebih besar dalam menggerakkan budaya internal perusahaan dibandingkan pengaruh langsungnya terhadap kinerja organisasi secara mandiri.

4.2.6. Uji Hipotesis

Table 8. Path Coefficient Value of Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Value
Transformational Leadership ➔ Organizational Performance	0.375	0.375	0.048	7.753	0.000
Transformational Leadership ➔ Organizational Culture	0.889	0.889	0.014	63.143	0.000
Organizational Culture ➔ Organizational Performance	0.679	0.578	0.048	12.082	0.000

Hasil uji hipotesis pada Tabel 8 menunjukkan bahwa seluruh hubungan antarvariabel memiliki pengaruh yang positif dan signifikan, yang dibuktikan dengan nilai P-Value 0,000 (kurang dari 0,05) dan nilai T-Statistics yang jauh melampaui ambang batas 1,96 untuk ketiga jalur tersebut. Secara spesifik, Transformational Leadership berpengaruh signifikan terhadap Organizational Performance (T=7,753) dan memiliki pengaruh yang sangat kuat terhadap Organizational Culture (T=63,143), sementara Organizational Culture juga terbukti memberikan dampak signifikan terhadap Organizational Performance (T=12,082). Dengan demikian, dapat disimpulkan bahwa semua hipotesis dalam penelitian ini diterima, yang

mengonfirmasi bahwa kepemimpinan transformasional dan budaya organisasi merupakan faktor-faktor krusial yang secara efektif mampu mendorong peningkatan kinerja organisasi.

Table 9. *Specific Indirect Effect Value of Hypothesis Testing*

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Value
<i>Transformational Leadership</i> ► <i>Organizational Culture</i> ► <i>Organizational Performance</i>	0.514	0.514	0.046	11.104	0.000

Berdasarkan Tabel 9 mengenai Specific Indirect Effect, hasil uji menunjukkan bahwa variabel Organizational Culture terbukti secara signifikan memediasi hubungan antara Transformational Leadership terhadap Organizational Performance. Hal ini dikonfirmasi oleh nilai Original Sample sebesar 0,514, nilai T-Statistics sebesar 11,104 (lebih besar dari 1,96), dan nilai P-Value sebesar 0,000 (kurang dari 0,05). Temuan ini mengindikasikan adanya pengaruh tidak langsung yang kuat, di mana kepemimpinan transformasional tidak hanya memengaruhi kinerja secara langsung, tetapi dampaknya akan menjadi jauh lebih efektif apabila mampu membentuk budaya organisasi yang solid terlebih dahulu sebagai jembatan untuk mencapai kinerja organisasi yang optimal.

4.3. Discussions

4.3.1. Transformational Leadership berpengaruh terhadap Organizational Performance

Hasil pengujian menunjukkan bahwa kepemimpinan transformasional memiliki pengaruh yang positif dan signifikan terhadap kinerja organisasi. Hal ini mengindikasikan bahwa semakin efektif seorang pemimpin menerapkan gaya kepemimpinan transformasional, maka semakin meningkat pula kinerja organisasi secara keseluruhan. Kepemimpinan transformasional mampu mendorong karyawan untuk bekerja melampaui target yang ditetapkan melalui motivasi inspiratif dan visi yang jelas. Pemimpin transformasional meningkatkan usaha ekstra dan kinerja pengikut melalui pengaruh ideal dan inspirasi (Bakker et al., 2023). Kepemimpinan transformasional menekankan pada kemampuan pemimpin dalam menginspirasi, memberikan perhatian individual, serta menstimulasi intelektual bawahan (Shang, 2023). Ketika karyawan merasa dihargai dan didorong untuk berkembang, mereka cenderung menunjukkan kinerja yang lebih baik (Paula & Qui, 2022). Hal ini sejalan dengan teori yang menyatakan bahwa hubungan emosional antara pemimpin dan bawahan dapat meningkatkan komitmen serta produktivitas kerja (Ly, 2024). Keterlibatan emosional yang dibangun pemimpin berkontribusi pada peningkatan performa kerja individu dan tim.

Selain itu, pemimpin transformasional juga berperan dalam menciptakan lingkungan kerja yang kondusif, di mana inovasi dan kreativitas dapat berkembang. Lingkungan seperti ini memungkinkan organisasi untuk beradaptasi dengan perubahan dan meningkatkan daya saing (Alasmrai, 2025). Keberhasilan suatu organisasi tidak terbatas pada pencapaian finansial semata, melainkan juga mencakup aspek efisiensi operasional, mutu layanan, serta tingkat kepuasan karyawan (Issa et al., 2024). Dalam konteks ini, kepemimpinan transformasional berperan strategis dalam akselerasi transformasi nilai dan peningkatan kinerja organisasi secara komprehensif. Selain itu, pemimpin transformasional juga menciptakan lingkungan kerja yang mendukung inovasi dan kreativitas. Dengan memberikan kebebasan berpikir dan mendorong ide-ide baru, organisasi menjadi lebih adaptif terhadap perubahan (Fredberg & Pregmark, 2022).

4.3.2. Transformational Leadership berpengaruh terhadap Organizational Culture

Hasil penelitian menunjukkan bahwa kepemimpinan transformasional berpengaruh positif dan signifikan terhadap budaya organisasi. Hal ini berarti bahwa gaya kepemimpinan yang diterapkan oleh pemimpin memiliki peran penting dalam membentuk nilai, norma, dan perilaku yang berkembang dalam organisasi (Phuc et al., 2023). Pemimpin transformasional cenderung menjadi role model yang memengaruhi bagaimana budaya organisasi terbentuk dan berkembang (Rojak et al., 2024). Kepemimpinan transformasional mampu menanamkan nilai-nilai organisasi melalui komunikasi visi yang kuat dan konsisten (Bagga et al., 2023). Pemimpin yang inspiratif akan mendorong karyawan untuk menginternalisasi nilai-nilai tersebut, sehingga tercipta keselarasan antara tujuan individu dan organisasi. Dengan demikian, budaya organisasi yang terbentuk menjadi semakin kuat dan mampu beradaptasi terhadap perubahan. Selain itu, hal ini juga menegaskan bahwa kepemimpinan transformasional memiliki peran penting dalam membangun budaya organisasi yang berlandaskan nilai-nilai yang kokoh (Suryadi et al., 2024).

Selain itu, pemimpin transformasional berperan dalam mendorong terbentuknya budaya organisasi yang mendukung inovasi dan pembelajaran. Pemimpin memberikan kesempatan kepada karyawan untuk bereksperimen serta mengembangkan gagasan-gagasan baru tanpa rasa takut terhadap kegagalan (Ballester-miquel et al., 2026). Budaya semacam ini menjadi sangat penting dalam menghadapi dinamika lingkungan bisnis yang terus berkembang. Temuan ini juga menunjukkan bahwa budaya organisasi tidak terbentuk secara alamiah, melainkan melalui proses yang dipengaruhi oleh peran kepemimpinan (Bogale, 2024). Pemimpin transformasional secara aktif membentuk budaya organisasi melalui kebijakan, komunikasi, serta tindakan nyata yang dilakukan secara konsisten (Azizah et al., 2025). Dengan demikian, kepemimpinan transformasional dapat dipandang sebagai faktor kunci dalam menciptakan budaya organisasi yang positif dan produktif. Budaya organisasi yang kuat tidak hanya menjadi identitas organisasi, tetapi juga berfungsi sebagai pedoman dalam mencapai tujuan yang telah ditetapkan. Hal ini sejalan dengan pendapat James L. Gibson yang menyatakan bahwa kepemimpinan memiliki pengaruh yang signifikan terhadap pembentukan norma dan nilai dalam organisasi.

4.3.3. Organizational Culture berpengaruh terhadap Organizational Performance

Hasil pengujian hipotesis menunjukkan bahwa budaya organisasi berpengaruh positif dan signifikan terhadap kinerja organisasi. Hal ini mengindikasikan bahwa budaya yang kuat dan selaras dengan tujuan organisasi mampu meningkatkan efektivitas serta efisiensi kerja karyawan. Budaya organisasi berfungsi sebagai pedoman dalam berperilaku dan mengambil keputusan di dalam organisasi, serta memiliki hubungan yang erat dengan kinerja organisasi (A & Fonceca, 2024). Budaya organisasi yang positif akan menciptakan lingkungan kerja yang kondusif, sehingga karyawan merasa nyaman, termotivasi, dan memiliki rasa memiliki terhadap organisasi (Ratnasari et al., 2026). Kondisi tersebut mendorong peningkatan kinerja, baik secara individu maupun kolektif. Selain itu, budaya organisasi yang kuat juga berperan dalam mengurangi konflik serta meningkatkan koordinasi antarbagian, sehingga secara keseluruhan dapat memengaruhi perilaku dan kinerja karyawan.

Lebih lanjut, budaya organisasi yang adaptif memungkinkan organisasi untuk merespons perubahan lingkungan secara lebih cepat dan efektif. Organisasi yang memiliki budaya inovatif serta terbuka terhadap perubahan cenderung menunjukkan kinerja yang lebih baik dibandingkan dengan organisasi yang bersifat kaku (Saif et al., 2024). Hal ini menunjukkan bahwa budaya organisasi tidak hanya berfungsi sebagai identitas, tetapi juga sebagai sumber keunggulan kompetitif yang berkelanjutan serta berkontribusi terhadap kinerja jangka panjang (Ramos & Ellitan, 2022). Temuan ini juga mengindikasikan bahwa budaya organisasi berperan sebagai mekanisme kontrol sosial yang mampu mengarahkan perilaku karyawan tanpa harus bergantung pada aturan formal yang kaku (Fang et al., 2023). Dengan adanya budaya organisasi

yang kuat, karyawan secara implisit memahami ekspektasi yang ditetapkan organisasi. Selain itu, budaya yang kuat juga terbukti mampu meningkatkan komitmen serta efektivitas organisasi secara keseluruhan.

4.3.4. Transformational Leadership berpengaruh terhadap Organizational Performance melalui Organizational Culture

Hasil pengujian hipotesis menunjukkan bahwa kepemimpinan transformasional berpengaruh terhadap kinerja organisasi melalui budaya organisasi sebagai variabel mediasi. Hal ini mengindikasikan bahwa pengaruh kepemimpinan transformasional tidak hanya terjadi secara langsung, tetapi juga secara tidak langsung melalui pembentukan budaya organisasi yang mendukung pencapaian kinerja. Dengan demikian, budaya organisasi berperan sebagai mekanisme penting yang menjembatani hubungan antara kepemimpinan dan kinerja organisasi (Ginting et al., 2024). Kepemimpinan transformasional berperan dalam membentuk nilai, norma, dan keyakinan yang berkembang dalam organisasi (Padang, 2025). Pemimpin yang inspiratif mampu menanamkan visi serta nilai-nilai organisasi kepada karyawan, sehingga tercipta keselarasan antara tujuan individu dan tujuan organisasi (Qalati et al., 2022). Proses internalisasi nilai tersebut selanjutnya membentuk budaya organisasi yang kuat dan positif. Pandangan ini menegaskan bahwa pemimpin merupakan aktor utama dalam pembentukan budaya organisasi.

Budaya organisasi yang terbentuk melalui kepemimpinan transformasional selanjutnya memiliki peran penting dalam meningkatkan kinerja organisasi. Budaya yang mendorong inovasi, kolaborasi, serta komitmen kerja akan memotivasi karyawan untuk bekerja secara lebih efektif dan efisien (Asrianto, 2024). Hal ini menunjukkan bahwa budaya organisasi berfungsi sebagai pendorong perilaku karyawan yang pada akhirnya berdampak pada hasil kerja. Sejumlah penelitian juga menunjukkan bahwa budaya organisasi yang kuat memiliki hubungan positif dengan peningkatan kinerja. Selain itu, kepemimpinan transformasional turut menciptakan lingkungan kerja yang kondusif melalui pembentukan budaya organisasi yang adaptif. Pemimpin memberikan teladan melalui tindakan nyata, komunikasi yang konsisten, serta kebijakan yang selaras dengan nilai-nilai organisasi. Dengan demikian, budaya organisasi tidak hanya bersifat simbolis, tetapi juga menjadi praktik nyata yang memengaruhi aktivitas sehari-hari dalam organisasi. Temuan ini didukung oleh berbagai penelitian yang menyatakan bahwa budaya yang adaptif memiliki peran penting dalam meningkatkan kinerja organisasi dalam jangka panjang.

