

IMPLEMENTATION OF QRIS-BASED PAYMENT GATEWAY IN MOBILE BANKING AND ITS IMPACT ON TRANSACTION SMOOTHNESS OF MSMEs IN COASTAL TOURISM AREAS OF KUPANG CITY

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Abstract

This study analyzes the implementation of a QRIS-based payment gateway through mobile banking applications and its impact on transaction smoothness among micro, small, and medium enterprises (MSMEs) operating in coastal tourism areas of Kupang City. The increasing adoption of cashless payment systems has encouraged MSMEs to integrate digital transactions into daily business activities, particularly in tourism-based economic settings characterized by high transaction intensity. This research employs a qualitative descriptive–interpretative approach, with data collected through semi-structured interviews, direct observations, and documentation involving 100 MSME actors located in Lasiana Beach, Oesapa Beach, Kelapa Lima Beach, and Tedys Beach. Data analysis was conducted using NVivo software following the interactive model of Miles, Huberman, and Saldaña, encompassing data reduction, data display, and conclusion drawing. The findings indicate that QRIS implementation improves transaction speed, efficiency, and convenience, while reducing dependence on cash transactions. MSME actors also perceive QRIS as a secure payment system due to its integration with formal banking institutions. However, challenges such as limited digital literacy, unstable internet connectivity, and insufficient technical assistance hinder optimal utilization. This study highlights the importance of combining digital payment adoption with continuous education and infrastructure support to ensure sustainable digital transformation of MSMEs.

Keywords: *QRIS, payment gateway, mobile banking, MSMEs, transaction smoothness*

INTRODUCTION

The rapid development of financial technology has significantly transformed payment systems, shifting transactions from cash-based methods to digital platforms. One of the most prominent innovations in Indonesia's payment system is the Quick Response Code Indonesian Standard (QRIS), which was introduced to standardize various digital payment services into a single, integrated system. QRIS aims to promote a cashless society, enhance financial inclusion, and support the growth of the digital economy, particularly among micro, small, and medium enterprises (MSMEs). MSMEs play a vital role in regional economic development, including in Kupang City, where economic activities are strongly supported by coastal tourism. Tourism-based MSMEs experience high transaction volumes within short periods, requiring payment systems that are fast, efficient, and reliable. Digital payment systems such as QRIS offer potential solutions by enabling quick and seamless transactions through mobile banking applications. Nevertheless, the adoption of QRIS among MSMEs in coastal tourism areas remains uneven, with varying levels of utilization and effectiveness.

Previous studies have demonstrated that digital payment systems can improve operational efficiency and customer satisfaction among MSMEs. However, most existing research relies on quantitative approaches and focuses on adoption determinants rather than exploring the actual experiences and perceptions of MSME actors. Moreover, limited attention has been given to tourism-based MSMEs operating in coastal areas, where infrastructural constraints and informal business practices may influence digital payment adoption. Addressing this gap, the present study seeks to examine how QRIS-based payment gateways are implemented through mobile banking applications and how MSME actors perceive their impact on transaction smoothness in coastal tourism areas of Kupang City. By employing a qualitative approach supported by NVivo-based thematic analysis, this study provides deeper insights into the benefits, challenges, and contextual factors shaping QRIS utilization. The findings are expected to contribute

to academic discussions on digital payment systems and offer practical implications for banks and policymakers in promoting inclusive and sustainable digital transformation among MSMEs.

LITERATURE REVIEW

Digital Payment Systems and Payment Gateways

Digital payment systems refer to electronic mechanisms that enable financial transactions without the physical exchange of cash. The development of financial technology has accelerated the adoption of digital payments by improving transaction efficiency, security, and accessibility (Dahlberg, Guo, & Ondrus, 2019; Gomber, Koch, & Siering, 2019). Payment gateways function as intermediaries that securely process transactions between consumers, merchants, and financial institutions in real time. For micro, small, and medium enterprises (MSMEs), payment gateways play a strategic role in simplifying transaction processes, reducing cash-handling risks, and enhancing operational efficiency (Hasan & Raza, 2021). However, prior studies emphasize that the effectiveness of payment gateways depends not only on technological availability but also on user readiness and supporting infrastructure (OECD, 2020).

