

# Improving MSME Digital Literacy through the Implementation of QRIS as a Cashless Payment Solution in the Digital Economy Era

Vingkan Andini\*, Rahmad Badri, Yauma Afriyanti, Nurul Fadilah, Siti Aisyah

Universitas Islam Negeri Sumatera Utara, Indonesia

Email: [vingkanandini5@gmail.com](mailto:vingkanandini5@gmail.com)

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## ABSTRACT

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### Keywords:

Digital Literacy, MSMEs, QRIS, Cashless Payment, Digital Economy

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### \*Corresponding Author

This study aims to analyze the implementation of the Quick Response Code Indonesian Standard (QRIS) as a non-cash payment solution and a means of enhancing digital literacy among MSMEs. The research background is based on the low level of digital understanding among rural MSME actors, limited infrastructure, and the dominance of cash transactions, despite the belief that QRIS can improve transaction efficiency and expand market access. The study employs a qualitative approach with a case study design through in-depth interviews, observations, and documentation, supported by thematic data analysis using source and method triangulation. The findings reveal that the implementation of QRIS provides tangible benefits, including increased digital knowledge and skills among MSME actors, improved transaction efficiency, and greater business development opportunities. Young consumers demonstrate high enthusiasm for digital payments, while older age groups tend to prefer cash transactions. The main challenges include limited digital literacy, uneven internet network coverage, and cultural resistance to cashless transactions. This study concludes that QRIS not only functions as a payment instrument but also as a digital transformation medium in supporting the digital economic transformation of MSMEs.

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## INTRODUCTION

The development of digital technology has brought significant changes to nearly all aspects of life, including the economic sector. Digital transformation has driven the emergence of various innovations in transaction systems, one of

which is the non-cash payment method considered faster, more practical, and more secure than conventional payments (Setiadi & Putra, 2021; Kredina, 2021). In response to this need, Bank Indonesia introduced the Quick Response Code Indonesian Standard (QRIS) in 2019 as a national standard for QR code-based digital payments (Febriani et al., 2021; Rachman et al., 2024). This policy aims to create a universal, inclusive, and efficient payment system that can reach all segments of society and business actors (Nugroho, 2022).

In the context of the national economy, Micro, Small, and Medium Enterprises (MSMEs) hold a highly strategic position. Data from the Ministry of Cooperatives and SMEs shows that MSMEs contribute more than 60% to the Gross Domestic Product (GDP) and absorb over 97% of Indonesia's workforce. However, despite their significant contribution, MSMEs still face serious challenges, including limited digital literacy, inadequate access to technology, and slow adoption of innovations in modern payment systems (Hidayat & Rahmawati, 2021). In fact, the implementation of QRIS is believed to enhance MSME competitiveness, expand market reach, and promote financial inclusion in the digital era (Rahmawati & Haryanto, 2022).

This phenomenon is also evident among MSMEs in Jaharun B Village, Galang District, Deli Serdang Regency. Although the local trade and service sectors show promising potential, most business owners still rely on cash transactions and are unfamiliar with digital payment systems. The lack of socialization, low technological understanding, and a strong cultural habit of using cash have become major barriers to QRIS adoption at the village level. In fact, QRIS usage not only improves transaction efficiency but also opens up wider marketing opportunities particularly in reaching millennial and Gen Z consumers who are more accustomed to digital services (Pratama, 2023).

Therefore, enhancing digital literacy through the implementation of QRIS among MSMEs in Jaharun B Village is essential to study. This effort will not only accelerate the digital transformation of small enterprises in rural areas but also strengthen local competitiveness, improve village economic resilience, and support the national agenda of creating an inclusive and sustainable digital payment ecosystem (Susanti, 2023; Zakariya & Arifin, 2025). Although previous studies have discussed QRIS adoption and its role in promoting financial inclusion, most of these studies focus on the technical aspects of QRIS use, consumer and merchant adoption rates, or the effectiveness of Bank Indonesia's policies in promoting cashless payments (Rahmawati & Haryanto, 2022; Pratama, 2023; Rafiani et al., 2024). Some other studies highlight the benefits of QRIS for urban business actors, who generally have stable internet access, better technological understanding, and higher levels of digital literacy.

