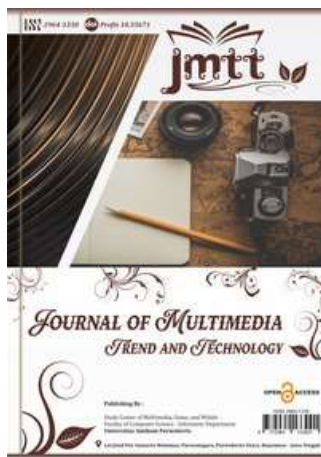# Effectiveness of QRIS Implementation in Supporting Digital Transactions for MSMEs

Fadli Bachtiar [1*], Ismail Alfi Firmansyah [2], Angger Rizalul Fikri [3]

[1,2,3] Information System Departement, Faculty of Computer Science, Amikom Purwokerto University, Banyumas, Indonesia.

ARTICLE INFO

ABSTRACT

This study evaluates the Effectiveness of QRIS implementation for MSMEs by examining its impact on transaction efficiency, business growth, financial transparency, customer adoption, and challenges encountered. Data were gathered using structured questionnaires and analyzed using descriptive statistics as part of a quantitative descriptive approach. The results show that QRIS positively impacts MSME performance. More than 90% of respondents believed that QRIS enables digital payments, and 61.3% of respondents embraced QRIS primarily for transaction simplicity. In terms of company success, 80.7% of respondents said that the amount of transactions increased, with 35.5% reporting notable increases and 45.2% reporting just modest gains. With 96.8% of respondents saying that QRIS helps or substantially helps with transaction recording, it also promotes financial transparency. Given that 48.4% of their consumers noted that only 40–70% of them utilize QRIS, the frequency of consumer use remains moderate. Notwithstanding the advantages, a number of obstacles still exist, such as erratic internet connections (35.5%), a lack of consumer adaptation (22.6%), technical malfunctions (16.1%), and worries about Merchant Discount Rate (MDR) costs, which over half of MSMEs said were onerous. In conclusion, QRIS has proven effective in supporting MSMEs' digital transformation, yet improvements in infrastructure, customer education, and fee structures are required to maximise its impact.

*Corresponding Author:

Fadli Bachtiar
Department of Information System, Amikom Purwokerto University, Banyumas, Indonesia.
Email: *bachtiarfadli@gmail.com*

INTRODUCTION

In the age of rapidly increasing digital change, financial technology innovations have revolutionised the way transactions are conducted globally [1]. Due to fierce competition, MSMEs in Indonesia must constantly improve several facets of their business, such as information technology and innovation, to pique customers' interest in online transactions [2]. Among these innovations, QR code-based payment systems have gained significant attention for their potential to streamline payments, facilitate cashless transactions, and enhance financial inclusion. Bank Indonesia established the Quick Response Code Indonesian Standard (QRIS) to standardize the QR code-based payment ecosystem among various service providers in Indonesia [3]. By standarization QR payments, QRIS aims to simplify non- cash transactions, promote interoperability, reduce payment friction, and support MSMEs in participating more actively in the digital economy. MSMEs in Indonesia play a crucial role in driving national economic growth, generating employment opportunities, and promoting local development. For example [4]. Despite its significance, many MSMEs face obstacles when implementing digital payment systems, such as a lack of infrastructure, low digital literacy, worries about Cost, perceived complexity, and trust and risk issues. For the sake of corporate operations' efficiency, safety, and continuity, the COVID-19 epidemic further highlighted the necessity of cashless payment methods. Within this framework, QRIS has been positioned as a technological and regulatory intervention as well as a strategic assistance for MSMEs in times of crisis and for long-term digital inclusion [5].

Although QRIS has been implemented widely, empirical evidence about its Effectiveness — in terms of transaction efficiency, business performance, user perceptions, and barriers — is still being consolidated. For example, [6] examined the factors influencing QRIS adoption among MSMEs in West Jakarta using the UTAUT framework; they found that performance expectancy, effort expectancy, and financial literacy significantly improved the behavioural intention to use QRIS. A study by Fitri Rahmawati & Santi Merlinda in Malang's culinary MSMEs explored the perceived benefits, ease of use, and risks associated with these businesses [6]. These factors had differing influences on interest in using QRIS, highlighting that nuances in risk and perception matter [7]. Given both the promise and the observed limitations, as noted by Institut Agama Islam Hamzanwadi Pancor (2025) [11], this survey study aims to provide a comprehensive analysis of QRIS's Effectiveness in supporting digital transactions among MSMEs. Business results (income and customer happiness), user perceptions (ease of use, usefulness, and risk), transaction efficiency (speed, error reduction, and Cost), and implementation hurdles are essential factors. By surveying MSME owners across multiple sectors and locales, the research aims to integrate both quantitative data and qualitative insights to identify patterns, variability, and central challenges.

