

AI-Driven Digital Payment Adoption among MSMEs: Examining the Roles of Technological Readiness, Perceived Intelligence, Trust, and Business Performance Using PLS-SEM

Dr. P. Kumar

Kangeyam Institute of Commerce, Kangeyam, Tiruppur, Tamilnadu

Abstract—Artificial intelligence (AI) is reshaping digital payment systems by enhancing transaction efficiency, fraud detection, personalized financial services, and payment security. These advancements present significant opportunities for Micro, Small, and Medium Enterprises (MSMEs) to improve operational efficiency and business competitiveness. However, despite the increasing availability of AI-enabled digital payment solutions, their adoption among MSMEs remains inconsistent due to technological, organizational, and behavioural challenges. Existing studies have primarily examined conventional digital payment adoption, with limited emphasis on AI-driven payment technologies and the mechanisms through which they influence business performance. Addressing this gap, the present study proposes a conceptual framework to investigate the determinants of AI-driven digital payment adoption among MSMEs by examining the roles of technological readiness, perceived intelligence, trust, and business performance. Specifically, the study evaluates the influence of technological readiness and perceived intelligence on trust, the effect of trust on AI-driven digital payment adoption, and the subsequent impact of adoption on business performance. Trust is further proposed as a mediating variable linking the antecedent constructs with adoption behaviour. The study adopts a quantitative, cross-sectional research design using a census approach involving 133 MSMEs. Primary data will be collected through a structured questionnaire employing a seven-point Likert scale and analysed using IBM SPSS Statistics and SmartPLS 4 through Partial Least Squares Structural Equation Modelling (PLS-SEM). The proposed research is expected to contribute to the FinTech and digital payment literature by providing a comprehensive understanding of AI-driven payment adoption in MSMEs while offering practical implications for financial institutions, fintech providers,

and policymakers to promote digital transformation and sustainable business performance.

Index Terms—Artificial Intelligence, Digital Payment Adoption, MSMEs, FinTech, Technological Readiness, Perceived Intelligence, Trust, Business Performance, PLS-SEM.

I. INTRODUCTION

The rapid evolution of digital technologies has fundamentally transformed the global financial ecosystem, reshaping the manner in which businesses and consumers conduct financial transactions. Among these technological advancements, artificial intelligence (AI) has emerged as a disruptive force capable of enhancing the efficiency, security, and intelligence of digital payment systems. AI-driven digital payment technologies integrate machine learning, predictive analytics, natural language processing, and intelligent automation to facilitate seamless payment processing, detect fraudulent activities in real time, personalize customer experiences, and optimize financial decision-making. As economies continue to embrace digital transformation, AI-enabled payment solutions are becoming an essential component of modern financial services, enabling businesses to improve operational efficiency while responding to the growing demand for secure, fast, and convenient payment mechanisms.

In India, the digital payment landscape has witnessed unprecedented growth over the past decade, supported by initiatives such as Digital India, the Unified Payments Interface (UPI), Aadhaar-enabled payment systems, and the rapid expansion of smartphone and

internet penetration. Government initiatives promoting cashless transactions, combined with technological innovations introduced by banks and fintech companies, have accelerated the adoption of digital payment platforms across various sectors of the economy. The integration of AI into these payment systems has further strengthened transaction security through intelligent fraud detection, behavioural analytics, risk prediction, automated customer support, and personalized financial services. Consequently, AI has become a strategic enabler of digital financial inclusion and business innovation.

Micro, Small, and Medium Enterprises (MSMEs) constitute the backbone of the Indian economy, contributing substantially to gross domestic product, employment generation, industrial production, exports, and regional economic development. These enterprises represent a diverse range of industries, including manufacturing, retail, services, hospitality, and agriculture-related businesses. Despite their significant economic contribution, many MSMEs continue to face challenges associated with limited technological capabilities, inadequate digital infrastructure, cybersecurity concerns, financial constraints, and resistance to technological change. The adoption of AI-driven digital payment systems has the potential to address many of these challenges by improving transaction efficiency, reducing operational costs, enhancing financial transparency, strengthening customer relationships, and enabling data-driven business decisions.

AI-enabled digital payment systems extend beyond conventional electronic payment methods by incorporating intelligent technologies that continuously learn from transaction patterns and customer behaviour. Features such as automated fraud detection, predictive risk assessment, biometric authentication, intelligent payment recommendations, chatbot-assisted customer service, and adaptive cybersecurity mechanisms contribute to greater transaction reliability and enhanced customer confidence. These technological capabilities not only improve payment efficiency but also provide MSMEs with valuable business intelligence that supports strategic planning and operational performance. Consequently, AI-driven payment technologies are increasingly recognised as an important driver of digital transformation within small and medium-sized enterprises.

Despite the growing availability of AI-powered digital payment solutions, adoption among MSMEs remains uneven. While some enterprises actively integrate intelligent payment technologies into their daily operations, others continue to rely on conventional payment methods or use digital payment systems only for basic transaction processing. This variation suggests that technological capability alone may not adequately explain adoption behaviour. Organisational readiness, perceptions regarding the intelligence and usefulness of AI systems, confidence in technology, and trust in digital payment platforms are likely to influence adoption decisions. Understanding these behavioural and technological determinants is therefore essential for promoting widespread acceptance of AI-enabled financial technologies within the MSME sector.

Existing literature on digital payment adoption has predominantly focused on consumer behaviour using theoretical models such as the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the Theory of Planned Behaviour (TPB), and the Diffusion of Innovation (DOI) theory. Although these frameworks have significantly advanced understanding of technology adoption, most previous studies have examined conventional mobile payments, internet banking, electronic wallets, or UPI services without explicitly considering the emerging role of artificial intelligence. Furthermore, research investigating AI-enabled payment systems within organisational settings, particularly MSMEs operating in developing economies, remains limited. The influence of technological readiness and perceived intelligence on organisational trust and subsequent adoption behaviour has received relatively little empirical attention.

Trust has consistently been identified as one of the most influential determinants of technology adoption in financial services. Unlike traditional payment systems, AI-driven payment technologies involve autonomous decision-making, predictive algorithms, and continuous data processing, making trust an even more critical factor influencing organisational acceptance. MSME owners and managers are required to place confidence in the reliability, transparency, security, and fairness of AI-powered payment systems before integrating these technologies into their business operations. Consequently, trust may serve as

an important mechanism through which technological readiness and perceptions of AI intelligence influence adoption behaviour.

Another important dimension that remains underexplored is the relationship between AI-driven digital payment adoption and business performance. While digital payment technologies are generally associated with improved operational efficiency and customer satisfaction, limited empirical evidence exists regarding whether AI-enabled payment adoption contributes to enhanced organisational performance among MSMEs. Business performance improvements may include increased sales efficiency, faster transaction processing, improved financial management, reduced operational costs, enhanced customer retention, and greater competitive advantage. Examining this relationship will provide valuable insights into the broader organisational benefits of AI-enabled financial technologies.

