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The Application of Digital Payments (QRIS & E-Wallet) on the Efficiency of MSME Transactions

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ABSTRACT

Micro, Small, and Medium-Sized Enterprises (MSMEs) in Indonesia are becoming more competitive and efficient because to the digital transformation of payment systems. Through a literature review of numerous national and international studies carried out between 2020 and 2025, this study seeks to analyze the effects of the implementation of the Indonesian Standard Quick Response Code (QRIS) and e-wallets on transaction efficiency, financial recording, customer loyalty, and MSME access to financing. The study's findings demonstrate that the use of digital payments can decrease cash error rates through automated recording, expedite transaction times, and save operating expenses. Additionally, the digital footprint of transactions boosts MSMEs' financial reputation, increasing their chances of obtaining official financing. E-wallets are strategically important in marketing since they may be used for data-driven consumer loyalty programs, service customisation, and promotion. Nevertheless, network infrastructure, digital literacy, and microbusiness costs continue to be barriers to this technology's adoption. Additionally, the investigation revealed differences in adoption according to industry, company size, and geographic area, necessitating inclusive and flexible policies. In order to improve digital literacy, build payment infrastructure, and create evidence-based policies to increase MSME involvement in the country's digital economy ecosystem, this study suggests collaboration between the government, financial institutions, and fintech companies.

Keywords: *QRIS, e-wallet, MSMEs, transaction efficiency, payment digitalization.*

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INTRODUCTION

Indonesia's economic environment has seen significant shift in recent years due to digital transformation, particularly in the Micro, Small, and Medium Enterprises (MSME) sector, which is the foundation of the country's economy. The MSME sector employs over 97% of the labor force and accounts for over 60% of the country's GDP, according to figures from the Ministry of Cooperatives and SMEs. (Lahadahlia, 2023). Technological adaptation, particularly the adoption of digital payment systems, has emerged as a crucial component in boosting MSMEs' operational effectiveness and competitiveness in the context of digital economic development. In terms of speed, security, and accuracy of financial records, the transition from cash-based to non-cash payment systems (cashless society) has produced substantial efficiency potential in business transaction processes (Azqar et al., 2025).

In 2019, Bank Indonesia launched the Quick Response Code Indonesian Standard (QRIS) as a single payment QR code standard as part of a national initiative to integrate payment systems. The widespread adoption of e-wallet services like GoPay, OVO, DANA, and ShopeePay, which are becoming more and more well-liked by the general population, followed this policy. According to Bank Indonesia statistics, there were 29.6 million QRIS merchants as of October 2023, with MSME players accounting for more than 92% of the total (Santika et al., 2024). This data demonstrates the tremendous potential for financial transaction transformation in the micro sector by showing a notable acceleration in the adoption of digital payment systems in a brief amount of time (Prawitasari et al., 2024).

Transaction efficiency is directly impacted by the use of digital payment systems, whether via e-wallets or QRIS. A number of measures can be used to gauge this efficiency, such as: (1) transaction time savings; (2) lower cash handling expenses; (3) improved financial record correctness and transparency; and (4) ease of business cash reconciliation (I. P. Sari, 2024). When compared to cash payment methods, MSME players who use QRIS report an average transaction time reduction of 30–40%, according to research by Azqar & Kamal (Wicaksono, 2025). Additionally, digital recording via e-wallets facilitates financing applications to financial institutions and enables business participants to examine cash flow more methodically.

Nevertheless, despite these advantages, there are certain barriers that prevent digital payments from maximizing efficiency. Low digital literacy among MSME participants, restricted internet access in rural regions, high transaction fees, and the belief that digital transactions pose security risks are the primary barriers (Muchtara et al., 2024). Some rural microbusinesses now lack gadgets that provide the best possible support for QRIS transactions. These difficulties demonstrate that in order to increase firms' digital financial literacy, digitalization plans must be supported by infrastructure subsidies, education initiatives, and widespread socialization.