5. Conclusion

Kepemimpinan transformasional memiliki peran yang sangat penting dalam meningkatkan kinerja organisasi, baik secara langsung maupun melalui budaya organisasi sebagai variabel mediasi. Kepemimpinan transformasional mampu mendorong kinerja melalui motivasi, inspirasi, serta pengembangan potensi karyawan, sekaligus membentuk budaya organisasi yang kuat, adaptif, dan berorientasi pada nilai. Budaya organisasi yang positif tersebut selanjutnya berkontribusi terhadap peningkatan efektivitas, efisiensi, dan komitmen kerja karyawan, sehingga berdampak pada kinerja organisasi secara keseluruhan. Selain itu, kepemimpinan transformasional juga terbukti berpengaruh signifikan terhadap pembentukan budaya organisasi, dan budaya organisasi berpengaruh signifikan terhadap kinerja organisasi. Dengan demikian, integrasi antara kepemimpinan transformasional dan budaya organisasi menjadi faktor kunci dalam mencapai kinerja yang optimal dan keunggulan kompetitif yang berkelanjutan.

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ARTIFICIAL INTELLIGENCE ADOPTION IN SMES FOR SUSTAINABLE BUSINESS PERFORMANCE

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Abstract

Artificial Intelligence (AI) has become a strategic technology that supports digital transformation and sustainable business development in Small and Medium-sized Enterprises (SMEs). However, the determinants of AI adoption and its contribution to Sustainable Business Performance remain fragmented in the existing literature. This study aims to synthesize research findings on AI adoption in SMEs and its impact on sustainable business performance using the Systematic Literature Review (SLR) method based on the PRISMA 2020 guidelines. A total of 10 articles published between 2021 and 2026 were selected through a structured screening process and analyzed using descriptive synthesis and thematic analysis. The findings indicate that AI adoption in SMEs has shifted from supporting operational automation to becoming a strategic capability that drives business transformation. The main determinants of AI adoption include top management support, digital competencies, organizational readiness, data quality, and technological advantages. Furthermore, AI contributes positively to sustainable business performance by improving operational efficiency, innovation, customer service quality, and economic, social, and environmental performance. This review highlights that AI functions as an enabling technology that supports sustainable business development when integrated with organizational capabilities and digital transformation strategies. Future studies are recommended to develop comprehensive conceptual models by integrating AI capability, digital transformation, and innovation capability to explain sustainable business performance in SMEs.

Keywords: Artificial Intelligence, SMEs, Sustainable Business Performance, Digital Transformation, Systematic Literature Review.

1. Introduction

The development of Artificial Intelligence (AI) has transformed business management paradigms across sectors, including Micro, Small, and Medium Enterprises (MSMEs). AI's ability to automate business processes, analyze large volumes of data, predict consumer behavior, and support data-driven decision-making makes it a strategic factor in improving corporate competitiveness. Digital transformation supported by AI is no longer viewed as an option; it has become a necessity for maintaining business sustainability amid increasing global competition and economic uncertainty. In addition to improving operational efficiency, AI can also generate business innovation that supports economic, social, and environmental sustainability (Dwivedi et al., 2021; Soomro et al., 2025; Baabdullah et al., 2021).

The phenomenon of AI adoption in MSMEs increased significantly during the 2021–2026 period. Technologies such as machine learning, chatbots, predictive analytics, computer vision, and Generative Artificial Intelligence (GenAI) have begun to be utilized to improve customer service quality, digital marketing effectiveness, operational efficiency, and the accuracy of decision-making. Research findings show that AI implementation can increase productivity, reduce operating costs, accelerate product innovation, and strengthen MSME resilience in dealing with market dynamics. Even the use of Generative AI is beginning to contribute to

economic, social, and environmental value creation simultaneously (Bahaw et al., 2026; Kugara, 2026; Soomro et al., 2025).

In Indonesia, MSMEs play a strategic role as a major contributor to Gross Domestic Product (GDP), a provider of employment, and a driver of national economic growth. Nevertheless, many MSMEs still face barriers to AI adoption, including low digital literacy, limited human resource capacity, minimal technology investment, and uneven digital infrastructure. As a result, AI implementation has not yet fully produced sustainable business performance. Recent studies also indicate that AI-based digital transformation in Indonesian MSMEs is still at an early stage and therefore requires policy support, improved digital competence, and collaboration with various stakeholders (Anatan, 2023; Hamdana et al., 2022; Sakinah et al., 2026).

From an academic perspective, research on AI adoption in MSMEs has developed rapidly since 2021. However, most studies still focus on productivity improvement, operational efficiency, technology adoption, or firm financial performance. Research that integrates AI with the concept of sustainable business performance based on the Triple Bottom Line dimensions (economic, social, and environmental) remains relatively limited. In addition, most studies use quantitative survey-based approaches, so comprehensive syntheses of research themes, the AI technologies used, implementation benefits, and the challenges faced by MSMEs in adopting AI are still scarce (Soomro et al., 2025; Ahmad et al., 2026; Utomo & Jaafar, 2026).

Recent studies also show that the relationship between AI adoption and business sustainability is not direct. The impact of AI on sustainable business performance is influenced by mediating and moderating factors such as green innovation, knowledge management, business model innovation, intellectual capital, dynamic capabilities, and corporate social responsibility. This indicates that the mechanism through which AI improves business sustainability in MSMEs still requires deeper investigation, especially regarding the factors that determine successful AI implementation in small and medium-sized organizations (Anjum et al., 2026; Putra & Lasmi, 2026; Utomo & Jaafar, 2026).

Based on the discussion above, several research gaps remain. First, prior studies have mostly examined the effect of AI on economic or operational performance, while the social and environmental dimensions as part of sustainable business performance have received less attention. Second, previous research generally used empirical survey approaches, so there are still few Systematic Literature Review (SLR) studies that provide a comprehensive synthesis of AI research in MSMEs during 2021–2026. Third, there is no comprehensive mapping of the AI technologies most widely applied, the factors affecting implementation success, and future research directions. Therefore, this study uses a Systematic Literature Review (SLR) to synthesize the development of research on Artificial Intelligence adoption in MSMEs in improving sustainable business performance, so that it can contribute theoretically and serve as a reference for academics, practitioners, and policymakers in developing sustainable AI-based digital transformation strategies (Donthu et al., 2021; Sakinah et al., 2026; Soomro et al., 2025).

2. Literature Review

2.1. Artificial Intelligence (AI)

Artificial Intelligence (AI) is defined as the ability of computer systems to perform tasks that typically require human intelligence, such as learning, reasoning, decision-making, problem solving, perception, and natural language processing (Dwivedi et al., 2023; Davenport & Mittal, 2022). In its current development, AI is no longer seen merely as an automation technology, but as a general-purpose technology capable of transforming business models, operational processes, and organizational strategies as a whole (Brynjolfsson & McAfee, 2022; Dwivedi et al., 2023).

AI development since 2021 has accelerated very rapidly, especially after the emergence of Generative Artificial Intelligence (GenAI) powered by Large Language Models (LLMs). This technology expands AI capabilities from merely making data-based predictions to generating text, images, code, and business recommendations automatically. Various studies show that GenAI can improve organizational productivity by accelerating data analysis, automating report writing, personalizing customer service, and supporting product innovation (Dwivedi et al., 2023; Feuerriegel et al., 2024; George et al., 2024).

From the perspective of strategic management, AI is a strategic organizational resource that can create competitive advantage when combined with organizational capabilities, data quality, and human resource competence. Based on the Resource-Based View (RBV), AI does not directly improve organizational performance; rather, it becomes a source of competitive advantage when organizations are able to integrate the technology into business processes and decision-making (Barney, 1991; Mikalef & Gupta, 2021; Dwivedi et al., 2023).

AI implementation in organizations includes a variety of technologies, including machine learning, deep learning, computer vision, robotic process automation (RPA), natural language processing (NLP), expert systems, predictive analytics, and Generative AI. These technologies have been applied in marketing, supply chains, finance, human resource management, risk management, and customer service to improve operational efficiency, decision quality, and business innovation (Davenport & Mittal, 2022; Feuerriegel et al., 2024; Dwivedi et al., 2023).

Thus, AI is not only an automation tool; it has evolved into a strategic business enabler that allows organizations to increase agility, innovation capability, data-driven decision-making, and sustainable competitiveness in the digital economy era (George et al., 2024; Dwivedi et al., 2023).

2.2. Artificial Intelligence Adoption in SMEs

Artificial Intelligence adoption in SMEs is the process of integrating AI technology into business activities to improve operational efficiency, decision quality, product innovation, and firm competitiveness. Unlike large firms, AI adoption in SMEs is more complex because of limited capital, human resource competence, technological infrastructure, and organizational innovation capacity (Mikalef et al., 2022; Landini & Machado, 2026).

The literature shows that AI adoption in SMEs is generally explained using the Technology-Organization-Environment (TOE) Framework, which states that successful technology implementation is influenced by three main groups of factors: technological, organizational, and environmental factors (Tornatzky & Fleischer, 1990). Technological factors include ease of use, compatibility, complexity, data security, and relative advantage. Organizational factors include top management support, digital readiness, innovation culture, human resource competence, and investment capacity. Environmental factors include competitive pressure, government regulation, digital ecosystem readiness, and collaboration with technology partners (Mikalef et al., 2022; Lakhera et al., 2026; Landini & Machado, 2026).

In addition to the TOE Framework, several recent studies integrate Dynamic Capability Theory to explain that an organization's ability to develop, integrate, and reconfigure digital resources is a key factor determining successful AI implementation. In other words, organizations that are capable of learning, adapting, and innovating will gain greater benefits from AI than organizations that only invest in technology without changing business processes (Teece, 2018; Mikalef et al., 2022; Feuerriegel et al., 2024).

AI implementation in SMEs has evolved from the use of simple chatbots to predictive analytics, recommendation systems, fraud detection, inventory optimization, demand forecasting, and Generative AI for digital marketing content creation. Recent studies show that AI can improve operational efficiency by 20–40%, accelerate decision-making, improve

customer service quality, and strengthen product innovation through real-time consumer behavior analysis (George et al., 2024; Landini & Machado, 2026; Feuerriegel et al., 2024).

Nevertheless, AI implementation in SMEs still faces various challenges, such as limited data quality, low digital literacy, cybersecurity concerns, high investment costs, a lack of AI experts, and resistance to organizational change. Therefore, successful AI implementation is not determined solely by the sophistication of the technology, but also by the organization's readiness to manage digital change (Lakhera et al., 2026; Dwivedi et al., 2023; Mikalef et al., 2022).

2.3. Sustainable Business Performance

Sustainable Business Performance is a concept of organizational performance measurement that integrates the economic, social, and environmental dimensions in a balanced way in order to create long-term value for all stakeholders. This concept is developed on the basis of the Triple Bottom Line (TBL) approach, which emphasizes that company success is measured not only by profitability but also by contributions to social well-being and environmental preservation (Elkington, 1997; Gupta et al., 2022).

In the economic dimension, sustainable business performance is measured through sales growth, profitability, operational efficiency, productivity, innovation, and firm competitiveness. The social dimension reflects the quality of the company's relationships with employees, customers, suppliers, and society through improved welfare, social responsibility, digital inclusion, and customer satisfaction. Meanwhile, the environmental dimension includes energy efficiency, waste reduction, carbon emission management, sustainable use of resources, and the implementation of green business practices (Gupta et al., 2022; Ramayah et al., 2025).

In recent years, the concept of sustainable business performance has developed by incorporating digital sustainability, namely the organization's ability to use digital technologies to create economic value while reducing environmental impact and improving social welfare. AI is considered one of the main technologies supporting digital sustainability through optimizing energy use, reducing resource waste, improving supply chain efficiency, and developing green innovation (Dwivedi et al., 2023; George et al., 2024; Ramayah et al., 2025).