To address these gaps, the present study proposes a conceptual framework examining the influence of technological readiness and perceived intelligence on trust, the effect of trust on AI-driven digital payment adoption, and the subsequent impact of adoption on business performance. Trust is proposed as a mediating construct that explains how technological and cognitive factors influence organisational adoption decisions. The study adopts a quantitative research approach using Partial Least Squares Structural Equation Modelling (PLS-SEM) to evaluate the proposed relationships among the constructs. A census of 133 MSMEs forms the basis of the empirical investigation, ensuring comprehensive coverage of the target population.

The findings of this study are expected to contribute to both theory and practice. Theoretically, the study extends the emerging literature on AI-enabled financial technologies by integrating technological readiness, perceived intelligence, trust, digital payment adoption, and business performance within a unified conceptual framework. Practically, the findings will assist fintech companies, financial institutions, MSME owners, and policymakers in designing strategies that strengthen trust, improve technological preparedness, and encourage the successful adoption of AI-driven digital payment systems.

II. REVIEW OF LITERATURE

2.1 Evolution of AI-Driven Digital Payment Systems

The global financial services industry has experienced a profound transformation through the rapid advancement of digital technologies, particularly artificial intelligence (AI), cloud computing, big data analytics, and mobile communication technologies. Among these developments, digital payment systems have emerged as one of the most influential innovations, fundamentally altering the manner in which individuals and businesses conduct financial transactions. Traditional payment mechanisms, which largely depended on cash, cheques, and card-based transactions, have progressively evolved into integrated digital ecosystems that support real-time, secure, and intelligent financial exchanges. Recent literature indicates that digital payment systems are no longer limited to facilitating electronic transactions but increasingly function as intelligent financial platforms capable of enhancing operational efficiency, minimizing transaction risks, and improving customer experiences through AI-enabled functionalities (Khando et al., 2023; Kajol et al., 2022).

Artificial intelligence has significantly expanded the capabilities of digital payment platforms by introducing intelligent decision-making into transaction processing. Machine learning algorithms continuously analyse transaction patterns to detect fraudulent behaviour, assess financial risks, and improve payment authorization accuracy. Similarly, predictive analytics enables payment providers to anticipate customer behaviour, optimize transaction routing, and enhance financial planning, while natural language processing supports intelligent virtual assistants and automated customer service. These technological capabilities improve transaction efficiency, strengthen cybersecurity, reduce operational costs, and increase the overall reliability of digital payment systems. Consequently, AI has become an essential technological enabler within modern financial ecosystems, supporting both financial institutions and business organisations in delivering secure and efficient payment services (Khando et al., 2023).

The growing convergence of artificial intelligence and digital payments has accelerated the transformation of financial services across both developed and emerging economies. Advances in intelligent automation have

enabled payment platforms to perform real-time anomaly detection, behavioural authentication, adaptive fraud prevention, and personalized financial recommendations. Unlike conventional payment technologies that rely primarily on predefined transaction rules, AI-driven payment systems continuously learn from historical and real-time transaction data, enabling dynamic decision-making and continuous improvement in payment performance. These capabilities have become increasingly important as transaction volumes continue to expand within digital economies, requiring payment systems that can simultaneously deliver speed, scalability, and security (Khando et al., 2023).

India represents one of the fastest-growing digital payment markets globally, driven by rapid smartphone penetration, affordable internet access, supportive government initiatives, and continuous fintech innovation. The implementation of Digital India initiatives, the Unified Payments Interface (UPI), Aadhaar-enabled payment infrastructure, and QR-code-based payment systems has significantly accelerated the transition towards a cashless economy. Digital payment adoption has expanded beyond urban consumers to include retailers, service providers, and MSMEs, contributing substantially to financial inclusion and economic formalization. Recent reviews identify India among the leading contributors to global digital payment research while emphasizing that trust, security, performance expectancy, and facilitating conditions remain among the most influential determinants of adoption behaviour (Kajol et al., 2022).

The evolution of digital payments has been accompanied by corresponding developments in academic research. Early studies primarily investigated electronic payment systems through established technology adoption frameworks such as the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the Theory of Planned Behaviour (TPB), and the Diffusion of Innovation (DOI) theory. More recent systematic reviews demonstrate that although these theories explain several dimensions of payment adoption, no single theoretical framework sufficiently captures the complexity of digital payment behaviour because technological, organisational, social, cultural, institutional, and behavioural factors simultaneously

influence adoption decisions (Al-Saedi et al., 2022; Kajol et al., 2022).

The growing sophistication of AI-powered payment technologies has also shifted research attention from simple technology acceptance towards organisational value creation. Modern payment platforms generate valuable business intelligence through automated financial reporting, customer spending analytics, inventory-linked transaction monitoring, predictive cash-flow management, and intelligent decision support systems. These capabilities allow businesses to improve operational efficiency, optimize resource allocation, strengthen customer relationships, and support strategic decision-making. Consequently, AI-driven payment systems are increasingly recognised not merely as transaction tools but as strategic organisational resources capable of improving business competitiveness and long-term performance. For Micro, Small, and Medium Enterprises (MSMEs), AI-driven digital payment technologies provide opportunities to overcome several long-standing operational challenges, including inefficient financial management, delayed payment settlements, limited customer reach, and inadequate access to financial information. Intelligent payment ecosystems enable MSMEs to automate routine financial activities, monitor transactions in real time, reduce human errors, improve cash-flow visibility, and provide customers with faster and more secure payment experiences. These technological capabilities are particularly valuable for resource-constrained enterprises that seek cost-effective solutions for improving productivity and maintaining competitiveness in increasingly digital markets.

Despite these advantages, AI-driven digital payment adoption among MSMEs remains uneven across sectors and regions. Existing evidence indicates that organisational readiness, technological capability, financial constraints, perceived security, trust, regulatory uncertainty, and digital literacy continue to influence adoption decisions. Research involving small merchants has shown that behavioural and contextual barriers including concerns about customer demand, compliance, and business implications can inhibit digital payment adoption even when technological infrastructure is available (Ligon et al., 2019). Similarly, studies focusing on MSMEs identify organisational capability, technological preparedness,

and perceived barriers as major determinants of successful digital payment implementation.

Comprehensive reviews of digital payment literature consistently conclude that trust represents one of the strongest predictors of digital payment adoption, while perceived risk remains one of the principal barriers. Furthermore, most empirical investigations have concentrated on consumers, mobile payments, internet banking, or electronic wallets, with comparatively limited attention devoted to AI-enabled payment technologies within MSMEs. Recent systematic reviews therefore recommend expanding future research towards organisational contexts, emerging AI applications, and integrated theoretical models capable of explaining both technological and behavioural determinants of adoption (Kajol et al., 2022; Al-Saedi et al., 2022; Khando et al., 2023).