From a policy standpoint, the government is working to advance an inclusive digital payment ecosystem through the National Non-Cash Movement (GNNT) and the 2025 Indonesian Payment System Blueprint. To promote the digitization of enterprises, a number of financial literacy initiatives have been introduced, including Bangga Buatan Indonesia and UMKM Go Digital. However, there are regional differences in these programs' efficacy. Thus, in order to fully comprehend the degree to which the adoption of QRIS and e-wallets has actually improved the efficiency of MSME transactions in Indonesia during the crucial post-pandemic period of 2020–2025—a significant acceleration of digitalization—a systematic literature review is required (Azqar et al., 2025).

A research shortage in this area is also shown by the literature review. Few studies have thoroughly examined the actual effects of digital payments on the effectiveness of MSME transactions across the country, whereas the majority concentrate on the factors that influence technology adoption (e.g., based on the TAM or UTAUT models) (Puriati et al., 2023). In order to give a more concentrated conceptual and policy understanding, this study attempts to consolidate the findings of the most recent empirical investigations. This study aims to evaluate how advancements in digital payment systems enhance transaction efficiency and to pinpoint micro-level implementation obstacles by concentrating on QRIS and e-wallets.

LITERATURE REVIEW

A. QRIS

According to several studies, the use of QRIS can increase the effectiveness of MSME transaction processes by facilitating quicker payments, using less cash, and generating automatic records that help business actors manage their finances. According to a Bank Indonesia study from 2022, MSMEs that implemented QRIS saw a 50% decrease in transaction times and an improvement in the accuracy of their financial records as a result of the integrated payment system. QRIS increases cross-platform transaction access, which lowers operating expenses and boosts payment certainty, according to a different study by Wijayanti & Nugroho (2023). Overall, research indicates that QRIS is crucial for enhancing transaction efficiency and assisting MSMEs with their digitization.

B. E-Wallet

Studies on e-wallets like OVO, GoPay, DANA, and ShopeePay demonstrate that this digital payment option speeds up the payment process for MSMEs, facilitates transactions, and lowers the danger of losing funds. A study by Prasetyo (2021) found that using e-wallets improves consumer convenience, which in turn boosts MSME sales volume through quicker and safer transactions. Furthermore, incorporating e-wallets into MSME business operations lowers transaction costs and makes daily cash flow tracking easier, according to research by Lestari & Hidayat (2022). Because e-wallets are real-time, adaptable, and simple for both businesses and consumers to implement, they are generally thought to be capable of increasing efficiency.

C. MSMEs

Due to the large number of business units and their significant absorption of labor, MSMEs play an important role in Indonesia's economic structure. Sectoral data shows that MSMEs contribute between 60 and 61% to the national GDP, and they employ a large portion of the national workforce. Therefore, improving the operational capabilities of MSMEs must be a top priority in economic development. Consequently, to ensure that MSMEs can maintain their productivity and competitiveness in the digital economy, policy and academic studies emphasize

improving management capabilities, providing capital, and modernizing transaction processes (Lahadahlia 2023).

D. Efficiency

In MSME operational studies, transaction efficiency is defined as the ability to accelerate the payment process, reduce cash handling costs, and improve recording accuracy so that the internal reconciliation process becomes faster and more reliable. The adoption of digital payment solutions and e-commerce service integration is generally reported to accelerate transaction flows and reduce the administrative burden that has been a source of inefficiency. Empirical evidence from research shows that the use of e-payments, which includes the combination of QR and e-wallets, correlates positively with better MSME supply chain performance, more ability to conduct daily transactions, and more accurate financial reporting. Thus, digital payment technology can help MSMEs run their businesses better (Kilay et al., 2022).

E. MSMEs and Transaction Efficiency

The literature on MSME digitization highlights how advancements in payment technology significantly contribute to small firms' increased operational efficiency. According to a study by Ramadhan & Sari (2022), MSMEs' adoption of digital payments significantly affects transaction speed, queue reduction, and administrative cost optimization. Additionally, according to research by Yunus (2023), MSMEs that have transitioned to digital systems are better able to manage cash flow, enhance financial transparency, and increase market access through interaction with digital platforms. Overall, research shows that the adoption of e-wallets and QRIS has improved transaction efficiency and MSMEs' ability to compete in the digital market.

