




## Training and Assistance in Creating Product QR Codes and QRIS as an Effort to Increase Income and Competitiveness of MSMEs

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### Abstract

**Background:** MSMEs, or micro, small, and medium-sized businesses, are crucial to economic growth and must constantly innovate to be competitive. MSMEs are urged to implement digital strategies in business operations, especially in marketing and payment systems, in tandem with the quick development of digital technology. In order to increase transaction efficiency and market access, the Indonesian government supports the "Go Digital" campaign, which includes implementing the QRIS and product QR codes.

**Objectives:** This study aims to improve the digital capabilities of MSMEs through training and assistance in the use of QRIS and product QR codes to support business sustainability and increase income.

**Methods:** This community service project involves MSME partners and employs a training and mentoring approach. Information sessions, hands-on demonstrations, and direct instruction on how to utilize barcode scanners, smart cashier apps, and QRIS-based digital payment systems are all part of the curriculum.

**Result:** The study's findings demonstrate that MSME partners can comprehend and apply product QR codes and QRIS to their company operations. Barcode scanners and smart cashier apps have been effectively used by partners to facilitate everyday transactions. While product QR codes enhance inventory management and product information access, QRIS installation makes cashless transactions quicker and more secure. Increased partner revenue and corporate efficiency are two benefits of these advances.

**Conclusions:** MSMEs are effectively assisted in navigating the digital transformation through the use of QRIS and product QR codes through organized training and support. In an increasingly digital market, this initiative boosts competitiveness, ensures business continuity, and improves community welfare.

### A. Introduction

As one of the primary forces behind the country's economic expansion, Micro, Small, and Medium-Sized Enterprises (MSMEs) are vital to the Indonesian economy. MSMEs make up a sizable share of Indonesia's GDP and play a major role in creating jobs. Over 60% of Indonesia's GDP and over 90% of the country's

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workers are employed by MSMEs, according to figures from the Ministry of Cooperatives and SMEs (Zulvikri, 2024).

The significance of digitalization in boosting MSMEs' competitiveness has been emphasized by earlier research and community service initiatives. It has been demonstrated that implementing digital payment systems, like the Indonesian Standard Quick Response Code (QRIS), improves transaction efficiency and fosters MSMEs' economic expansion (Sari & Adinugraha, 2021). According to research by Sari et al., implementing QRIS increases financial inclusion for small firms and enhances customer convenience (Izza & Alamsyah, 2026). QR-based systems assist MSMEs in increasing market access and enhancing administrative administration, according to additional research (Sinaga et al., 2025). However, the integration of product identification systems using Product QR Codes for inventory management and product information is still restricted, and the majority of current projects concentrate more on digital payments and online marketing (Kristia & Ahmadi, 2024).

Enhancing digital literacy and technology capability is necessary to empower MSMEs in a comprehensive and sustainable manner. In order to boost corporate competitiveness in the digital age, the Indonesian government promotes MSMEs to use digital technology, including QRIS, through the "MSMEs Go Digital" initiative, which is supported by the Ministry of Cooperatives and SMEs and Bank Indonesia (Haryanti & Kristianti, 2024).

There are numerous chances to increase MSMEs' operational efficiency through the usage of QRIS and Product QR Codes. MSMEs may offer comprehensive product information, streamline inventory management, and boost product exposure with the use of product QR codes. In the meantime, MSMEs are able to diversify payment methods and digitally record transaction data for business analysis thanks to QRIS, which facilitates quick and safe cashless transactions using a variety of digital banking systems and digital wallets (Sundari et al., 2024).

Many MSMEs still mostly rely on cash transactions and manual product identification systems in spite of these prospects. MSMEs are unable to fully utilize QR-based technologies due to a lack of formal training and limited digital skills. This results in ineffective transactions and poor inventory control, which eventually restricts company expansion in a market that is becoming more and more digital (Syam et al., 2024).

Through organized training and continuing support, this community service initiative offers innovation by concurrently integrating QRIS and Product QR Codes. This program integrates digital payment systems with product identification and inventory management into a single integrated empowerment model for MSMEs, in contrast to other initiatives that only addressed QRIS or digital marketing.

Thus, this program's goal is to provide MSME partners with training and mentoring in the usage of QRIS and Product QR Codes. The specific objectives of this activity are to: (1) enhance MSMEs' digital proficiency with QR-based technology; (2) boost transaction efficiency and product information accessibility; and (3) promote company sustainability and community welfare through digital transformation.