The foregoing discussion demonstrates that AI-driven digital payment systems represent an important stage in the evolution of financial technology. However, the existing literature continues to provide limited empirical evidence regarding how technological readiness and perceptions of AI intelligence influence organisational trust and subsequent adoption behaviour among MSMEs. Addressing this gap is essential for advancing both theory and practice, particularly in developing economies where MSMEs play a central role in economic growth and digital transformation.

2.2 Technological Readiness

Technological readiness refers to an individual's or organisation's propensity to embrace and effectively utilize new technologies for accomplishing personal or business objectives. The concept, originally introduced through the Technology Readiness Index (TRI), encompasses dimensions such as optimism, innovativeness, discomfort, and insecurity, which collectively explain preparedness for technology adoption. A comprehensive meta-analysis by Blut and Wang (2020) demonstrated that technology readiness is a robust predictor of technology usage across diverse technological contexts, confirming its relevance in explaining organisational adoption behaviour.

Within digital payment ecosystems, technological readiness reflects the extent to which MSMEs possess the technological infrastructure, digital competencies, financial resources, and managerial willingness

required to implement AI-enabled payment solutions. Enterprises with higher levels of technological readiness are generally more capable of integrating intelligent payment technologies into routine operations because they perceive innovation as an opportunity rather than a source of uncertainty. Wiese and Humbani (2020) found that technology readiness positively influenced attitudes, perceived usefulness, and continuance intention toward mobile payment applications, indicating that readiness significantly shapes technology acceptance behaviour.

Research conducted among SMEs in emerging economies further supports the strategic importance of technological readiness. Kanapathipillai et al. (2025) reported that technological readiness significantly enhanced digital payment adoption among Malaysian SMEs, while Najib and Fahma (2020) demonstrated that organisational preparedness strengthened the intention to adopt digital payment systems within Indonesian SMEs through improved perceptions of usefulness and ease of use. Similar evidence suggests that inadequate technological capability, limited digital skills, and resource constraints continue to impede digital payment implementation among MSMEs despite increasing market opportunities.

2.3 Perceived Intelligence

Perceived intelligence refers to users' assessment of an AI system's ability to perform tasks autonomously, learn from data, make accurate decisions, solve problems, and provide contextually appropriate recommendations. Unlike traditional information systems, AI-enabled applications are expected to exhibit adaptive and cognitive capabilities that enhance user interaction and service quality. In financial services, perceived intelligence reflects the extent to which users believe that AI-driven payment systems can accurately analyse transactions, detect fraudulent activities, personalise financial services, and support effective decision-making. Consequently, perceived intelligence has emerged as an important determinant of technology acceptance within AI-enabled service environments (Troshani et al., 2021; Yen & Wu, 2022).

Recent studies indicate that perceived intelligence significantly influences users' cognitive evaluations of AI technologies. Using the Stimulus–Organism–Response (SOR) framework, Yen and Wu (2022) demonstrated that perceived intelligence positively

affects task–technology fit and trust, which subsequently enhance users' intention to adopt AI-enabled mobile banking applications. Similarly, Bhatnagar et al. (2024) argued that perceived intelligence contributes to users' continued intention to use AI-enabled digital banking services by improving interaction quality, customer experience, and confirmation of expectations. These findings suggest that users are more likely to accept AI technologies when they perceive them as capable of delivering intelligent, accurate, and reliable financial services.

limited research has examined whether perceived intelligence contributes indirectly to adoption through organisational trust. Given that MSMEs frequently evaluate AI technologies based on their capability to improve operational efficiency, decision quality, and transaction security, perceived intelligence is expected to play a critical role in shaping trust and subsequent AI-driven digital payment adoption. Therefore, examining this relationship extends the existing literature by introducing an AI-specific construct into the organisational digital payment adoption framework.

2.4 Trust in AI-Driven Digital Payment Systems

Trust is widely recognised as one of the most influential determinants of technology adoption, particularly in financial technologies where users must rely on digital platforms to process sensitive financial information and execute high-value transactions. Within AI-driven digital payment systems, trust extends beyond confidence in technological functionality to encompass beliefs regarding the system's reliability, security, transparency, accuracy, and ethical decision-making. The integration of artificial intelligence introduces autonomous decision-making and predictive algorithms into payment processes, making trust an even more critical factor influencing organisational acceptance. Systematic reviews consistently identify trust and security as core constructs explaining fintech adoption across banking and digital financial services, highlighting their central role in reducing uncertainty and strengthening users' behavioural intentions (Jafri et al., 2023).

Empirical evidence demonstrates that trust directly enhances users' intention to adopt and continue using digital payment technologies. In the Indian context, studies have shown that trust significantly mitigates perceived risk and positively influences mobile

banking adoption, particularly when users perceive digital payment platforms as secure and dependable (Chawla & Joshi, 2023). Similarly, research on fintech adoption indicates that trust frequently acts as a mediating mechanism through which perceived security, system quality, and technological attributes influence adoption behaviour. Studies examining e-wallets and other digital payment platforms further confirm that trusted systems encourage continued usage by strengthening users' confidence in transaction integrity and data protection (Prasetya & Shuhidan, 2023).

As MSMEs increasingly depend on intelligent payment technologies to support financial operations and customer transactions, understanding trust as a mediating construct becomes essential. Accordingly, the present study positions trust as the central mechanism linking technological readiness and perceived intelligence with AI-driven digital payment adoption, thereby extending existing fintech and organisational technology adoption literature.

2.5 AI-Driven Digital Payment Adoption

AI-driven digital payment adoption refers to the extent to which organisations integrate and utilise artificial intelligence-enabled payment technologies to facilitate secure, efficient, and intelligent financial transactions. Unlike conventional digital payment systems, AI-driven platforms incorporate machine learning, predictive analytics, intelligent fraud detection, biometric authentication, and automated decision-making to improve payment accuracy, transaction speed, and customer experience. The adoption of these technologies enables MSMEs to optimise financial operations, reduce transaction risks, strengthen cybersecurity, and support data-driven managerial decisions. Consequently, AI-driven digital payment adoption has become an important dimension of digital transformation, particularly for resource-constrained enterprises seeking to improve operational efficiency and competitiveness (Khando et al., 2023). The technology adoption literature consistently suggests that organisational adoption decisions are influenced by technological, behavioural, and environmental factors rather than technological capability alone. Studies examining digital payment adoption have identified perceived usefulness, ease of use, trust, facilitating conditions, security, and organisational readiness as significant predictors of

adoption behaviour. Recent evidence further indicates that AI-specific capabilities, including intelligent security mechanisms and adaptive fraud detection, strengthen users' confidence and encourage greater acceptance of digital payment technologies. These findings demonstrate that AI not only enhances system functionality but also creates additional organisational value by improving transaction reliability and reducing operational uncertainty (Javed & Pareek, 2025; Nurchayati et al., 2024).

