

Analysis of the Implementation of the QRIS Digital Payment System Policy in Improving the Efficiency and Security of Digital Transactions

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ABSTRAK: Perkembangan sistem pembayaran digital di Indonesia mendorong Bank Indonesia menghadirkan QRIS (Quick Response Code Indonesian Standard) sebagai standar nasional pembayaran berbasis kode QR untuk meningkatkan efisiensi dan keamanan transaksi. Penelitian ini bertujuan menganalisis implementasi kebijakan QRIS di Kota Pekalongan serta dampaknya terhadap efisiensi dan keamanan transaksi digital. Penelitian menggunakan pendekatan kualitatif deskriptif dengan teknik pengumpulan data melalui observasi, wawancara mendalam, dan dokumentasi terhadap pelaku UMKM, konsumen, dan pihak perbankan. Analisis data dilakukan dengan model reduksi, penyajian, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa QRIS meningkatkan kecepatan dan kemudahan transaksi, menekan biaya operasional, serta meminimalkan kesalahan pembayaran. Dari sisi keamanan, QRIS memberikan perlindungan data dan pencatatan transaksi yang transparan, meskipun masih terdapat hambatan berupa keterbatasan literasi digital dan kendala jaringan internet. Disimpulkan bahwa implementasi QRIS efektif meningkatkan efisiensi dan keamanan transaksi digital, dengan saran perlunya penguatan edukasi digital, peningkatan infrastruktur jaringan, dan pendampingan berkelanjutan bagi pelaku usaha guna mendukung transformasi sistem pembayaran yang optimal dan berkelanjutan..

Kata kunci: QRIS; Efisiensi Transaksi; Keamanan Transaksi Digital.

ABSTRACT: The rapid development of digital payment systems in Indonesia has encouraged Bank Indonesia to introduce QRIS (Quick Response Code Indonesian Standard) as a national QR-based payment standard to enhance transaction efficiency and security. This study aims to analyze the implementation of QRIS policy in Pekalongan City and its impact on digital transaction efficiency and security. A descriptive qualitative approach was employed, using observation, in-depth interviews, and documentation involving MSMEs, consumers, and banking institutions. Data were analyzed through data reduction, presentation, and conclusion drawing. The findings indicate that QRIS improves transaction speed and convenience, reduces operational costs, and minimizes payment errors. In terms of security, QRIS ensures data protection and transparent transaction records, although challenges remain, including limited digital literacy and unstable internet connectivity. It is concluded that QRIS implementation is effective in enhancing digital transaction efficiency and security. Strengthening digital literacy programs, improving network infrastructure, and providing continuous assistance for business actors are recommended to support sustainable digital payment transformation.

Keywords: QRIS; Transaction Efficiency; Digital Transaction Security.

1. INTRODUCTION

The development of information technology has brought about major changes in the payment system in Indonesia. Bank Indonesia, as the monetary authority, strives to create efficient, secure, and inclusive payment instruments through its digital payment system policy. One important innovation is the implementation of QRIS (Quick Response Code Indonesian Standard), which unifies various QR codes from banks and payment

system service providers into a single national standard. The presence of QRIS is expected to address the challenges of increasingly complex digital transactions, while supporting the acceleration of digital economic transformation in various regions, including Pekalongan, which is known as a city with a base of MSMEs and batik trade (Deli et al., 2024).

In practice, there are still a number of problems. Some businesses do not fully understand how to use QRIS, limited digital literacy among the public is an obstacle, and there are still concerns about the security of personal data in digital transactions. In addition, although QRIS is claimed to improve efficiency, there has not been much comprehensive research measuring the extent to which this policy actually impacts the speed, transparency, and security of transactions at the local level (Ihsan & Siregar, 2024).

The gap in the literature is evident from the lack of studies linking the implementation of QRIS policies with indicators of digital transaction efficiency and security simultaneously. Most previous studies have emphasized aspects of technology adoption or the impact on financial inclusion, while the dimensions of security and efficiency are often only mentioned in general terms without in-depth analysis. This creates a need for more focused and targeted research to fill this gap (Yuniarti & Herlina, 2025). This study seeks to analyze the implementation of the QRIS policy with an approach that highlights two main aspects: the efficiency and security of digital transactions. By examining empirical data from business actors, consumers, and regulations implemented by Bank Indonesia, this study is expected to provide a realistic picture of the effectiveness of the QRIS policy in the field (Kristanty, 2024).

