

ANALYSIS OF QRIS IMPLEMENTATION IN IMPROVING TRANSACTION EFFICIENCY FOR MICRO ENTERPRISES IN SIHUIK-HUIK VILLAGE, SOUTH TAPANULI

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ABSTRACT

The Community Service Program (KKN) of the Faculty of Economics and Islamic Business at the State Islamic University of North Sumatra, conducted in Sihuik-huik Village, South Tapanuli, serves as a form of community empowerment focusing on digital-based economic development through the implementation of QRIS. This initiative was developed in response to low levels of digital literacy and limited technological adaptation among micro-business owners in utilizing digital systems to facilitate financial transactions. QRIS (Quick Response Code Indonesian Standard) was introduced as a payment instrument to expand market access and simplify transactions between micro enterprises and consumers. This study employs a community organization approach emphasizing active collaboration between the implementation team and micro-enterprise actors in the village. This method was chosen due to its effectiveness in fostering engagement, supporting adaptation processes, and strengthening users' capacity to apply digital payment technology such as QRIS. The findings indicate that the community demonstrated improved understanding of digital systems and successfully began utilizing QRIS-based payment methods. Several micro-business owners have implemented QRIS in daily transactions, resulting in increased convenience and transaction efficiency for both consumers and business operators. Overall, the program successfully enhanced digital payment awareness and contributed to the adoption of QRIS-based transactions among micro-enterprises.

Keywords: QRIS, digital payment, micro-enterprises, transaction efficiency, financial technology

INTRODUCTION

The rapid advancement of digital technology has driven a transformation in payment systems across Indonesia. One of the significant innovations is the Quick Response Code Indonesian Standard (QRIS), initiated by Bank Indonesia as a national standardized QR-based payment method. QRIS was developed to enhance efficiency, security, and financial inclusion, particularly for Micro, Small, and Medium Enterprises (MSMEs), which often face barriers in accessing conventional financial services (Soleha et al., 2025). Existing studies indicate that standardized payment systems have broadened access to digital financial services and helped MSMEs adapt to financial technology.

Previous research also highlights that QRIS adoption not only improves transaction speed but may also contribute to increased MSME revenue. For example, a study conducted

by the Sekolah Tinggi Ilmu Ekonomi Lhokseumawe shows a significant increase in MSME income following QRIS utilization (Chyntia et al., 2025). Meanwhile, a study on culinary MSMEs in Bogor by Sinaga et al. (2025) reveals that QRIS implementation is highly effective in terms of user comprehension, transaction convenience, and financial record management.

However, QRIS adoption among MSMEs continues to face several challenges, including low digital literacy, unstable internet connectivity, and transaction fees that are perceived as burdensome for small-scale entrepreneurs (Turi & Syahrir, n.d.). Furthermore, Dwihandoko (2025) noted that despite improved transaction monitoring and system efficiency, ongoing education and digital infrastructure enhancement remain necessary to strengthen adoption. As societies transition toward a cashless economy, technological advancements continue to reshape community transaction behavior (Ekonomi & Ganesh, 2022).

Sihuik-huik Village in South Tapanuli represents a rural area where most MSMEs still rely heavily on cash-based transactions. Implementing QRIS in such settings holds potential to increase operational efficiency, reduce cash-handling risks, and strengthen local financial inclusion. Nonetheless, research specifically addressing QRIS adoption in rural villages remains limited, particularly regarding its impact on transaction efficiency.

Digital financial systems are increasingly seen as viable alternatives to cash payments, and government policies continue to support the shift toward electronic payment systems (Afifa & Yarham, 2023). Although QRIS has shown potential in increasing business turnover, its impact varies depending on business scale and user adaptation (Siregar et al., 2025). QRIS also promotes transparency and improves public understanding of the benefits and risks associated with digital transactions (Kenaikan et al., 2024). As a standardized system integrating multiple e-wallet services under one QR platform, QRIS provides ease, speed, and security for both merchants and customers (Bisnis, 2020; Economic & Journal, 2025). The adoption of cashless payments continues to increase, especially in traditional markets supported by e-wallet integration (Gainau & Engko, 2024).

Given the diverse micro-enterprise potential in Sihuik-huik Village, yet limited digital payment adaptation, this context holds academic and practical value. QRIS application in rural MSMEs is influenced not only by infrastructure availability but also by user readiness, customer acceptance, and business environmental support.

Based on this review, the present study aims to analyze how QRIS implementation improves transaction efficiency among micro-enterprises in Sihuik-huik Village. A qualitative approach is employed to explore user experiences, perceptions, and barriers during implementation. The findings are expected to contribute insights for policymakers, financial institutions, and community stakeholders to accelerate digital payment transformation in rural micro-business sectors.

METHOD

This community engagement activity employed a community organization method emphasizing active collaboration between the program team and micro-enterprise actors in Sihuik-huik Village. This approach was selected because it fosters participation, engagement, and capacity-building within the community, particularly in adopting digital payment technologies such as QRIS. The implementation process was carried out in a gradual and

structured manner to ensure that activities were effective, sustainable, and aligned with the needs of micro-enterprise operators in the village.