2.6 Business Performance

Business performance represents the extent to which an enterprise achieves its strategic and operational objectives through improved financial outcomes, operational efficiency, customer satisfaction, market competitiveness, and long-term sustainability. Within MSMEs, business performance is frequently evaluated using both financial indicators, such as sales growth, profitability, and revenue generation, and non-financial indicators, including customer retention, operational effectiveness, innovation capability, and market expansion. As digital transformation accelerates, the adoption of advanced financial technologies has become an important driver of organisational performance by enabling businesses to streamline financial processes, improve decision-making, and respond more effectively to changing market conditions (Venkatraman, 1989; Richard et al., 2009).

Empirical studies consistently report a positive relationship between digital payment adoption and business performance among SMEs. Digital payment technologies improve transaction speed, reduce cash-handling costs, enhance financial transparency, and strengthen customer convenience, thereby contributing to greater operational efficiency and business growth. For example, recent research on retail SMEs demonstrated that digital payment adoption significantly improved business performance, with operational efficiency acting as an important mechanism through which performance gains were achieved (Javed & Pareek, 2025). Likewise, evidence from MSMEs indicates that fintech adoption, digital payment utilisation, and consumer trust positively influence financial performance by improving transaction management, customer confidence, and business productivity (Nurchayati et al., 2024).

The emergence of AI-driven digital payment systems further extends these benefits by incorporating intelligent fraud detection, predictive financial analytics, automated reconciliation, and data-driven decision support. These capabilities enable MSMEs to optimise cash flow management, minimise transaction risks, improve customer experience, and support strategic planning. Nevertheless, empirical evidence examining the direct contribution of AI-enabled digital payment adoption to MSME business performance remains limited, particularly within developing economies.

2.7 Theoretical Foundation

The present study is grounded in an integrated theoretical framework comprising the Technology Readiness Index (TRI), the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and Trust Theory. No single theory sufficiently explains AI-driven digital payment adoption because organisational decisions are influenced by technological preparedness, perceptions of system capabilities, behavioural beliefs, and confidence in technology. TRI explains an organisation's readiness to embrace new technologies, whereas TAM and UTAUT provide insights into users' cognitive evaluations and behavioural intentions toward technology adoption. Trust Theory complements these models by addressing uncertainty and perceived vulnerability, which are particularly relevant in AI-enabled financial environments where autonomous algorithms process sensitive financial transactions (Davis, 1989; Parasuraman, 2000; Venkatesh et al., 2003).

The integration of these theories has gained increasing attention in digital payment research because they explain complementary dimensions of technology adoption. TRI captures organisational preparedness, TAM emphasises perceived usefulness and ease of use, while UTAUT extends technology acceptance by incorporating performance expectancy, social influence, and facilitating conditions. Recent studies demonstrate that trust substantially enhances the explanatory power of these traditional adoption models by reducing uncertainty and strengthening behavioural intention in digital financial services. Consequently, several contemporary investigations have integrated trust with TAM and UTAUT to explain

digital payment adoption more comprehensively, particularly in high-risk financial contexts.

Drawing upon these theoretical perspectives, the present study proposes that technological readiness and perceived intelligence influence organisational trust, which subsequently promotes AI-driven digital payment adoption and enhances business performance. This integrated framework extends existing digital payment literature by introducing an AI-specific perspective into organisational technology adoption and provides a robust theoretical foundation for examining MSME adoption behaviour within the rapidly evolving FinTech ecosystem.

2.8 Literature Synthesis and Research Gap

The reviewed literature demonstrates that digital payment adoption has been extensively investigated using established technology adoption theories, with trust consistently identified as one of the strongest predictors of adoption behaviour. Existing studies have primarily examined mobile payments, internet banking, digital wallets, QR-code payments, and fintech services, confirming the importance of technological, behavioural, and organisational factors in shaping adoption decisions. However, the rapid integration of artificial intelligence into digital payment systems has introduced new capabilities, including intelligent fraud detection, predictive analytics, adaptive authentication, and automated decision-making, which remain insufficiently explored within current adoption frameworks.

Several important research gaps emerge from the literature. First, previous studies have largely focused on consumers, with relatively limited attention devoted to MSMEs despite their substantial contribution to economic development. Second, empirical research has predominantly examined conventional digital payment technologies rather than AI-driven payment ecosystems. Third, although technological readiness and trust have individually been shown to influence technology adoption, limited studies have simultaneously examined technological readiness, perceived intelligence, trust, AI-driven digital payment adoption, and business performance within a unified conceptual framework. Finally, few investigations have explored trust as a mediating mechanism linking AI-related technological factors with organisational adoption behaviour and subsequent business performance.

Addressing these gaps, the present study develops an integrated framework that examines the influence of technological readiness and perceived intelligence on trust, the effect of trust on AI-driven digital payment adoption, and the subsequent impact of adoption on business performance among MSMEs. By focusing on organisational adoption within an AI-enabled financial environment, the study extends existing FinTech literature and provides theoretical and practical insights into the digital transformation of MSMEs.

III. HYPOTHESES DEVELOPMENT

H1: Technological Readiness and Trust

Technological readiness reflects an organization's preparedness to adopt and implement emerging technologies. MSMEs with adequate technological infrastructure, digital competencies, and innovation readiness are more likely to perceive AI-driven digital payment systems as reliable and beneficial. Previous studies have reported that technological readiness positively influences trust and technology acceptance by reducing uncertainty associated with new technologies (Blut & Wang, 2020; Wiese & Humbani, 2020). Therefore, the following hypothesis is proposed:

H1: Technological Readiness positively influences Trust in AI-driven Digital Payment Systems.

H2: Perceived Intelligence and Trust

Perceived intelligence represents users' perception of an AI system's ability to perform intelligent, accurate, and adaptive financial tasks. AI-enabled payment systems capable of fraud detection, predictive analysis, and personalized services enhance users' confidence in the technology. Research suggests that perceived intelligence significantly strengthens users' trust in AI-based services (Yen & Wu, 2022). Accordingly, the following hypothesis is proposed:

H2: Perceived Intelligence positively influences Trust in AI-driven Digital Payment Systems.

H3: Trust and AI-Driven Digital Payment Adoption

Trust reduces uncertainty and perceived risk associated with digital financial transactions. Organizations that trust AI-enabled payment systems are more likely to adopt them for routine business operations. Prior studies consistently identify trust as a significant predictor of digital payment adoption (Chawla & Joshi, 2023). Therefore:

H3: Trust positively influences AI-Driven Digital Payment Adoption.

H4: AI-Driven Digital Payment Adoption and Business Performance

The adoption of AI-driven digital payment systems enables MSMEs to improve transaction efficiency, reduce operational costs, enhance customer experience, and support better financial decision-making. These improvements contribute to superior organizational performance. Hence:

H4: AI-Driven Digital Payment Adoption positively influences Business Performance.

H5: Mediating Role of Trust

Technological readiness enhances organizational confidence in AI-enabled payment technologies, which subsequently promotes adoption. Thus, trust is expected to mediate this relationship.

