

QRIS ADOPTION AMONG MSMEs: A SYSTEMATIC LITERATURE REVIEW OF DIGITAL PAYMENT DETERMINANTS IN INDONESIA

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Abstract

The rapid expansion of digital financial technologies has significantly reshaped payment ecosystems in developing countries, particularly through QR code-based payment systems such as the Quick Response Code Indonesian Standard (QRIS). Despite the growing body of research on digital payment adoption and MSMEs performance, a systematic and comprehensive synthesis of existing literature examining the determinants of adoption and its impact on revenue growth remains limited. This study employs a Systematic Literature Review (SLR) approach based on the PRISMA 2020 reporting framework, involving a systematic selection process of 309 articles from reputable international databases, resulting in 10 final articles that met all predetermined inclusion criteria. The thematic synthesis of selected studies indicates that perceived usefulness, perceived ease of use, and digital infrastructure support are consistent determinants of digital payment adoption among MSMEs, which in turn contributes substantially to revenue growth, operational efficiency, and market expansion. These findings reinforce the relevance of the Technology Acceptance Model (TAM) in the context of digital payments in developing regions, while also providing a consolidated evidence base for the formulation of more targeted digital economic acceleration policies.

Keywords: QRIS, MSMEs, Technology Acceptance Model, Digital Payment, Financial Inclusion

INTRODUCTION

The rapid wave of digital technological transformation over the past decade has significantly impacted economic ecosystems, particularly in terms of payment systems and mechanisms. Global society, including developing countries such as Indonesia, is increasingly shifting from cash-based transactions toward more efficient and inclusive digital payment instruments. This shift is driven by the need for speed, ease of access, and cost efficiency, which conventional payment systems are unable to optimally provide. In this context, the Quick Response Code Indonesian Standard (QRIS) emerges as a strategic innovation developed by Bank Indonesia in collaboration with the Indonesian Payment System Association (ASPI) to integrate various digital payment platforms into a single interoperable QR code (Novaria, 2024).

The transition from cash-based transactions to digital payments reflects a fundamental change in consumer behavior driven by advances in information technology. Digitalization not only transforms how businesses operate but also reshapes consumer preferences toward faster, more practical, and contactless payment methods. The integration of digital technologies into Micro, Small, and Medium Enterprises (MSMEs) operations has been recognized as a strategic pathway toward business empowerment, with early scholarship highlighting how digital platforms can expand market access and strengthen the competitiveness of small business in the emerging digital economy (Srirejeki, 2016). Empirical studies also indicate that the adoption of digital payments consistently has a positive impact on transaction efficiency, customer experience, and business

financial performance, including MSMEs (Astuti et al., 2024). Therefore, MSMEs actors are required to adapt to the digital payment ecosystem in order to remain competitive in an increasingly digitalized market.

The momentum of QRIS adoption in Indonesia continues to grow alongside active support from the government at both central and regional levels. Various educational programs and policy initiatives have been implemented to promote cashless transaction ecosystems among the community and local MSMEs actors. This condition is consistent with empirical findings indicating that government support has a significant influence on increasing the adoption of digital financial technologies among small business actors (Kuntariningsih et al., 2023). The presence of QRIS provides MSMEs not only with an alternative payment method but also creates opportunities to improve operational efficiency and expand market reach. Digital transaction recording supports more structured and accurate financial management, thereby encouraging data-driven business decision-making (Aris et al., 2026).

From a theoretical perspective, QRIS adoption can be analyzed using the Technology Acceptance Model (TAM), which emphasizes perceived usefulness and perceived ease of use as the primary determinants of technology acceptance. Numerous empirical studies confirm the continued relevance of TAM in the context of digital payment adoption among MSMEs in developing regions (Nugroho, 2022). However, despite the growing body of research on digital payments and MSMEs performance, a systematic and comprehensive synthesis of existing literature that specifically examines the determinants of QRIS adoption and its impact on MSME revenue growth in developing regions remains limited. Most existing studies are fragmented and context-specific, leaving a gap in the broader understanding of how digital payment adoption drives sustainable economic outcomes for MSMEs.

