Digital Payment Adoption and SMES Financial Performance in the Digital Era: A Systematic Literature Review

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Abstract

Digital payment infrastructure in Indonesia has grown rapidly since the national rollout of the Quick Response Code Indonesian Standard in 2020. Small and Medium Enterprises now form the largest group of digital payment users in the country. Despite this growth, empirical findings on how digital payment adoption affects SMEs financial performance remain scattered across different theories, methods, and country contexts. This paper conducts a systematic literature review of forty sources published between 2019 and 2025 on digital payment adoption and SMEs financial performance. The review follows a PRISMA-based search and screening protocol across Scopus-indexed and Sinta-indexed sources. The findings are organized around theoretical frameworks, antecedents of adoption, financial performance outcomes, and parallel evidence from the mobile money literature outside Indonesia. The Technology Acceptance Model, the Theory of Planned Behavior, and the Unified Theory of Acceptance and Use of Technology remain the dominant frameworks. Perceived usefulness, trust, security, and social influence appear consistently as antecedents, while financial literacy and firm size act as boundary conditions on the adoption-performance link. The review identifies gaps in longitudinal design, cross-country comparability, and formal moderation testing, and proposes a research agenda for future empirical work on SMES financial performance in the digital era.

***Keywords*:** digital payment, SMES financial performance, technology acceptance, systematic literature review, digital era
JEL Classification: O33, G21, L26, M15

INTRODUCTION

Digital payment systems have become part of daily commerce for small businesses across Indonesia. Bank Indonesia introduced the Quick Response Code Indonesian Standard in August 2019 and rolled it out nationally in January 2020 to unify various electronic wallets and bank applications into one interoperable QR code (Bank Indonesia, 2020). In the first year of national implementation, QRIS recorded around 124 million transactions worth Rp8.2 trillion (Antara News, 2023). The volume rose to 375 million transactions worth Rp27.7 trillion in 2021, then to 993 million transactions worth Rp98.4 trillion in 2022 (Antara News, 2023; Castle Asia, 2025). By 2023, annual transaction value reached Rp229.96 trillion, and by 2024 official figures ranged between Rp242 trillion and Rp467 trillion depending on the reporting period cited by Bank Indonesia (Castle Asia, 2025; IDN Financials, 2025). Growth continued into 2025, when transaction volume reached 6.1 billion with a value of Rp317 trillion in the second quarter alone (Medium, 2025). By the end of 2025, QRIS users reached 59 million and merchants reached 42 million, most of them classified as micro, small, and medium enterprises (Expat Life in Indonesia, 2025).

Micro, small, and medium enterprises make up roughly 90 to 93 percent of all QRIS merchants (Castle Asia, 2025; PS Engage, 2026). Bank Indonesia has removed merchant discount rate fees on small transactions specifically to support SMEs adoption (Jakarta Globe, 2024). These figures show that digital payment adoption is no longer an optional add-

on for small businesses. It has become a structural part of how SMEs collect revenue, record sales, and interact with customers.

This growth has produced a large and expanding body of research. Studies have applied the Technology Acceptance Model, the Theory of Planned Behavior, and the Unified Theory of Acceptance and Use of Technology to explain why SMEs owners adopt digital payment tools (Chuang et al., 2016; Jain & Jain, 2024; Sakib et al., 2025). A separate stream of research examines the consequences of adoption, particularly its effect on sales growth, profitability, and overall financial performance (Affandi et al., 2024; Alkhawaldeh et al., 2023; Kunal et al., 2025). However, this literature remains fragmented. Studies differ in theoretical grounding, unit of analysis, country context, and the specific financial performance indicators used. No recent review has systematically organized this literature around the specific relationship between digital payment adoption and SMEs financial performance in the post-QRIS period.

A closer look at recent studies reveals a genuine phenomena gap rather than a simple absence of research. Najib and Fahma (2020) surveyed small and medium restaurants in Bogor and found that perceived ease of use, perceived usefulness, attitude, and trust jointly explain the intention to adopt digital payment among Indonesian SMEs. Yet Sahi et al. (2021), after analyzing 193 peer-reviewed articles on digital payment adoption, concluded that no single theory has managed to fully explain the complex nature of electronic payment adoption, largely because most models overlook social and cultural context. This tension between confirmatory single-country findings and the broader review evidence of theoretical fragmentation points to an unresolved puzzle. Adoption models predict usage intention reasonably well, but the pathway from usage intention to actual financial performance gains is still explained unevenly across studies. Some papers report a strong and direct link between digital payment adoption and SMEs revenue growth (Kunal et al., 2025), while others find that the benefit only materializes when financial literacy, infrastructure quality, or firm size are sufficiently high (Affandi et al., 2024; Alkhawaldeh et al., 2023). This inconsistency in reported effect strength constitutes the phenomena gap that motivates the present review. It is not that research on this topic is scarce, but that findings on the same underlying relationship point in different directions once contextual conditions are taken into account.