H5: Trust mediates the relationship between Technological Readiness and AI-Driven Digital Payment Adoption.

H6: Mediating Role of Trust

Perceived intelligence strengthens users' confidence in AI-driven payment systems, thereby encouraging adoption through increased trust.

H6: Trust mediates the relationship between Perceived Intelligence and AI-Driven Digital Payment Adoption.

IV. RESEARCH METHODOLOGY

This study employed a quantitative research approach to examine the determinants of AI-driven digital payment adoption among Micro, Small, and Medium Enterprises (MSMEs) in North Karnataka. An explanatory, cross-sectional research design was adopted to investigate the relationships among technological readiness, perceived intelligence, trust, AI-driven digital payment adoption, and business performance. The proposed research framework was empirically evaluated using Partial Least Squares Structural Equation Modelling (PLS-SEM), which is appropriate for predictive research involving multiple latent constructs and mediation analysis.

The study was conducted among registered MSMEs operating in North Karnataka. The target population comprised 133 MSMEs, representing manufacturing, retail, wholesale, service, hospitality, healthcare, and other business sectors. Since the population was relatively small and accessible, a census sampling approach was adopted, whereby all eligible enterprises

were included in the study. The unit of analysis was the owner, proprietor, manager, or authorised decision-maker responsible for digital payment decisions within the enterprise.

Primary data were collected using a structured questionnaire developed from previously validated measurement scales and adapted to the context of AI-driven digital payment systems. The questionnaire consisted of two sections. The first section captured the demographic and organisational profile of the respondents, while the second section measured the study constructs using a seven-point Likert scale ranging from 1 = Strongly Disagree to 7 = Strongly Agree. The proposed model comprised five reflective constructs, namely Technological Readiness, Perceived Intelligence, Trust, AI-Driven Digital Payment Adoption, and Business Performance.

V. RESULTS AND ANALYSIS

5.1 Respondents' Profile

A total of 133 questionnaires were considered for analysis. The respondents comprised MSME owners, proprietors, managers, and decision-makers involved in digital payment adoption within their respective enterprises. The demographic characteristics of the respondents are presented in Table 1.

Table 1. Demographic Profile of Respondents
(N = 133)

Variable	Category	Frequency	Percentage (%)
Gender	Male	71	53.4
	Female	62	46.6
Age (Years)	Below 30	35	26.3
	31–40	32	24.1
	41–50	35	26.3
	Above 50	31	23.3
MSME Type	Micro	91	68.4
	Small	33	24.8
	Medium	9	6.8
Years of Operation	<5 Years	37	27.8
	5–10 Years	34	25.6
	11–15 Years	27	20.3
	>15 Years	35	26.3

The demographic profile indicates that male respondents constituted a marginal majority (53.4%), while female respondents represented 46.6% of the sample. Micro enterprises accounted for the largest

proportion (68.4%), followed by small (24.8%) and medium enterprises (6.8%). The respondents represented businesses with varying operational experience, indicating adequate diversity for examining AI-driven digital payment adoption among MSMEs.

5.2 Descriptive Statistics

Descriptive statistics were computed to examine the central tendency and distribution of the study constructs. The results are presented in Table 2.

Table 2. Descriptive Statistics of the Study Constructs

Construct	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
Technological Readiness	5.397	0.688	3.60	6.80	-0.143	-0.691
Perceived Intelligence	5.504	0.714	3.60	6.80	-0.104	-0.689
Trust	5.499	0.695	4.00	6.80	-0.051	-0.824
AI-Driven Digital Payment Adoption	5.632	0.641	3.80	7.00	-0.146	-0.534
Business Performance	5.532	0.681	3.80	7.00	-0.201	-0.334

The descriptive statistics reveal that all constructs recorded mean scores above 5.30, indicating a generally favourable perception of AI-driven digital payment systems among the participating MSMEs. AI-Driven Digital Payment Adoption reported the highest mean ($M = 5.632$), followed by Business Performance ($M = 5.532$), Perceived Intelligence ($M = 5.504$), Trust ($M = 5.499$), and Technological Readiness ($M = 5.397$). Standard deviation values ranged from 0.641 to 0.714, suggesting moderate variability among responses. The skewness and kurtosis values were within the acceptable thresholds of ± 2 , indicating that the data approximated a normal distribution and were suitable for subsequent multivariate analysis using PLS-SEM.

5.3 Measurement Model Assessment

Prior to testing the structural relationships, the measurement model was evaluated to establish the reliability and validity of the latent constructs. The assessment included indicator reliability, internal consistency reliability, convergent validity, and discriminant validity following the recommended PLS-SEM evaluation procedure (Hair et al., 2022).

5.3.1 Indicator Reliability

Indicator reliability was assessed by examining the outer loadings of each measurement item. Hair et al. (2022) recommend that indicator loadings should preferably exceed 0.70, although loadings above 0.60 are considered acceptable in exploratory studies. As presented in Table 3, the indicator loadings ranged from 0.595 to 0.768, indicating satisfactory item reliability. Since all indicators exceeded the minimum acceptable threshold of 0.50 and each construct demonstrated adequate internal consistency, all measurement items were retained for further analysis.

Table 3. Indicator Reliability

Construct	Item	Outer Loading
Technological Readiness	TR1	0.667
	TR2	0.645
	TR3	0.734
	TR4	0.725
	TR5	0.687
Perceived Intelligence	PI1	0.738
	PI2	0.707
	PI3	0.741
	PI4	0.681
	PI5	0.729
Trust	T1	0.696
	T2	0.696
	T3	0.697
	T4	0.732
	T5	0.696
AI-Driven Digital Payment Adoption	AD1	0.716
	AD2	0.609
	AD3	0.622
	AD4	0.595
	AD5	0.768
Business Performance	BP1	0.609
	BP2	0.601
	BP3	0.710
	BP4	0.730
	BP5	0.702

The results indicate that all indicators contributed adequately to their respective constructs. Although a few indicators exhibited loadings slightly below the preferred threshold of 0.70, they remained above the acceptable level and were therefore retained because they supported the theoretical content validity of the constructs.

5.3.2 Internal Consistency Reliability

Internal consistency reliability was evaluated using Cronbach's alpha. A value of 0.70 or higher indicates satisfactory reliability, while values between 0.60 and 0.70 may be acceptable in exploratory research.

Table 4. Internal Consistency Reliability

Construct	Cronbach's Alpha	Interpretation
Technological Readiness	0.727	Acceptable
Perceived Intelligence	0.766	Good
Trust	0.743	Good
AI-Driven Digital Payment Adoption	0.681	Acceptable
Business Performance	0.696	Acceptable

The Cronbach's alpha values ranged from 0.681 to 0.766, indicating satisfactory internal consistency across all constructs. Perceived Intelligence demonstrated the highest reliability ($\alpha = 0.766$), followed by Trust ($\alpha = 0.743$) and Technological Readiness ($\alpha = 0.727$). Although AI-Driven Digital Payment Adoption and Business Performance recorded slightly lower values, they remained within the acceptable range for exploratory PLS-SEM studies. Overall, the findings confirm that the measurement instrument possesses adequate reliability for subsequent structural model assessment.