Quick Response Code Indonesian Standard (QRIS)

The Quick Response Code Indonesian Standard (QRIS) is a national standardized QR-based payment system introduced by Bank Indonesia to integrate various digital payment services into a single platform (Bank Indonesia, 2019). QRIS allows merchants to accept payments from multiple mobile banking and electronic wallet applications using one QR code, thereby reducing system fragmentation and operational complexity. Empirical studies indicate that QRIS implementation improves transaction speed, enhances security, and increases user trust due to regulatory oversight and integration with formal banking systems (Mulyani & Febrianti, 2022; Putri & Irawan, 2022). Nevertheless, QRIS adoption among MSMEs remains uneven, particularly in regions with limited digital infrastructure and lower levels of digital literacy (Nugroho & Sihotang, 2021).

Mobile Banking and Digital Transactions

Mobile banking refers to banking services delivered through mobile applications that enable users to perform financial transactions anytime and anywhere. In the context of QRIS, mobile banking serves as the primary medium through which consumers execute QR-based payments. Perceived ease of use and perceived security are identified as key determinants of mobile banking adoption (Kim et al., 2020; Aboelmaged & Gebba, 2019). However, technical constraints such as unstable internet connectivity and limited user familiarity with application features may hinder optimal utilization, particularly among MSMEs with low technological exposure (Sari & Nugraha, 2020).

MSMEs and Digital Transformation

MSMEs are widely recognized as the backbone of regional and national economies. Digital transformation among MSMEs involves the integration of digital technologies into business operations, including payment systems. Digital payment adoption is often considered an initial step toward broader digital transformation, as it introduces MSMEs to technology-driven business practices (Tambunan, 2020). Despite its potential benefits, MSME digital transformation faces challenges such as limited digital skills, inadequate infrastructure, and insufficient institutional support (OECD, 2020; World Bank, 2021). Without continuous training and policy support, digital technologies may be underutilized and fail to generate sustainable impacts on MSME performance.

Research Gap

Most existing studies on digital payments and QRIS adoption employ quantitative approaches and focus on adoption determinants rather than exploring MSME actors' lived experiences (Rahman & Sloan, 2021). Moreover, limited attention has been given to MSMEs operating in coastal tourism areas, where transaction intensity and infrastructural conditions differ from urban settings. This study addresses this gap by employing a qualitative approach to explore QRIS-based payment gateway implementation and its impact on transaction smoothness among MSMEs in coastal tourism areas of Kupang City.

METHOD

This study adopts a qualitative descriptive–interpretative research approach to examine the implementation of QRIS-based payment gateway transactions through mobile banking applications and their impact on transaction smoothness among micro, small, and medium enterprises (MSMEs). A qualitative approach is considered appropriate

as this study aims to explore in depth the experiences, perceptions, and contextual conditions faced by MSME actors in adopting digital payment systems rather than testing causal relationships statistically. The research was conducted in four coastal tourism areas of Kupang City, namely Lasiana Beach, Oesapa Beach, Kelapa Lima Beach, and Tedys Beach. These locations were selected due to their high intensity of tourism-related economic activities and the significant presence of MSMEs relying on fast and efficient transaction processes. The population of this study consists of MSMEs operating in these areas. A total of 100 MSME actors were selected as informants using accidental sampling, based on accessibility and their active use of QRIS in daily business transactions.