## **B. Methods**

### **1. Target MSMEs**

Micro, Small, and Medium-Sized Enterprises (MSMEs) in Bengkulu City that continued to rely on cash-based transactions and manual financial recording systems were the program's target participants. Problem identification and Focus Group Discussions (FGD), which revealed inadequate digital literacy and restricted adoption of digital payment technologies, served as the basis for partner selection. Prior MSME empowerment initiatives that focused on digital transformation and QRIS adoption employed similar strategies (Kristia & Ahmadi, 2024).

### **2. Implementation Stages**

The three primary phases of the program's implementation were training, mentorship, and socializing.

#### **a. Socialization Stage**

Using QRIS and Product QR Codes, this phase seeks to educate MSME partners about the significance of digital transformation. Presentations and conversations about the advantages of digital payments and QR-based product identification are examples of outreach initiatives. Prior research highlights the importance of awareness and outreach as critical initial stages in enhancing MSMEs' preparedness for digital technology adoption (Rahardjo, 2025).

b. Training Stage

The training portion focuses on practical experience with QRIS and Product QR Codes. Participants receive instruction on how to use the 4Barcode program to create QR codes for their goods and how to use Android devices to use QRIS for digital transactions. Training-based interventions have been shown to be successful in enhancing MSMEs' adoption of technology and digital skills (Sinaga et al., 2025).

c. Mentoring was conducted

Following training, MSME partners receive mentoring to help them apply QR Codes and QRIS in actual business operations. Continuous support is offered to handle technical problems and guarantee that barcode scanners and cashier applications are implemented correctly. Mentoring is crucial to ensuring the sustainability of technology adoption among MSMEs, according to earlier community service research.

### 3. Time of Implementation

The two primary sessions of the four-month community service program were socializing and training, which were followed by mentoring, observation, and assessment. The MSME digitalization program used a comparable timeframe to track changes in transaction procedures and knowledge.

### 4. Tools and Materials

The following tools were utilized in this program:

- a. The Kasir Pro program serves as a smart cashier system for inventory management and transaction recording.
- b. 4 Barcode program for creating barcode labels and QR codes for products.
- c. QRIS BRI is a digital payment platform that uses QR codes connected to Bank Rakyat Indonesia services to facilitate non-cash transactions.

In MSMEs, digital payment tools and smart cashier apps are said to increase consumer convenience, transaction efficiency, and the accuracy of financial records (Zakariya & Arifin, 2025).

### 5. Evaluation Plan

The program's efficacy and MSME partners' degree of technology adoption were assessed. Direct observation, surveys, and a comparison of business practices prior to and following program implementation were among the evaluation techniques used. Participants' comprehension of QRIS usage, their capacity to carry out digital transactions, and their increased transaction efficiency were all indicators of success. Community-based technology adoption projects frequently include assessment techniques based on surveys and observation.

### 6. Limitations of the Program

This application had a number of drawbacks. First, the results cannot be applied to all MSMEs due to the small number of MSME participants. Second, because the mentorship time was brief, it might not accurately represent long-term effects on company success. Third, the program excluded more general digital marketing and e-commerce platforms and concentrated solely on Product QR Codes and QRIS. Previous research on MSME digital empowerment have identified similar difficulties (Utami, 2025).

## C. Results and Discussion

### 1. Results

In partnership with Bank BRI, outreach, training, mentorship, and evaluation activities centered on the usage of Product QR Codes and QRIS are employed to carry out the community service program. Surveys and approval processes are carried out in the first phase to determine the requirements and preparedness of

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MSME partners for digital adoption. To facilitate digital transactions, MSME members receive assistance in setting up savings accounts, ATM cards, and QRIS codes.

Using the 4Barcode app and the Kasir Pro app as a smart cashier system, users are introduced to barcode tools for product identification throughout the training phase. Participants may instantly practice producing QR codes, scanning products, and digitally documenting transactions thanks to the training's practical approach. The procedure of creating a barcode is comparatively quick and can be used right away in regular commercial activities.

MSME partners receive barcode devices, scanners, and QRIS codes during the mentorship phase. To guarantee that these tools and systems are used correctly, ongoing support is offered. In order to determine participant issues and gauge the success of the technology implemented, the last stage entails monitoring and assessment.