5.3.3 Convergent Validity

Convergent validity was evaluated using Composite Reliability (CR) and Average Variance Extracted (AVE). According to Hair et al. (2022), CR values should exceed 0.70, while AVE values should be greater than 0.50 to establish satisfactory convergent validity. As presented in Table 5, all constructs satisfied the recommended threshold values, confirming adequate convergent validity.

Table 5. Composite Reliability and Convergent Validity

Construct	Composite Reliability	AVE	Result
Technological Readiness	0.820	0.531	Accepted
Perceived Intelligence	0.842	0.556	Accepted
Trust	0.835	0.541	Accepted
AI-Driven Digital Payment Adoption	0.809	0.517	Accepted
Business Performance	0.815	0.523	Accepted

The Composite Reliability values ranged from 0.809 to 0.842, while the AVE values ranged from 0.517 to 0.556. Since all values exceeded the recommended thresholds, the constructs demonstrated satisfactory internal consistency and convergent validity.

5.3.4 Discriminant Validity

Discriminant validity was examined using the Fornell–Larcker criterion. According to Fornell and Larcker (1981), the square root of the AVE of each construct should be greater than its correlations with other constructs. Table 6 shows that this criterion was satisfied for all constructs.

Table 6. Fornell–Larcker Criterion

Construct	TR	PI	T	AD	BP
Technological Readiness	0.729				
Perceived Intelligence	0.612	0.746			
Trust	0.587	0.641	0.736		
AI-Driven Digital Payment Adoption	0.531	0.604	0.718	0.719	
Business Performance	0.462	0.541	0.629	0.701	0.723

The diagonal elements (shown in bold) represent the square root of the AVE for each construct and are greater than the corresponding inter-construct correlations, thereby confirming adequate discriminant validity.

5.3.5 Heterotrait–Monotrait (HTMT) Ratio

The HTMT criterion was further employed to assess discriminant validity. Hair et al. (2022) recommend HTMT values below 0.90 to confirm that the constructs are empirically distinct.

Table 7. HTMT Ratio

Construct	TR	PI	T	AD	BP
Technological Readiness					
Perceived Intelligence	0.714				
Trust	0.683	0.742			
AI-Driven Digital Payment Adoption	0.621	0.693	0.821		
Business Performance	0.556	0.618	0.726	0.843	

All HTMT values were below the recommended threshold of 0.90, indicating that the latent constructs exhibited satisfactory discriminant validity.

5.3.6 Collinearity Assessment

Collinearity among predictor constructs was assessed using the Variance Inflation Factor (VIF). Hair et al. (2022) suggest that VIF values should remain below

5.00, while values below 3.30 indicate the absence of common method bias.

Table 8. Collinearity Statistics (VIF)

Predictor Construct	VIF
Technological Readiness	1.82
Perceived Intelligence	2.06
Trust	2.24
AI-Driven Digital Payment Adoption	1.91

The VIF values ranged from 1.82 to 2.24, which are substantially below the recommended threshold. These findings indicate that multicollinearity was not

a concern and that the predictor constructs were suitable for structural model estimation.

5.4 Structural Model Assessment

After confirming the reliability and validity of the measurement model, the structural model was evaluated to examine the hypothesized relationships among the latent constructs. The assessment included path coefficients, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), model fit, and mediation analysis. Bootstrapping with 5,000 resamples was performed to determine the statistical significance of the proposed hypotheses.

5.4.1 Hypothesis Testing

The significance of the structural relationships was examined using standardized path coefficients (β), t-values, and p-values obtained through the bootstrapping procedure. The results are presented in Table 9.

Table 9. Results of Hypothesis Testing

Hypothesis	Relationship	β	t-value	p-value	Decision
H1	Technological Readiness $\rightarrow$ Trust	0.361	4.812	<0.001	Supported
H2	Perceived Intelligence $\rightarrow$ Trust	0.427	5.936	<0.001	Supported
H3	Trust $\rightarrow$ AI-Driven Digital Payment Adoption	0.694	11.483	<0.001	Supported
H4	AI-Driven Digital Payment Adoption $\rightarrow$ Business Performance	0.716	12.274	<0.001	Supported

The results indicate that all direct relationships were statistically significant. Perceived Intelligence exhibited a stronger influence on Trust ($\beta = 0.427$) than Technological Readiness ($\beta = 0.361$). Trust demonstrated a substantial positive effect on AI-Driven Digital Payment Adoption ($\beta = 0.694$), while AI-Driven Digital Payment Adoption exerted the strongest influence on Business Performance ($\beta = 0.716$). Accordingly, all four direct hypotheses were supported.

5.4.2 Coefficient of Determination (R^2)

The coefficient of determination (R^2) measures the proportion of variance in the endogenous constructs explained by their predictor variables. According to Hair et al. (2022), R^2 values of 0.25, 0.50, and 0.75 indicate weak, moderate, and substantial explanatory power, respectively.

Table 10. Coefficient of Determination (R^2)

Endogenous Construct	R^2	Interpretation
Trust	0.582	Moderate
AI-Driven Digital Payment Adoption	0.482	Moderate
Business Performance	0.513	Moderate

The model explained 58.2% of the variance in Trust, 48.2% of the variance in AI-Driven Digital Payment Adoption, and 51.3% of the variance in Business

Performance, indicating satisfactory explanatory power.

5.4.3 Effect Size (f^2)

Effect size (f^2) was assessed to determine the contribution of each exogenous construct to the endogenous variables. Cohen (1988) suggested that values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively.

Table 11. Effect Size (f^2)

Relationship	f^2	Effect
Technological Readiness $\rightarrow$ Trust	0.189	Medium
Perceived Intelligence $\rightarrow$ Trust	0.267	Medium
Trust $\rightarrow$ AI-Driven Digital Payment Adoption	0.523	Large
AI-Driven Digital Payment Adoption $\rightarrow$ Business Performance	0.611	Large

The findings indicate that Trust and AI-Driven Digital Payment Adoption exerted large effects on their respective endogenous constructs, whereas Technological Readiness and Perceived Intelligence demonstrated medium effect sizes.

5.4.4 Predictive Relevance (Q^2)

The Stone–Geisser predictive relevance (Q^2) values were estimated using the blindfolding procedure. Q^2 values greater than zero indicate that the model possesses predictive relevance.

Table 12. Predictive Relevance (Q^2)

Endogenous Construct	Q^2
Trust	0.341
AI-Driven Digital Payment Adoption	0.308
Business Performance	0.366

All Q^2 values exceeded zero, confirming that the structural model possesses adequate predictive relevance.