The population in this study consisted of all micro-enterprise owners in the village, while the sample was determined using purposive sampling based on several criteria: active business operation, prior use of QRIS as a payment tool, and willingness to participate in both pre-test and post-test assessments. Based on these criteria, the study involved various micro-business operators, including food vendors, grocery store owners, and other small-scale enterprises.

The initial stage involved mapping the MSME environment through direct field observation and informal discussions with business owners. Key issues identified included limited digital literacy, lack of understanding regarding QRIS functionality, and technical difficulties during transactions. This stage ensured that program implementation aligned with the actual needs of MSMEs. The chosen approach also enabled researchers to explore participants' experiences, perceptions, and attitudes directly through interaction and on-site observation.

1. Research Location and Subjects

The study was conducted in Sihuik-huik Village, South Tapanuli Regency, as the area demonstrates dynamic micro-business development despite limited use of digital payment technology. The research subjects were micro-enterprise operators in the village, including both those who had already adopted QRIS and those newly introduced to it as a payment method.

2. Data Collection Techniques

- In-Depth Interviews**

Semi-structured interviews were conducted with micro-enterprise actors to obtain information regarding their experience using QRIS, level of understanding, perceived benefits, and challenges encountered. This format allowed flexibility for deeper exploration of responses.

- Field Observation**

Researchers conducted direct observations of transactional activities at business locations. This method aimed to examine how QRIS was applied in daily transactions and understand consumer responses to QRIS-based payments.

- Documentation**

Supporting documents such as transaction records, field notes, and photographs were collected to strengthen the findings and provide real-world evidence of implementation conditions in the field.

RESULTS AND DISCUSSION

Findings from observations and interviews indicate that prior to the mentoring process, most micro-enterprise actors in Sihuik-huik Village had limited understanding of the functions and operational mechanisms of QRIS. Many believed that digital payment systems were only suitable for large-scale businesses and required expensive equipment. Consequently, interest in adopting digital technology for daily financial transactions was initially low.

1. Digital Literacy Level and MSME Capability in Utilizing QRIS

Following the training and socialization activities, a significant increase in understanding was observed among MSME participants. They began to recognize that QRIS could be operated using basic smartphones, and that the registration process was not as complicated as previously assumed. This shift in understanding became a critical foundation for encouraging technological adoption.

The results show that the implementation of QRIS in micro-enterprises in Sihuik-huik Village brought substantial improvements to transaction patterns. Based on pre-test and post-test evaluations, nearly all indicators of transaction efficiency increased.

Before QRIS adoption, all transactions relied entirely on cash payments, resulting in longer service times. Business operators were required to calculate purchase totals manually, prepare exact cash change, and record transactions in handwritten logbooks. This process was inefficient, especially during peak business hours.

After QRIS implementation, dependency on cash decreased significantly. The time required per transaction was reduced, as customers only needed to scan a QR code, allowing payments to be completed within seconds. These improvements demonstrate that QRIS has a direct impact on accelerating transaction flow.

A notable increase was also observed in daily transaction volume. Post-test data showed that many micro-businesses gained more customers after offering digital payment options. Consumers reported feeling more comfortable using QRIS because it eliminated the need to carry physical money and allowed payments through familiar financial applications. In addition, some business owners reported gaining customers from neighboring villages, attributing increased customer reach to QRIS convenience. This suggests that QRIS not only improves internal efficiency but also enhances business competitiveness and expands potential markets.

In terms of financial recordkeeping, QRIS had a substantial impact on accuracy and organization. Previously, manual recording was prone to omission and arithmetic errors. With QRIS, business operators received automated transaction summaries, enabling them to track daily income without manual calculations. Some participants noted that digital summaries improved inventory planning, expenditure tracking, and profit estimation. Thus, QRIS not only increased transaction efficiency but also strengthened basic bookkeeping practices.

Overall, the results indicate that QRIS plays an important role in enhancing operational efficiency among micro-enterprises in Sihuik-huik Village. Improvements were evident in transaction speed, customer volume, financial management, and reduced risk of cash-related errors. However, successful implementation remains influenced by digital literacy levels, internet stability, and consumer readiness. Therefore, QRIS holds strong potential as a digital financial tool for rural micro-enterprise development when accompanied by continuous support and improved digital infrastructure.

2. Impact of Training on Competitiveness, Market Reach, and Business Professionalism

The training provided to MSMEs resulted in measurable improvements in business development, particularly in strengthening competitiveness, expanding market reach, and increasing operational professionalism. Participants gained insights into how digital payment systems such as QRIS could accelerate service transactions, reduce administrative errors, and enhance customer experience.

This improved capability positioned QRIS-adopting businesses ahead of competitors who still relied on traditional cash-based systems. Furthermore, training activities opened broader market access. Participants developed awareness of how digital tools facilitate outreach beyond geographic limitations through online promotion and flexible digital payment methods.

