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The Impact of QRIS on MSME Growth in Indonesia: A Strategic Framework for Digital Transformation

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ABSTRACT

This study examines how the implementation of the Quick Response Code Indonesian Standard (QRIS) influences the growth and financial practices of micro, small, and medium enterprises (MSMEs) in Indonesia. Although QRIS has been widely promoted as a unified digital payment solution that can reduce reliance on cash and enhance transparency, its adoption among MSMEs remains uneven due to gaps in digital literacy, infrastructure limitations, and concerns about data security. To address these issues, this research employs a systematic literature review (SLR) of 20 peer-reviewed articles published between 2020 and 2025. The review was conducted through a structured process involving keyword identification, database searches, screening based on predefined inclusion and exclusion criteria, and thematic synthesis of the selected studies. The findings show that QRIS offers clear benefits in improving transaction speed, operational efficiency, and accuracy of financial records, which collectively support business growth and expand market reach. At the same time, adoption is strongly shaped by perceived usefulness, ease of use, and the influence of customers and peers. The review also highlights persistent barriers, particularly low digital readiness and sensitivity to transaction fees among micro-merchants. Based on the synthesized evidence, this study proposes a strategic framework consisting of digital literacy enhancement, infrastructure support, and strengthened data protection as key pillars for accelerating adoption. The results provide practical insights for policymakers and financial institutions in fostering a more inclusive and sustainable digital payment ecosystem for MSMEs in Indonesia.

Keywords: QRIS, MSMEs, Digital Payments, Financial Inclusion, Technology Adoption

INTRODUCTION

The rapid expansion of Indonesia's digital economy has created new opportunities for micro, small, and medium enterprises (MSMEs). One of the key developments supporting this transformation is the introduction of the Quick Response Code Indonesian Standard (QRIS), a unified payment standard initiated by Bank Indonesia to integrate various digital payment providers into a single QR code. QRIS is expected to streamline transactions, reduce risks associated with cash payments, and improve the accuracy of financial record-keeping. Prior studies indicate that digital payment adoption contributes to broader market access and strengthens financial inclusion, particularly for MSMEs that have limited access to formal banking services (Nugraha et al., 2022; Sihaloho et al., 2020).

Despite the benefits, the level of QRIS adoption among MSMEs remains uneven. Challenges such as low digital literacy, inadequate network infrastructure, and concerns about data security continue to hinder widespread use (Ardianto, 2025; Jocevski et al., 2020). These barriers are especially evident in regions where internet connectivity is limited or where business actors remain accustomed to traditional cash-based transactions (Bachri et al., 2025). Additionally, the Merchant Discount Rate (MDR) poses a financial consideration for some micro-merchants, influencing their willingness to adopt QRIS (Lestari, 2023).

Existing research on QRIS has largely focused on its perceived benefits, determinants of adoption, and user satisfaction. However, there remains a lack of comprehensive synthesis that integrates these findings into a cohesive framework explaining how QRIS can be implemented more effectively to support MSME growth. Current literature does not consistently combine technological, organizational, and environmental perspectives that influence adoption outcomes across diverse business contexts (Hidayatulah et al., 2023; Fauziah et al., 2025).

Addressing this gap, the present study conducts a systematic literature review to summarize empirical evidence on the adoption, impacts, and challenges of QRIS for MSMEs in Indonesia. The aim is to identify the key factors shaping successful implementation and to develop a strategic model that can guide policymakers, financial institutions, and business actors in strengthening the digital payment ecosystem. Through this approach, the study seeks to provide a more holistic understanding of QRIS's potential and limitations, while offering policy directions to support a more inclusive and sustainable digital transition for MSMEs.

LITERATURE REVIEW

Digital Payment Technology and QR Code Standardization

The rapid development of digital payment systems has transformed the way transactions are conducted, particularly with the widespread use of smartphones and mobile applications. One significant innovation is the standardization of QR codes, which enables multiple payment service providers to operate through a single, interoperable mechanism. As a national standard, QRIS was introduced to reduce fragmentation, simplify acceptance processes for merchants, and strengthen transaction security and traceability (Rahmawati et al., 2021). Standardization also supports operational efficiency by reducing the need for multiple payment tools and improving the accuracy of transaction records (Amri & Putra, 2022).