RESEARCH METHOD

This study examines how digital wallets and QRIS contribute to transaction efficiency among small and medium-sized enterprises (MSMEs) in Indonesia, using a qualitative approach with a systematic literature review (SLR). Using a

combination of keywords such as “QRIS,” “e-wallet,” “MSMEs,” “transaction efficiency,” and related Boolean searches, this review refers to major academic databases, such as Google Scholar, Scopus, DOAJ, Emerald Insight, SINTA, Garuda, and the institutional repositories of Bank Indonesia and OJK. After screening the titles and abstracts of 146 initial publications, the sample was narrowed down to 68. Next, the full texts were examined for relevance to digital payments, MSMEs, and efficiency, resulting in 24 final articles included in the analysis. This method provides a concise yet rigorous foundation for understanding the empirical patterns of how digital payment systems improve the efficiency of MSME transactions in Indonesia; content analysis was conducted through data reduction, thematic coding, and inter-study comparisons. This method is supported by theoretical triangulation using digital efficiency theory, TAM, and UTAUT.

RESULT AND DISCUSSION

1. MSMEs and the Concept of Transaction Efficiency

MSMEs play a central role in the Indonesian economy, both as a major contributor to GDP and the largest employer. Official reports mapping the national economic structure show that MSMEs contribute around 61% to the Gross Domestic Product and employ more than 97% of the workforce, making operational efficiency crucial to the sustainability of this sector. Transaction efficiency, in the context of the digital economy, is understood as the ability of MSMEs to process payments in a shorter time, with lower cash handling costs, and more accurate and easily reconciled financial records. This concept is directly related to daily service capacity, cash flow stability, and management professionalization, making transaction efficiency an important indicator of MSME adaptation to digitalization (Lahadahlia, 2023).

According to empirical research on small and medium-sized enterprises (SMEs), digitizing transaction processes, including the use of electronic payment systems, is essential for reducing operational friction and improving service speed. Kilay et al. (2022) found that incorporating electronic payments into SME operations can improve supply chain performance and reduce administrative costs associated with cash management. In addition, automating transaction recording on digital platforms

helps businesses produce more accurate financial reports and improve their internal control capabilities. Therefore, the idea of transaction efficiency in MSMEs includes reducing time and costs and establishing more transparent financial governance. Ultimately, this will increase the competitiveness of MSMEs in the digital economy (Kilay et al., 2022).

2. The Contribution of QRIS and E-Wallets to the Efficiency of MSME Transactions

The use of QRIS and e-wallets has become a strategic tool for improving the efficiency of MSME transactions, particularly through reducing payment processing times and costs associated with cash management. By reducing queues and increasing service capacity, QR code scanning and contactless payment mechanisms enable transactions to be completed more quickly. Additionally, operational costs that previously burdened MSMEs have been reduced by eliminating activities such as providing change, depositing cash, and securing daily cash. Empirical evidence shows that QR-based payment systems make transactions faster and easier for both merchants and customers (Muchtar et al., 2024).

Digital footprints created through the use of e-wallets and QRIS facilitate financial reconciliation, increase transparency, and enable automatic recording. Real-time transaction data helps small and medium-sized enterprises (SMEs) reduce the possibility of recording errors, improve the accuracy of sales reports, and provide alternative data that financial institutions can use to assess creditworthiness. Studies show that the implementation of QRIS not only improves efficiency but also increases MSME financing opportunities because transaction data becomes more accurate. In addition, publicly available literature review reports show that QRIS and e-wallets, through integrated digital promotion features, improve the marketing aspects of MSMEs (Wijadnarko, 2025).

3. The Adoption Rate of QRIS and E-Wallets and Its Implications for the Reach of MSMEs

Over the past five years, there has been a notable increase in the use of digital payment systems in Indonesia through the Quick Response Code Indonesian Standard (QRIS) and other e-wallet platforms (GoPay, OVO, DANA, ShopeePay, etc.). According to Bank Indonesia, there were 29.6 million QRIS merchants as of

October 2023, with over 92% of them being MSMEs. In the second quarter of 2024, there were over 50 million active users (Bank Indonesia, 2023). With individuals growing more acclimated to cashless transactions, this acceleration is inextricably linked to the national policy push in the 2025 Indonesian Payment System Blueprint and the adaptation of post-COVID-19 pandemic behavior. Muchtar et al. (2024) claim that the deployment of QRIS has evolved into a strategic tool with low adoption costs and high flexibility for increasing small firms' involvement in the digital ecosystem (Muchtar et.al 2024). This eliminates the need for pricey EDC devices and enables micro-merchants, including food stands, supermarkets, and street vendors, to take digital payments with just a smartphone.