This study therefore aims to systematically review and synthesize existing literature on the factors influencing digital payment adoption among MSMEs and its impact on revenue growth, particularly in developing regional contexts. By applying the PRISMA 2020 framework, this study contributes to extending the theoretical application of TAM in the domain of digital payments, while also offering a consolidated evidence base that can inform policy formulation for digital economic acceleration. Based on this background, the research questions are formulated as follows: (1) How does perceived usefulness influence digital payment adoption among MSMEs?; (2) How does perceived ease of use influence digital payment adoption among MSMEs? ; (3) How does digital infrastructure support influence digital payment adoption among MSMEs?

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Digital Payment Systems and QRIS

The transformation of payment systems from cash-based mechanisms to digital platforms represents a logical consequence of the rapid advancement of information technology. Digital payment systems are considered capable of enhancing efficiency, transparency, and accessibility across various economic activities, both for consumers and business actors. The most prominent innovation in Indonesia's digital payment system is reflected in the emergence of the Quick Response Code Indonesian Standard (QRIS), developed by Bank Indonesia in collaboration with the Indonesian Payment System Association (ASPI) as a national QR code-based standard. The primary advantage of QRIS lies in its interoperability, enabling the integration of various digital payment services, including e-wallets, mobile banking, and fintech platforms, into a single unified system.

Users only need to utilize a single application to conduct transactions across registered merchants, while business actors are no longer required to provide multiple payment codes. The efficiency of this integrated system has been proven to accelerate the widespread adoption of digital payments and promote financial inclusion, particularly in developing countries that still face limitations in access to formal banking services (Nugroho, 2022).

The Role of QRIS in MSME Activities

The role of digital payment systems has become increasingly strategic in supporting the sustainability and growth of Micro, Small, and Medium Enterprises (MSMEs). Limitations in capital and infrastructure, which are commonly faced by MSME actors, drive the need for payment instruments that are simple, affordable, and easy to use. QRIS emerges as a solution by providing a single QR code that can be used to accept payments from various digital platforms without requiring additional devices. The convenience offered by QRIS creates opportunities for MSMEs to expand their market reach, particularly among consumers who increasingly prefer non-cash payment methods. Faster and more efficient transaction processes also contribute to improved service quality and the reduction of operational barriers.

Empirical findings indicate that the adoption of digital payment systems has a positive impact on MSME performance, including increased revenue, enhanced operational efficiency, and higher customer satisfaction. Furthermore, digital transaction records support more structured cash flow management, thereby strengthening MSMEs' competitiveness within the digital economic ecosystem (Ocharive & Iworiso, 2024).

Technology Acceptance Model (TAM) and QRIS Adoption

The adoption of QRIS among MSME actors can be theoretically explained through the Technology Acceptance Model (TAM) introduced by Fred Davis. This model posits that an individual's acceptance of a technology is primarily influenced by two key constructs, namely perceived usefulness and perceived ease of use. These constructs directly shape users' attitudes toward the technology and ultimately determine their behavioral intention and actual usage. In the context of QRIS, MSME actors are more likely to adopt the system when they perceive that the technology provides tangible benefits while being easy to operate, particularly for small business owners who often face limitations in technological literacy. A higher level of adoption is expected to generate direct positive impacts on business performance, especially in terms of sustainable revenue growth (Prawitasari et al., 2024).

QRIS and Financial Inclusion

The use of QRIS is closely associated with the concept of financial inclusion, which refers to systematic efforts to expand access to formal financial services for all segments of society. Limited access to formal financial systems often constitutes a structural barrier for MSMEs in developing their businesses and obtaining financing. QRIS serves as a practical solution by providing easier access to digital payment systems without requiring complex banking infrastructure. Each transaction conducted through QRIS is digitally recorded and systematically organized, thereby creating a more transparent and verifiable financial track record. This record enhances business credibility in the eyes of financial institutions and opens up opportunities for access to financing that were previously difficult to obtain. Recent studies demonstrate that digital financial inclusion significantly reduces financial access barriers for micro-enterprises while simultaneously accelerating business growth (Nugraha et al., 2022). QRIS functions not merely as a payment instrument but also as a bridge that connects MSMEs to the formal financial ecosystem, ultimately fostering more inclusive and sustainable business development.