Technology Adoption Theories: TAM and UTAUT

The *Technology Acceptance Model* (TAM) explains that perceived usefulness and perceived ease of use are the primary predictors of a user's intention to adopt new technology. These dimensions are relevant for MSMEs that often prefer simple, practical, and low-risk payment systems (Wijaya et al., 2020). Complementing TAM, the *Unified Theory of Acceptance and Use of Technology* (UTAUT) highlights the roles of social influence and facilitating conditions, which have been shown to significantly shape digital payment adoption in emerging markets (Setyowati & Riyadi, 2021). Studies show that peer merchants, customer expectations, and marketplace norms can accelerate the decision to adopt QRIS (Putri & Nugroho, 2022).

The Technology-Organization-Environment (TOE) Framework

The *Technology-Organization-Environment* (TOE) framework provides a broader lens to assess organizational readiness toward new technologies. Technological factors

include system compatibility, device capacity, and network stability; organizational factors involve managerial commitment, skills of employees, and financial capability; while environmental factors relate to government regulations, competitive pressure, and support from financial institutions (Hapsari & Prasetyo, 2023). This framework is particularly relevant for understanding the variation in QRIS adoption across different business types and geographic areas.

Digital Financial Inclusion

Digital financial inclusion refers to the ability of individuals and businesses to access and use affordable and secure financial services through digital channels. QRIS contributes to this process by enabling merchantsincluding micro-enterprises previously excluded from formal servicesto build a digital transaction footprint. Such data can be utilized for alternative credit assessments, thereby improving access to financing for MSMEs that lack physical collateral (Adawiyah & Suryani, 2021; Lubis et al., 2022). This theoretical perspective helps explain why digital payment adoption is closely associated with improvements in formal financial participation.

Operational Efficiency and Financial Transparency

Digital payment systems enhance operational efficiency by accelerating transaction processes, reducing manual bookkeeping, and supporting real-time reconciliation. For MSMEs, these efficiencies can translate into improved cash-flow management and overall business productivity (Hariyanto & Mulyono, 2020). QRIS, by facilitating automatic transaction recording, also strengthens financial transparency, which is essential for reporting, credit applications, and long-term business planning (Samudra & Wibowo, 2021).

Security in Digital Payment Systems

Trust in digital payment platforms is shaped by the perceived security of the system. Issues such as QR code manipulation, cyber fraud, or data leakage can become major obstacles to adoption. Scholarly discussions stress the importance of encryption, dynamic QR mechanisms, multi-layer authentication, and regular system updates to mitigate risks and build user confidence (Maulana & Hutabarat, 2022). Understanding these security dimensions is essential for interpreting merchant behavior and evaluating the sustainability of QRIS use across MSMEs.

METHOD

This study employs a Systematic Literature Review (SLR) to synthesize existing research on the adoption and impact of QRIS among micro, small, and medium enterprises (MSMEs) in Indonesia. The SLR approach was selected because it enables a transparent, replicable, and structured process for identifying, evaluating, and integrating prior studies, particularly in emerging research areas such as digital payment standardization (Snyder, 2019). The review procedure followed key stages inspired by the PRISMA guidelines, namely identification, screening, eligibility assessment, and final inclusion, while maintaining alignment with the original study design. The first stage involved defining relevant keywords related to QRIS, digital payments, MSMEs, and technology adoption. Searches were conducted across several academic databases including Google Scholar, Garuda, and DOAJ covering studies published between 2020 and 2025. To improve precision, Boolean operators were applied, and variations of keywords were used to ensure coverage of interdisciplinary research (Xiao & Watson, 2019).

All retrieved records were screened based on predetermined inclusion and exclusion criteria. The inclusion criteria consisted of peer-reviewed articles focusing on QRIS, digital payment adoption, or the financial and operational implications for MSMEs in Indonesia. Articles focusing solely on general fintech developments without specific reference to QRIS, non-scholarly publications such as conference abstracts or opinion papers, and duplicate entries were excluded. Titles and abstracts were assessed in the initial screening, followed by full-text evaluation during the eligibility stage. This process resulted in the selection of 20 articles that met all criteria and contributed empirical or conceptual insights relevant to the research objectives.