MSMEs' market reach is directly impacted by the growing use of QRIS and e-wallets. Businesses may boost customer loyalty, increase transaction frequency, and broaden their customer base across geographies with digital payments. Due to the convenience of transactions and enhanced customer confidence, Fatmawati (2024) demonstrates that the implementation of QRIS positively contributes to an increase in daily MSME turnover of up to 20–30% compared to before adoption (Fatmawati, 2024). Additionally, e-wallet-based digital promotional features like cashback, loyalty points, and discount programs are useful marketing tools for small enterprises without requiring large advertising expenditures. Sinulingga and Ginting (2024) claim that cooperation between MSMEs in large cities and e-wallet providers has produced a network effect that broadens local market reach and raises brand awareness on digital platforms (Sinulingga et al 2024). From a conceptual standpoint, digital payments improve MSMEs' standing in a competitive and interconnected digital economic ecosystem while also altering the way transactions are conducted.

However, these beneficial effects have not yet reached their full potential. The primary obstacles to adoption in non-urban areas continue to be disparities in digital literacy, the availability of network infrastructure, and perceptions of transaction costs. According to Puriati et al. (2023), MSMEs in rural areas typically implement QRIS slowly since they have fewer devices and lack technology skills (Puriati et al 2023). However, a study by Utami (2025) reveals that the advantages of QRIS in terms of improved efficiency and market reach would greatly grow if these challenges are addressed by digitalization training programs and initial cost incentives (Utami, 2025). Therefore, in order for all MSME players in Indonesia to fully benefit from QRIS and e-wallets, cooperation between the government, financial

institutions, and payment service providers is required to increase access, enhance digital literacy, and fortify connectivity infrastructure.

4. Effects on transaction time, operational costs, and cash errors

Transaction completion times at MSME points of sale have reportedly been reduced by the regular use of QRIS and e-wallets. Operationally, cashless payments made with QR codes or e-wallets reduce client lines and boost transaction turnover per hour by doing away with the time-consuming manual tasks involved in cash transactions, such as counting money, giving change, and manually recording. Following the implementation of QRIS, case studies and field research in several Indonesian regions revealed a notable decrease in the average transaction time. This has implications for MSMEs' capacity to serve more clients in the same amount of time and boost service productivity. Additionally, the quickly readable QR scanning and tap-to-pay feature minimize transaction time differences amongst cashiers, improving consistency and predictability (D. I. Sari & Maryoso, n.d.).

The decrease of cash handling expenses (bank deposits, cash security), the elimination of the need for pricey physical cash registers (EDC), and the efficiency of administrative accounting as a result of automatically recorded transaction data are the main sources of the impact on operating costs. Even though some MSMEs face service fees (merchant fees) or specific top-up fees in the early stages of adoption, several empirical reports show that MSMEs that transition to digital payments experience a reduction in daily cash-related operating costs, such as a decrease in the frequency of cash deposits and a reduction in manual recording costs A summary of the results reveals that, generally speaking, cost efficiency is advantageous for companies with medium to high transaction volumes; for microbusinesses with extremely low volumes, the cost structure must be modified to make the cost benefits more noticeable (Mustagfiroh & Supriyadi, 2024).

Additionally, the usage of e-wallets and QRIS greatly minimizes cash errors caused by fragmented recording and human calculations. Digital transaction records enable daily or weekly audits and reduce human error (miscounts, recording omissions) by offering proof of payment that can be immediately reconciled. Following the adoption of electronic payment systems, field studies in a variety of MSMEs reveal a reduction in cash inconsistencies and sales report disputes. This enhances the accuracy of tiny financial reports that were previously frequently in the

form of paper records. However, the research also highlights the necessity of effective reconciliation processes and training in order to properly exploit digital data and prevent new issues (D. I. Sari & Maryoso, n.d.).