The findings are expected to contribute in several ways. First, they will provide empirical evidence to inform policymakers (e.g., Bank Indonesia, local governments) on the Effectiveness of QRIS to date and what improvements or supportive policies might enhance its positive impact. This is consistent, who emphasized the importance of government backing and carefully crafted regulatory frameworks in promoting the use of digital payment systems like QRIS, especially among micro and small business owners [3]. To guarantee the viability and inclusivity of digital payment ecosystems, they added, cross- sectoral cooperation between regulators, financial institutions, and technology providers is crucial, as are financial literacy programs and clear policies. To enhance the overall impact of QRIS implementation in Indonesia, policymakers can use this study's empirical insights into QRIS's Effectiveness as an evidence-based reference to strengthen financial inclusion initiatives, improve current regulations, and develop flexible strategies. The socioeconomic background, digital literacy, risk perception, and ecosystem of MSMEs—which includes infrastructure, support, and connectivity all affect the Effectiveness of QRIS [12]. To guarantee that QRIS fulfills its intended function of enabling inclusive, effective, and secure digital transactions for MSMEs and so promoting wider economic development, it is vital to comprehend these interrelated variables [13].

METHOD

This study employs a quantitative descriptive method using a survey approach. The purpose of using this approach is to obtain an overview of how MSMEs perceive and adopt QRIS in their daily operations. A study by Ismayadi (2025) [14]. This method is suitable because it allows researchers to capture numerical data regarding perceptions, attitudes, and behaviours related to QRIS adoption.

A. Respondents

The survey involved 31 MSMEs from various sectors, such as retail, culinary, and services, that actively use QRIS. Respondents were chosen using purposive sampling to ensure that participants had direct experience with QRIS. The diversity of respondents helps provide a more comprehensive view of the Effectiveness of QRIS across different business types, as noted in a journal article by Jumriaty Jusman (2024) [15].

B. Data Collection

Data for this study were collected via an online questionnaire administered through Google Forms, targeting MSMEs that have adopted QRIS as part of their digital payment mechanisms. The questionnaire instrument was developed based on relevant theoretical frameworks and prior studies. A study by Melanie Hawkins (2020) [16] on digital payment adoption was then contextualized to reflect the MSME environment in Indonesia.

The questionnaire comprises 12 main items, grouped into five thematic constructs:
a. Respondent Profile – capturing business identity (name), business sector (culinary, fashion, service, retail, or others), business age (<1 year, 1–3 years, 3–5 years, >5 years), and geographical location (regency/city).
b. QRIS Adoption – covering whether QRIS is used, duration of usage (<6 months, 6 months–1 year, >1 year), and motivating factors for adoption (such as ease of transaction, consumer demand, provider promotions, time efficiency, security, etc.).
c. Perceived Effectiveness – assessing the degree to which QRIS facilitates digital transactions, its impact on transaction volume, its utility in financial record-keeping and transparency, and its influence on consumer trust.
d. Usage Frequency – measuring the proportion of transactions conducted via QRIS compared to other payment methods (cash, bank transfer, e-wallet).
e. Barriers and Cost – identifying principal obstacles to QRIS use (unstable internet, unfamiliarity among consumers, technical issues, administrative/MDR fees), and evaluating whether the MDR rate (0.3%–0.7 %) is perceived as burdensome.

Response formats include multiple-choice items and four-point Likert scales. The four-point Likert scale was deliberately chosen (with no neutral midpoint) to reduce central tendency bias and to force more decisive responses regarding perceptions [17]. The questionnaire was open for responses over a restricted timeframe: from 26 September to 2 October 2025 (one week). This limited window was adopted to maintain consistency in external conditions (e.g., promotional campaigns, policy changes) and to reduce temporal bias.

A total of 31 MSME respondents across various sectors (retail, culinary, services, and others) participated in the survey. Participation was voluntary, and we assured participants of anonymity and confidentiality; the collected data are intended solely for academic purposes.

C. Data Analysis

In this study, descriptive statistics were used to analyze responses. The results are presented in the form of percentages and graphs. This strategy aligns with the explanation provided by Amruddin et al. (2022) [18], which states that descriptive statistics are used to characterize and summarize data in its original form, often using tables, graphs, or percentages to highlight distinct patterns and trends.

The framework of this study is based on evaluating system Effectiveness through four main dimensions: ease of use, transaction impact, customer adoption, and operational challenges. This framework is consistent with previous studies that emphasise both the benefits and the barriers in digital payment adoption [19].

