

QRIS vs E-Wallets: User adoption and merchant acceptance in the digital payment landscape

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Abstract. This research evaluates the dynamics of user adoption and merchant acceptance within Indonesia's digital payment landscape, comparing QRIS and e-wallets. Through a comprehensive literature review, we examine the driving factors behind e-wallet adoption, dominated by financial incentives and ecosystem integration, as well as QRIS adoption, propelled by Bank Indonesia's interoperability standards. The analysis also covers challenges faced by merchants due to e-wallet fragmentation and how QRIS addresses this with its "one QR for all" concept, despite persistent obstacles like varying digital literacy and uneven infrastructure. The findings indicate that QRIS and e-wallets are complementary: e-wallets attract users with features and incentives, while QRIS facilitates merchants with operational efficiency. This synergy significantly enhances MSME financial inclusion through improved transaction recording for better financing access, simultaneously boosting business efficiency and competitiveness. It's concluded that both systems are crucial pillars for the advancement of a more inclusive and efficient digital economy in Indonesia.

Keywords: QRIS, E-wallet, Digital Payments, User Adoption, Merchant Acceptance, Financial Inclusion, MSMEs, Indonesia.

1. Introduction

The digital payment landscape in Indonesia has experienced rapid evolution in recent years, driven by technological acceleration, shifts in consumer behavior, and supportive government policies. This phenomenon is no longer just a trend but a revolution reshaping how society interacts with daily financial transactions. Various innovations have emerged, from digital bank transfers to mobile banking and electronic wallets, collectively reducing reliance on cash (Prasetyo et al., 2023). Indonesia, with its tech-savvy young population and high smartphone penetration, is fertile ground for the growth of this digital payment ecosystem. The COVID-19 pandemic further accelerated digital adoption, where contactless transactions became a preference and even a necessity. Amidst this dynamism, two main entities have dominated the digital payment arena: electronic wallets (e-wallets) and the Quick Response Code Indonesian Standard (QRIS). Both offer convenience, speed, and security, yet they possess distinct approaches and characteristics in reaching users and merchants. Understanding the interaction and competition between QRIS and e-wallets is crucial for mapping the future of digital payments in Indonesia, especially within the context of financial inclusion and economic efficiency (Adolph, 2021). This research will delve deeper into the dynamics of user adoption and merchant acceptance of these two payment systems.

Electronic wallets (e-wallets) have emerged as a key player in driving non-cash payments in Indonesia. Since their inception, various e-wallet platforms such as GoPay, OVO, Dana, and ShopeePay, have successfully captured a significant market share by

offering easy access, diverse features, and attractive incentives for users. The success of e-wallets is inseparable from their ability to integrate with broader digital ecosystems, including online transportation services, e-commerce, and food delivery, creating a seamless and integrated transaction experience within the digital lifestyle of urban communities. Easy registration, user-friendly interfaces, and aggressive promotions like cashback and discounts have attracted millions of users to switch from cash payments. For merchants, accepting e-wallets promises increased sales and access to a larger customer base. However, challenges arise when merchants have to manage various different e-wallet applications, each with its own QR code, device, or recording system. This complexity sometimes becomes a barrier for merchants, especially Micro, Small, and Medium Enterprises (MSMEs), who have limited resources and infrastructure (Irfanda et al., 2025).

Recognizing the fragmentation and challenges faced by merchants due to the multitude of e-wallet types, Bank Indonesia (BI) took a strategic step by launching the Quick Response Code Indonesian Standard (QRIS) in 2019. QRIS was designed to be a single QR payment standard usable by all payment service providers, both banks and fintech companies (Hidayat et al., 2024). The vision behind QRIS is to simplify the digital payment ecosystem, reduce complexity for merchants, and promote financial inclusion more broadly. With QRIS, merchants only need to display one QR code to accept payments from various e-wallet applications or mobile banking that support QRIS. This eliminates the need for multiple devices or printing various QR codes from different providers, significantly streamlining their operations. For Bank Indonesia, QRIS also serves as a tool to monitor transactions, enhance security, and manage digital cash flow more efficiently. The presence of QRIS creates a more "level playing field" for all players in the digital payment ecosystem, but it also raises questions about how QRIS will compete or collaborate with the established dominance of e-wallets (Akhyar et al., 2024).