5. Improved financial record-keeping and access to financing

The quality of MSME bookkeeping is significantly improved in an automated and standardized way by digital transaction records produced by QRIS and e-wallets. Every transaction made possible by QRIS or electronic wallet apps creates a data trail, or transaction log, that documents the time, amount, and identity of the buyer or recipient. In the past, these details were frequently entered manually or not at all in traditional microbusinesses (Anggara, 2023). The availability of digital transaction data expedites the daily and monthly cash reconciliation process, lessens reliance on paper bookkeeping, and lowers the possibility of human error in recording. This improves cash flow transparency and makes it easier to measure fundamental financial metrics that are crucial for MSME internal management, like gross margin, inventory turnover, and daily turnover (Muchtar et al 2024).

Access to official financing is directly impacted by the digital transaction data trail. In order to evaluate the creditworthiness of MSMEs that previously had "thin files" or no official credit history, commercial banks, microfinance organizations, and peer-to-peer platforms are increasingly using electronic transaction data as alternative data. MSMEs can reduce asymmetric information between borrowers and lenders by demonstrating an objective sales history through consistent transaction records. The usage of digital payment data raises the possibility that MSMEs will receive microcredit or transaction-based working capital facilities, according to a number of research and policy reports (Ferri et al 2025). These advantages, however, are only possible if credit supervisors have consistent access to transaction records with transparent data privacy and interoperability protocols (AFI, 2025).

Improved record-keeping and funding availability do not always happen in MSMEs, despite their enormous potential; internal capability and institutional variables are the primary determinants. First, the frequency of digital payment usage by MSMEs that only infrequently receive e-payments greatly influences the quality and completeness of data, leading to inadequate data samples for credit analytics. Second, how these records are converted into reliable financing documentation

depends on MSMEs' capacity to handle and analyze data (digital financial literacy) (Utami, 2025). Therefore, interventions such as (a) training programs on digital recording and the use of transaction data for business, (b) data interoperability standards between payment gateway providers and credit institutions, and (c) policy schemes that enable secure data sharing for credit purposes without compromising consumer privacy are required if digital recording is to actually open up access to financing. The promise of QRIS/e-wallets to expand MSME financial inclusion can be more equally fulfilled with a mix of technology, human resource capabilities, and policy (Nida, 2024).

6. The role of e-wallets in marketing strategies and customer loyalty

Because digital wallet apps serve as both a payment method and an integrated marketing channel that makes use of incentive mechanisms, personalization, and consumer behavior analytics, e-wallets play a crucial role in marketing strategies and client loyalty for MSMEs. E-wallet providers allow SMEs to run micro-promotions at comparatively low costs through features like cashback, vouchers, loyalty points, and segmented promotional campaigns. For instance, they can offer discounts or partial refunds (cashback) that directly increase the utility of purchases for customers and encourage repeat purchases. Numerous studies have demonstrated a beneficial relationship between digital incentive schemes and higher transaction frequency and client retention (Muchtar et al 2024). Additionally, MSMEs can use transaction data to create more relevant offers (like discounts during off-peak hours or combo packages for regular customers) thanks to e-wallets' ability to send push notifications, targeted coupons, and real-time offers. This strengthens customers' emotional and financial attachment to particular merchants (Sinulingga, 2024).

Additionally, because merchant promotions and listings within the application place small businesses in a large user ecosystem—a marketing advantage that was previously difficult to obtain without large advertising investments—the network effects created by e-wallet platforms increase the visibility of MSMEs. In other words, financial incentives will be more successful if they are accompanied by a seamless user experience and trust in the platform. Empirical studies also demonstrate that the quality of application services (reliability, transaction speed, ease of use) strengthens the impact of promotion on customer satisfaction, which in turn drives long-term

loyalty (Moksin et al., 2024). On the other hand, aggressive marketing strategies like constant discounts or unmeasured rewards can cause pricing wars, reduce SME margins, and make customers reliant on discounts. Thus, value-added programs (such exclusive services, subscription packages, or better customer experiences) and the use of analytical data for more intelligent segmentation must be combined with short-term incentives in sustainable loyalty plans (Yulianadewi, 2025).