RESULT

The survey findings provide a comprehensive picture of QRIS adoption among MSMEs.

1. Ease of Transactions.
    The graph displays the answers of 31 MSMEs regarding the impact of using QRIS (Quick Response Code Indonesian Standard) on the volume of their transactions. According to the research, 45.2% of respondents said that QRIS caused a slight rise in transactions, while 35.5% said that it caused a significant increase. None reported a reduction in their symptoms, and 19.4% said nothing had changed. This means that more than three-quarters of MSME owners believe that QRIS has had a positive impact, either by facilitating faster payments or by attracting more customers who prefer digital transactions. The few who did not feel any change might come from areas where customers are not yet used to using QRIS or where internet access and digital literacy are still limited. A number of recent studies corroborate these conclusions. Ridhwan et al. (2023) [20] discovered that financial digitalization, which includes digital banks, e- wallets, and fintech services, improves the business performance and innovation of MSMEs in Indonesia. All things considered, the graph and corroborating data show that QRIS is essential in motivating MSMEs to embrace digital solutions and increase the volume of their business dealings.

2. Business Support.
    31 MSME owners' thoughts about how much QRIS (Quick Response Code Indonesian Standard) facilitates the documentation and transparency of business financial activities are shown in the chart. Ismayadi's study from 2025 [14] is referenced. The results show that most respondents 61.3% say that QRIS helps them manage their financial data, and 35.5% say it is beneficial. Just 3.2% of respondents said QRIS was less valuable, and none said it was "not helpful." This indicates that practically all MSME owners think QRIS improves financial transparency and recording. According to the preponderance of "help" and "very helpful" responses, digital payment systems like QRIS have made bookkeeping easier, enhanced transaction traceability, and decreased the manual errors that frequently happen in cash-based systems.
    Several recent investigations support these conclusions. For instance, Hidayati and Nafidah (2023) [21] found that the QRIS payment system directly enhances the financial accountability of MSMEs, with the preparation of financial reports acting as a mediating factor. Their study indicates that the use of QRIS helps small business owners maintain more accurate and traceable financial records, leading to improved transparency in financial management. Similarly, Puriati, Sugiartana, and Mertaningrum (2023) reported that the implementation of QRIS among MSMEs in Karangasem Regency positively influences the transparency of sales reporting and facilitates more efficient transaction tracking. Together, these studies highlight that beyond simplifying transactions, QRIS contributes significantly to building a more accountable and transparent financial ecosystem for MSMEs in Indonesia.

3. Customer Adoption.
    Based on responses from 31 MSME owners, the chart compares the frequency of QRIS (Quick Response Code Indonesian Standard) use with other payment options such as cash, bank transfers, and e- wallets. The data show that 48.4% of participants conduct 40–70% of their transactions via QRIS, whereas 38.7% use QRIS for only 10–40% of their total sales. In contrast,

6.5% reported that fewer than 10% of their customers pay using QRIS, and an equal share of 6.5% indicated that more than 70% of their transactions rely on QRIS. This means that almost half of MSMEs already rely on QRIS as one of their primary payment options, even though many continue to use a combination of digital and traditional payment methods. The data suggest that QRIS adoption continues to grow, but consumer behaviour remains varied, depending on factors such as digital literacy, internet access, and transaction preferences. According to a 2023 study from the Global Business and Management Research Journal [17], "Exploring the Adoption of QR Code Indonesian Standard," the adoption of QRIS among MSMEs is mainly motivated by their desire for efficient, transparent, and secure transactions, resulting in a gradual growth in the use of digital payments. Overall, this chart and related studies indicate that while QRIS is not yet dominant for all transactions, it is playing an increasingly important role in the transition toward a cashless economy among MSMEs in Indonesia. (Dona Putri Metri 2024) [13]

4.   Challenges.

The chart illustrates the primary challenges encountered by 31 MSME owners when utilising QRIS. The largest share, 35.5%, says that the internet connection is unstable. Then, 22.6% report that many consumers are still not used to QRIS. 16.1% point to technical problems (such as app errors or unreadable QR codes), and 19.4% complain about administrative fees or the merchant discount rate (MDR). Only a small fraction say they face no obstacles. In short, more than half struggle with connectivity or customer unfamiliarity, and issues such as Cost and technical glitches also play a role. The obstacles identified in this study align with recent findings. The work "Challenges and Opportunities for QRIS Implementation as a Digital Payment System in Indonesia," emphasizes that weak internet infrastructure, limited public knowledge, and cost-related challenges remain major factors hindering QRIS adoption across the country [20].