The motivation for this research stems from the urgency to support digital transformation in the financial sector, while providing relevant policy recommendations for local governments and Bank Indonesia. Pekalongan, as a city with strong creative economy and MSME potential, is the ideal location to test the extent to which QRIS can improve local economic competitiveness through an efficient and secure digital payment system (Muslimawati, 2024). The purpose of this study is to analyze the efficiency level of digital transactions using QRIS, evaluate security aspects in QRIS implementation, and identify supporting and inhibiting factors of QRIS policy in Pekalongan. The research targets are MSME players, consumers, and banking parties directly involved in the QRIS ecosystem (Olivia et al., 2025).

The significance of this research lies in its contribution to the development of academic literature on digital payment systems, while also providing practical benefits for policy makers. The advantages of this research are the availability of recommendations that can be used to improve the effectiveness of QRIS policies, strengthen public confidence in digital transactions, and encourage regional economic growth through a more modern, efficient, and secure payment system (Nanda & Kenedi, 2025).

2. METHOD

This study uses a qualitative approach with a descriptive research type. A qualitative approach was chosen because this study aims to gain an in-depth understanding of the phenomenon of QRIS digital payment system policy implementation and its impact on the efficiency and security of digital transactions from the perspective of those directly involved. Qualitative research focuses on exploring and interpreting the experiences of research subjects, making it suitable for examining the perceptions, experiences, and understanding of business actors and consumers regarding the use of QRIS (Abdussamad & Sik, 2021).

The research was conducted in Pekalongan City, considering that this region is characterized as a trading city and a center for MSMEs that are quite active in utilizing digital payment systems. The research subjects included MSME actors who use QRIS, consumers, and banks or payment system service providers involved in the implementation of QRIS. Informants were determined using purposive sampling, which is selecting informants based on certain criteria, such as actively using QRIS and having experience in digital transactions. This technique was considered appropriate because it was able to produce data relevant to the research objectives (Sugiyono, 2020).

Data collection was conducted through observation, in-depth interviews, and documentation. Observation was used to directly observe the transaction process using QRIS at the research location. In-depth interviews were conducted in a formal, structured manner with informants to explore their perceptions of the convenience, efficiency, and security aspects of using QRIS. The use of various data collection techniques in qualitative research aims to obtain a more comprehensive picture of the phenomenon (Ramdhan, 2021).

The data analysis technique used in this study refers to the Miles and Huberman model, which includes the stages of data reduction, data presentation, and conclusion drawing. In the data reduction stage, researchers sorted and focused the data according to the research theme, namely the efficiency and security of digital transactions. Next, the data was presented in the form of a systematic descriptive narrative. The final stage was drawing conclusions and verification to obtain valid research findings (Sulistiyono, 2023).

Data validity is maintained through method triangulation and source triangulation. Method triangulation is carried out by comparing the results of observations, interviews, and documentation. Meanwhile, source triangulation is carried out by comparing information from MSME actors, consumers, and banking parties. This effort aims to increase the credibility and reliability of the research results (Sugiyono, 2020).

3. RESULT AND DISCUSSION

3.1 Implementation of QRIS Policy at the Local Level

The implementation of the QRIS policy in Pekalongan City shows quite diverse dynamics when viewed from the perspective of business actors, consumers, and payment service providers. Based on field observations and in-depth interviews, most MSME players stated that QRIS facilitates the transaction process because payments can be made instantly without the use of cash. Business players believe that QRIS reduces the hassle of providing change and speeds up customer queues, especially during peak hours. This shows that the payment digitization policy has had a real impact on everyday transactions (Setyowati & Kurniati, 2020)

The adoption rate of QRIS is not yet uniform across all businesses. Older businesses or those with limited technological experience tend to take longer to adapt. Some of them admit that they still need assistance to understand the payment application features, transaction verification processes, and fund withdrawal procedures. This confirms that the success of technology policy implementation depends not only on the availability of the system, but also on the readiness of the human resources using it. In other words, digital transformation is both a social and technological process.

The results of the study show that QRIS provides significant benefits in speeding up the transaction process (Fauzul et al., 2024). Consumers no longer have to worry about counting cash or waiting for change, as payments can be completed simply by scanning a QR code using a digital payment app. Businesses report that the average transaction time is shorter than with conventional payment methods. This time efficiency has a direct impact on business productivity, as more transactions can be processed in a given period.