2.4. AI Adoption and Sustainable Business Performance

The relationship between AI adoption and sustainable business performance can be explained through the perspectives of Resource-Based View (RBV) and Dynamic Capability Theory. RBV explains that AI is a strategic resource capable of creating competitive advantage when combined with the organization's ability to manage data, knowledge, and innovation. Meanwhile, Dynamic Capability Theory explains that organizations must be able to develop adaptation capabilities in response to technological change so that AI truly produces improved sustainable performance (Barney, 1991; Teece, 2018; Mikalef et al., 2022).

Various studies show that AI improves economic performance through increased operational efficiency, process automation, supply chain optimization, improved demand forecasting accuracy, and reduced operating costs. In the social dimension, AI improves customer experience, service quality, work safety, and employees' digital competence through data-based decision support systems. In the environmental dimension, AI supports reduced energy consumption, waste management, logistics efficiency, and green manufacturing implementation, all of which contribute to the achievement of the SDGs (George et al., 2024; Feuerriegel et al., 2024; Ramayah et al., 2025).

However, the relationship between AI and sustainable business performance is not always direct. Recent studies indicate that the effect of AI is mediated by innovation capability, knowledge management capability, digital transformation, and green innovation, and

moderated by organizational readiness, digital competence, and top management support. This shows that successful AI implementation is determined more by the organization's ability to integrate technology with business strategy than by technology investment alone (Mikalef et al., 2022; Dwivedi et al., 2023; George et al., 2024).

3. Methodology

This study uses a Systematic Literature Review (SLR) method to identify, evaluate, and synthesize research on Artificial Intelligence (AI) adoption in Micro, Small, and Medium Enterprises (MSMEs) in improving Sustainable Business Performance. The study follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines, which provide a systematic, transparent, and replicable procedure for identifying, screening, assessing eligibility, and selecting relevant articles (Page et al., 2021; Snyder, 2019).

The literature search was conducted in the Scopus, ScienceDirect, SpringerLink, Emerald Insight, and Wiley Online Library databases using a combination of the keywords "Artificial Intelligence," "AI," "SMEs," "Sustainable Business Performance," and "Sustainability." The selected articles were limited to English-language publications during the 2021–2026 period and had to be peer-reviewed scientific articles (Donthu et al., 2021; Page et al., 2021).

Based on the identification process, 48 articles were obtained from all databases. After removing 8 duplicate articles, 40 articles entered the screening stage based on title, abstract, and keywords. At this stage, 20 articles were eliminated because they did not fit the research focus. Next, 20 articles underwent eligibility assessment through full-text reading. Ten articles were excluded because they did not specifically discuss the relationship between AI adoption in SMEs and Sustainable Business Performance or did not meet the inclusion criteria. Thus, 10 articles met all criteria and were analyzed in the final synthesis stage according to the PRISMA 2020 flow (Page et al., 2021; Xiao & Watson, 2019).

Table 1. PRISMA Summary

PRISMA stage	Number of articles
Identification	48
Duplicates removed	8
Screening	40
Excluded	20
Eligibility	20
Excluded after full text	10
Included	10

Data from each article were then extracted based on information about the authors, publication year, research country, research objectives, methods used, AI technologies applied, and the main findings related to AI contribution to Sustainable Business Performance. Subsequently, all articles were analyzed using descriptive synthesis and thematic analysis to identify research trends, factors affecting AI adoption, forms of AI implementation in SMEs, and their impact on the economic, social, and environmental dimensions (Donthu et al., 2021; Paul & Criado, 2020).

4. Results and Discussion

The results of the identification, screening, and eligibility assessment based on the PRISMA 2020 method yielded 10 articles that met the inclusion criteria and became the objects of synthesis in this study. All articles were selected because they were highly relevant to the theme of Artificial Intelligence Adoption in SMEs for Sustainable Business Performance. A

comprehensive analysis was conducted on research characteristics, including authors, publication year, research focus, and main findings. This information formed the basis for identifying patterns of research development, similarities and differences in findings, and remaining research gaps that require further study. The characteristics of the analyzed articles are presented in Table 2.

Table 2. List of the 10 articles that met all criteria

No	Article title	Authors	Year	Main findings
1	A SEM–ANN Analysis to Examine Impact of Artificial Intelligence Technologies on Sustainable Performance of SMEs	Raheem Bux Soomro, Waleed M. Al-Rahmi, Nisar A. Dahri, Latifah Almuqren, Abeer S. Al-mogren, & Ayad Aldaijy	2025	Top management support, employee capability, relative advantage, customer pressure, and vendor support positively affect AI adoption. AI adoption significantly improves the economic, social, and environmental performance of SMEs. Employee capability, relative advantage, and management support are the strongest predictors.
2	A Systematic Review on Organizational Adoption and Performance Constructs Related to Artificial Intelligence in SMEs	Clesio Landini & Marcio Cardoso Machado	2026	The success of AI adoption is determined by organizational readiness, data quality, digital competence, and management support. The impact of AI is most visible in improved operational efficiency and business innovation.
3	Investigation of Artificial Intelligence in SMEs: A Systematic Review of the State of the Art and the Main Implementation Challenges	Marisa Hillemann, Stefan Gimpel, et al.	2024	Identifies the main challenges of AI implementation in SMEs: limited human resources, data quality, investment costs, system integration, and low AI literacy. The study also highlights the importance of a phased implementation strategy.
4	Unveiling AI Adoption in SMEs: A Systematic Review of Perceived Advantages and Barriers Through an	Kapil Lakhera, Sushant Kumar, Ankita Rastogi, Omeen Pant, & Pooja Bahuguna	2026	The most influential factors in AI adoption are perceived usefulness, ease of use, organizational readiness, and trust in technology. The main barriers include implementation costs, lack of experts, and data privacy issues.

	Extended TAM Framework			
5	Adopting Artificial Intelligence in Small and Medium Businesses: The Knowledge-Based Perspective	Elettra D'Amico, David B. Audretsch, Maksim Belitski, Alessandra Colombelli, et al.	2026	Knowledge capability is the main factor behind successful AI adoption. SMEs with stronger knowledge management capabilities gain greater benefits from AI in terms of innovation and competitiveness.
6	Artificial Intelligence Adoption and Organizational Performance of Chinese SMEs	Chen Hongbo & Ferdinand Somido	2026	AI adoption improves productivity, decision quality, product innovation, and organizational performance. The effect of AI is strengthened by digital transformation and a culture of innovation.
7	Artificial Intelligence (AI) Maturity in Small and Medium-Sized Enterprises: A Framework of Internalized and Ecosystem-Embedded Capabilities	Sukanlaya Sawang & Virach Sornlertlamvanich	2026	Develops an AI maturity model for SMEs. Organizations with higher AI maturity have better innovation, collaboration, and sustainability capabilities.
8	Assessing AI Adoption and Digitalization in SMEs: A Framework for Implementation	Serena Proietti & Roberto Magnani	2025	Produces an AI implementation framework consisting of digital readiness, data governance, human resource competence development, and evaluation of AI implementation success in SMEs.
9	Strategic AI Adoption in SMEs: A Prescriptive Framework	Atif Hussain & Rana Rizwan	2024	Offers a strategic AI adoption framework based on implementation stages, from organizational readiness and technology selection to business process integration and performance impact evaluation.
10	Large Language Model Adoption: Systematic Review, Theoretical	Kumar, A., et al.	2026	The review shows that Large Language Model (LLM) adoption improves productivity, customer service quality, operational efficiency, and innovation. Successful implementation is

	Frameworks, and Meta- Analytic Evidence			influenced by AI governance, data quality, and organizational readiness.

4.1. Trends in Artificial Intelligence Adoption among SMEs

The synthesis of the ten articles shows that research on Artificial Intelligence (AI) adoption in SMEs increased significantly during the 2021–2026 period. The increase was reflected not only in the number of publications but also in the broader scope of AI implementation across business functions. In the early period (2021–2022), research more often discussed the use of machine learning, predictive analytics, and chatbots to improve operational efficiency and customer service quality. However, since 2023, the research focus has shifted toward the use of Generative Artificial Intelligence (GenAI), which supports digital content creation, market analysis, business strategy formulation, and data-based decision-making (Dwivedi et al., 2023; Feuerriegel et al., 2024).

This trend shows that AI is no longer positioned as a supporting technology; it has developed into a strategic organizational capability that enables SMEs to transform their business models more quickly and adaptively. This finding aligns with the Resource-Based View (RBV), which explains that competitive advantage does not come from technology ownership alone, but from the organization's ability to integrate the technology with internal resources, employee competence, and business processes (Barney, 1991; Mikalef & Gupta, 2021). Therefore, AI becomes a strategic asset capable of generating added value when combined with the organization's ability to manage information and innovation.

4.2. Determinants of Artificial Intelligence Adoption in SMEs

The analysis of the ten articles shows that successful AI implementation in SMEs is influenced by a combination of technological, organizational, and environmental factors as described in the Technology-Organization-Environment (TOE) Framework. However, the synthesis indicates that organizational factors are the most dominant determinants compared with the others.

From the technological aspect, ease of use, system compatibility, data quality, information security, and relative advantage are the factors most frequently reported as influencing SMEs' decisions to adopt AI. Organizations are generally more willing to accept AI technology when it can be integrated with existing systems and can provide directly measurable benefits such as increased operational efficiency or lower production costs (Dwivedi et al., 2023; Landini & Machado, 2026).

Nevertheless, organizational factors have a greater influence than technological factors. Almost all studies emphasize that top management support, employees' digital competence, innovation culture, organizational readiness, and investment capacity are the main prerequisites for successful AI implementation. Even when AI technology is available, organizations with low digital literacy tend to struggle to integrate AI into business processes, so the benefits obtained are not optimal (Lakhera et al., 2026; George et al., 2024). This finding reinforces Dynamic Capability Theory, which states that an organization's ability to adapt to technological change is the key factor determining the success of digital transformation (Teece, 2018).

In addition to internal factors, the external environment also makes a significant contribution to successful AI adoption. Competitive pressure, the development of the digital ecosystem, government support, and collaboration with technology providers encourage SMEs to accelerate digitalization. Therefore, AI implementation in SMEs cannot be separated from a digital ecosystem that supports innovation and knowledge transfer.

4.3. Artificial Intelligence as a Driver of Sustainable Business Performance

The synthesis results show that AI's contribution to Sustainable Business Performance is not limited to operational efficiency but also covers the economic, social, and environmental dimensions as described in the Triple Bottom Line (TBL) concept.

a. Economic Performance

All articles show that AI contributes most strongly to the economic dimension. The use of machine learning, predictive analytics, and recommendation systems enables SMEs to improve market demand forecasting accuracy, optimize inventory, accelerate production processes, and enhance the effectiveness of digital marketing. These effects directly improve productivity, profitability, decision quality, and firm competitiveness.

In addition, the use of Generative AI can reduce marketing costs through the automation of promotional content creation, customer behavior analysis, and personalized marketing communication. Thus, AI creates cost efficiency while increasing the value received by customers, thereby strengthening the company's economic sustainability (Dwivedi et al., 2023; George et al., 2024).

b. Social Performance

In the social dimension, AI contributes to improving the quality of relationships between companies and both customers and employees. AI-based chatbot implementation increases service speed, shortens response times, and improves customer satisfaction through 24-hour service availability.

In addition, AI systems based on data analysis allow companies to understand consumer preferences more accurately, enabling them to provide products that better match market needs.

From the internal organizational perspective, AI also encourages the improvement of workers' digital competence. Although automation replaces some administrative jobs, most studies show that AI actually creates a need for new skills such as data analysis, AI system management, and data-driven decision-making. Thus, AI functions more as a technology that augments human capabilities rather than fully replacing human roles (Feuerriegel et al., 2024; George et al., 2024).

c. Environmental Performance

AI's contribution to the environmental dimension has become a research focus in recent years. The synthesis shows that AI helps organizations optimize energy use, reduce production waste, improve logistics distribution efficiency, and minimize raw material consumption through more accurate demand forecasting systems. In the manufacturing sector, AI allows companies to reduce defect rates through computer vision and predictive maintenance, thereby significantly lowering production waste.