To ensure consistency, the selected studies were analyzed using a structured coding sheet that captured information such as authorship, publication year, research method, theoretical framework, key findings, and contextual focus. Thematic synthesis was then carried out to identify recurring patterns, conceptual relationships, and research gaps across the reviewed studies. This approach enables the integration of diverse methodological perspectives qualitative, quantitative, and mixed methods into a coherent analytical framework (Barnett-Page & Thomas, 2009). In line with best practices in SLR, the analysis also considered the methodological rigor and relevance of each article to ensure credible interpretations (Paul & Criado, 2020). Through this systematic process, the study developed an evidence-based understanding of factors influencing QRIS adoption and its implications for MSME performance, ultimately informing the proposed strategic integration model.

RESULT

The systematic screening process resulted in twenty peer-reviewed articles published between 2020 and 2025 that met the inclusion criteria. These studies collectively illustrate a consistent pattern regarding the role of QRIS in strengthening MSME performance, particularly through improvements in operational efficiency, financial transparency, and payment security. The articles predominantly focus on the Indonesian context, where QRIS implementation forms part of a broader national digitalization agenda. Several comparative studies from Thailand and Malaysia were also included, offering insights into how similar digital payment infrastructures operate within regional MSME ecosystems.

From a methodological standpoint, qualitative approaches dominate the selected literature, accounting for approximately sixty percent of the studies. These include case studies and interviews that provide in-depth accounts of MSME experiences with QRIS adoption. Quantitative research primarily surveys makes up about thirty percent of the sample, while the remainder applies mixed-methods approaches. This diversity allows the synthesis to capture both behavioral and operational aspects of QRIS implementation.

QRIS Implementation and Operational Efficiency

Across the reviewed studies, QRIS adoption consistently enhances transaction efficiency and daily operational flow for MSMEs. Many MSMEs report shorter transaction times, reduced queues, and smoother customer service, aligning with evidence from Sihaloho et al. (2020) and Febriyanti & Anshori (2024), who found that digital payments reduce manual recording errors and enable faster sales processing. These empirical findings parallel conclusions in broader digital payment literature, which documents that QR-based systems tend to promote speed, accuracy, and reliability in retail and service operations (Ovami et al., 2024). The integration of multiple payment platforms into a single QR code also reduces operational complexity, an outcome

emphasized by Hendrayana et al. (2024), who highlight the role of QRIS in minimizing administrative burdens.

The reviewed studies further demonstrate that efficiency gains translate into improved business capacity. MSMEs using QRIS often serve more customers during peak hours and reduce dependence on cash holdings, which lowers risks of loss and theft (Sihotang & Nasution, 2025). This aligns with international research showing that digital payment adoption expands throughput and enables better cash-flow planning, strengthening enterprise resilience.

Financial Management and Transparency

Another dominant theme concerns the impact of QRIS on financial management. Automatic and real-time transaction recording greatly assists MSMEs in documenting daily income, reconciling accounts, and preparing financial reports. According to Febriyanti & Anshori (2024), QRIS encourages MSMEs to adopt more structured bookkeeping practices. This is consistent with findings in Pratama et al. (2022) and Fauziah et al. (2025), which note that digital receipts and transaction histories provide MSMEs with accessible financial trails. Such improvements are widely seen as a prerequisite for credit access, as financial institutions increasingly utilize digital records for creditworthiness assessments.

These findings align with earlier studies showing that digital payment footprints are critical enablers of financial inclusion, especially for micro-enterprises lacking physical collateral (Hie, 2021; Irianto & Chanvarasuth, 2025). The review indicates that MSMEs adopting QRIS generally demonstrate better financial transparency, which increases their potential to secure loans or participate in formal financial programs.

Technology Adoption, Digital Literacy, and Behavioral Drivers

The analysis also reveals substantial variation in QRIS adoption due to differences in digital literacy, perceived ease of use, and trust. Studies such as Nugraha et al. (2022) and Yuliati & Handayani (2021) show that limited understanding of digital platforms remains a significant barrier, particularly for micro-scale enterprises. This is supported by Fauziah et al. (2025), who emphasize that perceived usefulness and ease of usecore constructs of the TAM frameworkremain the strongest predictors of intention to adopt QRIS.