Data collection was carried out using three techniques: semi-structured interviews, direct observations, and documentation. Interviews were conducted to obtain information regarding MSME actors' perceptions of QRIS implementation, including ease of use, transaction speed, security, and encountered challenges. Observations focused on the actual transaction process using QRIS in daily business operations, while documentation included QRIS registration data, mobile banking application interfaces, and supporting materials from banking institutions. Data analysis was performed using NVivo qualitative data analysis software to enhance analytical rigor and transparency. Interview transcripts and observation notes were imported into NVivo and analyzed following the interactive model proposed by Miles, Huberman, and Saldaña, which consists of data reduction, data display, and conclusion drawing. The analysis began with open coding to identify key concepts emerging from the data, followed by axial coding to group related codes into thematic categories. Selective coding was then applied to integrate themes and construct coherent interpretations aligned with the research objectives. To ensure data validity and trustworthiness, this study applied triangulation techniques. Source triangulation was conducted by comparing information obtained from MSME actors across different locations, while technique triangulation was implemented by cross-verifying data from interviews, observations, and documentation. These procedures were employed to enhance the credibility, reliability, and consistency of the research findings.

RESULTS AND DISCUSSION

The findings of this study demonstrate that the implementation of QRIS-based payment gateways through mobile banking significantly improves transaction smoothness among MSMEs in coastal tourism areas of Kupang City. MSME actors report faster transaction processing, reduced customer waiting time, and lower dependency on cash, particularly during peak tourism periods. These findings are consistent with previous studies that highlight the role of digital payment systems in enhancing transaction efficiency and service quality (Zhang & Wen, 2020; Hasan & Raza, 2021). The results further reveal that MSME actors perceive QRIS as a secure payment system due to its integration with formal banking institutions and regulatory oversight. This perception strengthens trust and encourages continued usage, supporting earlier research on the importance of perceived security in mobile payment adoption (Kim *et al.*, 2020; Zhou, 2021).

However, despite these positive outcomes, the study identifies persistent barriers to optimal QRIS utilization. Limited digital literacy and unstable internet connectivity constrain MSME actors from fully leveraging QRIS features beyond basic payment acceptance. Similar challenges have been reported in prior studies, which emphasize that digital payment adoption among MSMEs is strongly influenced by human capital and infrastructure readiness (Nugroho & Sihotang, 2021; Rizky & Hidayat, 2023). From a broader perspective, these findings confirm that while digital payment systems such as QRIS contribute positively to MSME operational efficiency, their sustainability depends on complementary factors, including continuous education, technical support, and policy-driven infrastructure development (OECD, 2020; World Bank, 2021). Compared to quantitative studies, this qualitative investigation provides deeper insights into the contextual realities faced by MSMEs, particularly in tourism-based coastal economies.

Discussion of Findings

The findings of this study confirm that the implementation of QRIS-based payment gateways through mobile banking applications plays a significant role in improving transaction smoothness among micro, small, and medium enterprises (MSMEs) operating in coastal tourism areas of Kupang City. The qualitative evidence indicates that QRIS adoption enhances transaction speed, reduces customer waiting time, and minimizes dependence on cash transactions. These findings are consistent with previous studies which argue that digital payment systems improve operational efficiency and service quality, particularly in high-frequency transaction environments (Dahlberg, Guo, & Ondrus, 2019; Zhang & Wen, 2020). The perception of security emerges as a crucial factor supporting sustained QRIS usage among MSMEs. MSME actors express higher levels of trust in QRIS transactions due to their integration with formal banking institutions and regulatory oversight by Bank Indonesia. This finding supports prior research

emphasizing that perceived security and institutional trust are key determinants of mobile payment acceptance (Kim *et al.*, 2020; Zhou, 2021). In the context of coastal tourism areas, trust in the payment system becomes particularly important due to the informal nature of many MSME operations and the high interaction with non-local consumers. However, this study also reveals that the positive impact of QRIS implementation is moderated by contextual constraints. Limited digital literacy among MSME actors restricts the utilization of QRIS to basic payment acceptance, preventing broader use of digital transaction records for financial management purposes. Similar challenges have been reported in earlier studies, which highlight that human capital readiness plays a decisive role in determining the effectiveness of digital technology adoption among MSMEs (Nugroho & Sihotang, 2021; Rizky & Hidayat, 2023).