Previous Studies on QRIS and MSME Performance

A growing body of prior research consistently demonstrates that the adoption of digital payment systems has a significant positive impact on MSME performance. A study by Mataram (2024) reveals that perceived usefulness and perceived ease of use in the utilization of QRIS are positively associated with improvements in MSMEs' financial performance in Indonesia. These findings are reinforced by other studies indicating that QRIS serves as a key determinant of MSME business growth, with infrastructure support and digital literacy acting as primary drivers of

adoption. At the global level, research also confirms that e-payment and e-commerce services contribute positively to MSME supply chain performance while fostering open innovation in business digitalization processes. At the national level, the implementation of QRIS across various regions in Indonesia has been supported by the active role of local governments and Bank Indonesia through initiatives such as the National QRIS Week program, reflecting a broader strategy to strengthen digitally driven regional economic development.

Research Gap

The development of studies on digital payments and MSME performance has shown significant growth at both national and international levels. However, a systematic synthesis of existing literature that comprehensively examines the determinants of digital payment adoption — particularly QR code-based systems — and their impact on MSME revenue growth in developing regions remains limited. Most existing studies are either fragmented in scope, confined to a single country context, or focused narrowly on adoption factors without examining downstream effects on business performance. This gap underscores the need for a broader, evidence-based review that consolidates findings across multiple contexts and contributes to the theoretical application of TAM in developing regional settings. In addition, this study is expected to enrich the academic literature on local economic transformation driven by the adoption of digital payment systems.

RESEARCH METHODS

This study employs a Systematic Literature Review (SLR) approach as the primary methodological framework to examine the determinants of digital payment adoption and its impact on MSME revenue growth in developing regions. The SLR approach is selected due to its ability to systematically identify, evaluate, and synthesize relevant studies in a structured and replicable manner, thereby producing more comprehensive conclusions compared to conventional literature reviews. The reporting process of this study follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines developed by Page, (Page et al., 2021), which consist of 27 standardized reporting items to ensure transparency, consistency, and accountability throughout each stage of the literature selection process. The application of the PRISMA 2020 framework ensures that all inclusion and exclusion decisions are traceable and scientifically justifiable.

The literature search was conducted systematically across several reputable international academic databases, including ScienceDirect (Elsevier), Scopus, Web of Science, and Google Scholar. The search employed a combination of keywords such as “QRIS,” “Quick Response Code Indonesian Standard,” “digital payment,” “mobile payment,” “SME performance,” “MSME revenue,” “financial inclusion,” “Technology Acceptance Model,” and “Indonesia,” combined using Boolean operators (AND and OR) to maximize search coverage. This process initially identified a total of 309 articles from various databases. After removing 102 duplicate records, 207 articles remained for the screening stage. During this stage, 95 articles were excluded based on the irrelevance of their titles and abstracts, resulting in 112 articles proceeding to full-text assessment. Of these, 56 articles were excluded due to the unavailability of full-text access.

Subsequently, the remaining 56 articles were assessed for eligibility based on predefined inclusion and exclusion criteria. The inclusion criteria consisted of: (1) articles published between 2022 and 2026, (2) written in English, (3) focusing on digital payment adoption, MSME performance, financial inclusion, or the Technology Acceptance Model within the context of developing countries, and (4) indexed in reputable international databases. The exclusion criteria included: (1) articles not directly addressing digital payments or MSMEs ($n = 25$), (2) publications in the form of editorials, book chapters, or non-peer-reviewed conference proceedings ($n = 11$), and (3) studies lacking sufficient empirical data, among others.

Following this eligibility assessment, a total of 10 final articles met all the criteria and were included in the systematic review synthesis. The complete literature selection process is illustrated in the PRISMA flowchart presented in Figure 1. The analysis and synthesis of the selected studies were conducted using a thematic approach by identifying patterns of findings, contextual similarities, and research gaps relevant to the focus of this study, in accordance with established SLR analytical guidelines.