In this increasingly competitive landscape, the interaction between QRIS and e-wallets presents an interesting phenomenon for study. On one hand, QRIS functions as a backbone or standard that interconnects various e-wallets, making it easier for merchants to accept payments from diverse sources (Lestari & Khoiriyah, 2025). In this scenario, QRIS and e-wallets are complementary. On the other hand, e-wallets continue to innovate and compete to attract users and merchants with unique features, loyalty programs, and integrated ecosystems. Questions arise as to whether users are more motivated by the convenience of a single QR from QRIS or by the aggressive cashback and discount programs from specific e-wallets. Similarly, for merchants, is the operational efficiency of a single QRIS more appealing than the direct incentives offered by individual e-wallets to encourage adoption? Understanding the dynamics of this competition and collaboration will provide important insights into the factors influencing user adoption decisions and merchant acceptance within Indonesia's digital payment ecosystem.

Given the complexity and existing dynamics, this research has the primary objective of evaluating user adoption and merchant acceptance within Indonesia's digital payment landscape, with a focus on comparing QRIS and e-wallets. This research will analyze the factors influencing user decisions when choosing between QRIS and e-wallets as their preferred payment method. Furthermore, the study will examine merchants' perceptions and experiences regarding the acceptance of QRIS and various e-wallets, including perceived benefits, challenges faced, and their preferences for

specific payment systems (Amelia, 2020). Thus, this research aims to provide a comprehensive overview of the relative positions of QRIS and e-wallets in the market, as well as their implications for future digital payment development strategies, from both the regulator's and service providers' perspectives.

Methodologically, this research will adopt a mixed-methods approach to gain a deep and holistic understanding. The quantitative part will involve large-scale surveys distributed to a sample of users and merchants in various regions across Indonesia. Survey data will include frequency of use, preferences, driving and inhibiting factors for adoption, and respondent demographics. Descriptive and inferential statistical analysis will be used to identify patterns and relationships between variables. Meanwhile, the qualitative part will involve in-depth interviews with a select few users and merchants, as well as key stakeholders from Bank Indonesia, e-wallet providers, and MSME associations. These interviews aim to explore more personal and contextual experiences, perceptions, motivations, and challenges that might not be captured by quantitative data. The combination of these two approaches is expected to yield robust, valid, and generalizable findings, while also providing rich and in-depth insights.

The results of this research are expected to make significant contributions to various parties. For Bank Indonesia and other regulators, these findings can serve as a basis for formulating more effective policies in promoting digital payment inclusion, balancing the role of QRIS as a standard with innovations from e-wallets. Recommendations may include more targeted educational strategies, development of supporting digital infrastructure in remote areas, and regulatory adjustments to create a healthier ecosystem. For e-wallet service providers and other PSPs, this research will provide valuable insights into user and merchant preferences, enabling them to develop more targeted features, services, and marketing strategies. For MSMEs, understanding these adoption dynamics can help them make more informed decisions about which payment systems are most effective for their businesses. Finally, for the academic community, this research is expected to enrich the literature on digital payments, technology adoption, and consumer behavior in developing countries, paving the way for future research.

Thus, through a careful and in-depth evaluation of the dynamics of user adoption and merchant acceptance within Indonesia's digital payment landscape, specifically the comparison between QRIS and e-wallets, this research aims not only to identify existing trends but also to formulate strategic recommendations (Irianto, 2020). The ultimate goal is to support the growth of a more efficient, inclusive, and sustainable digital payment ecosystem, which in turn will drive overall national economic growth. A deep understanding of the "competition" and "collaboration" between QRIS and e-wallets is key to optimizing the full potential of digital payments in Indonesia.

2. Methods

This research employs a comprehensive literature review approach to gather, analyze, and synthesize relevant information from various credible sources (Khuzanisa, 2021). The literature search focuses on scholarly publications, industry reports, policy documents from institutions like Bank Indonesia, and news articles that discuss QRIS, digital wallets (e-wallets), user adoption, merchant acceptance, the digital payment landscape in Indonesia, financial inclusion, and the digital transformation of MSMEs. The collected data will be analyzed qualitatively using content analysis to identify patterns, trends, comparisons between QRIS and e-wallets from both user and

merchant perspectives, and existing research gaps. The goal of this approach is to build a robust conceptual framework, understand the dynamics of adoption and acceptance of both payment systems, and present in-depth insights without involving primary data collection.