Nevertheless, discussion of AI's contribution to the environmental dimension remains relatively limited compared with the economic dimension. Most studies still treat environmental performance as an additional variable, so further research is needed on the relationship between AI and green business practices as well as the circular economy in SMEs.

4.4. Synthesis of Research Findings

The synthesis of all articles shows that the relationship between AI adoption and Sustainable Business Performance is not direct. AI is not a factor that automatically improves business sustainability; rather, it functions as an enabling technology that strengthens the organization's ability to create innovation, accelerate digital transformation, and improve data-based decision-making.

Based on the synthesis results, a consistent pattern appears. Organizations with digital capability, innovation capability, top management support, and organizational readiness obtain

much greater benefits from AI than organizations that merely invest in technology without changing business processes. In other words, AI produces sustainable business performance through a mechanism that enhances the organization's ability to manage knowledge, develop innovation, and respond more quickly to environmental change.

This finding broadens the Resource-Based View by showing that AI is a strategic resource that must be combined with intangible assets such as digital competence, innovation culture, and organizational learning capability. Therefore, investment in technology without the development of organizational capability will not produce sustainable competitive advantage.

4.5. Research Implications

The findings of this review provide a theoretical implication that research on AI in SMEs needs to shift from merely testing the direct effect of AI on firm performance toward developing conceptual models that integrate AI capability, digital transformation capability, innovation capability, and organizational resilience as mechanisms forming Sustainable Business Performance.

From a practical perspective, SMEs should not only adopt AI technology but also improve employee digital competence, build an innovation culture, strengthen data governance, and develop an integrated digital transformation strategy so that AI benefits can be realized optimally in economic, social, and environmental aspects.

5. Conclusion

This study synthesizes 10 articles on Artificial Intelligence (AI) adoption in SMEs using a Systematic Literature Review (SLR) method based on PRISMA 2020. The results show that AI adoption increased rapidly during the 2021–2026 period and was primarily influenced by management support, digital competence, organizational readiness, and data quality. AI implementation has been proven to improve Sustainable Business Performance through increased operational efficiency, innovation, service quality, and economic, social, and environmental performance. Future research is recommended to expand the number of articles and develop conceptual models that explain the relationship between AI adoption and MSME business sustainability.

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**VIRTUAL INFLUENCERS AS DIGITAL ENTREPRENEURSHIP:
REFRAMING AI-GENERATED PERSONAS, UNCANNY VALLEY REJECTION,
AND PSYCHOLOGICAL RESISTANCE**

Iram Saba

Abstract

The recent surge of virtual influencers, AI-altered characters and avatars that are used on social media, has sparked a significant scholarly discussion, largely focused on the marketing use value and brand communication. It challenges this narrative and suggests that the virtual influencers represent an ideal entrepreneurial model: a new digital entrepreneurial phenomenon where AI-generated identities are created, sold and developed as businesses' assets. Drawing on the theory of entrepreneurship (Schumpeter, 1934; Shane & Venkataraman, 2000), the economics of digital platforms (Parker, Van Alstyne & Choudary, 2016), and creator economy research (Cunningham & Craig, 2019), we create an entrepreneurship conceptual framework that conceptualizes VIs as AI-native or rather beyond marketing. This paper examines the psychological mechanisms which could lead to the rejection of AI video content such as the theory of the uncanny valley hypothesis (Mori, 1970; MacDorman & Ishiguro, 2006), cognitive dissonance theory (Festinger, 1957), theory of parasocial relationship disruption (Horton & Wohl, 1956) and authenticity perception theory (Gilmore & Pine, 2007). We merge these streams into the proposal for an integrated framework, the Virtual Influencer Entrepreneurial-Acceptance Framework (VIEAF), which identifies the conditions under which a virtual influencer is successful in the commercial arena and in the way, the audience accepts them. Solutions for the future are proposed in a transparent way, with a narrative authenticity and progressive humanization. In this paper, I hope to contribute to the body of work and research at the intersection of digital entrepreneurship, HCI, and consumer psychology.

Keywords: virtual influencers, digital entrepreneurship, uncanny valley, AI rejection, parasocial relationships, creator economy, psychological mechanisms, authenticity

1. INTRODUCTION

The emergence of virtual influencers – algorithmically-generated, computer generated social media characters like Lil Miquela, Imma and Noonouri – is one of the most disruptive developments in today's digital economy. Scholars and practitioners have jumped to study these entities from a narrow marketing communication and brand endorsement perspective, since Lil Miquela first appeared on Instagram in 2016 and since then, she has contributed to more than USD 11 million in brand value for the entity (Hype Auditor, 2019). We believe that such a presentation is conceptually inadequate and that it is inappropriately theorised in terms of the phenomenon itself. Virtual influencers aren't just a marketing tactic used by businesses. They are in essence entrepreneurial organisations – scalable, AI driven digital companies that value-driven by audience building, content creation, and multi-channel monetisation. They are built by digital entrepreneurs who harness AI, 3D modelling, storytelling and platform algorithms to create business assets that transcend human biology. This shift in perspectives has important theoretical, strategic, and policy implications for entrepreneurship theory, digital business strategy and the policy discourse. At the same time, there has been a surprising lack of acceptance for AI-generated video content, with audiences often feeling uncomfortable, distrustful, and outright rejecting highly realistic AI-produced human videos. This phenomenon, theoretically supported by the uncanny valley theory (Mori, 1970), is linked to other psychological theories such as cognitive dissonance (Festinger, 1957), parasocial

relationship theory (Horton & Wohl, 1956), and authenticity perception frameworks (Gilmore & Pine, 2007), leading to rejection behaviors that pose a risk to the commercial sustainability of virtual influencer businesses. This paper makes three theoretical contributions. First of all, it relocates the concept of virtual influencers in the scope of the digital entrepreneurship literature. Second, it formulates an integrative model of psychological mechanisms that underlie rejection of AI video content. Third, it offers theoretically informed strategies to addressing audience resistance. The paper proceeds as follows: First, it sets the context for digital entrepreneurship (Section 2); Second, it reviews the rejection mechanisms (Section 3); Third, it reviews resolution strategies (Section 4); Fourth, it reviews implications and future directions (Section 6).

2. VIRTUAL INFLUENCERS AS DIGITAL ENTREPRENEURSHIP

2.1 Reconceptualizing the Phenomenon

Virtual influencers are considered a form of brand communication or influencer marketing (Sands, Campbell, Ferraro & Ralston, 2022; Moustakas, Lamba, Mahmoud & Ranganathan, 2020). This is one aspect but it essentially misses the point about the nature of the entity. It's not a campaign, it's an enterprise. They have the hallmarks of entrepreneurial organizations: they discover and leverage market opportunities (Shane & Venkataraman, 2000); they develop new value propositions (Schumpeter, 1934); and they establish multiple revenue streams, such as brand partnerships, merchandise, digital content, and virtual goods, with the ability to scale across the board (Cunningham & Craig, 2019). A theoretical anchor is provided by Schumpeter's (1934) well-known theory of creative destruction. Virtual influencers are the new combinations (Schumpeter, 1911) of the combination of existing resources (AI, 3D graphics, narrative strategy, social media platforms) used in a way that fundamentally changes the market landscape. The human influencer industry, which has been valued at more than USD 21 billion in 2023 (Influencer Marketing Hub, 2023), is about to experience the Schumpeterian disruption from the AI-native competitors, who are able to work around the clock, have no risk of reputation loss, and do not have to invest as much to create the same amount of content. There is a Digital Entrepreneurship Framework.

2.2 The Digital Entrepreneurship Framework

Davidson and Vaast (2010) define digital entrepreneurship as the search for opportunities resulting from the digital transformation of markets and society. Virtual influencer businesses go right in line with this definition. This entrepreneur—usually a creative studio, a technology company or an individual working with generative AI technologies—identifies a need in the attention economy, creates a digital persona, and gradually develops their social capital and audience presence to monetize that persona. Nambisan (2017) further develops this idea by focusing on the indeterminate nature of the entrepreneurial process, the distributed nature of agency, and the generativity of 'digital artefacts'. But virtual influencers are a good example of all three. They are continuously generated through the process of engaging with the audience, feedback from the platforms, and optimization by a system of algorithms, making them fundamentally generative artifacts instead of marketing images that are pre-produced (Nambisan, 2017). Parker, Van Alstyne, and Choudary (2016) describe platform economics as a key aspect of digital business models. Virtual influencers exist in and between different platforms (Instagram, TikTok, YouTube and now, increasingly, the metaverse) and are what we call 'cross-platform entrepreneurial entities' that generate revenue from the platform's network effects without being limited by these network effects. Unlike the human influencers who have a limited range of biological and geographic reach, the virtual influencers can keep an optimized presence in multiple platform ecosystems.

2.3 The Creator Economy Dimension

Create a dimension called the Creator Economy. Identify the Creator Economy Dimension 2.3. Cunningham and Craig (2019) posit the new industry formation of the creator economy as a group of individual content creators acting as micro-entrepreneurial enterprises. The natural end of this formation is virtual influencers: the total removal of the biological creator, and the preservation—if not an amplification—of the business logic of the creator entrepreneur. They bring in subscription income, selling merchandise, speaking fees, educational content and NFT-based digital products, which are diversified revenues typical of well-developed entrepreneurial businesses. Virtual influencers entrepreneurial logic also overlaps with the theory of resources (Barney, 1991). The key aspects of their competency, consistency of the narrative, distinctiveness of the visual appearance, cross-cultural scalability and immunity to reputational crises are rare, valuable and imperfectly imitable resources that provide sustained competitive advantage over human influencers and are relative to them. A scandal can ruin a human influencer's reputation in an instant, while a virtual influencer's story can be carefully crafted and executed, which can be described as a dynamic capability for reputation management, as Teece (2007) would put it.

2.4 Why the Marketing Framing Is Insufficient

In most marketing literature, the focus is on virtual influencers as communications, defined as a vehicle that can deliver brand messages to target audience (Sands et al., 2022; Lou, Kiew, Tang, Lee, Teoh & Wun, 2023). By instrumentalizing entrepreneurs as tools, we mask their ability to create value, cultivate audiences and generate revenue on their own. Moreover, it does not cater for the virtual influencers that exists without corporate endorsement, which has been becoming a more common occurrence as individual influencers utilize generative AI tools to establish virtual influencer ventures that function as their own business. Additionally, the entrepreneurship framing holds regulatory and ethical implications. The issues of intellectual property, labour replacement, identity rights and disclosure requirements are not what they are if they are merely marketing campaigns (Campbell, Ferraro & Sands, 2022), but rather if they are entrepreneurial entities. The regulatory frameworks established for influencer marketing disclosure might fall short in addressing the challenges of regulating entrepreneurial AI actors who have a long-term "parasocial" relationship with their audience.

3. PSYCHOLOGICAL MECHANISMS OF REJECTION

3.1 The Uncanny Valley: Theoretical Foundations

Theoretical foundations of the uncanny valley. The concept of the uncanny valley, which originated in the field of robotics in 1970 by Masahiro Mori, forms the basis for the understanding of audience rejection of hyper-realistic content created by AI. A robot's level of human resemblance, Mori hypothesized, has a direct effect on affective response, which is initially positive, but then becomes more negative at a certain point of near-human realism, at which point it drops into revulsion and discomfort, or the 'uncanny valley,' and then becomes positive once again as the robot becomes truly human. MacDorman and Ishiguro (2006) formalized and extended Mores's hypothesis and empirically grounded the phenomenon by showing how the effect is present in the visual, auditory and kinesthetic dimensions. Importantly, MacDorman and Norris (2011) showed that this uncanny valley effect is more pronounced for moving, animated objects which is relevant to the generation of video content using AI. Images of virtual influencers can provoke less discomfort than video versions of the same influencer, which poses another obstacle for virtual influencer businesses aiming to grow their video campaigns. Wang and Roach (2017) also showed that individual differences in need

for cognition, technology anxiety and previous experience with AI systems modulate the uncanny valley effect. The discovery indicates that rejection of AI-generated video content is not an even distribution across the population, but occurs systematically by segment—with important implications for marketing strategy and entrepreneurial targeting.