In addition, infrastructural issues such as unstable internet connectivity significantly affect transaction reliability and user confidence. This finding aligns with global evidence suggesting that digital payment systems cannot function optimally without adequate technological infrastructure (OECD, 2020; World Bank, 2021). In tourism-based coastal areas, where network stability is often inconsistent, infrastructural limitations can undermine the perceived advantages of digital payments. Compared to existing quantitative studies that focus primarily on adoption determinants, this qualitative investigation provides deeper insights into MSME actors' lived experiences and contextual realities. The use of NVivo-assisted thematic analysis enables systematic identification of dominant themes shaping QRIS utilization, offering a more nuanced understanding of how digital payment systems operate in practice. Thus, this study extends the literature by demonstrating that the success of QRIS implementation depends not only on technological availability but also on the interaction between user capability, infrastructure readiness, and institutional support. Overall, the discussion highlights that QRIS-based payment gateways contribute positively to transaction smoothness and business efficiency among MSMEs, but their sustainability requires integrated strategies involving digital literacy development, continuous technical assistance, and infrastructure enhancement. These findings reinforce the argument that digital payment systems should be viewed as part of a broader digital ecosystem supporting inclusive and sustainable MSME development.

CONCLUSION

This study concludes that the implementation of QRIS-based payment gateways through mobile banking applications has a positive impact on transaction smoothness among micro, small, and medium enterprises (MSMEs) operating in coastal tourism areas of Kupang City. QRIS enhances transaction efficiency by accelerating payment processes, reducing dependence on cash, and minimizing transaction errors, particularly in high-frequency tourism environments. The findings also reveal that MSME actors generally perceive QRIS as a convenient and secure payment system due to its integration with formal banking institutions and regulatory oversight. However, the effectiveness of QRIS implementation is not uniform across all MSMEs. Challenges related to limited digital literacy, unstable internet connectivity, and insufficient technical assistance remain significant constraints that hinder optimal utilization of QRIS beyond basic payment acceptance. Overall, while QRIS serves as an important instrument in supporting digital payment adoption among MSMEs, its long-term effectiveness depends on the readiness of human resources and the availability of supporting infrastructure.

RECOMMENDATIONS

Based on the research findings, several recommendations are proposed:

1. For MSME Actors

MSME actors are encouraged to improve their digital literacy and actively utilize QRIS features beyond basic transaction acceptance, such as transaction history and digital financial records, to support better business management.

2. For Banking Institutions

Banks providing QRIS services should strengthen continuous technical assistance and training programs tailored to the specific needs of tourism-based MSMEs. Post-registration support is essential to ensure sustained and effective use of digital payment systems.

3. For Local Government

Local governments should support the development of digital infrastructure, particularly internet connectivity in coastal tourism areas, and collaborate with banks to implement inclusive digital literacy programs for MSMEs.

IMPLICATIONS

Practical Implications

The findings of this study provide practical insights for policymakers and financial institutions regarding the importance of integrating digital payment systems with capacity-building initiatives. QRIS implementation should be accompanied by sustained education and infrastructure development to maximize its benefits for MSMEs.

Academic Implications

Academically, this study contributes to the literature on digital payment systems and MSME development by offering qualitative evidence on QRIS implementation in tourism-based economic contexts. The use of NVivo-supported thematic analysis enhances methodological rigor and provides a foundation for future mixed-method or comparative studies.

Policy Implications

From a policy perspective, the study underscores the need for coordinated strategies involving banks, local governments, and regulatory bodies to promote inclusive and sustainable digital payment adoption. QRIS should be positioned not only as a payment tool but also as part of a broader digital ecosystem that supports MSME growth and resilience.

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