The outcomes demonstrate notable advancements in inventory recording and transaction management. MSME owners used to rely on manual registration and handwritten product codes. Partners indicated that Product QR Codes decreased recording errors and streamlined the inventory process following this campaign. Additionally, the deployment of QRIS made cashless transactions quicker and easier, giving consumers flexibility and enhancing data security through private digital records.

In general, MSME partners expressed a great desire to include QRIS and Product QR Codes into their business processes. They stated that they were prepared to maintain business continuity by continuing to use QRIS-based payment systems, cashier apps, and barcode scanners.

## 2. Discussion

### 2.1 Technology Adoption among MSMEs

The successful adoption of digital technology was largely due to the active participation of micro, small, and medium-sized enterprise (MSME) partners in training and mentoring. According to research, MSME owners' adoption of digital payments like QRIS is impacted by their digital literacy, convenience of use, and performance expectations (Santika et al., 2024). In a similar vein, business owners' inability to fully utilize QRIS has been linked to their lack of digital and financial literacy (Ma'nawiyah et al., 2025). In this program, structured training is essential to developing partner competencies.

### 2.2 Digital Payments and Business Sustainability

Bank Indonesia introduced QRIS, a standardized digital payment platform that promotes financial inclusion and inclusive digital transactions for MSMEs (Prawitasari et al., 2024). When QRIS has been implemented in different countries, the amount of digital transactions has increased, cash usage has decreased, and merchant adoption has increased (Nurrokhim et al., 2025). Because QRIS provides ease, convenience, and efficiency, it has been demonstrated that the adoption of digital payments positively affects customer purchasing decisions (Zulukhu & Lattu, 2025).

### 2.3 Operational Efficiency and Financial Management

The integration of digital tools such as QRIS, barcode scanners, and cashier applications contributes to more organized financial records and better decision-making through real-time data. Research shows that digital payments can reduce transaction costs and improve operational efficiency (Umar, 2025). Through this program, partners were able to better monitor inventory, digitize transaction records, and use data to inform strategic business choices.

### 2.4 Broader Social and Economic Trends

MSME owners also pointed out that greater availability to digital technologies and online information was the primary driver of shifts in consumer behavior toward digital transactions. This approach is consistent with the larger trend of digital transformation in Indonesian MSMEs, where implementing QRIS is seen as both a competitive need and a survival tactic (Anggarini, 2022). The significance of outreach and guidance

to enhance digital competitiveness in the MSME sector has also been reported by other community service projects (Kaban et al., 2024).

### 3. Implication

Despite the encouraging outcomes, this study had a number of limitations:

a. Generalization

The results cannot be extrapolated to a larger population because the sample was restricted to MSME partners in a single location.

b. Time frame

The monitoring and guidance were carried out during a somewhat little time frame, which limited the long-term assessment of gains in business performance.

c. Coverage of Digital Tools

The study did not investigate e-commerce integration or other digital marketing channels, instead concentrating mainly on QRIS and QR codes. To evaluate the overall impact, future studies might incorporate a larger digital environment.

d. Assessment Techniques

The assessment is based on participant input and observation. To bolster the proof of impact, future assessments could incorporate quantitative performance criteria like sales growth and transaction volume.