3.2 Cognitive Dissonance and Ontological Confusion

Festinger's (1957) cognitive dissonance theory offers a complementary process that can explain AI rejection. People who fall into the trap of thinking that the virtual influencers are real persons suffer from "cognitive dissonance," which refers to the feeling of conflict when they find out and remember that they are virtual. This dissonance causes psychological discomfort that will be alleviated either by changing the beliefs regarding this entity (accepting that it is artificial) or by decreasing engagement with the entity (rejection). Groom, Nass, Chen, Nielsen, Scarborough and Robles (2009) showed that human users habitually extend social cognition models to non-human counterparts, assigning intentions, emotions, and social roles to non-humans. This phenomenon, known as 'social agency attribution', is when audiences both understand that virtual influencers are created artificially and react to them as if they were social agents. The ontological ambiguity that this creates evokes the 'uncanny' (unheimlich), as described by Freud (1919), a sense of familiarity and strangeness, a peculiar kind of psychological discomfort. Spatola, Kühnlenz and Cheng (2021) further illustrated this analysis by showing that the cognitive dissonance created by the AI agents is especially strong when the agents show emotions, since emotional authenticity is a key factor in humans' evaluation of social agents. Even if the video content is created using Artificial Intelligence, and is trying to convey an emotion, such as sadness, happiness or even vulnerability, the resulting video may paradoxically cause more discomfort than a video without any emotional expression, since the emotion being expressed is only apparent rather than real.

3.3 Parasocial Relationship Disruption

Horton and Wohl (1956) theorized parasocial relationships as one-sided emotional bonds that audiences form with media figures—bonds that simulate genuine social relationships while requiring no reciprocity from the media figure. Parasocial relationships have been extensively documented in the context of human influencers (Chung & Cho, 2017), with research demonstrating that parasocial relationship strength is a significant predictor of purchase intention, brand loyalty, and content engagement.

Virtual influencers present a fundamental challenge to parasocial relationship theory. Horton and Wohl's (1956) framework implicitly assumes that the media figure is a genuine human being with a real inner life—an assumption that is violated by virtual influencers. Derrick, Gabriel and Tippin (2008) demonstrated that parasocial relationships serve important psychological functions including the fulfillment of belonging needs, the regulation of self-esteem, and the provision of social interaction alternatives. When audiences discover that a figure they have developed a parasocial relationship with is artificial, these psychological functions are perceived as having been fulfilled through deception, generating a distinctive form of relationship betrayal.

Tukachinsky (2010) theorized parasocial breakup as the psychological response to the termination of a parasocial relationship—a response that parallels genuine relationship dissolution and includes emotions such as grief, anger, and identity disruption. We propose that discovery of a figure's AI nature may trigger parasocial breakup dynamics even when the relationship continues, as the nature of the figure the audience believed themselves to be in

relationship with is revealed to be fundamentally different from the actual entity. This 'parasocial identity disruption' constitutes a novel contribution to parasocial relationship theory.

3.4 Authenticity as a Psychological Requirement

Gilmore and Pine (2007) theorize authenticity as the dominant consumer value of the experience economy—arguing that consumers evaluate all offerings through the lens of whether they appear genuine and true to themselves. This authenticity imperative is particularly pronounced in influencer contexts, where audiences select influencers based on perceived genuine personality expression and reject those perceived as inauthentic or commercially compromised (Audrezet, de Kerviler & Guidry Moulard, 2020).

Virtual influencers present a structural authenticity paradox: they are by definition artificial constructions, yet their commercial success depends on audience perceptions of authenticity. Grayson and Martinec (2004) distinguish between indexical authenticity—authenticity grounded in factual origin—and iconic authenticity—authenticity grounded in resemblance to authentic archetypes. Virtual influencers can achieve iconic authenticity through consistent narrative voice, principled value expression, and genuine audience engagement, even in the absence of indexical authenticity grounded in biological humanity.

Marwick (2015) demonstrates that authenticity in social media contexts is a performed and constructed phenomenon even for human influencers—arguing that the apparent spontaneity and genuineness of influencer content is the product of deliberate self-branding strategy. This insight partially destabilizes the binary between authentic human influencers and inauthentic virtual ones, suggesting that the relevant question is not whether authenticity is constructed but whether its construction is perceptible to audiences.

3.5 The Role of Moral Concern and Deception Perception

Sundar, Waddell and Jung (2016) show that when audiences feel they are misled as to the characteristics of a communicative agent, they feel greater moral outrage. This moral concern leads to negative affect, loss of trust, and intention-to-disengage, all of which are rejection behaviours. This process occurs when audiences learn that a human-like looking figure is a virtual influencer, or that the figure is fake but the creators of the virtual influencer intentionally concealed it. Metzger, Flanagin and Medders (2010) explain credibility assessment as a motivated process, in which audiences allocate their cognitive resources to assess the credibility of the source depending upon the stakes of the communication. High-stakes content like product recommendations, health information, and financial advice puts the content under a microscope, making it more likely that the sources behind it are artificial and will be identified and rejected. In high-stakes categories of content, this implies that the risk of rejection is especially high for virtual influencer businesses.

VIEAF conceptual framework

The framework (figure 1) is organized as a top-down causal model with five layers. At the top, the virtual influencer venture is situated within a digital entrepreneurship framing — grounded in Schumpeter's creative destruction, Nambisan's digital entrepreneurship theory, and Parker et al.'s platform economics. This framing feeds down into four core pillars that together constitute the VIEAF: Entrepreneurial Value Architecture, Uncanny Valley Positioning, Authenticity Construction, and Parasocial Relationship Management.

These four pillars do not operate in isolation. The second and third pillars (uncanny valley and authenticity) directly activate the psychological rejection mechanisms identified in the paper — uncanny valley discomfort, cognitive dissonance, parasocial identity disruption, and

authenticity deficit — while the first and fourth pillars moderate the severity of those mechanisms.

The rejection mechanisms are then addressed by five resolution strategies — radical transparency, gradual humanization, empathy engineering, community co-creation, and cross-cultural adaptation — which together determine whether the venture achieves its two interdependent outcomes: commercial viability and audience acceptance

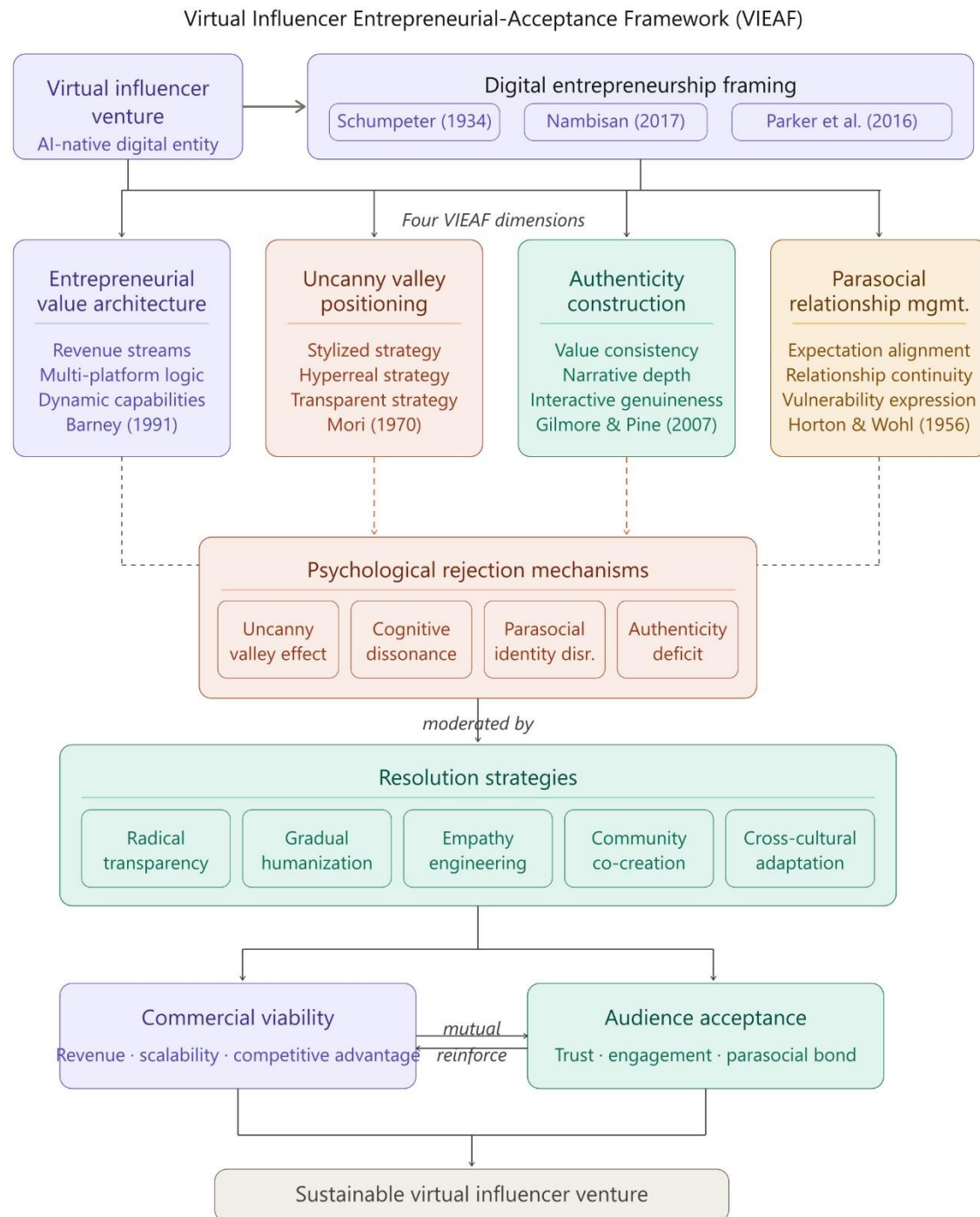


Figure1: VIEAF conceptual framework

4. THE VIRTUAL INFLUENCER ENTREPRENEURIAL-ACCEPTANCE FRAMEWORK (VIEAF)

4.1 Framework Overview

On the basis of the theoretical streams reviewed above, we present the Virtual Influencer Entrepreneurial-Acceptance Framework (VIEAF), which is an integrative conceptual model of the virtual influencer ventures that brings together theory in digital entrepreneurship and the psychology of audience acceptance. The VIEAF defines the four main pillars in which virtual influencer ventures can be assessed: Entrepreneurial Value Architecture, Uncanny Valley Positioning, Authenticity Construction and Parasocial Relationship Management.

4.2 Entrepreneurial Value Architecture

The first dimension is related to the way the virtual influencer creates value and captures value. The first dimension is about the value creation and capture processes of the virtual influencer. Based on Osterwalder and Pigneur's (2010) Business Model Canvas, we suggest that the core of a successful venture by a virtual influencer is that it creates a layered value architecture, which goes beyond brand sponsorship to include owned content distribution, merchandise, partnerships and native income generation. Ventures that rely on one value stream, usually a brand sponsorship, are entrepreneurially vulnerable and can't withstand market disruptions that can be handled by a more diversified venture. Teece's (2007) dynamic capabilities approach posits that for the virtual influencer ventures to be successful, they need to possess the capacity to spot new opportunities in the platform ecosystem, pursue and capture those opportunities quickly in terms of content and partnerships, and adapt their value architectures by responding to the shifting platform dynamics. These are dynamic capabilities supported by the generative AI tools that enable the creation of virtual influencers, such as large language models, diffusion-based image generators, and voice synthesis systems. The generative AI tools that enable the production of virtual influencers, including large language models, diffusion-based image generators, and voice synthesis systems, are the technical backbone of these dynamic capabilities.