Ease of use is also an important factor. QRIS is considered easy to operate because the procedure is simple and does not require additional devices. Small businesses that were previously unable to provide electronic payment machines can now accept digital payments simply by printing a QR code. This directly reduces business operating costs. From the consumer's point of view, this convenience also increases the ease of transactions because they can use various payment applications without having to adjust to the seller's system (Chyntia et al., 2025).

Another efficiency gain is seen in the reduced risk of transaction errors. In manual payments, errors in writing the amount or account number often occur. With QRIS, transaction data is integrated into the code, minimizing the potential for input errors. This finding reinforces the theoretical argument that standardized digital systems can improve operational efficiency and transaction accuracy.

3.2 Security Aspects in QRIS Transactions

Perceived security is an important factor in determining the level of public trust in the use of QRIS. MSME players state that they feel safer using digital payment systems because all transactions are automatically recorded in the system. This recording helps them monitor cash flow in real time, thereby minimizing the risk of losing transaction data. Several business players also said that the use of QRIS reduces the risk of losing cash and calculation errors during manual transactions (Husain et al., 2025).

QRIS security is perceived through personal data protection and the assurance that transaction amounts cannot be changed after processing. Consumers state that the authentication system in payment applications, such as the use of PINs or biometrics, provides a sense of security when making transactions. This shows that the elements of confidentiality and integrity in the concept of information security have been felt in a tangible way by users (Kristanty, 2024)

Banks and payment system providers explained that QRIS security is maintained through data encryption, multi-layered verification systems, and regular transaction monitoring. They emphasized that every QRIS transaction goes through a system validation process, thereby minimizing the potential for data manipulation. These findings show that the implementation of QRIS has met information security principles that emphasize data protection, information integrity, and system availability. Several informants expressed concerns about the potential for digital fraud, especially for users who are not yet familiar with the technology. This indicates that security is not only related to technological systems, but also to users' digital literacy.

There are several key factors that support the successful implementation of QRIS at the local level. First, regulatory support and socialization from relevant authorities. Banks have stated that regular educational programs help increase public understanding of the benefits and how to use QRIS. This socialization is considered effective because it is carried out directly to business actors through training, mentoring, and digital counseling. Second, ease of use of the system. MSME players consider that QRIS has simple operational procedures so that it can be used without requiring high technological skills. This ease of use allows business players to adapt more quickly and not feel burdened by the digitization process. Third, increasing consumer preference for non-cash payments. Consumers state that using QRIS is convenient because they do not need to carry cash. This condition indirectly encourages business owners to adopt QRIS in order to meet customer preferences. Fourth, operational cost efficiency. MSME players say that using QRIS does not require additional machines such as EDCs, so the initial investment costs are lower. This is the main reason why small business owners are willing to switch to digital payment systems (Nasution et al., 2025).

3.3 Factors Hindering QRIS Implementation

Although the implementation of QRIS shows positive developments, the study also found several obstacles that are still encountered in the field. The main obstacle is limited digital literacy, especially among older business owners. Informants from this group admitted that they needed more time to understand how to use the payment application, the transaction verification process, and the fund withdrawal mechanism.

The second obstacle is technical issues with the internet network. Several business owners have reported that QRIS transactions sometimes experience delays when the internet connection is unstable. This can disrupt transactions, especially during peak hours when the number of customers increases. The third obstacle is the perception of security risks. Some consumers are still concerned about the possibility of data misuse or digital transaction errors. Even though the system is equipped with security features, the perception of risk continues to affect interest in its use. Another obstacle identified is the limitation of technological devices. Some small businesses do not yet have adequate devices to optimally manage digital payment applications. This shows that the success of digital policy implementation is also influenced by the readiness of user infrastructure (Hawu et al., 2022).

The research also highlights cultural factors and community habits as barriers to QRIS implementation. Some business owners and consumers are still accustomed to using cash payments because they are considered simpler and more tangible. The shift in behavior from conventional to digital transactions requires time, continuous socialization, and support from relevant stakeholders so that society feels comfortable and confident with the new system.