5.   Perception of MDR Fees.

According to the pie chart, which reflects responses from 31 MSME owners, perceptions of the MDR (Merchant Discount Rate) fee—ranging from 0.3% to 0.7%—are divided. While 45.2% of respondents believe the fee is not burdensome, 41.9% view it as a financial strain, indicating that MDR costs still impact many small enterprises. Only 12.9% reported being unaware of the MDR's impact, while none considered it to be very burdensome. This indicates that while most MSMEs can handle the fee, a considerable number still feel its effect on their profit margins. This result supports previous studies suggesting that MDR fees continue to be an issue for small merchants, particularly those with lower transaction volumes [18]. In her 2024 study "QRIS as a Digital Payment Innovation: Opportunities and Challenges for MSMEs in Indonesia," Iklilah Egil Mualifah found that some MSMEs consider MDR fees a financial obstacle that discourages them from embracing digital payment technologies.

6.   Analysis.

The results show that QRIS has effectively addressed the operational needs of MSMEs, especially regarding usability and transaction efficiency. Its acknowledged benefits emphasize the potential of QRIS to improve business processes for MSMEs. However, concerns regarding MDR fees reflect financial constraints that may hinder the sustained use of the system, especially among micro and small enterprises. "The MDR (Merchant Discount Rate) cost is considered one of the obstacles for some MSME actors in using QRIS, as it can reduce the income received from each transaction" [2].

Overall, the analysis suggests that QRIS is effective, but its long-term success depends on addressing infrastructural and behavioural challenges

CONCLUTIONS

This study concludes that QRIS is an effective digital payment solution for MSMEs, primarily in simplifying transactions and supporting digital transformation. The findings show that the majority of MSMEs experienced increased transaction efficiency, greater customer convenience, and overall positive impacts on their businesses after adopting QRIS. Despite the encouraging outcomes, MSMEs still face notable obstacles, such as poor internet stability, limited customer adaptability, technical challenges, and persistent worries about MDR fees. These findings highlight the critical role of infrastructure development and digital education programs for both MSMEs and their customers. According to Hendrawan et al. [26], government- and NGO-led training initiatives can enhance MSMEs' digital literacy, enabling them to remain competitive in an increasingly digital economy. In addition, reassessing MDR fee arrangements could ensure greater inclusivity and long-term sustainability for micro-scale businesses.

Recommendations for future improvement include:
1. Strengthening internet infrastructure to ensure stable and reliable QRIS operations.
2. Implementing continuous awareness and training programs for MSMEs and their customers.
3. Reevaluating MDR fee structures to alleviate the financial burden on smaller enterprises.
4. Enhancing QRIS technology to minimize technical issues and improve user experience.

By implementing these measures, QRIS can fully realize its potential as a driver of MSME development and further solidify its role in advancing Indonesia's digital economy. Authors and Affiliations.

REFERENCE

[1] G. Yoganandham, "Transformative Impact: The Role of Modern and Innovative Banking Technologies in Driving Global Economic Growth," vol. 45, 2024.

[2] W. Fauziyanti, S. Hendrayanti, D. S. Handayani, and M. Tamrin, "PELATIHAN PENINGKATAN PEMAHAMAN KAPABILITAS INOVASI DAN KAPABILITAS TEKNOLOGI INFORMASI PELAKU UMKM KELURAHAN KRAPYAK," Abdi Masya, vol. 4, no. 2, pp. 113–119, Nov. 2023, doi: 10.52561/abma.v4i2.266.

[3] Prawitasari, F. D. Badiani, S. D. Rachmawati, P. Ningrum, and N. L. Mufidah, "QRIS IN INDONESIA: A COMPREHENSIVE LITERATURE REVIEW ON ADOPTION, CHALLENGES, AND OPPORTUNITIES".

[4] M. H. D. Wijaya, A. C. Febrianto, O. D. Andhika, and O. Thippimol, "Digital Structuring in MSMEs (Micro, Small and Medium Enterprises) Through the Implementation of QRIS Payments at the University of Jember," Small Medium Enterp., vol. 1, no. 1, 2025.

[5] A. Z. Santika, A. M. Musyaffi, and G. M. Zairin, "Factors Influencing the Adoption of QRIS DigitalPayments in MSMEs," J. Akunt. Perpajak. Dan Audit., vol. 5, no. 1, pp. 191–208, July 2024, doi: 10.21009/japa.0501.13.

[6] Rahmawati and S. Merlinda, "The effect of perceived benefits,ease of use, and risk on culinary MSMEs' interest in utilizing QRIS," J. Bus. Bank., vol. 14, no. 1, pp. 19–38, Oct. 2024, doi: 10.14414/jbb.v14i1.4674.