However, there remains a research gap regarding QRIS implementation among rural MSMEs, particularly in relation to their digital literacy. Research that specifically examines how digital understanding, attitudes, and skills of rural MSME actors influence the success of QRIS implementation is still very

limited. In Jaharun B Village, Galang District, for instance, the community has considerable economic potential, yet faces obstacles such as low digital awareness, limited access to information, and the prevailing habit of using cash for daily transactions. This condition has received little attention in academic literature, making it an important research gap to address.

In terms of novelty, this study contributes by integrating an analysis of MSME digital literacy improvement with the implementation of QRIS within a rural economic context. The study does not merely assess QRIS as a non-cash payment instrument but positions it as a medium for digital education among MSMEs helping them improve transaction efficiency, expand market reach, and adapt to the digital economy. Therefore, this research provides a new perspective on the role of QRIS not only as a transactional tool but also as a medium for MSME digital literacy transformation at the village level. Furthermore, the findings are expected to offer practical contributions to formulating digital literacy-based MSME empowerment strategies in rural areas, while strengthening government programs aimed at expanding an inclusive and sustainable digital payment ecosystem.

## **METHOD**

This study employs a qualitative approach with a case study design. This approach was chosen because the research aims to gain an in-depth understanding of how the implementation of QRIS contributes to enhancing the digital literacy of MSME actors in Jaharun B Village, Galang District. The case study design is considered relevant as it allows the researcher to describe social phenomena contextually and provides a more comprehensive understanding of the dynamics within small business communities in rural areas (Creswell, 2018).

The research was conducted in Jaharun B Village, which possesses local economic potential through MSMEs but still faces limitations in utilizing digital technology. The study subjects include MSME actors who have and have not yet adopted QRIS in their business activities. In addition, the research also involves village officials, banking institutions or QRIS service providers, and local consumers as supporting informants to obtain richer and more diverse data.

Research informants were selected using a purposive sampling technique, which involves choosing participants based on specific considerations relevant to the research focus, such as business scale, experience in using QRIS, and level of involvement in digital transactions. To broaden the data scope, the researcher also applied a snowball sampling technique by adding informants through recommendations from initial participants who are connected to the research issue.

Data were collected through in-depth interviews with informants to explore their experiences, understanding, and challenges in using QRIS. Furthermore, direct field observations were conducted to examine transactional practices and the existing supporting infrastructure. Documentation in the form

of notes, reports, and statistical data related to MSME development and QRIS implementation was also used to strengthen the findings.

The collected data were analyzed using thematic analysis techniques as proposed by Miles, Huberman, and Saldaña (2014). This analysis involves data reduction to identify and select essential information, data presentation in a structured narrative form, and conclusion drawing based on emerging themes. Through this process, the study aims to uncover patterns, meanings, and relationships between MSME digital literacy and QRIS utilization within the context of the rural digital economy.

To ensure the validity of the data, this study employs source and method triangulation techniques. Source triangulation was conducted by comparing information obtained from MSME actors, village officials, bank representatives, and consumers. Method triangulation was achieved by combining interviews, observations, and documentation. The application of triangulation is expected to enhance the credibility of the research findings and ensure that the results accurately reflect real field conditions objectively.

## **FINDING AND DISCUSSION**

### **Implementation of QRIS in MSME Transactions**

The community service research indicate that the implementation of QRIS among MSMEs in Jaharun B Village has begun to produce positive impacts on business transaction patterns. Most MSMEs participating in the program have been introduced to QRIS usage through socialization and technical assistance facilitated by the research team in collaboration with banking institutions. The application of QRIS can be seen in the provision of QR codes displayed at kiosks, food stalls, and small shops, enabling consumers to make non-cash payments directly via digital wallet applications.