This paper addresses that gap through a systematic literature review. The review has three objectives. First, it identifies the theoretical frameworks most commonly used in recent digital payment adoption research. Second, it maps the antecedents that drive SMEs adoption behavior across different studies. Third, it synthesizes the reported financial performance outcomes and the conditions under which the adoption-performance relationship becomes stronger or weaker. The review closes with a research agenda intended to guide future empirical studies on SMEs financial performance in the digital era.

The Technology Acceptance Model was introduced by Davis (1989) to explain how individual beliefs shape the decision to accept or reject information technology. The model rests on two core constructs, perceived usefulness and perceived ease of use, both of which shape attitude toward using a system and, in turn, the intention to use it. Perceived usefulness refers to the degree to which a person believes that using a system will improve their task performance, while perceived ease of use refers to the degree to which a person believes that using the system requires little effort. Davis originally developed the model for organizational information systems, but subsequent research has extended it to consumer and merchant technologies, including mobile banking, e-wallets, and QR-based payment systems (Chuang et al., 2016; Najib & Fahma, 2020). Because TAM was built around individual

cognition, it explains adoption intention well but says little about the social pressure that surrounds a decision, which is the gap the Theory of Planned Behavior was designed to fill.

The Theory of Planned Behavior was developed by Ajzen (1991) as an extension of the earlier Theory of Reasoned Action. It explains behavior through three antecedents of intention, namely attitude toward the behavior, subjective norms, and perceived behavioral control. Attitude reflects a person's overall evaluation of performing the behavior, subjective norms capture the social pressure a person feels from family, peers, or business networks to perform or avoid the behavior, and perceived behavioral control reflects a person's perception of how easy or difficult the behavior is to carry out given the resources and opportunities available. Ajzen (1991) argued that behavior is not driven by rational intention alone but also by factors outside a person's full control, such as access to infrastructure or supporting resources. In the context of SMEs payment behavior, subjective norms often capture pressure from customers and fellow traders who already use cashless payment, while perceived behavioral control reflects the extent to which an SMES owner has access to a smartphone, stable internet connection, and a bank or e-wallet account needed to operate a digital payment system.

The Unified Theory of Acceptance and Use of Technology, proposed by Venkatesh et al. (2003), was developed to consolidate the many competing technology acceptance models that had accumulated in the information systems literature, including TAM and TPB. UTAUT explains behavioral intention and actual use through four core constructs, namely performance expectancy, effort expectancy, social influence, and facilitating conditions, and it further proposes that the strength of these relationships is moderated by age, gender, experience, and voluntariness of use. Because UTAUT already absorbs the logic of both perceived usefulness and subjective norms into a single model, many recent digital payment studies use UTAUT or an extended UTAUT rather than TAM and TPB separately (Bajunaied et al., 2023; Sakib et al., 2025). Even so, the reviewed literature shows that TAM and TPB are still applied directly and combined manually in many SMES-focused studies, particularly in Indonesia, where researchers value the interpretive simplicity of TAM alongside the social-context sensitivity of TPB (Najib & Fahma, 2020). Sahi et al. (2021), reviewing 193 studies across Scopus and Web of Science, observed that none of these three models alone fully captures the complexity of digital payment behavior, largely because social and cultural facets are often added as an afterthought rather than built into the core model. This observation supports the practice, visible throughout the corpus reviewed in this paper, of combining TAM, TPB, and UTAUT constructs into a single extended framework tailored to the SMES context rather than relying on one theory in its original form. Linh et al. (2025), for instance, developed an extended Trust-TAM-TPB model to explain digital payment adoption in Vietnam's northern provinces, finding that trust shapes both perceived usefulness and subjective norms rather than operating as an isolated antecedent, which illustrates how the boundaries between these three frameworks have become increasingly blurred in recent empirical work.

RESEARCH METHODOLOGY

1. Review Protocol

This review follows a PRISMA-based search and screening protocol adapted for a management and development economics context. The review question is stated as follows.

What theoretical frameworks, antecedents, and financial performance outcomes have been reported in studies of SMEs digital payment adoption published between 2019 and 2025.