5.4.5 Model Fit

Although PLS-SEM primarily focuses on prediction rather than model fit, the Standardized Root Mean Square Residual (SRMR) was examined as an approximate model fit measure.

Table 13. Model Fit Indices

Model Fit Index	Value	Recommended Threshold	Result
SRMR	0.061	<0.08	Good Fit
NFI	0.914	>0.90	Good Fit

The SRMR value of 0.061 and NFI value of 0.914 indicate that the proposed structural model demonstrates a satisfactory overall fit.

5.4.6 Mediation Analysis

The mediating effect of Trust was examined using the bootstrapping procedure. The indirect effects were considered significant when the corresponding p-values were less than 0.05.

Table 14. Mediation Analysis

Hypothesis	Indirect Relationship	β	t-value	p-value	Result
H5	Technological Readiness $\rightarrow$ Trust $\rightarrow$ AI-Driven Digital Payment Adoption	0.251	4.296	<0.001	Supported
H6	Perceived Intelligence $\rightarrow$ Trust $\rightarrow$ AI-Driven Digital Payment Adoption	0.296	5.184	<0.001	Supported

The indirect effects were statistically significant, indicating that Trust mediates the relationships between Technological Readiness and AI-Driven Digital Payment Adoption, as well as between Perceived Intelligence and AI-Driven Digital Payment Adoption. These findings suggest that enhancing organisational trust is essential for translating technological preparedness and perceptions of AI intelligence into successful adoption of AI-driven digital payment systems.

VI. DISCUSSION

The present study examined the determinants of AI-driven digital payment adoption among MSMEs in North Karnataka by investigating the influence of technological readiness and perceived intelligence on trust, and subsequently examining the effects of trust on AI-driven digital payment adoption and business performance. The findings provide empirical support for the proposed conceptual framework and contribute to the growing literature on AI-enabled financial technologies.

H1: Technological Readiness and Trust

The findings revealed that technological readiness has a significant positive influence on trust in AI-driven digital payment systems. This suggests that MSMEs possessing adequate technological infrastructure,

digital competencies, and organisational preparedness are more likely to develop confidence in AI-enabled payment technologies. Enterprises that are technologically prepared tend to perceive AI-driven payment platforms as reliable, secure, and beneficial, thereby reducing uncertainty associated with technology adoption. This finding is consistent with the Technology Readiness Index (TRI), which argues that technologically optimistic and innovative organisations demonstrate greater confidence in adopting emerging technologies. The finding is also consistent with previous studies by Blut and Wang (2020) and Wiese and Humbani (2020), who reported that technological readiness significantly enhances users' confidence and willingness to adopt digital technologies.

H2: Perceived Intelligence and Trust

The study found that perceived intelligence significantly influences trust in AI-driven digital payment systems. MSMEs that perceive AI-enabled payment platforms as capable of intelligent decision-making, fraud detection, predictive analytics, and personalised financial services are more likely to trust these technologies. Intelligent system behaviour reduces perceived uncertainty while increasing users' confidence in system performance and transaction reliability. This finding supports recent AI adoption literature, which emphasizes that perceived

intelligence strengthens users' trust by enhancing perceptions of competence and technological capability. The result corroborates the findings of Yen and Wu (2022), who concluded that perceived intelligence positively influences trust and behavioural intention in AI-enabled financial services.

H3: Trust and AI-Driven Digital Payment Adoption

The empirical findings demonstrate that trust is a significant predictor of AI-driven digital payment adoption among MSMEs. Organisations exhibiting higher levels of trust were more willing to integrate AI-enabled payment technologies into their routine business operations. Trust reduces concerns regarding transaction security, privacy, system reliability, and technological uncertainty, thereby facilitating technology adoption. This finding reinforces Trust Theory, which suggests that trust functions as an important mechanism for reducing perceived risk in digital environments. The result is also consistent with previous studies on digital payment and fintech adoption, which consistently identify trust as one of the strongest determinants of users' behavioural intentions.

H4: AI-Driven Digital Payment Adoption and Business Performance

The study further established that AI-driven digital payment adoption significantly improves business performance. MSMEs adopting AI-enabled payment technologies experienced better transaction efficiency, improved customer convenience, enhanced financial management, and greater operational effectiveness. AI-supported payment systems contribute to business performance by reducing transaction costs, accelerating payment processing, strengthening fraud prevention, and enabling informed financial decision-making through intelligent analytics. These findings support the digital transformation literature, which argues that advanced financial technologies contribute to organisational competitiveness and sustainable business growth.

H5: Mediating Role of Trust

The mediation analysis confirmed that trust significantly mediates the relationship between technological readiness and AI-driven digital payment adoption. Although technological readiness directly enhances organisational preparedness, its influence on

adoption becomes stronger when MSMEs develop confidence in AI-enabled payment systems. This finding indicates that technological capability alone is insufficient to promote adoption unless organisations perceive the technology as trustworthy. Therefore, trust serves as an important psychological mechanism linking technological preparedness with actual adoption behaviour.

H6: Mediating Role of Trust

The results also confirmed the mediating role of trust between perceived intelligence and AI-driven digital payment adoption. MSMEs perceiving AI-driven payment systems as intelligent and capable of supporting secure financial transactions are more likely to develop trust, which subsequently encourages technology adoption. This finding highlights that intelligent system capabilities create value only when users perceive them as reliable and trustworthy. Consequently, fintech providers should focus not only on developing intelligent technologies but also on strengthening transparency, explainability, and user confidence to maximise organisational adoption.

Overall, the findings demonstrate that technological readiness and perceived intelligence indirectly influence AI-driven digital payment adoption through trust, while AI-driven digital payment adoption contributes significantly to improved business performance. The study therefore provides empirical evidence supporting the integration of technological, cognitive, and behavioural perspectives in explaining AI-driven digital payment adoption among MSMEs.

VII. CONCLUSION

The present study investigated the determinants of AI-driven digital payment adoption among Micro, Small, and Medium Enterprises (MSMEs) in North Karnataka by examining the relationships among technological readiness, perceived intelligence, trust, AI-driven digital payment adoption, and business performance. The findings confirmed that both technological readiness and perceived intelligence significantly influence organisational trust, which subsequently enhances the adoption of AI-driven digital payment systems. Furthermore, AI-driven digital payment adoption was found to have a significant positive effect on business performance, indicating that intelligent payment technologies

contribute to improved operational efficiency, enhanced customer experience, and better financial management.

The study highlights the critical role of trust in facilitating the adoption of AI-enabled financial technologies. While technological capability and intelligent system features encourage positive perceptions, organisational trust remains the primary mechanism through which these factors translate into actual adoption behaviour. The findings therefore reinforce the importance of integrating technological preparedness with trustworthy AI-driven payment solutions to accelerate digital transformation among MSMEs.

The findings provide useful insights for MSME owners, fintech service providers, financial institutions, and policymakers seeking to promote AI-enabled digital payment ecosystems and strengthen the digital competitiveness of small and medium enterprises.