3. Results and Discussion

3.1. User Adoption: Comparing Preferences between QRIS and E-Wallet

The literature review consistently reveals that within the Indonesian digital payment landscape, e-wallets achieved significant user adoption rates earlier and successfully built a broad user base before QRIS was massively launched. This phenomenon was driven by aggressive strategies from e-wallet providers, including intensive promotions, attractive cashback offers, direct discounts, and enticing loyalty programs. Beyond financial incentives, the main appeal of e-wallets lies in their ability to integrate with diverse digital service ecosystems, ranging from online transportation (such as Gojek and Grab), e-commerce platforms (e.g., Tokopedia, Shopee), to food delivery services. This integration creates a seamless and unified transaction experience, making it an inseparable part of urban society's digital lifestyle. Early adopters were highly drawn to the convenience and multifunctional ease offered by a single application that could meet their various transaction needs.

User perception of e-wallets is generally very positive, which has been key to this massive adoption success. Studies show that users appreciate the ease of use of e-wallet application interfaces, which are intuitive and user-friendly, even for those new to digital transactions (Chintia, 2022). Transaction speed is also a determining factor, where payments can be completed in seconds with just a few taps on a smartphone screen. Furthermore, various additional features such as bill payments, top-up purchases, peer-to-peer fund transfers, and easy balance top-ups make e-wallets an all-in-one financial solution. These features not only meet basic transaction needs but also add value that enhances user convenience and reliance on specific e-wallet platforms, strengthening user loyalty to dominant e-wallet brands.

Meanwhile, user adoption of QRIS has tended to grow gradually but steadily, especially after Bank Indonesia (BI) intensively socialized and established QRIS as the mandatory standard for all QR-based payments in Indonesia. For users, the main appeal of QRIS lies in its interoperability. This means that a single QR code displayed by a merchant can be scanned by various digital payment applications they own, whether different e-wallet brands or mobile banking applications. This advantage eliminates the need for users to download and manage multiple e-wallet applications from different providers just to transact at various merchants. Users can choose their favorite application without worrying about compatibility with the merchant's payment system, a very efficient solution for those seeking simplicity and flexibility.

Although QRIS itself does not directly offer aggressive financial incentives like cashback or discounts, which e-wallets often do, the convenience and flexibility it offers are important factors in user adoption decisions. Users who prioritize simplicity, do not want to manage too many applications, or wish to use their mobile banking applications for in-store payments, tend to appreciate the value of this single QR standard. This also reduces "app fatigue" that users might experience when having to switch between payment applications. Therefore, for certain user segments, the value provided by QRIS is not in monetary incentives, but rather in greater operational efficiency and convenience within a fragmented digital payment ecosystem.

Overall, user preferences are often influenced by a combination of incentives offered by e-wallets and the convenience/flexibility provided by QRIS. E-wallets successfully attract users through financial appeal and integrated ecosystems, creating brand loyalty (Cahyani, 2024). Meanwhile, QRIS attracts users through the promise of interoperability that simplifies the overall payment experience, regardless of the e-wallet or bank they use. In practice, many users leverage both: they might use their favorite QRIS-enabled e-wallet to get cashback, but still appreciate the fact that any merchant with a QRIS logo can accept payments from their app. This dynamic shows that these two systems, rather than negating each other, often work complementarily to meet the diverse needs and preferences of users in the Indonesian digital payment landscape.

3.2. Merchant Acceptance: Comparing QRIS and E-Wallet

In the context of merchant acceptance, the literature review highlights interesting and often contrasting dynamics between digital wallets (e-wallets) and QRIS (Quick Response Code Indonesian Standard). Initially, e-wallet acceptance by merchants was strongly driven by surging consumer demand and the promise of increased sales. E-wallet providers also aggressively offered various direct incentives to merchants, such as transaction fee subsidies, free point-of-sale (POS) device assistance, or cashback programs for merchants who met certain transaction targets. These incentives, coupled with strong branding and popularity among users, led many merchants, especially in urban areas and e-commerce, to feel "compelled" to accept e-wallet payments to follow market trends and avoid losing customers (Sanjani, 2024).

However, behind the initial appeal of e-wallets, merchants, particularly Micro, Small, and Medium Enterprises (MSMEs), were often confronted with significant operational challenges. The main issue was payment system fragmentation. With numerous different e-wallet providers, merchants had to manage multiple QR codes or even distinct POS terminals for each e-wallet they accepted. This meant they had to display numerous QR stickers on storefronts or cashier desks, which could look cluttered and confusing. Furthermore, the process of transaction recording and financial reconciliation became more complex, as they had to record payments from various e-wallet sources separately. Some merchants also reported difficulties in the fund disbursement (settlement) process from each e-wallet, which could have different schedules and procedures, adding to their administrative burden.