2. Search Strategy

The search combined keywords related to digital payment, financial technology, QRIS, and mobile payment with keywords related to SMEs performance and technology acceptance. Search strings included combinations such as "digital payment" AND "SMEs" AND "financial performance," "e-money" AND "financial performance" AND "UKM," and "fintech adoption" AND "technology acceptance" AND "SMEs." Searches were run across Scopus-indexed publishers, Google Scholar, and Sinta-indexed Indonesian journal portals, covering publications from January 2019 to December 2025.

3. Inclusion and Exclusion Criteria

Studies were included if they met four conditions. The study examined digital payment, e-money, or fintech adoption at the individual or firm level. The study involved small or medium enterprises, micro-enterprises, or informal-sector traders as the unit of analysis. The study reported an empirical or conceptual link to a financial performance outcome, such as sales, profit, efficiency, or financial inclusion. The study was published between 2019 and 2025 in a peer-reviewed journal. Studies were excluded if they focused only on large corporations or banks, if they addressed digital payment purely from a macroeconomic or monetary policy angle without a firm-level performance measure, or if the full text could not be accessed.

4. Screening and Selection

Titles and abstracts were screened first against the inclusion criteria, followed by full-text screening of the remaining records. This paper reports a working corpus of forty sources that satisfy the inclusion criteria, consisting of empirical studies, systematic reviews, and foundational theoretical papers that anchor the adoption models used throughout the corpus. This corpus should be treated as an initial systematic mapping rather than an exhaustive database export. Authors intending to submit this review for formal publication are advised to complete a full PRISMA flow with documented record counts at each stage, using a reference manager such as Mendeley or Zotero to track deduplication and exclusion reasons, before final submission.

RESULTS AND DISCUSSION

1. Publication and Theoretical Trends

The reviewed studies show a clear increase in publication volume after 2021, consistent with the acceleration of QRIS and comparable QR-based payment systems across Southeast Asia and South Asia (Jain & Jain, 2024). Very few studies in the corpus were published before 2019, and the ones that do exist tend to examine consumer-level e-money adoption rather than SMES financial outcomes (Juhri & Dewi, 2017; Parastiti et al., 2015). This timing pattern lines up closely with policy milestones, since the sharpest rise in publication activity follows the 2020 national QRIS rollout and the subsequent removal of small-transaction merchant fees, both of which pushed SMEs-side adoption research to the center of the field.

The Technology Acceptance Model appears as the most frequently applied framework in the corpus, followed by the Theory of Planned Behavior and the Unified Theory of Acceptance and Use of Technology. A growing number of studies combine two or more of these frameworks into a single extended model rather than relying on one theory alone

(Bajunaied et al., 2023; Sakib et al., 2025). This trend toward hybrid models mirrors the pattern reported by Sahi et al. (2021), whose review of 193 international studies found that no single theory sufficiently explains digital payment behavior once social and cultural context is taken into account. The corpus reviewed here reflects the same pattern at the SMEs level, where studies increasingly graft trust, perceived risk, or financial literacy onto the base TAM or TPB structure rather than treating the original model as sufficient on its own.

2. Antecedents of SMES Digital Payment Adoption

Four antecedents recur most often across the reviewed studies. Perceived usefulness and ease of use remain the most consistent predictors of adoption intention across contexts, appearing as significant drivers in both cross-country reviews and single-country SMEs studies (Chuang et al., 2016; Najib & Fahma, 2020; Sakib et al., 2025). Trust and perceived security shape adoption particularly among informal-sector traders who handle small daily transactions and who are more exposed to fraud or transaction failure risk than larger firms (Kunal et al., 2025). Social influence, captured through subjective norms or peer behavior, matters strongly in markets where digital payment has become a visible community norm, since traders who see competitors and customers already using cashless payment feel direct pressure to follow suit (Neves et al., 2023).

Financial literacy and digital literacy act as an important enabling condition that runs across nearly every antecedent listed above, since owners with limited literacy adopt more slowly and gain less financial benefit even after adoption (Affandi et al., 2024). This pattern suggests that antecedents identified in the literature are not fully independent of one another. Perceived usefulness, for instance, is judged differently by an SMEs owner with strong digital literacy compared to one without it, and trust in a payment platform tends to build faster among owners who already understand how the underlying technology works. The reviewed studies rarely test these interactions directly, which points to an antecedent structure that is broader and more interdependent than most single-model studies currently capture.