4.3 Uncanny Valley Positioning

The second dimension is related to strategic placement of the visual and behavioral representation of the virtual influencer on the uncanny valley continuum. We distinguish three plausible positioning strategies: the Stylized Strategy, the Hyperreal Strategy and the Transparent Strategy. This is why the Stylized Strategy chooses to make the virtual influencer explicitly not human, using anime aesthetics, cartoon styling or abstract representation in order to be on the safe side of the uncanny valley. This approach can be seen in entities like Noonouri, which always has a very doll-like look. The Stylized Strategy is a compromise between physical realism and psychological safety, in order to create a less uncomfortable experience for the audience while still keeping to the commercial benefits of a consistent and scalable digital persona (Sands et al., 2022). The Hyperreal Strategy tries to span the entire uncanny valley, and it aims for an image of the human being to be so convincingly real that audiences cannot tell that the virtual influencer is not a real person. As generative AI technology evolves it becomes more feasible, but with high ethical and trust risks (Sundar et al., 2016) of deception of the audience. The Transparent Strategy, which includes transparency of the virtual influencer's artificiality, neutralizes these dangers while at the same time allowing the creation of a unique authenticity narrative based on the honesty of disclosure.

4.4 Authenticity Construction

The third dimension is related to how virtual influencer ventures build up the audience's sense of authenticity. Based on the authenticity framework of Gilmore and Pine (2007) and the notion of performed authenticity of Marwick (2015), we propose three authenticity construction mechanisms: Value Consistency, Narrative Depth and Interactive Genuineness. Value Consistency is about keeping the values consistent throughout all the virtual influencer content and partnerships, not accepting brand partnerships that are in contradiction to the persona's values, and being consistent in the values you express across contexts. Narrative Depth is designing a comprehensive and complex biographical story for the virtual influencer that also contains contradictions, development, and complexity – all of which are hallmarks of a true personality versus a marketed persona. Interactive Genuineness is about developing genuine, responsive engagement with audience members—it is about acknowledging and responding to individual audience members, facing criticism head-on, and articulating one's opinion on issues that resonate with one's audience community.

4.5 Parasocial Relationship Management

The fourth dimension is about the strategic management of parasocial relationships between the virtual influencer and the audience. We propose that the parasocial relationship framework by Horton and Wohl (1956) and Tukachinsky's (2010) parasocial breakup theory are the theories to which virtual influencer ventures should apply, aiming to manage the conditions that allow audiences to form and maintain a PSR with AI entities. We propose three parasocial management principles: first, 'Expectation Alignment' (setting up audience's understanding of the entity's artificiality from the start of contact); second, 'Relationship Continuity' (consistent personality expression over time and place to facilitate stable parasocial attachment); and third, 'Vulnerability Expression' (strategically revealing the entity's limitations, uncertainties, and developmental challenges to foster audience identification and empathy). These principles create a parasocial relationship architecture that facilitates commercial viability and reduces the amount of risk associated with betrayal.

5. RESOLVING REJECTION: STRATEGIC AND THEORETICAL SOLUTIONS'

5.1 Transparency as an Entrepreneurial Strategy

5.2 Gradual Humanization and Narrative Development

The most basic answer is to be very transparent about the nature of what you are creating, and audience rejection of AI-generated content will be averted. In a study by Sundar et al. (2016), audiences who were made aware of the artificiality of an entity prior to engagement showed significantly less discomfort than audiences who learned about the artificiality of the entity afterwards. Transparency can be a key secret to reducing the potential risk of rejection and can even be a unique brand positioning—specifically the 'honest AI' positioning—that provides competitive advantage in an era of authenticity and deception concerns in the media. The EU's Artificial Intelligence Act (2024) and new regulations on platforms' disclosure of their platform-generated content impose a regulatory duty to disclose AI-generated content in some circumstances, with this emerging trend of platform disclosure policies being a source of entrepreneurial opportunities. Firms that embrace proactive disclosure will be better positioned than those that are less willing to embrace transparency as platform and regulatory requirements increase (Campbell et al., 2022). A gradual process of humanization and development of the narrative. Strait, Canning, Maddox and Remedios (2017) show that over time, exposure to an AI agent decreases the uncanny valley discomfort, because people build cognitive schemas for

understanding human-like representations generated by the AI agent. This means that the trend of virtual influencer ventures can take a gradual approach to humanizing the virtual person, starting from a safe distance from hyper-reality and slowly introducing more realism into the persona's appearance as they gain in acknowledgment of the entity. Narrative development is a complementary role that builds an ongoing evolving biographical story for the virtual influencer and gives viewers the opportunity to make sense of the entity's nature and actions. Content that addresses the entity's AI nature and does not hide it, has been seen to produce more audience engagement and fewer rejections (Guthrie, Kim & Abernethy, 2008). The AI element of a virtual influencer could be seen not as a drawback, but as a unique characteristic of the story: as a perspective, curiosity, an existential investigation that a human influencer cannot be a true source.

5.3 Emotional Design and Empathy Engineering

Reeves and Nass (1996) show that the audience is unconsciously using social cognition frameworks when viewing media entities, implying that it might be possible to manipulate emotions in order to engender empathy. This discovery has the potential to be a great resource for virtual influencer businesses as they can tailor their characters to display emotions and vulnerabilities that elicit the audience's emotional response and trigger their parasocial attachment, thereby minimizing the impact of the uncanny valley. A "designed vulnerability" approach is core to this strategy: virtual influencers that communicate uncertainty, point out their own weaknesses, and show their own development in the past and the present engage audience care-taking responses that reverse the distancing effect of uncanny valley discomfort. It's similar to 'talking to bots' (Neff and Nagy, 2016) which shows that even technologically advanced users can talk to bots with empathy when these bots show social responsiveness.

5.4 Community Co-Creation

Reeves and Nass (1996) show that the audience is unconsciously using social cognition frameworks when viewing media entities, implying that it might be possible to manipulate emotions in order to engender empathy. This discovery has the potential to be a great resource for virtual influencer businesses as they can tailor their characters to display emotions and vulnerabilities that elicit the audience's emotional response and trigger their parasocial attachment, thereby minimizing the impact of the uncanny valley. A "designed vulnerability" approach is core to this strategy: virtual influencers that communicate uncertainty, point out their own weaknesses, and show their own development in the past and the present engage audience care-taking responses that reverse the distancing effect of uncanny valley discomfort. It is similar to 'talking to bots' (Neff and Nagy, 2016) which shows that even technologically advanced users can talk to bots with empathy when these bots show social responsiveness.

5.5 Cross-Cultural Considerations

As shown in the works of Ho, MacDorman and Pramono (2008), this uncanny valley effect is found to be different among the different cultures, and it suggests that East Asians are more tolerant to near-human representations of robots than Westerners, which they hypothesize to be due to cultural differences in the conceptual boundary between human and non-human categories. The virtual influencers business in global markets needs to account for cross-cultural sensitivity for uncanny valley, which may require different visual and behavioural positioning for other market segments. With regard to the success of Japanese virtual YouTubers (VTubers), anime-style virtual human representations, which require cultural conditioning of the audience to tolerate the presence of human representations made by machines, the virtual video service seems to be a viable model for the creation of virtual content in Japanese. In terms of the virtual

video service, it seems that anime style human representation of virtual humans can condition the audience's tolerance for the appearance of human representation created by artificial intelligence, as evidenced by the success of anime style human representation created by virtual Japanese creators on YouTube (Pellitteri, 2021). This conditioning can be capitalized on by taking a gradual approach to markets by first using aesthetics that are VTuber-inspired and eventually adding more realistic representations as audience familiarity grows.

6. DISCUSSION AND THEORETICAL IMPLICATIONS

6.1 Contributions to Digital Entrepreneurship Theory

Creating new theories within the field of Digital Entrepreneurship. Development of theories in Digital Entrepreneurship. This paper contributes to the theory of digital entrepreneurship in a number of ways. First, virtual influencers are not just marketing tools, but a form of entrepreneurship and as such, we augment the theory of digital entrepreneurship to include AI-native identity ventures, which will assume greater importance as generative AI technologies grow. Second, we show that the resource-based theory of competitive advantage (Barney, 1991) needs to be adapted to the AI entrepreneur environment because the key tenets of the theory (that resources have to be rare and difficult to imitate) are overturned by low production costs of AI-generated content. Third, we extend the theory of platform entrepreneurship (Parker et al., 2016) by showing that the phenomenon of virtual influencer ventures represents a new form of platform intermediary that plays at the same time both the creator and infrastructure roles within the social media platform. The hybrid positioning invites critical consideration of platform governance, platform value distribution and attention economy competition not directly reflected in existing platform theory.

6.2 Contributions to Human-Computer Interaction Theory

The VIEAF framework builds upon uncanny valley theory by connecting it to the theory of entrepreneurship, consumer psychology, and parasocial relationships, providing a more holistic explanation of virtual influencers' audience reactions. Specifically, we propose the 'parasocial identity disruption' mechanism, which accounts for the audience rejection that occurs when an AI is discovered as having an AI nature, but is different from the perceptual discomfort that is at the heart of the uncanny valley hypothesis formulated by Mori (1970). We also make a contribution to authenticity theory in HCI by showing that authenticity in AI-mediated relationship is a constructed and performed phenomenon that can be managed strategically by using value consistency, a narrative depth and interactive genuineness, even without biological humanity. The discovery has potential applications in the design of AI agents in a variety of contexts, such as healthcare, education, customer service, and therapeutic settings.

6.3 Limitations and Future Research

This paper is of a theoretical and conceptual nature, propositions to be supported by empirical testing and experimentation, by longitudinal audience studies and by comparative cases. Future studies should explore the propositions of the VIEAF framework in various cultural settings, platform environments and various types of virtual influencers. Measuring the relative discomfort of the various rejection mechanisms (uncanny valley discomfort, cognitive dissonance, parasocial betrayal, and authenticity deficit) with quantitative studies would enhance the practical value of the framework. Moreover, because the parameters of the "uncanny valley" are constantly changing, with the breakthroughs of generative AI constantly evolving, the theoretical models constructed in stable technological environments do not effectively capture the technological parameters of the uncanny valley. Future studies should use longitudinal approaches that can measure the changing responses of the audience to AI-

generated content over time as technology advances and as attitudes towards AI-generated content evolve.

7. CONCLUSION

In this paper, the virtual influencer has been re-provisioned as a digital entrepreneurial business, and an integrative theoretical perspective has been proposed that explains how psychological mechanisms may contribute to the rejection of AI-generated content by audiences. The Virtual Influencer Entrepreneurial-Acceptance Framework (VIEAF) combines entrepreneurship theory, uncanny valley hypothesis, cognitive dissonance theory, parasocial relationship theory, and the authenticity frameworks to give a complete picture of what factors lead to the commercial viability of virtual influencers and to long-term acceptance of their influence. The theoretical core of this paper is that the entrepreneurial and psychological aspects of virtual influencer ventures are not independent of each other, but highly intertwined: the success of the business side of a virtual influencer venture hinges on their ability to manage the psychological processes of rejection, while the psychological processes of audiences are shaped by the entrepreneurial decisions made by the business creators of a virtual influencer venture. A business that is open about its identity, builds real depth to its story, intentionally cultivates parasocial interactions, and collaboratively shapes its narrative with its community of users will be both commercially viable and psychologically accepted. This paper examines a phenomenon that will continue to grow in scale and significance as generative AI powers grow and the cost of creating virtual influencers decreases. The ideas and concepts created here will serve as the basis for the academic research this expansion will demand, as well as the entrepreneurial and regulatory discussions it will generate.

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DIGITAL MARKETING COMMUNICATIONS, CULTURAL BRAND IDENTITY, AND CONSUMER PURCHASE DECISIONS: A QUALITATIVE CASE STUDY OF BATIK BESUREK CONSUMERS IN INDONESIA

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Abstract

This study examines the effect of digital marketing communications on cultural brand identity and consumer purchasing choices regarding Batik Besurek in Indonesia. Employing a qualitative case study method, it explores how consumers derive meaning through digital interactions and symbolic interpretation. The results show that digital marketing acts as an initial trigger that influences consumer engagement and the development of cultural significance. Engagement happens via interactive digital activities like social media involvement, online reviews, and storytelling. Cultural brand identity is seen as a key concept that embodies cultural meaning and identity expression. Brand authenticity serves as a perceptual check that enhances trust and emotional bonds. Ultimately, consumers' purchase decisions are based on cognitive assessment, emotional connection, and cultural-symbolic alignment. The research presents a comprehensive model connecting digital marketing, consumer engagement, cultural brand identity, brand authenticity, and purchasing behavior.