Regulatory aspects and coordination among institutions also play an important role. Several business owners expressed the need for clearer rules regarding QRIS usage, particularly related to transaction fees, consumer protection, and mechanisms for resolving issues when problems occur. Regulatory uncertainty can create hesitation in adopting digital payment technology. The obstacles to QRIS implementation are not only technical but also involve social, cultural, and regulatory factors. This indicates that the success of QRIS adoption requires a holistic approach, including improving digital literacy, strengthening infrastructure, conducting intensive socialization, and ensuring clear and consistent policy support.

3.4 Critical Analysis of Policy Effectiveness

Reference Based on the overall research, the implementation of the QRIS policy can be considered effective in increasing the efficiency of digital transactions at the local level. This effectiveness can be seen from the increased transaction speed, ease of operation, and reduction in payment errors. These findings are in line with the theory of efficiency, which states that a system is considered efficient if it is able to produce maximum output with minimal use of resources. QRIS also shows a fairly high level of effectiveness because it is able to provide data protection and transaction clarity. However, security effectiveness is not only determined by system technology, but also by the level of digital literacy of users. Therefore, the success of the QRIS policy requires synergy between technological readiness, regulations, and human resource capacity.

Beyond efficiency and security, the effectiveness of QRIS must also be examined from the perspective of inclusivity and accessibility. While the system has succeeded in streamlining digital transactions, its benefits are not evenly distributed across all segments of society. Small and micro enterprises, particularly those in rural areas, often face challenges in adopting QRIS due to limited infrastructure and digital literacy gaps. This uneven adoption raises questions about whether the policy truly achieves its intended goal of financial inclusion. A critical analysis therefore suggests that effectiveness should not only be measured by transaction speed or error reduction, but also by the extent to which QRIS empowers marginalized groups to participate in the

digital economy. Without addressing these disparities, the policy risks reinforcing existing inequalities rather than bridging them.

Another dimension of effectiveness lies in the sustainability of QRIS implementation over time. While initial adoption rates and transaction volumes may indicate success, long-term effectiveness requires continuous adaptation to technological advancements and evolving consumer behavior. For instance, as cyber threats become more sophisticated, QRIS must consistently upgrade its security protocols to maintain user trust. Similarly, the system must remain compatible with emerging financial technologies, such as blockchain-based solutions or digital banking platforms, to avoid obsolescence. This highlights that effectiveness is not a static achievement but a dynamic process that depends on ongoing innovation, regulatory responsiveness, and stakeholder collaboration. A policy that fails to evolve risks losing relevance and undermining its own effectiveness in the future.

Policy effectiveness should also be assessed through the lens of governance and institutional coordination. QRIS operates within a broader ecosystem of financial regulations, banking institutions, and consumer protection frameworks. Its success therefore hinges on the ability of regulators, financial service providers, and merchants to work in synergy. Clear guidelines on transaction fees, dispute resolution mechanisms, and accountability structures are essential to ensure that QRIS functions smoothly and transparently. Moreover, effective communication between policymakers and end-users is critical to building trust and encouraging adoption. A lack of regulatory clarity or weak institutional coordination can diminish the perceived reliability of QRIS, thereby reducing its overall effectiveness. Thus, the critical analysis underscores that technological readiness alone is insufficient; strong governance and institutional support are equally vital in determining the success of the policy.

4. CONCLUSION

Based on the results of the study, the implementation of the QRIS (Quick Response Code Indonesian Standard) policy developed by Bank Indonesia in Pekalongan City has shown a fairly good level of effectiveness in improving the efficiency and security of digital transactions. In terms of efficiency, QRIS has been proven to speed up the transaction process, reduce dependence on cash, and reduce the potential for payment amount input errors. MSME players have experienced operational convenience because they do not need EDC machines and incur large additional costs, while consumers have gained convenience through a practical and flexible payment process. This shows that the implementation of QRIS is in line with the theory of efficiency, which is to produce maximum output with minimal use of resources.

The implementation of QRIS has fulfilled the basic principles of information security, which include confidentiality, integrity, and system availability. Automatically recorded transactions, the use of multi-layered authentication, and data encryption systems provide a sense of security for both businesses and consumers. However, the effectiveness of security is not only determined by technological sophistication, but also by the level of digital literacy of users. Some obstacles that are still encountered include limited understanding of technology among certain businesses, internet network constraints, and perceptions of risk associated with digital transactions. Therefore, the success of the QRIS policy requires synergy between strong regulations, infrastructure readiness, and increased human resource capacity so that the transformation of the digital payment system can run optimally and sustainably.

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