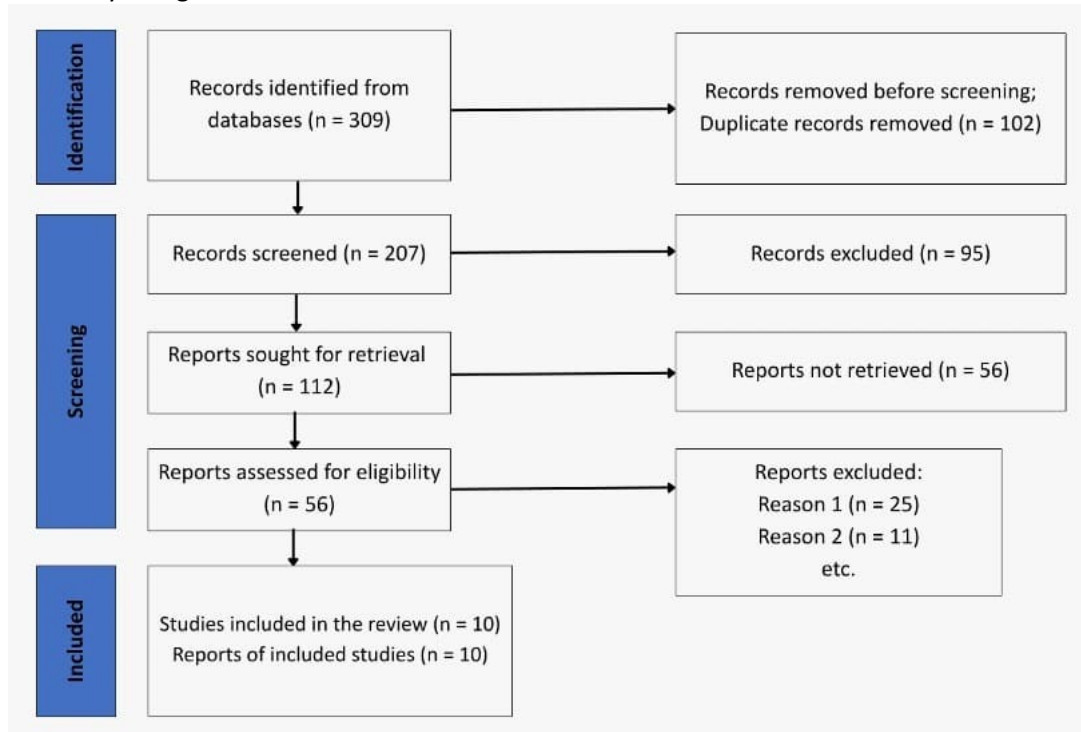


Figure 1. PRISMA Flow Diagram of the Study Selection Process

RESULTS AND DISCUSSION

RESULT

The literature selection process using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 framework resulted in 10 final articles that met all predefined inclusion and exclusion criteria. These articles were sourced from various reputable international databases, covering the publication period from 2022 to 2026, and focusing on topics such as digital payment technology adoption, MSME performance, financial inclusion, and the Technology Acceptance Model (TAM) within the context of developing countries. All selected articles have undergone a peer-review process and are indexed in international databases, ensuring their scientific quality and validity (Page, McKenzie, et al., 2021).

Overall, the findings from the 10 analyzed articles demonstrate a consistent pattern indicating that the adoption of digital financial technologies, including QR code-based payment systems, has a significant positive impact on the performance of Micro, Small, and Medium Enterprises (MSMEs). This impact is not only directly reflected in increased revenue but also extends to improvements in operational efficiency, market expansion, and the strengthening of financial management capabilities. Furthermore, digital financial literacy and technological infrastructure support are identified as moderating factors that play a crucial role in determining the success of digital payment adoption among small business actors, particularly in developing countries.