[7] R. A. Wardhani, Y. Arkeman, and W. J. Ermawati, "The Impact of Quick Response Adoption of Payment Code on MSMEs' Financial Performance in Indonesia," Int. J. Soc. Serv. Res., vol. 3, no. 3, pp. 869–878, Mar. 2023, doi: 10.46799/ijssr.v3i3.294.

[8] V. Sarasi, D. S. Nugraha, A. Fadillah, S. Aulia, J. I. Farras, and M. Fahri Setiono, "Improving zakat management with QRIS: A system thinking approach to boost financial literacy and inclusion," J. Islam. Econ. Lariba, vol. 11, no. 1, pp. 333–356, June 2025, doi: 10.20885/jielariba.vol11.iss1.art13.

[9] D. Putri Metri, "Advancing Msmes Through Global Integration and Cross-Border Connectivity: Opportunities for Qris-Based Payment Code Development," Eduniy Kaji. Ilmu Sos. Dan Pendidik., vol. 3, no. 1, pp. 113–125, Jan. 2024, doi: 10.57096/edunity.v3i1.221. "Ismayadi.pdf."

[10] J. Jusman and I. Fauziah, "Receptiveness of QRIS as a Digital Payment Among MSME in Palopo City," Interdiciplinary J. Hummanity Inj., vol. 3, no. 10, pp. 718–728, Oct. 2024, doi:10.58631/injurity.v3i10.1234.

[11] M. Hawkins, G. R. Elsworth, E. Hoban, and R. H. Osborne, "Questionnaire validation practice within a theoretical framework: a systematic descriptive literature review of health literacy assessments," BMJ Open, vol. 10, no. 6, p. e035974, June 2020, doi: 10.1136/bmjopen-2019-035974.

[12] J. R. C. Phillips, "Implementing Social and Emotional Learning in Rural Colorado Schools: A Quantitative Study of the Impact of Impetuses and Challenges". "Metodologi Penelitian Kuantitatif".

[13] S. Sani, "Micro, Small and Medium Enterprises in Nigeria: Trend Analyses of Growth, Contributions and Challenges using SMEDAN and NBS Survey Reports," Baze Univ. J. Entrep. Interdiscip. Stud., Apr. 2024, doi: 10.61955/NGHMXQ.

[14] M. M. Ridhwan, K. Ramadhan, A. Ismail, and A. Suryahadi, "How Financial Digitalization Affects Business Performance and Business Innovation in Ultra-Micro, Micro, and Small Enterprises: Evidence from Indonesia," 2024, SSRN. doi: 10.2139/ssrn.4975776.

[15] L. N. Nafidah and L. W. Hidayati, "Pengaruh Sistem Pembayaran Non Tunai QRIS Dalam Meningkatkan Akuntabilitas Melalui Pencatatan Laporan Keuangan," Behav. Account. J., vol. 6, no. 2, pp. 17– 32, Dec. 2023, doi: 10.33005/baj.v6i2.367.

[16] D. Hanggraeni, "Investigating the Adoption of QR Code Indonesian Standard through Organizational and Environmental Factors and Its Impact on Micro Small Medium Enterprise Performance," vol. 14, no. 3, 2022.

[17] A. Rachman, N. Julianti, and S. Arkoyah, "Challenges and Opportunities for QRIS Implementation as a Digital Payment System in Indonesia," EkBis J. Ekon. Dan Bisnis, vol. 8, no. 1, pp. 1–13, June 2024, doi: 10.14421/EkBis.2024.8.1.2134.

[18] R. M. Utami, R. Novianty, and M. Muis, "Pengaruh Merchant Discount Rate terhadap Retensi QRIS pada UMKM Kec. Tanete Riattang Tinjauan dari Perspektif Ekonomi Islam," ECo-Fin, vol. 7, no. 1, pp. 404–415, Feb. 2025, doi:10.32877/ef.v7i1.2139.

[19] E. Mualifah and R. S. Muharrami, "Service Quality, MDR, Ease of Use, QRIS User Satisfaction in Surakarta City Micro Businesses," Proceeding ISETH Int. Summit Sci. Technol. Humanity, pp. 145–156, Jan. 2025, doi: 10.23917/iseth.5356.

[20] S. A. Hendrawan, Afdhal Chatra, Nurul Iman, Soemarno Hidayatullah, and Degdo Suprayitno, "Digital Transformation in MSMEs: Challenges and Opportunities in Technology Management," J. Inf. Dan Teknol., pp. 141–149, June 2024, doi: 10.60083/jidt.v6i2.551.