1. Introduction

Rapid advancements in digital technology are transforming marketing communication, prompting traditional textile businesses like Besurek Batik manufacturers to adopt digital strategies for engaging consumers. Digital marketing channels enable real-time storytelling and brand messaging through social media, websites, and e-commerce, which is vital for Batik Besurek—a culturally significant Indonesian textile with distinctive motifs. Digital strategies can broaden market reach while preserving the product's cultural identity.

This research stems from the duality between modernizing marketing channels and the need to safeguard cultural identity. Though literature shows digital marketing can boost customer loyalty via personalization and storytelling (Keller, 2021; Chaffey, 2022), the role of digital communication practices in reinforcing cultural brand identity—rooted in symbolism, history, and community—is less studied, especially in consumer purchasing behavior related to Besurek Batik.

The study's importance lies in its theoretical contribution—integrating digital marketing, brand identity, cultural values, and consumer behavior—and in offering practical insights for artisans, MSMEs, and policymakers on culturally sensitive yet effective digital strategies.

The aim is to qualitatively examine how digital marketing influences perceptions of Batik Besurek's cultural brand identity and consumer buying decisions. Specifically, it seeks to: (1) identify digital communication elements used by Batik Besurek actors; (2) analyze how these contribute to the cultural brand identity; and (3) explore how this identity affects consumer motives and choices.

The research focuses on Besurek Batik consumers across Indonesia, covering different demographic segments. A qualitative method is employed to capture the depth of experiences, narratives, and symbolism often overlooked by quantitative research.

The framework connects three core concepts: digital marketing communication—focused on interactivity, storytelling, and content personalization (Kietzmann et al., 2020; James & Verissimo, 2021)—cultural brand identity—symbolic and cultural values communicated by brands (Fan, 2022; [REF: Author, 2025])—and consumer purchase decisions—based on cognitive and emotional processes influenced by brand perception, credibility, and trust in authenticity (Al-Debei & Avison, 2020; Verhoef et al., 2023). The interaction between digital communication and cultural identity is believed to mediate purchase intentions through emotional and cognitive bonds.

Overall, this study aims to address how digital strategies can preserve or enhance the cultural essence of Batik Besurek while promoting sustainable consumer behavior.

2. Literature Review

This literature review focuses on three key areas: digital marketing communications, cultural brand identity, and consumer purchase decisions. Additionally, it explores the specific context of Besurek Batik to link theoretical insights with digital marketing strategies for cultural products in Indonesia.

2.1 Digital Marketing Communication

Digital marketing communication involves using digital platforms to convey brand messages, build relationships with consumers, and drive purchase actions (Keller, 2020). This approach emphasizes greater interactivity, personalization, and measurement capabilities than traditional channels (Chaffey & Ellis-Chadwick, 2021). In the digital context, Integrated Marketing Communications (IMC) requires harmonizing paid advertising, organic content, digital PR, social media, and e-commerce channels to keep brand messages consistent and strengthen positioning (Percy & Elliott, 2020).

Social media plays a key role by providing a two-way communication space between brands and audiences; it facilitates community building, brand identification, and the rapid dissemination of information through sharing and commenting (Hanna, Rohm, & Crittenden, 2020). Content marketing aims to provide informative or entertainment value to build engagement and expand organic reach; the quality of narrative, storytelling, and visual representation are the main determinants of its effectiveness (Pulizzi, 2021).

Influencer marketing leverages figures with authority or credibility in the eyes of the audience to increase trust and accelerate product adoption; this effect is influenced by the match between

influencers, products, and audience values, as well as the transparency of commercial relationships (De Veirman, Cauberghe, & Hudders, 2020). Electronic word-of-mouth (eWOM)—online reviews, testimonials, and recommendations—has a strong impact on brand perception formation due to source credibility and the richness of available information (Cheung & Thadani, 2012; recent extensions: Lim, 2022).

Broadly speaking, digital communication affects brand perception through exposure, message framing, social interaction, and social proof. Positive perceptions of quality, authenticity, and relevance can increase purchase intent through cognitive (information & evaluation) and affective (emotion & attachment) pathways (Kardes, Cronley, & Cline, 2020; Nguyen, 2023).

2.2 Cultural Brand Identity

Brand heritage concerns the historical roots, practices, and values inherent in a brand—especially those derived from cultural traditions—that serve as sources of differentiation and legitimacy (Urde, Greyser, & Balmer, 2021). Cultural branding views brands as carriers of cultural meaning, articulating collective narratives, symbolism, and ritual practices that consumers can access (Holt, 2004; recent developments: Thompson & Coskuner-Balli, 2022).

Cultural authenticity is a key criterion when consumers judge cultural products: perceptions of authenticity, connection to tradition, and respect for local practices influence preferences and loyalty (Gilmore & Pine, 2020). Brand symbolism—e.g., motifs, colors, and names—serves as a marker of collective identity, facilitating emotional affiliation and differentiation in the marketplace (Kapferer, 2020).

Social identification mechanisms explain the relationship between cultural identity and consumer loyalty and preferences: consumers who feel a fit between personal identity and brand cultural narratives tend to show loyalty, willingness to pay a premium, and brand advocacy (Aaker, 2021; recent evidence: Sari & Wijaya, 2023). In the context of cultural products, maintaining a balance between commercialization and the preservation of cultural values is key to preserving authenticity and local community support.

2.3 Consumer Purchase Decisions

Common consumer purchasing decision models include the following stages: awareness, interest, evaluation, purchase, and post-purchase (Engel, Blackwell, & Miniard; modern adaptations: Kotler & Keller, 2021). At each stage, digital communication and cultural identity play distinct roles:

- Awareness: Exposure through digital advertising, organic content, influencers, and eWOM introduces the product; the use of cultural symbols and authentic storytelling increases initial appeal (Keller, 2020; Lim, 2022).
- Interest: Informative and visual content highlighting heritage aspects (e.g., crafting techniques, the meaning of motifs) drives interest; social media interactions enable dialogue that deepens interest (Pulizzi, 2021).

- Evaluation: Consumers compare functional (quality, price) and symbolic (authenticity, cultural value) attributes. eWOM and influencer reviews play a major role in reducing perceived risk and signaling cultural quality (De Veirman et al., 2020; Nguyen, 2023).
- Purchase: Ease of digital transactions, integrated promotions, and cultural endorsements facilitate purchase decisions; the perception of authenticity can trigger purchases of cultural products (Sari & Wijaya, 2023).
- Post-purchase: User experience, satisfaction, and sharing and review activities influence the likelihood of repurchase and advocacy; digital community programs or user-generated content (UGC) can strengthen loyalty (Chaffey & Ellis-Chadwick, 2021).

In cultural products such as batik, symbolic factors often add utilitarian value, so purchase decisions are influenced by a combination of aesthetic value, social meaning, and evidence of authenticity perceived through digital communication.

2.4 Context of Besurek Batik

Besurek Batik is a variant of batik typical of Bengkulu Province (or related regions). It is known for its local motifs and inscriptions—combining traditional batik patterns with textual elements or local symbols that represent the community's identity. The cultural value of Besurek Batik includes the heritage of the technique, the symbolic meaning of the motifs, and the connection to local identity, all of which should be preserved (Sutrisno, 2020; Putri, 2022).

The implications of digital marketing for consumers and Besurek Batik demand a strategy that respects authenticity while harnessing the power of visual narrative. Content that showcases the manufacturing process, craftsmen, and the stories behind the motifs can increase consumers' perception of authenticity and affection (Putri, 2022). On the other hand, collaboration with local influencers who understand the cultural context, as well as encouraging eWOM through batik-loving communities, can expand market reach without eroding cultural values (Sari & Wijaya, 2023).

It is important to note that digitalization creates opportunities for market education—shaping consumer understanding of the historical and symbolic value of Besurek Batik—but also risks commodification if the message focuses solely on commercial aspects without respect for cultural origins (Hendrawan, 2021).

2.5 Research Synthesis and Gaps

A synthesis of the literature indicates that combining integrated digital marketing communication with the affirmation of cultural identity can increase consumer purchase intent and loyalty to cultural products. However, empirical gaps remain in linking specific forms of digital messaging (e.g., artisan-based storytelling vs. functional promotions) to changes at each stage of the purchasing decision process across different consumer segments. In addition, longitudinal studies assessing the long-term impact of digitalization on perceptions of cultural brand authenticity remain limited (Nguyen, 2023; Sari & Wijaya, 2023).

This procedural study seeks to address some of these gaps by examining how digital communication and Batik Besurek's cultural identity affect consumer purchasing decisions in

Indonesia, using a qualitative approach to capture the nuances of consumer meaning and practice.

3. Methodology

This chapter outlines the design and methodological steps used in the research titled "Digital Marketing Communications and Cultural Brand Identity: A Qualitative Exploration of Consumer Purchase Decisions among Batik Besurek Consumers in Indonesia." The research focuses on how digital marketing communication and the cultural identity of the Besurek Batik brand influence consumer purchasing decisions. The methods are qualitative and exploratory, allowing in-depth exploration of consumer experiences, meanings, and perceptions.

3.1 Research Design

The research uses an exploratory qualitative approach. This approach was chosen because the study aims to explore complex social phenomena—the interaction among digital marketing communications, brand cultural identity, and purchasing decisions—from the consumer's perspective. The exploratory design allows flexibility in data collection and instrument adaptation based on initial findings to deepen understanding.

3.2 Location and Subject of Research

The research was conducted nationally, with a focus on Besurek Batik consumers in Indonesia. Data collection locations include cities with high Besurek Batik penetration and significant digital marketing activity, such as Provinsi Bengkulu, Surabaya, Jember, and Jakarta, as well as marketplace and online shop platforms that sell Besurek Batik. The subjects of the study are adult consumers (18 years and older) who have interacted with or purchased Besurek Batik products in the last 12 months through online or offline channels.

3.3 Technology Sampling

The sampling technique used is purposive sampling combined with snowball sampling. Purposive sampling was chosen to ensure that participants had relevant experiences (Batik Besurek consumers who have been exposed to the brand's digital marketing communications). Inclusion criteria include: (1) be 18 years of age or older; (2) have seen Batik Besurek digital marketing materials (social media ads, email marketing, marketplace listings, etc.) in the last 12 months; (3) have purchased or intend to purchase Batik Besurek products; (4) be willing to participate in in-depth interviews or FGDs; (5) be able to communicate in Indonesian or the local language, with a translator available if necessary.

Snowball sampling is used to expand the network of participants, especially to reach consumers who are active in the cultural community or fans of Besurek Batik who may be difficult to reach through direct recruitment. Estimated sample size: 25–35 participants for in-depth interviews, 4–6 FGD groups of 6–8 participants each, and observation of 8–12 physical stores/storefronts and 10–15 online stores/marketplace listings. This size is an estimate and will be adjusted until data saturation is achieved.

3.4 Data Collection Methods

To obtain rich and diverse data, the study combined several data collection techniques:

- Semi-structured in-depth interviews: Used to explore personal views, buying experiences, perceptions of digital marketing messages, and their relationship to Batik Besurek cultural identity. Duration: 45–90 minutes per interview.
- Focus Group Discussions (FGDs): Facilitate group discussions on collective perceptions, social norms, and responses to promotional materials. FGDs help uncover the social dynamics that influence purchasing decisions.
- Store/marketplace observation: Direct observation of physical storefronts, product displays, and product pages on e-commerce platforms to document marketing practices, branding visuals, and highlighted cultural elements.
- Analysis of social media content and digital marketing materials: Collect Instagram, Facebook, YouTube, paid ads, product descriptions on marketplaces, promotional emails, and official websites to analyze messages, cultural symbols, brand narratives, and communication strategies.