Table 1. Synthesis of Results from a Systematic Review of 10 Selected Articles

No	Author (Year)	Main Focus	Key Findings
1	(Bu et al., 2024)	Inclusive digital finance & SME financing constraints	Inclusive digital finance significantly alleviates SME financing constraints; depth of use has stronger effect than breadth of coverage
2	(Chaichana et al., 2024)	SME digital business models & sustainability indicators	Digital business status modeling demonstrates measurable improvements in business performance and sustainable regional economic growth
3	(Chen et al., 2024)	Digital transformation & sustainable business performance	Digital exploitation and exploration capabilities significantly enhance sustainable business performance; market-driven business model innovation plays a mediating role
4	(Jun & Qian, 2024)	Digital financial networks & SME financing stability	Government support for digital financial infrastructure proves more effective than direct subsidies; digital networks reduce SME financing constraints and improve stability
5	(Li & Pang, 2023)	Inclusive digital finance & SME innovation capacity	Digital inclusive finance corrects financial mismatch and drives SME technological innovation; depth of use and degree of digitalization are critical sub-indicators
6	(Manoj Kumar M. V, 2024)	SME financial literacy & digital access in BRICS	Financial literacy and digital financial access are pivotal drivers of sustainable SME economic development in emerging economies
7	(Merín-rodrig & Alegre, 2024)	Digital transformation & performance in innovative SMEs	Business model innovation partially mediates the positive relationship between digital transformation and firm performance among innovative SMEs
8	(Nugraheni & Darma, 2025)	Digital technology adoption & MSME financial knowledge	Business automation and financial literacy positively influence sustainable MSME performance; digital payments alone show no direct effect without financial literacy
9	(Sagala & Óri, 2024)	SME digital transformation success factors (SLR)	Incremental digitalization strategies and continuous investment in education are identified as core success factors for SME digital transformation
10	(Uthailiang & Kiattisin, 2023)	Digital financial literacy in developing countries	Knowledge and motivation positively influence digital financial skills and capability among small entrepreneurs in developing regions

DISCUSSION

The Influence of Perceived Usefulness on QRIS Adoption among MSMEs

The findings of this systematic review consistently confirm that perceived usefulness constitutes a primary determinant in the adoption of digital payment technologies among small business actors. Within the framework of the Technology Acceptance Model (TAM), this construct refers to users' belief that the use of a particular technology will significantly enhance their work effectiveness and efficiency (Bu et al., 2024). Across the reviewed literature, the perceived usefulness of QR code-based payment systems is primarily reflected in their ability to accelerate transaction processes, minimize manual recording errors, and expand service reach to consumers accustomed to cashless payments.

Empirical evidence from the analyzed literature further reinforces this argument. (Li & Pang, 2023) found that digital transaction automation significantly improves the operational efficiency of MSMEs, which in turn has a direct impact on business performance enhancement. Digital capabilities that are positively perceived by business actors have been shown to drive sustainable business performance across multiple developing country contexts. These findings suggest that the tangible benefits perceived from using digital payment systems remain a crucial determining factor in technology adoption decisions, particularly among MSMEs in transitional stages from cash-based to digital ecosystems.

Beyond operational efficiency, perceived usefulness also encompasses the broader economic benefits that MSMEs actors associate with digital payment adoption. When business owners recognize that using QRIS enables them to serve a wider range of consumers — including younger, digitally native customers who predominantly rely on non-cash payment methods — the perceived value of adoption increases substantially. This expanded market accessibility translates directly into higher transaction frequencies and, ultimately, improved revenue outcomes. Moreover, the perceived usefulness of digital payment systems is further reinforced by the transparency and accountability they bring to financial record-keeping. Unlike cash-based transactions that are difficult to track and verify, digital payments generate automatic transaction histories that simplify tax compliance, financial reporting, and access to formal credit. For MSME actors who have historically struggled with financial documentation, this administrative benefit represents a significant and tangible form of usefulness that strengthens adoption motivation beyond the immediate transactional context.

The Influence of Perceived Ease of Use on QRIS Adoption among MSMEs

Perceived ease of use constitutes the second construct within the Technology Acceptance Model (TAM) and has been demonstrated to exert a significant influence on MSMEs' decisions to adopt digital payment systems. This construct refers to the extent to which individuals believe that using a particular technology requires minimal cognitive effort (Merín-rodrig & Alegre, 2024). Among MSME actors with limited technological literacy — a common characteristic in developing regions — the operational simplicity of QR code-based systems emerges as a critical determinant of adoption, as such systems typically require only a single static code to receive payments from multiple digital platforms without complex technical configurations.