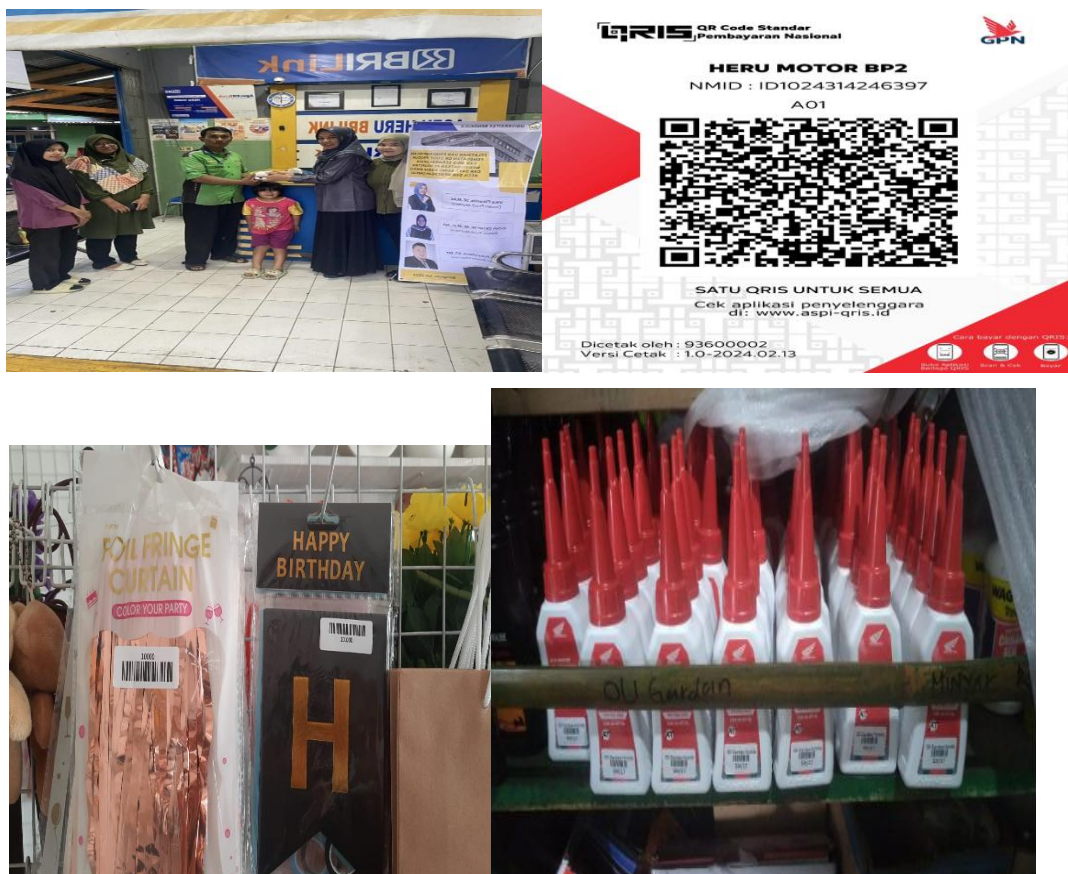


Figure 1. Documentation Activity

The deployment of Product QR Codes and the Indonesian Quick Response Code Standard (QRIS) to assist the digital transformation of Micro, Small, and Medium Enterprises (MSMEs) is documented in Figure 1. The picture shows how Bank BRI and the community service team worked together to assist MSME partners in registering and creating QRIS codes, a standardized digital payment method. This program

demonstrates institutional support for encouraging cashless transactions and bolstering MSMEs' financial inclusion.

The pictures also demonstrate how Product QR Codes affixed to MSME goods on store shelves can be used practically. These QR codes function as digital identifiers that offer product details and make inventory management easier. MSME owners can automatically record transactions, track inventory levels, and create digital sales reports by scanning with a barcode scanner and a smart cashier application (Kasir Pro). This procedure lowers errors that frequently arise in manual accounting systems and increases operational efficiency.

This document also emphasizes how QRIS may be integrated with barcode-based inventory systems to provide MSMEs with a complete digital transaction ecosystem. This connection gives consumers a range of cashless payment choices while facilitating quicker and more secure payment processing. By providing real-time transaction data, QRIS deployment also promotes greater financial transaction transparency and improves company decision-making.

Overall, the data demonstrates that the use of QR-based technology increases MSME partners' competitiveness and digital literacy in addition to transaction efficiency. These results are consistent with earlier research demonstrating that MSMEs' performance and sustainability in the digital economy can be greatly enhanced by systematic training and mentorship in digital payment systems and QR technology.

#### **D. Conclusion**

This community service program has been carried out very successfully, particularly due to the effective and optimal methods, delivery, and hands-on practice implemented. These methods served as an educational and learning medium for MSME participants to understand the use of barcode scanners, QRIS applications, and the Kasir Pintar (Smart Cashier) application. The partner MSMEs expressed that the program brought significant benefits, especially by providing additional insights to ensure the sustainability of their businesses. This activity provided knowledge about digital payment tools and product identification systems. The partners also felt greatly assisted by the use of barcode scanners and QRIS in running their businesses. They were able to identify products more easily and operate their businesses more effectively and efficiently.

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#### **F. Author Contribution Statement**

VF helped with data gathering, manuscript writing, and study design. Data interpretation and analysis was under the purview of IOW. FPU assessed the work and oversaw the research procedure. The final draft of the work was approved by all authors.

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