From the business owners' perspective, most reported that using QRIS makes it easier to record transactions since payments are automatically deposited into their connected bank accounts. Some also experienced improved efficiency, particularly by reducing errors in giving change and saving transaction time. However, several technical challenges remain, such as limited internet connectivity in certain areas and the initial lack of understanding among MSME actors on how to operate the application. Nonetheless, after receiving assistance, business owners gradually adapted and showed a positive attitude toward QRIS as a new payment method.

Consumers' responses to cashless payments via QRIS were also diverse. Younger consumers—especially students and young workers—showed high enthusiasm, viewing QRIS as more practical, secure, and aligned with their digital habits. In contrast, older consumers tended to feel more comfortable using cash, although some began to adopt QRIS after business owners explained its benefits. This indicates a gradual shift in transaction culture within the rural community—from predominantly cash-based practices toward progressive

adoption of digital payments.

The findings reveal that QRIS implementation provides not only practical transactional benefits but also serves as a means of digital literacy education for MSME actors and consumers. The adoption of QRIS has opened opportunities for MSMEs in Jaharun B Village to become better prepared for the challenges of the digital economy, although continuous mentoring is still needed to ensure more optimal and widespread adoption across all social groups.

The results of field observations align with the findings from interviews with MSME actors in Jaharun B Village, showing that most business owners benefited from using QRIS in their transactions. One grocery store owner stated that QRIS payments simplified financial recording and reduced the risk of miscalculations. However, the owner also highlighted initial challenges, particularly related to technical understanding and the need for a stable internet connection. This aligns with field observations that some MSMEs remain hesitant to adopt QRIS due to limited digital skills and network infrastructure.

Meanwhile, interviews with village officials confirmed that the QRIS implementation program had been supported through socialization activities conducted jointly with banking institutions. Village authorities viewed QRIS implementation as consistent with government efforts to promote digital transformation and enhance public literacy. However, they acknowledged that some residents—especially small business owners—are still accustomed to cash transactions, emphasizing the need for ongoing assistance. This finding corresponds with researchers' observations that several MSME actors felt more comfortable receiving cash directly rather than using digital transactions.

Interviews with consumers also revealed differing responses based on age groups. Younger consumers—particularly students and university learners—expressed a preference for QRIS transactions because they are faster, safer, and aligned with their habit of using digital financial applications. Conversely, older consumers still preferred cash payments, considering them simpler and easier to understand. These findings correspond with field observations showing that QRIS transactions are more common among younger consumers, while older customers continue to rely on cash. From the three sources above, it can be concluded that QRIS implementation in Jaharun B Village has provided tangible benefits for MSMEs and younger consumers, although challenges remain, including limited digital literacy, inadequate internet infrastructure, and the community's persistent cash-based habits.

Referring to both the research findings and the supporting literature, it can be concluded that QRIS implementation in Jaharun B Village serves a dual function: first, as a practical instrument for transaction efficiency; and second, as a medium for digital literacy learning among business owners and the wider community. Although challenges remain—such as limited literacy, infrastructure constraints, and entrenched cash-based habits—strategies involving technical mentoring, cross-generational education, and the

strengthening of the digital ecosystem are believed to accelerate a more inclusive and sustainable transition toward non-cash transactions at the village level.

### The Impact of QRIS

Community service research indicate that the implementation of the Quick Response Code Indonesian Standard (QRIS) has had a tangible impact on improving the digital literacy of Micro, Small, and Medium Enterprises (MSMEs) in Jaharun B Village, Galang District. In terms of knowledge, most MSME actors who previously lacked an understanding of digital transactions have now begun to recognize the functions, benefits, and mechanisms of using QRIS. They have come to realize that QRIS is not merely a payment tool but also a means to manage finances more transparently and accountably.