A further antecedent emerging in the recent literature is the generational profile of the adopter. Al-Qudah et al. (2024) found that perceived convenience, perceived cost, perceived security, and innovativeness significantly shape digital payment adoption among Generation Z consumers in Malaysia, while Usman et al. (2025) reported that financial literacy and perceived behavioral control, rather than subjective norms, drive digital payment intention among young Indonesian users. Bailey et al. (2020) similarly found that convenience and perceived risk shape tap-and-go payment adoption among United States millennial consumers. Because many SMEs owners in emerging markets are themselves younger entrepreneurs, these generational findings suggest that age-related technology comfort may function as an antecedent that interacts with, rather than simply adds to, the trust and social influence factors identified earlier. Few studies in the SMEs-specific corpus test generational cohort directly, which represents a further extension opportunity for the antecedent structure discussed in this review.

3. Financial Performance Outcomes

Reported financial performance outcomes vary by study but converge on several measures. Sales growth and transaction volume growth are the most commonly reported outcomes following digital payment adoption, and both Indonesian and cross-country studies report a positive association between adoption and these two indicators (Affandi et al., 2024; Kunal et al., 2025). Profitability and cost efficiency appear more often in studies that examine

fintech adoption broadly rather than payment adoption alone, since these studies tend to track a wider range of financial technology tools beyond a single QR-based payment channel (Alkhawaldeh et al., 2023). Financial inclusion, measured through access to formal financial records or credit history, appears as an indirect benefit of digital payment adoption in several studies on informal and micro enterprises, since digital transaction records give owners a documented sales history that can later support access to formal credit (Neves et al., 2023).

The strength of the adoption-performance relationship is not uniform across the corpus. It tends to be stronger among enterprises with higher financial literacy and weaker among enterprises operating in areas with limited digital infrastructure (Affandi et al., 2024; Alkhawaldeh et al., 2023). This unevenness is the empirical anchor of the phenomena gap raised in the introduction. A positive path coefficient reported in one country or one sector cannot be assumed to hold in another, since the underlying enabling conditions, particularly literacy and infrastructure quality, differ substantially across the studies reviewed. Very few papers in the corpus directly compare these conditions within a single model, which limits the field's ability to state with confidence how large the digital payment adoption effect on financial performance actually is once contextual differences are controlled for.

4. Comparison with the Pre-QRIS Period

Earlier Indonesian studies on e-money adoption, conducted before the national QRIS rollout, focused mainly on individual consumer acceptance rather than SMES financial outcomes (Juhri & Dewi, 2017; Parastiti et al., 2015). These studies established the relevance of TAM and TPB in the Indonesian payment context and confirmed that perceived usefulness and subjective norms shape adoption intention among Indonesian users, but they stopped short of connecting that adoption behavior to a measurable firm-level financial outcome. The unit of analysis in this earlier period was almost always the individual user or student sample rather than the business owner, which reflects the pre-2020 payment landscape in which e-money was still primarily a consumer convenience tool rather than a merchant infrastructure.

The post-QRIS literature reviewed in this paper shows a clear shift toward SMEs-level outcomes, reflecting the policy emphasis Bank Indonesia has placed on merchant-side adoption since 2020 (Najib & Fahma, 2020). This shift also changed the dependent variable used across studies, moving from behavioral intention as the final outcome toward financial performance indicators such as sales, profit, and customer growth as the final outcome. The comparison suggests that the field has matured methodologically, extending a well-tested individual-level acceptance model to a firm-level performance question, but it also means that the newer SMES-focused studies cannot simply borrow effect sizes from the older consumer-focused literature, since the two streams measure fundamentally different outcomes.

5. Evidence from Broader Digital Finance and Mobile Money Literature

Outside the QRIS-specific literature, a parallel and more geographically diverse body of research has examined similar questions under the label of mobile money and digital inclusive finance, mostly in Sub-Saharan Africa and China. Tiwasing et al. (2024) compared Kenyan businesses that use and do not use mobile money and found that adopters are more innovative in products and processes, though the two groups did not differ significantly in overall performance once other business characteristics were controlled for. Hassan (2024) reported a positive relationship between mobile money adoption and informal business performance in Zambia, while Njinyah et al. (2025) found that mobile money adoption

moderates the relationship between access to finance and firm performance across several African economies. Konte and Tetteh (2022) extended this line of evidence by linking mobile money use to firm productivity gains across multiple African countries using enterprise survey data.

A separate cluster of studies from China examines digital inclusive finance rather than a single payment instrument. Gu et al. (2023) found that digital inclusive finance positively affects the technological innovation activity of small and medium enterprises listed on China's New Third Board, while Yang and Zhang (2022) linked fintech adoption to expanded financial inclusion through household consumption data, and Lee et al. (2023) reported that digital inclusive finance supports higher-quality enterprise development more broadly. These findings largely echo the Indonesian and South Asian evidence discussed in Sections before, particularly the conditional nature of the adoption-performance link, yet they rely on different measurement approaches, ranging from national household surveys to firm-level innovation indices, that are rarely cross-referenced with the TAM-TPB-UTAUT tradition reviewed above. This disconnect between the technology acceptance literature and the broader digital and mobile finance literature is itself a gap, since both streams study a closely related phenomenon without a shared theoretical or measurement framework.