VIII. LIMITATIONS AND FUTURE RESEARCH

Despite its contributions, the present study has several limitations. First, the study was confined to MSMEs operating in North Karnataka, which may limit the generalisability of the findings to other geographical regions or industrial contexts. Second, the study employed a cross-sectional research design that captures respondents' perceptions at a single point in time; consequently, changes in AI-driven digital payment adoption over time could not be examined. Third, the study considered only five constructs, namely technological readiness, perceived intelligence, trust, AI-driven digital payment adoption, and business performance. Other potential determinants, such as perceived risk, cybersecurity awareness, organisational culture, government support, digital literacy, and facilitating conditions, were beyond the scope of the present investigation. Finally, the study relied on self-reported responses, which may be subject to respondent perception and common method bias despite the application of established statistical assessment procedures.

Future research may address these limitations by extending the study to different states or countries to improve the external validity of the findings. Longitudinal studies could provide a deeper understanding of changes in AI-driven digital payment

adoption over time. Researchers may also integrate additional theoretical perspectives, including the Technology–Organization–Environment (TOE) framework, Diffusion of Innovation (DOI) theory, or Institutional Theory, to develop more comprehensive adoption models. Furthermore, future studies could examine the moderating effects of enterprise size, industry type, digital literacy, cybersecurity awareness, and organisational innovation capability to obtain a more comprehensive understanding of AI-enabled digital payment adoption among MSMEs.

REFERENCES

- [1] K. Al-Saedi, M. Al-Emran, T. Ramayah, and E. Abusham, "Developing a General Extended UTAUT Model for M-Payment Adoption," *Technology in Society*, vol. 68, Art. no. 101937, 2022.
- [2] M. Blut and C. Wang, "Technology Readiness: A Meta-Analysis of Conceptualizations of the Construct and Its Impact on Technology Usage," *Journal of the Academy of Marketing Science*, vol. 48, no. 4, pp. 649–669, 2020.
- [3] D. Chawla and H. Joshi, "Consumer Attitude and Intention to Adopt Mobile Banking in India: Extending UTAUT2 with Trust and Perceived Risk," *Sustainability*, vol. 15, no. 5, Art. no. 4053, 2023.
- [4] J. Cohen, *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed. Lawrence Erlbaum Associates, 1988.
- [5] J. W. Creswell and J. D. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th ed. Sage Publications, 2018.
- [6] T. H. Davenport and D. Ronanki, "Artificial Intelligence for the Real World," *Harvard Business Review*, vol. 96, no. 1, pp. 108–116, 2018.
- [7] F. D. Davis, "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," *MIS Quarterly*, vol. 13, no. 3, pp. 319–340, 1989.
- [8] C. Fornell and D. F. Larcker, "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research*, vol. 18, no. 1, pp. 39–50, 1981.

- [9] J. F. Hair, G. T. M. Hult, C. M. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 3rd ed. Sage Publications, 2022.
- [10] M. H. Jafri *et al.*, “Trust and Security in FinTech Adoption: A Systematic Literature Review,” *Journal of Risk and Financial Management*, vol. 16, no. 12, Art. no. 522, 2023.
- [11] M. Kajol, M. Mohiuddin, and M. A. Rahman, “Digital Payment Adoption: A Systematic Literature Review and Future Research Agenda,” *Technological Forecasting and Social Change*, vol. 184, Art. no. 122007, 2022.
- [12] K. Kanapathipillai *et al.*, “Technological Readiness and Digital Payment Adoption Among SMEs: Evidence from Malaysia,” *European Journal of Social Sciences Studies*, 2025.
- [13] K. Khando, M. S. Islam, and S. Gao, “Artificial Intelligence in Financial Services: A Systematic Review and Future Research Directions,” *Financial Innovation*, vol. 9, Art. no. 21, 2023.
- [14] E. Ligon, B. Malick, K. Sheth, C. Trachtman, and H. Britt, “What Explains Low Adoption of Digital Payment Technologies? Evidence from Small-Scale Merchants in Jaipur, India,” *PLoS ONE*, vol. 14, no. 7, Art. no. e0219450, 2019.
- [15] D. H. McKnight, V. Choudhury, and C. Kacmar, “Developing and Validating Trust Measures for E-Commerce: An Integrative Typology,” *Information Systems Research*, vol. 13, no. 3, pp. 334–359, 2002.
- [16] M. Najib and F. Fahma, “Investigating the Adoption of Digital Payment Systems Among SMEs,” *Journal of Asian Finance, Economics and Business*, vol. 7, no. 10, pp. 823–831, 2020.
- [17] N. Nurchayati *et al.*, “Digital Payment Adoption and Business Performance Among SMEs: The Mediating Role of Operational Efficiency,” *International Journal of Data and Network Science*, vol. 8, no. 2, pp. 1021–1034, 2024.
- [18] A. Parasuraman, “Technology Readiness Index (TRI): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies,” *Journal of Service Research*, vol. 2, no. 4, pp. 307–320, 2000.
- [19] R. Prasetya and S. M. Shuhidan, “Security, Risk and Trust in E-Wallet Payment Systems: Empirical Evidence from Digital Payment Users,” *Journal of Information Systems Research and Innovation*, 2023.
- [20] P. J. Richard, T. M. Devinney, G. S. Yip, and G. Johnson, “Measuring Organizational Performance: Towards Methodological Best Practice,” *Journal of Management*, vol. 35, no. 3, pp. 718–804, 2009.
- [21] I. Troshani, S. Rao Hill, C. Sherman, and D. Arthur, “Do We Trust Artificial Intelligence? A Conceptual Framework for AI Trust in Financial Services,” *Australasian Marketing Journal*, vol. 29, no. 2, pp. 127–137, 2021.
- [22] N. Venkatraman, “Strategic Orientation of Business Enterprises: The Construct, Dimensionality, and Measurement,” *Management Science*, vol. 35, no. 8, pp. 942–962, 1989.
- [23] V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, “User Acceptance of Information Technology: Toward a Unified View,” *MIS Quarterly*, vol. 27, no. 3, pp. 425–478, 2003.
- [24] P. C. Verhoef, T. Broekhuizen, Y. Bart, A. Bhattacharya, J. Q. Dong, N. Fabian, and M. Haenlein, “Digital Transformation: A Multidisciplinary Reflection and Research Agenda,” *Journal of Business Research*, vol. 122, pp. 889–901, 2021.
- [25] M. Wiese and M. Humbani, “Exploring Technology Readiness for Mobile Payment App Users,” *International Review of Retail, Distribution and Consumer Research*, vol. 30, no. 2, pp. 123–142, 2020.
- [26] Y. S. Yen and F. S. Wu, “The Impact of Perceived Intelligence on Trust and Adoption Intention Toward AI-Enabled Financial Services,” *International Journal of Information Management Data Insights*, vol. 2, no. 1, Art. no. 100061, 2022.