From a skills perspective, training and socialization activities on QRIS have helped business owners master technical procedures, starting from merchant registration, application usage, to managing digital transaction reports. Although some initially faced difficulties, over time they showed improved ability in operating payment applications, and some even began utilizing additional features to monitor their daily turnover.

In terms of transaction efficiency, the use of QRIS has proven to accelerate the payment process and minimize risks associated with cash handling, such as incorrect change, loss, or the need for small denominations. Field observations also revealed that QRIS-based transactions tend to be more practical and are preferred by younger consumers who are accustomed to a cashless lifestyle.

Moreover, the implementation of QRIS has opened business development opportunities for MSMEs. Through digital payments, entrepreneurs can reach a broader range of consumers, including those from outside the region who are more accustomed to non-cash payments. Several MSMEs have even started designing digital-based promotional strategies to expand their market reach. This indicates that QRIS not only affects daily transactions but also serves as a gateway for broader digital transformation among MSMEs.

**Table 1. The Impact of QRIS Implementation**

Aspects	The Impact of QRIS Implementation
Knowledge	MSMEs are beginning to understand the functions, benefits, and mechanisms of using QRIS; understand that QRIS helps financial transparency and accountability.
Skills	The training helps MSMEs master technical procedures such as merchant registration, application use, and digital transaction report management; operational capabilities improve over time.
Transaction Efficiency	Faster payment processing; reduce the risk of money miscalculation, money loss, and the need for change; Preferred by young consumers who are used to cashless.
Business Development Opportunities	Expanding the reach of consumers including from outside the region; encourage MSMEs to create digital promotion strategies; to be the gateway to a wider digital transformation.

The results of this study affirm that the application of QRIS can enhance MSME digital literacy in terms of both knowledge and skills, while simultaneously improving efficiency and creating new business opportunities. However, the success of implementation still requires ongoing support in the form of education, training, and technological infrastructure to ensure that the benefits are evenly distributed among all business actors.

Observational findings are consistent with interview results from MSME actors in Jaharun B Village, which show significant changes in digital literacy and transaction efficiency through QRIS implementation. A food stall owner stated that using QRIS helps automatically record daily income without manual bookkeeping, making it more organized and transparent. However, he also admitted to initial difficulties due to unfamiliarity with digital applications and required guidance to understand QRIS features. This aligns with field observations showing that while many MSME actors have become proficient in using QRIS, some still face technical challenges and limited internet access.

Meanwhile, interviews with traditional market vendors emphasized that QRIS simplifies customer transactions, particularly in resolving issues related to giving change—a common challenge in traditional markets. They noted that transactions became more practical and faster, improving customer turnover. Nevertheless, some customers were still reluctant to use QRIS because they were more comfortable with cash payments. This finding corresponds with field observations showing that although transaction efficiency has improved, parts of the community have not yet fully adopted digital payment practices.

Particularly university students shopping at local MSMEs, revealed positive responses toward QRIS usage. They felt more comfortable using digital payments because they are fast, secure, and align with their daily use of digital wallets. Conversely, older consumers preferred cash payments, considering them easier to understand and less concerning in terms of technology. These findings are consistent with observations that QRIS adoption is more prevalent among younger generations, while older age groups still maintain cash-based habits. From these three data sources, it can be concluded that QRIS implementation in Jaharun B Village has positively impacted MSME digital literacy and transaction efficiency while also opening new business opportunities. However, challenges remain, including limited digital literacy among some MSME actors, inadequate internet infrastructure, and a persistent cash-based transaction culture.

### **Evaluation and Impact of the Parenting**

The strategies for enhancing digital literacy through non-cash payment systems among MSMEs in Jaharun B Village are essential to strengthen understanding and ensure the sustainability of QRIS usage. Field interviews and observations revealed that although most MSME actors are aware of the benefits

of QRIS, challenges persist in maintaining consistent use, primarily due to limited technical knowledge, lack of ongoing assistance, and the community's continuing preference for cash transactions.