The wider SMEs fintech literature also documents benefits that extend beyond the sales and profitability measures emphasized in the QRIS-focused studies. Pfister and Lehmann (2023), synthesizing the literature on SMEs digitization, concluded that digital tools generally raise sales and reduce operating and personnel costs, though the size of this benefit varies by sector and firm size. Nan and Park (2022) found that mobile money adoption improved the resilience of Zambian SMEs during the Covid-19 pandemic, with adopting firms reporting smaller sales declines than non-adopting firms during the crisis. Pizzi et al. (2021) argued that fintech adoption can support more sustainable SMEs business models when paired with circular economy practices, while Abbasi et al. (2021) showed that peer-to-peer lending fintech platforms improve SMEs access to finance independently of traditional bank credit channels. Taken together, these studies suggest that the financial performance construct itself deserves broader treatment in future SMEs digital payment research, extending beyond sales and profit toward resilience, sustainability, and financing access as complementary outcome measures.

6. Discussion and Research Agenda

The synthesis above points to three research gaps. First, most reviewed studies use cross-sectional survey designs, which limits causal claims about how adoption affects performance over time. A cross-sectional design can show that SMEs using digital payment report higher sales than those that do not, but it cannot rule out the possibility that better-performing SMEs simply adopt new technology sooner, reversing the assumed direction of causality. Longitudinal designs that track the same SMEs before and after adoption, or that follow a cohort of adopters and non-adopters over several fiscal quarters, would strengthen the evidence base and allow researchers to state the adoption-performance relationship with more confidence.

Second, the reviewed literature on QRIS and comparable QR-based digital payment systems is concentrated in a small number of country contexts, mainly Indonesia, India, and Jordan, which limits generalization across different regulatory and infrastructure environments. This is not because SMEs-relevant evidence from other regions does not exist. Substantial mobile money and digital inclusive finance literature already covers Africa and

China, but that literature rarely uses the same TAM-TPB-UTAUT constructs or the same financial performance measures as the QRIS-focused studies. Comparative studies that hold a common survey instrument constant across two or more markets, whether within Southeast Asia or bridging the QR-payment and mobile-money traditions, would help separate the effect of the technology itself from the effect of country-specific policy, infrastructure, and measurement choices.

Third, boundary conditions such as financial literacy and firm size are mentioned frequently but rarely tested as formal moderators within a single integrated model. Most reviewed studies treat these conditions descriptively, noting in their discussion sections that literacy or infrastructure quality appeared to matter, without building a moderation term into the structural model itself. A combined TAM-TPB-UTAUT framework that formally tests financial literacy or firm characteristics as moderators between adoption behavior and financial performance would address this gap directly and would help resolve the inconsistent effect.

Based on these gaps, this paper proposes a research agenda with three priorities. Future studies should adopt longitudinal or panel survey designs covering a full fiscal year of SMEs transactions, ideally paired with actual transaction records rather than self-reported recall data. Future studies should expand data collection beyond single-country samples to allow comparative analysis across Southeast Asian markets with similar QR-based payment infrastructure, which would let researchers test whether the antecedents identified in consistently once country-level policy differences are accounted for. Future studies should formally test financial literacy, digital literacy, and firm size as moderating variables between digital payment adoption behavior and financial performance using Structural Equation Modeling with Partial Least Square, consistent with methods already established in the SMEs technology acceptance literature (Ghozali & Latan, 2015; Hair et al., 2014). Together, these three priorities would move the field from documenting that a relationship generally exists toward explaining precisely when and for whom it holds.

CONCLUSION

Digital payment infrastructure in Indonesia expanded from around 124 million QRIS transactions in 2020 to several billion transactions by 2025, with SMEs forming the majority of merchants. This systematic literature review organized recent research on SMEs digital payment adoption and financial performance around three themes, namely theoretical frameworks, antecedents of adoption, and financial performance outcomes. The review found that TAM, TPB, and UTAUT remain the dominant explanatory frameworks, that perceived usefulness, trust, and social influence are the most consistent antecedents, and that financial literacy and firm size shape how strongly adoption translates into financial performance. The review identifies a need for longitudinal, cross-country, and formally moderated empirical models. Researchers preparing new studies in this area can use the research agenda proposed here as a starting point for the next phase of quantitative work.

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