Implicitly, incorporating e-wallets into MSME marketing strategies calls for managerial and technical skills, such as the capacity to create lucrative promotions, examine transaction data to identify buying trends, and uphold service standards so that loyalty programs generate worthwhile repeat business rather than just one-time purchases. These strategic benefits can be accelerated inclusively through policy interventions and assistance programs (such as digital marketing training, basic analytics help, and data interoperability agreements between merchants and platforms), particularly for MSMEs with minimal marketing resources. Therefore, if e-wallets are utilized as part of a quantifiable and long-term marketing plan rather than just as a way to give discounts, they have the potential to become a game-changing marketing tool for MSMEs (Kapoor et al., 2020).

7. Barriers to adoption and driving factors

The degree of digital literacy among business owners has a significant impact on MSMEs' adoption of digital payments; research indicates that the speed at which MSMEs incorporate QRIS/e-wallets into their operations depends on their basic understanding of smartphone use, payment apps, and digital record reading. Because they believe cash transactions are more "secure" and familiar, MSMEs with limited digital literacy are typically reluctant to adopt sophisticated features (such as automatic reconciliation and transaction reports). Field research conducted in a number of Indonesian regions has validated this tendency, showing a strong association between digital literacy and the level of digital payment usage. Consequently, boosting the adoption and use of digital recording features has been successfully achieved through hands-on training based on demonstrations and field support (Rosa & Abdilla, 2022).

Particularly in rural locations and isolated islands, infrastructure factors—specifically, the availability of dependable electricity and internet connectivity—are significant technical obstacles. Numerous QRIS case studies demonstrate that,

despite the availability of devices and applications, transaction failures or network delay lower merchant and customer confidence in cashless payments, ultimately suppressing usage intensity (Adawiyah, 2024). Furthermore, when properly designed, adoption is accelerated by technological interoperability between service providers (e-wallets, banks, acquirers) and simplicity of integration with corporate systems (e.g., basic POS); on the other hand, service fragmentation and complicated technical requirements are obstacles. To guarantee seamless everyday transactions and preserve customer confidence, investment in local telecommunications infrastructure and bolstering interoperability standards must be given top priority (Awaliah et al., 2025).

Economic factors that influence adoption include merchant costs and commissions, top-up fees, and internet data fees. Even when the operational benefits are obvious, adoption may be hampered by onerous tariff structures since MSMEs with low margins are highly sensitive to transaction deductions. Two trends are evident in Indonesian empirical literature: for medium-to-high volume MSMEs, lower cash handling costs and higher turnover frequently offset service costs, creating a positive net benefit; on the other hand, fixed costs (or percentage fees) can lower margins for microbusinesses with low volumes, making adoption unprofitable in the absence of initial subsidies or special tariff schemes. It has been demonstrated that temporary incentive programs (free merchant fees during the debut period, device subsidies) and regulatory policies (such as merchant discount rate laws for QRIS) drive adoption in the micro sector. The most promising strategy for attaining broad adoption and optimal utilization of QRIS/e-wallets across all MSME tiers is a combination of interventions, including literacy training, infrastructure upgrades, and pro-MSME fee design (Muchtar et al., 2024).

8. Contextual variations

Based on company sector and scale, MSMEs in Indonesia exhibit notable contextual variations in the degree of acceptance and efficacy of digital payments (QRIS and e-wallets). Because their transactions are quick, repeated, and low-value, MSMEs in the retail, transportation, and culinary industries are typically early adopters of QR code-based payment systems. According to a study by Puriati et al. (2023), the culinary industry saw the largest increase in QRIS transactions as a result of shifting consumer preferences for contactless payment systems following

the pandemic (Puriati et al., 2023). Due to technical constraints and the infrequency of direct consumer transactions, the handicraft and small-scale production industries continue to face limited adoption. Adoption speed is also influenced by business scale; small and medium-sized enterprises with greater organizational structures and capital typically embrace digital payment systems faster than microbusinesses due to their superior management capabilities and technology infrastructure (Utami, 2025).