Strategic efforts to address these challenges encompass three main aspects. First, continuous education through training and socialization programs should not only introduce QRIS usage but also emphasize its long-term benefits, such as more organized financial record-keeping, increased business credibility, and opportunities to access formal financial services. This strategy aligns with the MSMEs' need to develop digital literacy that extends beyond technical skills toward conceptual understanding.

Second, technical assistance and infrastructure support are vital to help MSME actors gain confidence in using QRIS. Several business owners expressed the need for facilitators who could provide hands-on guidance when facing difficulties, particularly for those unfamiliar with digital financial applications. Additionally, improving internet access and providing basic technological tools would strengthen the sustainability of QRIS use at the local level.

Third, strengthening the digital transaction ecosystem through collaboration between village authorities, banks, and community organizations is crucial. Village officials play an important role in raising community awareness, while banking institutions can offer incentives or special programs for active merchants. Meanwhile, collaboration among MSMEs can foster positive habits in using QRIS, creating a supportive environment for long-term adoption.

The strategy for enhancing digital literacy through non-cash payment systems should not only focus on initial training but also emphasize habituation, continuous mentoring, and sustainable digital ecosystem development. Thus, QRIS implementation in Jaharun B Village serves not only as a technical payment solution but also as a medium for digital transformation that strengthens MSME competitiveness in the digital economy era.

## **Discussion**

The results of this community-based research in Jaharun B Village further demonstrate that QRIS implementation among MSMEs has had a positive impact on the transaction patterns of both business owners and consumers. This finding is consistent with Jusman and Fauziah (2024), who assert that financial technology—particularly digital payment systems—enhances financial management efficiency among young generations and business actors, as it is more practical and minimizes calculation errors. In the context of MSMEs in Jaharun B Village, the ease of transaction recording directly linked to business accounts reinforces the argument that QRIS serves not only as a transaction medium but also as a tool for improving financial literacy.

Additionally, Nugroho and Sari (2023) found that QRIS-based payment systems accelerate financial inclusion in the MSME sector, despite challenges

related to digital literacy and infrastructure limitations. This aligns with field findings showing initial barriers such as limited technical understanding and unstable internet connectivity. However, after socialization and assistance, most MSME actors became more familiar with QRIS and demonstrated positive attitudes, reinforcing the notion that continuous mentoring is key to successful digital transformation in the micro sector.

From the consumer perspective, the finding that younger generations adopt QRIS more readily than older consumers aligns with Pratama (2022), who notes that digital financial technology adoption is strongly influenced by age and habits. Younger generations accustomed to digital applications are more receptive to cashless innovations, whereas older individuals tend to maintain traditional cash-based preferences. Therefore, cross-generational education strategies are necessary to ensure an inclusive transition toward digital payment culture. Furthermore, support from the village government through socialization and collaboration with banks corresponds, synergy among government, financial institutions, and local communities is a critical factor in the successful implementation of digital payment systems in rural areas (Sari & Adinugraha, 2021; Safari et al., 2024). Such synergy has begun to develop but still needs strengthening through continuous educational programs to reduce public resistance to digital transactions.

MSME actors who were initially unfamiliar with digital payment systems have gradually gained an understanding of QRIS functions, mechanisms, and benefits, particularly regarding transparent financial management. Financial technology adoption enhances digital transaction comprehension and accountability (Putrevu & Mertzanis, 2024; Adewale et al., 2022; Friday et al., 2022). Improvements in technical skills also reflect the conclusions of Nugroho & Sari (2023), as continuous training and assistance helped MSME owners overcome initial difficulties in application use and eventually utilize advanced features for sales monitoring. Likewise, the increased efficiency of QRIS-based transactions supports Fadilah et al. (2023), who highlight faster payments, reduced cash-related risks, and improved consumer convenience.