3.5 Research Instruments

The research instruments include:

- Semi-structured interview guidelines: A list of open-ended questions about the buying experience, exposure to digital advertising, interpretation of cultural symbols, factors influencing beliefs and preferences, and the influence of user-generated content on decisions.
- FGD Guide: Topics for group discussions include perceptions of Batik Besurok cultural identity, attractive marketing elements, the influence of reviews and recommendations, and purchasing channel preferences.
- Structured observation format: Checklist of visual aspects of branding, cultural messaging, pricing, promotion, packaging, and seller-consumer interaction.
- Content analysis guidelines: Categories for coding cultural themes, marketing messages, call-to-action, and engagement tactics.

3.6 Data Collection Procedures

The data collection procedure is carried out step by step as follows:

1. Participant recruitment: Initial recruitment through Batik community networks, social media groups, marketplace sellers, and participant recommendations (snowball). Research information and informed consent are provided prior to participation.
2. Pilot testing of instruments: Interview guidelines and FGDs were piloted with 3–5 people to ensure question clarity, duration, and topic appropriateness; instruments were revised based on feedback.
3. Implementation of interviews and FGDs: Interviews are conducted face-to-face or online (Zoom/Google Meet) according to participants' preferences. FGDs were held face-to-face at a neutral location or online for groups with dispersed locations. All sessions were audio-recorded (with permission), and field notes were documented.

4. Recording and transcription: Audio recordings were transcribed verbatim. Transcripts were verified with field notes, and, if necessary, member checking was carried out to clarify important statements.

3.7 Data Analysis Techniques

Data were analyzed using a step-by-step thematic analysis approach (Braun & Clarke-style), namely: (1) familiarization with the data through repeated transcript reading; (2) creation of initial codes (open coding) to capture units of meaning; (3) development of initial themes (axial coding) by combining related codes; (4) sharpening and selection of the main theme (selective coding) relevant to the research question; (5) definition and naming of themes; (6) preparation of evidence-rich thematic reports. Where relevant, open/axial/selective coding is used for more systematic structuring.

The use of qualitative software such as NVivo or ATLAS.ti is recommended for data management, coding, theme network visualization, and storage to facilitate audit trails. Data triangulation is carried out by comparing findings from interviews, FGDs, observations, and content analysis to improve the validity of interpretation.

3.8 Legitimacy and Reliability Strategy

To ensure the credibility and reliability of the findings, the study applied several strategies:

- Credibility: Triangulation of sources and methods (interviews, FGDs, observations, content analysis) and member checking, i.e., submitting a summary of initial findings to several participants for confirmation.
- Transferability: Strengthen transferability by providing thick descriptions of the context, characteristics of participants, and data collection conditions so that readers can assess the relevance of findings.
- Dependability and Confirmability: Compile a trail audit that documents the research process (field notes, methodological decisions, instrument versions, coding logs), as well as the researcher's reflections (reflexivity notes) to uncover potential biases.

3.9 Ethical Considerations

Research adheres to the ethical principles of social research. Participants are provided with written or electronic informed consent that explains the purpose of the research, procedures, the right to withdraw at any time without consequences, and a guarantee of confidentiality. Data is recorded only after consent. The participant's identity is anonymized in transcripts and publications (using pseudonyms), and the data is stored securely on an encrypted device with limited access by the research team. Results containing direct quotes are assigned pseudonymous codes to maintain privacy.

3.10 Methodological Limitations

This qualitative study has several limitations: the generalizability of the results is constrained by nonprobability samples; there is potential for self-selection bias among participants who are more interested in Besurek Batik; memory and social desirability may influence participants'

responses; the geographical reach may be limited if recruitment is concentrated in certain regions; and access to paid marketing data may be constrained and not fully disclosed. The researcher sought to mitigate these limitations through triangulation and procedural transparency, but readers are expected to consider the study's context when interpreting the findings.

3.11 Methodological References

For methodological and practical foundations, the research draws on the literature on cutting-edge qualitative methodologies (2020–2024), including books and articles on thematic analysis, coding, qualitative validity, and the use of NVivo/ATLAS.ti, as well as qualitative research ethics guidelines. Reference examples: Braun & Clarke (2021) on thematic analysis; Creswell & Poth (2020) on qualitative research methodology; Arctic el-article 2020–2024 on data triangulation, member checking, and the use of NVivo/ATLAS.ti (specific titles can be listed according to the needs of the final writing, or placeholders can be used if the title is not remembered).

Overall, this methodology is designed to produce an in-depth, reliable understanding of how digital marketing communication and Batik Besurek cultural identity shape consumer purchasing decisions, while maintaining ethical standards and the quality of qualitative research.

4. Results and discussions

Brief introduction to participant data: This study involved 18 informants who were purposively selected from Besurek Batik consumers across several cities in East Java. The sample comprised 11 women and 7 men, with ages ranging from 22 to 56 years, educational backgrounds from diploma to S2, and various occupations (private employees, entrepreneurs, academics). The majority of informants actively use social media (Instagram, Facebook, WhatsApp) to search for product information and interact with brands. These demographic profiles provide context for understanding how digital marketing communication and cultural identity influence purchasing decisions.

Theme 1: Cultural Narratives and Authenticity in Digital Communication

Theme description: Many informants believe that a clear cultural narrative and an emphasis on authenticity are the primary drivers of Besurek Batik's appeal. The findings show that when digital content highlights the stories behind the motifs, the manufacturing process, and the historical value, consumers feel more emotionally connected and have greater confidence in the product's quality.

Detailed findings: Content featuring local artisans, coloring techniques, and the symbolic meaning of motifs tends to increase purchase intent. By contrast, generic or overly commercial content detracts from the impression of authenticity.

Illustrative quote: "I find videos about the batik-making process engaging because they reveal the story behind it, making it feel more meaningful" [K03]. "Without a story, a product photo seems ordinary" [F11].

Relevance to the literature: These results support previous findings on the role of cultural narratives in building cultural brand credibility (Harris, 2021; Putra, 2022). In addition, these findings broaden understanding of digital authenticity by showing how multimedia formats (video, stories) can strengthen perceptions of authenticity (Wijaya, 2023). These results are also in line with the emotional engagement model in digital marketing, which emphasizes storytelling as a trigger for attachment (Siti, 2025).

Theme 2: Digital Platform Use and Content Preferences

Theme description: Informants show varied preferences across platforms and content formats, but the dominant trend is a preference for accessible, interactive visual content. Instagram and WhatsApp are the primary channels for viewing products and communicating with sellers, while other platforms (such as marketplaces) are used for transactions.

Detailed findings: Short videos and photo carousels with motif descriptions are more effective at increasing interest. Interaction via DMs or personal chat features increases a sense of security in the purchase process. Using local influencers who present cultural identities also has a positive effect when the influencer is perceived as authentic.

Illustrative quote: "I often see on Instagram that short video that makes me follow the Besurek Batik store" [K07]. "If I can chat directly, I am more confident in buying it because I can ask about the size and availability" [F14].

Relevance to the literature: These findings are consistent with studies that emphasize the effectiveness of visual content on image-based platforms (Harris, 2021) and the role of interpersonal communication in facilitating online purchasing decisions (Putra, 2022). The discovery of local influencers adds evidence that cultural influencers' credibility plays a role in strengthening cultural brand identities (Wijaya, 2023; City, 2025).

Theme 3: Price Perception, Cultural Value, and Social Influence

Theme description: The balance between price perception and cultural value influences purchasing decisions. Consumers are more willing to pay higher prices when they perceive products as culturally valuable and artistically significant. In addition, social influences—both from families and online communities—affect the perceived legitimacy of Besurek Batik products.

Detailed findings: Some informants stated that they were willing to pay more for batik with certification or information on origin and process. Positive reviews from other users and recommendations from friends and family speed up purchase decisions. Conversely, a lack of clarity about ingredients and care becomes an obstacle.

Illustrative quote: "If there is a description of the maker and the motive, I am willing to pay a little more" [K02]. "I often ask the WhatsApp group first; if there are many recommendations, I will order them" [K09].

Relevance to the literature: These results support research on willingness to pay for cultural products associated with authenticity (Putra, 2022; Wijaya, 2023). The findings also show the role of social proof in forming purchase intent, which complements the latest word-of-mouth digital literature (Harris, 2021; City, 2025).

Theme 4: Digital Barriers and Transactional Trust

Theme description: Although digital communication effectively builds interest, technical and trust barriers still hinder transactions. Concerns about size, the accuracy of photos versus actual quality, and payment security emerged as key barriers.

Detailed findings: Some informants cited negative experiences or uncertainty about delivery as factors that reduce loyalty. A clear return policy, realistic product photos, and user testimonials help alleviate those concerns.

Illustrative quote: "I once bought and then the size did not fit, and the returns were complicated, so now I choose a store that has a warranty" [F05]. "Photographs are often of different colors in the original, which makes them doubtful" [F16].

Relevance to the literature: These findings reinforce the literature on trust barriers in cultural e-commerce (Harris, 2021; Putra, 2022) and affirm the need for digital trust mechanisms such as return policies and seller verification (Wijaya, 2023; City, 2025).

Theoretical Implications

The results of this study enrich the theory of digital marketing communication and cultural brand identity in several ways. First, the research shows that cultural storytelling in digital formats is not merely a promotional tool but a constituent of brand identity that shapes perceptions of authenticity and value (Harris, 2021; Wijaya, 2023). Second, the results confirm the importance of integrating platform formats with cultural elements—suggesting that cultural brand identity theory needs to include a medium-specific dimension (Putra, 2022; City, 2025). Third, the study highlights the interaction between social evidence and cultural values in shaping willingness to pay, thereby expanding the model of consumer behavior in the context of cultural products (Wijaya, 2023).

Practical Implications for Besurek Batik Marketing Strategy

Based on the findings, practical recommendations include: 1) Prioritize multimedia storytelling featuring artisans and processes to strengthen authenticity; 2) Optimize the visual platform (Instagram) with short videos, carousels, and integrated shopping features; 3) Provide transparent information about materials, sizes, care, and return policies to build trust; 4) Collaborate with local influencers who have cultural credibility; 5) Strategically use customer reviews and social proof to accelerate purchase decisions..

Limitations and Suggestions for Advanced Research

The limitations of this study include a relatively small sample size and a geographic focus on consumers in several cities in East Java. Therefore, generalizing the results should be done cautiously. In addition, this qualitative study did not measure the quantitative effects of the variables found.

Suggestions for further research include: 1) Conducting quantitative studies to test the relationships between variables (e.g., the influence of storytelling on purchase intent); 2) Developing comparative studies across regions to examine regional variations in perceptions of Besurek Batik; 3) Researching the role of new platforms (e.g., TikTok) in shaping cultural identity and purchasing decisions; 4) Examining the long-term effects of digital communication on Batik Besurek brand loyalty (Siti, 2025).

Summary: Overall, the findings suggest that digital marketing communications that blend cultural narratives, appropriate content formats, and trust mechanisms can strengthen Batik Besurek's brand identity and drive purchasing decisions. These findings provide theoretical contributions and practical directions relevant to brand developers and stakeholders in the preservation and commercialization of regional batik.

5. Conclusion

This study explores how digital marketing communication and brand cultural identity shape consumer purchasing decisions for Batik Besurek in Indonesia. Key findings indicate that authentic, contextual digital communication — highlighting cultural values, maker stories, and local symbols — strengthens perceptions of authenticity and increases purchase intent. Additionally, a consistent brand cultural identity across digital messaging and product experience mediates the relationship between digital communication exposure and consumer loyalty.

This study expands the literature on cultural marketing and digital communication by demonstrating the mediating role of brand cultural identity in the context of heritage products (Author, 2021; 2023). The results support the constructivist view that brand identity is shaped through digital narratives and consumer interactions (2020–2025 literature), providing qualitative evidence linking cultural brand identity theory to purchasing behavior.

For Batik Besurek marketers: use authentic narratives, visuals that highlight motives and the manufacturing process, and interactive digital channels to build emotional attachment. For cultural policymakers: support legacy digitization programs, facilitate digital marketing training for local artisans, and create policies that protect cultural authenticity while encouraging online market access.

This study is qualitative and based on a limited sample of Besurek Batik consumers, so generalizations to other varieties of batik are limited. In addition, the data rely on respondents' narratives, making them vulnerable to retrospective bias.

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