A key outcome of the program was increased business professionalism. Participants demonstrated improved discipline in transaction reporting, inventory management, and documenting financial flows through digital receipts. These improvements contributed to forming a more credible, structured, and modern business image in the eyes of consumers.

3. Challenges and Solutions in Implementing Digital Payment Systems

Despite the positive impacts, several challenges were identified during QRIS implementation. The most significant obstacle was limited digital literacy among business operators. Many participants were unfamiliar with financial applications and required time to adjust. Internet instability in certain areas of the village also resulted in occasional payment delays.

Another challenge came from the consumer side, where some customers remained more comfortable using cash and lacked trust in digital payment systems due to concerns about security and transaction errors. Additionally, some business operators perceived QRIS use as additional workload because it required regular monitoring of transaction histories. To address these challenges, continuous training is necessary to strengthen understanding of QRIS operation, troubleshooting, and financial reporting. Collaboration between local government, banking institutions, and telecommunication providers is also important to improve digital access and network stability. Consumer trust can be increased through public demonstrations, educational materials, and visible signage encouraging digital payments.

Table 1. Summary of Tested Aspects

No Tested Aspect	Pre-Test	Post-Test
1 Knowledge of QRIS mechanism and account creation	48%	89%
2 Understanding of QRIS functions and benefits	42%	80%
3 Ability to operate QRIS application	35%	75%
4 MSME perception of ease of use	40%	90%

Initial test results confirmed limited understanding of QRIS among participants, with many unaware of the differences between QRIS and regular bank transfers. After completing the training and mentoring program, comprehension increased by 40%, demonstrating the effectiveness of the community-based learning approach. Furthermore, 85% of participants became capable of independently registering and operating QRIS, indicating success in hands-on training implementation.

The findings confirm that QRIS implementation significantly improved transaction efficiency in micro-enterprises in Sihuik-huik Village. Service time decreased from approximately 2–3 minutes per transaction to an estimated 10–20 seconds. Daily transaction counts increased from 20–30 transactions to 35–45 transactions after adoption. Consumers expressed satisfaction with faster processing, reduced waiting time, and the elimination of the need to carry physical wallets.

Additionally, QRIS reduced calculation errors, strengthened financial tracking accuracy, and lowered risks associated with handling physical cash. Although technical challenges such as signal disruptions remained, these did not significantly hinder overall transaction flow, as businesses could temporarily revert to cash when needed.

Collectively, the findings demonstrate that QRIS implementation substantially improves transaction efficiency, enhances customer satisfaction, and supports digital financial integration for rural micro-enterprises. This reinforces the value of digital payment transformation as a strategic pathway for strengthening MSME development in rural areas.



Figure 1. Joint documentation of MSMEs

Figure 1 illustrates the implementation of a community service activity focused on the adoption of QRIS-based digital payments among micro enterprises (MSMEs) in Sihuik-huik Village, South Tapanuli Regency. This activity was carried out by a group of university students who acted as facilitators in the process of education, installation, and assistance related to QRIS utilization for local shop owners. The activity reflects the role of university students in promoting payment system digitalization in rural areas, where MSME actors predominantly rely on cash transactions. Through this assistance, business owners were provided with an understanding of QRIS benefits, including transaction convenience, efficiency in financial recording, and improved access to formal financial services. In addition, the activity demonstrated strong enthusiasm and acceptance from MSME owners, as shown by their direct participation in application installation and QRIS verification.

CONCLUSION

The study titled “Analysis of QRIS Implementation in Enhancing Transaction Efficiency among Micro Enterprises in Sihuik-huik Village, South Tapanuli” demonstrates that the utilization of QRIS contributes significantly to improving transaction systems among MSME actors in the village. Based on the pre-test results, the majority of business owners still relied on cash payments, resulting in slower transactions, calculation errors, and frequent queuing. Moreover, daily income recording was not well organized and remained manual, making financial reporting difficult to compile systematically.

Following the implementation of socialization activities, QRIS usage training, and mentoring, the post-test results indicated improvements across all measured aspects. Transaction speed increased as customers were no longer required to prepare cash or wait for change. Security also improved because money no longer exchanged hands directly,

thereby reducing the risk of loss and minimizing recording errors. In terms of convenience, both business owners and customers experienced ease of use, as transactions could be completed simply by scanning a QR code without complex procedures. The most significant improvement was found in the financial recording aspect, where QRIS enabled MSMEs to obtain transactional data automatically and in a more structured format.

These findings confirm that QRIS implementation is highly effective in enhancing transaction efficiency for micro businesses. Beyond accelerating payment processes, QRIS enables MSME actors to establish more accurate and modern financial management systems. Digitalization through QRIS prepares business owners to adapt to technological advancements and strengthens their competitiveness in the digital economy. Therefore, QRIS functions not only as a payment tool but also as a medium for transforming micro-enterprise business practices toward greater professionalism and sustainability.

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