Furthermore, QRIS adoption has opened new business development opportunities, consistent with Dewi & Firmansyah (2022), who note that digital payments expand market reach and support promotional innovation. MSMEs in Jaharun B Village demonstrated this by beginning to attract customers from outside the region and implementing digital marketing strategies, signaling QRIS as a catalyst for broader digital transformation. However, challenges such as limited internet access, varying digital literacy levels, and a persistent preference for cash-based transactions remain obstacles to full adoption. These issues reflect the barriers identified by Alonge et al. (2024), particularly the cultural and infrastructural constraints faced by MSMEs. Therefore, sustained mentoring, improved infrastructure, and intergenerational digital education are essential to ensuring equitable and long-term benefits of QRIS implementation.

The improving digital literacy through non-cash payment strategies is not merely supportive but essential for sustaining QRIS adoption among MSMEs. Despite growing awareness of QRIS's benefits—such as transaction transparency and financial accountability—structural and cultural challenges remain significant. Limited technical knowledge and a persistent reliance on cash reflect the barriers identified by Sari and Handayani (2021), indicating that QRIS implementation is often constrained not by lack of interest but by readiness gaps. Continuous education, therefore, becomes a transformative mechanism. Literacy improvement must extend beyond procedural training to cultivating an understanding of long-term advantages, including better financial reporting and increased access to formal financing (Lestari et al., 2024; Abdallah et al., 2025). The experience in Jaharun B Village mirrors this pattern, as MSMEs began to appreciate QRIS as a tool for improving business credibility, even though sustained mentoring remains necessary during early adoption stages.

Moreover, the success of QRIS adoption in Jaharun B Village illustrates the critical role of technical support, infrastructure, and collaborative governance. Practical assistance from facilitators—emphasized by Fadilah et al. (2023)—proved instrumental in building MSME confidence, demonstrating that financial technology uptake improves significantly when entrepreneurs can rely on immediate, hands-on guidance. This reliance on external support underscores the vulnerability of MSMEs to infrastructure limitations, particularly unstable internet access, which Dewi and Firmansyah (2022) identified as a core determinant of digital payment sustainability. Beyond technical enablers, a robust digital transaction ecosystem requires coordinated involvement from multiple stakeholders. The alignment with Lestari et al. (2024) is evident: support from village officials, community networks, and banking institutions in Jaharun B Village created an encouraging environment that normalized QRIS usage and strengthened MSME participation. Digital literacy improvement is most effective when approached holistically—combining education, infrastructure readiness, and multi-stakeholder collaboration to embed financial technology into daily business practices.

Research findings in Jaharun B Village indicate that QRIS implementation has important implications for the development of the digital ecosystem in the rural MSME sector. Increased digital literacy, changes in transaction patterns, and the ability of MSMEs to utilize digital financial features indicate that cashless payment technology can be a catalyst for local economic transformation. However, findings related to infrastructure limitations, digital capability gaps among business actors, and a culture of cash-based transactions indicate that QRIS adoption depends not only on technology but also on social, cultural, and institutional readiness. Further research is recommended to explore the social and cultural factors that influence resistance to digital payment systems as a research recommendation, so that policy interventions can be formulated more precisely.

## CONCLUSION

The implementation of QRIS among MSMEs in Jaharun B Village has been proven to have a positive impact in enhancing digital literacy, improving transaction efficiency, and creating new business development opportunities. QRIS simplifies financial record-keeping, reduces the risk of miscalculations, and is preferred by younger consumers who are accustomed to digital payments. However, its implementation still faces several challenges, including limited digital literacy, uneven internet infrastructure, and the community's persistent habit of using cash. These findings imply the importance of continuous education, technical assistance, and the strengthening of the digital transaction ecosystem through collaboration among village governments, banking institutions, and MSME communities. Nonetheless, this study has limitations in terms of its narrow geographical coverage and differences in acceptance levels among consumer generations. Therefore, further efforts are needed in the form of regular training, improvements in digital infrastructure, and broader research coverage to ensure that the implementation of QRIS can be optimized and sustained in supporting the digital economic transformation of MSMEs.

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