Manoj Kumar et al. (2024) found that knowledge and motivation in utilizing digital financial services are positively associated with users' capabilities and self-efficacy in adopting such technologies, suggesting that a user-friendly technological interface directly influences adoption rates. Furthermore, (Sagala & Óri, 2024) in their systematic review argue that gradual and incremental digitalization strategies are more effective in facilitating technology adoption among MSMEs with limited technical capacity. These findings collectively imply that sustained educational initiatives and technical assistance programs contribute significantly to reducing perceived ease-of-use barriers, thereby accelerating digital payment adoption among MSME actors.

It is also important to recognize that perceived ease of use is not a static perception but one that evolves as users accumulate experience with a technology. In the early stages of adoption, MSME actors may perceive digital payment systems as moderately complex due to unfamiliarity with the registration process, device requirements, and transaction verification procedures. However, as familiarity grows through repeated use and peer learning within business communities, the cognitive barriers associated with operating such systems tend to diminish considerably. This dynamic nature of perceived ease of use underscores the importance of designing onboarding programs that accompany the initial adoption phase — ensuring that MSME actors receive adequate guidance not only at the point of registration but throughout the early usage period. Government agencies and financial institutions play a pivotal role in this regard by providing accessible training materials, peer mentorship networks, and responsive technical

support that collectively lower the perceived complexity of digital payment adoption and sustain engagement over the long term.

The Influence of Digital Infrastructure Support on QRIS Adoption among MSMEs

The availability and quality of digital infrastructure constitute fundamental prerequisites that determine the technical feasibility of adopting technology-based payment systems. In this context, infrastructure support encompasses the availability of stable internet connectivity, smartphone penetration, and the reliability of digital payment systems operated by service providers. Collectively, these elements form a conducive technological ecosystem that enables MSMEs to adopt and effectively utilize digital payment systems in their daily business operations (Uthaileang & Kiattisin, 2023).

Analysis grounded in the Complex Adaptive System framework indicates that government support for the development of digital financial infrastructure is more effective in promoting technology adoption among MSMEs than direct financial subsidies to business actors. Furthermore, (Nugraheni & Darma, 2025) emphasize that access to digital financial services supported by adequate infrastructure constitutes a critical determinant of MSME sustainability and competitiveness in developing economies. These findings highlight the importance of infrastructure-driven policy approaches in accelerating digital payment adoption across developing regions.

The relationship between digital infrastructure and MSME adoption behavior is further nuanced by the concept of infrastructure reliability. It is not sufficient for connectivity and devices to merely exist — they must function consistently and dependably for MSME actors to feel confident integrating digital payment systems into their core business operations. A single instance of transaction failure due to network instability or system downtime can significantly erode trust and discourage continued use, particularly among first-time adopters who have not yet developed strong digital habits. This trust dimension highlights the need for infrastructure investments to prioritize not only coverage expansion but also service quality and system resilience. In developing regions where infrastructure gaps remain pronounced, public-private partnerships represent a promising mechanism for accelerating infrastructure development in ways that are both financially sustainable and responsive to the specific operational needs of MSME communities. Addressing these infrastructure challenges in a holistic and coordinated manner is therefore essential to ensuring that the potential benefits of digital payment adoption are equitably accessible across different geographic and economic contexts.

CONCLUSION

This systematic review confirms that the adoption of digital payment systems, particularly QRIS, exerts a transformative impact on MSME economic performance in developing regions, driven synergistically by perceived usefulness, perceived ease of use, and the adequacy of digital infrastructure. These three determinants collectively establish a conducive adoption ecosystem, in which increased business revenue emerges as a logical outcome of the optimal integration of digital payment systems. The synthesis of existing literature further demonstrates that the depth of digital payment use — rather than mere access — is the critical factor distinguishing MSMEs that experience sustained revenue growth from those that do not. From a policy perspective, governments and relevant financial authorities should prioritize community-based digital literacy programs and strengthen network infrastructure in non-metropolitan areas to accelerate the widespread penetration of digital payment systems. This study is subject to several limitations, particularly the restriction of the literature scope to English-language articles published between 2022 and 2026, which limits the incorporation of a long-term longitudinal perspective. Future research is therefore recommended to employ a quantitative approach based on primary survey

data with a representative sample of MSME actors in specific developing regions in order to generate more robust and measurable causal evidence.

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