Geographical variations also influence the degree of QRIS and e-wallet usage, in addition to sectoral and business scale considerations. Due to solid internet infrastructure, extensive smartphone usage, and a consumer ecology used to digital transactions, MSMEs in urban regions like Jakarta, Surabaya, and Bandung exhibit strong adoption rates (Azqar et al., 2025). On the other hand, poor internet networks, digital literacy, and banking access continue to be significant barriers in rural and island areas like East Nusa Tenggara or North Kalimantan (Awaliah et al., 2025). These regional differences show that policies and strategies for promoting digital payments must be contextually and regionally focused. Some examples of such strategies include expanding telecommunications networks outside of Java, strengthening digital literacy training in villages, and offering device subsidies for micro-merchants. Therefore, the adoption of QRIS and e-wallets can be more inclusive, opening up digital economic prospects for all MSME operators in different regions of Indonesia in addition to encouraging efficiency in certain industries (Muchtar et al., 2024).

9. Policy implications and further research agenda

The MSME ecosystem's quick uptake of QRIS and e-wallets offers the government a tactical chance to bolster digital transformation and increase financial inclusion. However, a study of the research reveals that policies that are responsive to the social, economic, and cultural circumstances of MSME players are just as important to their success as the supply of technology infrastructure. Therefore, by guaranteeing inclusive technology accessibility for micro and ultra-micro firms, the government must strike a balance between innovation and regulation. Because they facilitate the direct transfer of useful skills, community-based digital literacy programs are more successful than mass socialization (Muchtar et al., 2024). Furthermore, region-based interventions, including integrating QRIS into traditional markets and

the halal tourist ecosystem, might serve as an adaptable model for local potential-based policies that boost MSME transaction efficiency and regional competitiveness (Azqar et al., 2025).

From the standpoint of the digital economy, policy goals that can boost QRIS penetration in rural areas include transaction cost subsidies, adoption incentives, and network infrastructure investment. According to Utami's (2025) research, early QRIS administration cost waivers are crucial for boosting usage rates in the microculinary industry (Utami, 2025). Additionally, the government, banks, and fintech companies must work together to equip MSME actors with adaptable and user-friendly technology. A multi-stakeholder partnership approach is also suggested by research by Puriati et al. (2023), wherein banks give transaction-based financing, e-wallet providers offer loyalty incentives for new merchants, and the government facilitates training (Puriati et al., 2023). By working together, digital payment policies not only increase productivity but also fortify a national digital economy environment that is sustainable and inclusive.

From an academic standpoint, measuring the long-term effects of digital payment usage on MSMEs' financial performance requires a longitudinal and comparative research program. Few studies have examined the effects of digital payments on productivity, profitability, and business sustainability over a period of more than a year; the majority have concentrated on the early phases of adoption. Future studies must combine quantitative and qualitative methods while taking into account contextual factors including gender, the educational attainment of business owners, and geographic location (Nida, 2024). Furthermore, cross-policy insights into the best regulatory frameworks and infrastructure to assist digital MSMEs can be obtained through comparative studies among ASEAN nations. In addition to advancing scientific understanding, this type of research methodology gives decision-makers an empirical foundation on which to build evidence-based policies that will increase Indonesia's payment system digitization.

CONCLUSION AND SUGGESTION

A. Conclusion

Through quicker transactions, lower cash management expenses, and better financial recording accuracy, the use of QRIS and e-wallets greatly improves

MSMEs' operational efficiency, according to this research analysis. In addition to facilitating access to funding through the use of alternative data, payment digitization promotes professionalism and openness in business administration. However, due to variations in digital literacy, infrastructure, and cost perceptions among sectors and locations, the MSME sector's adoption of digital payments is still inconsistent. This demonstrates that rather than a standard policy, the digital transformation of MSMEs necessitates an approach that is customized to local circumstances and business kinds.

B. Suggestion

To evaluate the long-term effects of digital payment adoption on MSMEs' profitability, business sustainability, and financial inclusion, more study employing a longitudinal empirical approach is advised. In terms of policy, the government, financial institutions, and fintech companies must work together more to equalize payment infrastructure, improve digital literacy, and offer incentives for the adoption of digital payments. With this assistance, the use of e-wallets and QRIS can be enhanced to boost transaction efficiency and encourage equitable and long-term digital economic growth for MSMEs.

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