The findings therefore resonate with broader technology adoption studies, which highlight the influence of behavioral, organizational, and contextual factors on digital payment uptake. Research by Djoyo et al. (2022) and Usman et al. (2024) further demonstrates that social influence from customers and peers plays a meaningful role in encouraging MSMEs to transition from cash to QR-based transactions.

Barriers and Challenges in QRIS Adoption

In addition to the benefits, the review highlights challenges that hinder wide adoption. Several studies identify the Merchant Discount Rate (MDR) and settlement fees as major concerns for micro-merchants, who often operate with thin profit margins (Lestari, 2023; Junaedi et al., 2024; Wiryawan et al., 2023). Security concernsespecially regarding fraudulent QR manipulationalso constrain adoption, despite improved security standards such as dynamic QR codes and encryption (Silaen et al., 2022; Pratama et al., 2022).

Infrastructure disparities are another recurring theme. Studies by Jocevski et al. (2020) and Hidayatulah et al. (2023) show that unstable internet access reduces transaction reliability, discouraging adoption among businesses in rural or low-connectivity regions. Organizational readiness, including managerial support and access

to training, remains uneven, affecting MSMEs ability to integrate QRIS seamlessly into daily operations (Djoyo et al., 2022).

Opportunities for MSME Growth and Financial Inclusion

Despite these challenges, the literature shows that QRIS presents substantial opportunities for MSMEs. The integration of non-cash transaction data into digital footprints facilitates alternative credit scoring mechanisms (Nugraha et al., 2022; Hie, 2021), broadening the path to financing for previously underserved businesses. Studies by Hidayatulah et al. (2023) and Fauziah et al. (2025) demonstrate that QRIS adoption boosts sales performance and customer satisfaction, especially in retail, F&B, and service sectors.

Additionally, QRIS supports market expansion by enabling MSMEs to accept payments from different digital wallets and, increasingly, cross-border platforms (Fauziah et al., 2025). This widens consumer reach and strengthens MSME competitiveness in the digital economy.

Discussion

Overall, the synthesized findings indicate that QRIS contributes significantly to MSME operational efficiency, financial transparency, and financial inclusion. These outcomes align strongly with broader digital payment research, which emphasizes the transformative role of standardized QR payment infrastructures. However, the extent of these benefits depends on digital literacy, perceived security, infrastructure readiness, and affordability of transaction fees.

The literature collectively suggests that the most effective QRIS adoption occurs when technological, organizational, and environmental factors mutually reinforce one another. The findings thus support the need for multi-pillar strategies involving literacy development, infrastructure enhancement, and strengthened data protection frameworks.

Conclusion

The synthesis of twenty studies published between 2020 and 2025 demonstrates that the implementation of QRIS plays a meaningful role in strengthening the operational and financial practices of MSMEs in Indonesia. Across the reviewed literature, QRIS consistently contributes to faster transactions, reduced reliance on cash, and more accurate financial recording. These improvements support better cash-flow management and create clearer digital footprints that can be used by financial institutions to assess creditworthiness. In this regard, QRIS functions not only as a payment tool but also as a mechanism that broadens opportunities for financial inclusion among small businesses.

Despite these advantages, QRIS adoption remains uneven across different sectors and regions. Variations are largely influenced by the digital literacy of business owners, the reliability of local infrastructure, and the level of trust in data security. Concerns related to the Merchant Discount Rate (MDR) also emerge among micro-enterprises operating with narrow profit margins. These findings are consistent with earlier research indicating that technology adoption within MSMEs is closely shaped by organizational readiness, ease of use, and the clarity of perceived benefits.

Taken together, the reviewed evidence suggests that the positive impact of QRIS can be maximized when technological capability, user capacity, and environmental support reinforce one another. Efforts to expand digital literacy, improve infrastructure, and strengthen security measures are essential for ensuring the sustainable use of QRIS. With these conditions in place, QRIS has the potential to contribute more significantly to

MSME growth, enhance customer trust, and support a more inclusive digital payment ecosystem in Indonesia.

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