Conversely, QRIS acceptance by merchants has been very positive because it effectively addresses the fragmentation issue caused by the dominance of various e-wallets. The "one QR for all" concept became a major and highly sought-after attraction. With QRIS, merchants only need to display a single universal QR code, and customers can scan it using any digital payment application that supports QRIS, whether from a bank or a different e-wallet (Ubaidillah et al., 2023). This drastically simplifies operations at the point of sale. Merchants no longer need multiple hardware devices or to print various QR stickers. This reduction in complexity directly impacts cost efficiency and management time. The time spent on recording and reconciling transactions also decreases because all incoming payments via QRIS can be centralized in one system, regardless of the original source of funds.

Although QRIS does not offer aggressive cashback incentives to customers directly, as e-wallets often do, merchants highly value the efficiency and administrative ease offered by QRIS. For many MSMEs, maintaining lean operations and minimizing costs are top priorities. The ability to simplify payment and recording processes without requiring

significant investment in various devices is a strong selling point. Studies also show that the standardized and relatively low Merchant Discount Rate (MDR) for QRIS is more transparent and predictable compared to the varying or less clear fees from different e-wallets (Firdaus et al., 2023). This cost predictability is crucial for MSMEs in calculating their profit projections.

Overall, while e-wallets attract merchants through the potential for increased sales driven by consumer incentives and brand popularity, QRIS offers a solution more focused on operational efficiency and simplified management on the merchant side. This fundamental difference shapes merchant preferences: those highly focused on transaction volume might still welcome various e-wallets with their incentives, but those prioritizing operational efficiency and simplicity will tend to prefer QRIS as a single standard. In practice, many merchants now adopt QRIS because it accommodates all existing e-wallets, allowing them to get the best of both worlds: leveraging a large e-wallet user base while enjoying the efficiency of the QRIS standard. This indicates that QRIS has successfully filled a void, transforming the merchant acceptance landscape from a fragmented one to a more integrated and efficient one.

3.3. Factors Driving and Inhibiting Adoption

Within the Indonesian digital payment landscape, the adoption of both QRIS and e-wallets is influenced by a complex set of driving and inhibiting factors. Understanding these dynamics is crucial for identifying effective strategies to accelerate digital payment inclusion. Generally, the main driving factors include regulatory support, infrastructure development, and increased digital literacy, though there are specific nuances differentiating their influence on QRIS and e-wallets.

One of the most significant universal driving factors is the strong regulatory support from Bank Indonesia (BI). BI has proactively taken a central role in shaping a well-regulated and secure digital payment ecosystem. The launch of QRIS as a national standard is clear evidence of this commitment, directly addressing the fragmentation that previously posed a barrier for both merchants and users. This policy creates a clear framework, builds public trust in digital payment systems, and provides legal certainty for service providers. Furthermore, BI has actively conducted socialization and education campaigns to raise public awareness about the benefits of non-cash payments, including QRIS and e-wallets, which indirectly encourages adoption. Regulations mandating QRIS interoperability also compel various Payment Service Providers (PSPs) to collaborate, thereby expanding the reach of services (Dan et al., 2025).

On the other hand, specific driving factors for e-wallet adoption include the aggressive promotions and financial incentives offered by providers. E-wallets compete fiercely to attract users by offering substantial cashback, special discounts at specific merchants, reward points, and loyalty programs. These incentives are highly effective in attracting early adopters and encouraging them to switch from cash payments. Additionally, the integration of e-wallets with broader digital ecosystems (e.g., online transportation services, e-commerce, food delivery) is also a strong driver, as it creates a seamless and integrated user experience in daily life, increasing usage frequency and reliance on these applications. For users, convenience and ease in a multi-functional application are often key considerations.

However, the adoption of both QRIS and e-wallets also faces various challenges or inhibiting factors. One crucial obstacle is the limited digital literacy and financial

understanding among MSMEs and the general public, especially in rural areas. Although smartphone penetration is high, many do not yet fully grasp the long-term benefits of digital payments, such as the ease of recording transactions for formal financing access. The perception that digital payments are "complicated" or "unsafe" still exists in some segments. Furthermore, uneven digital infrastructure across Indonesia, particularly concerning stable and affordable internet access, presents a significant technical barrier. Digital transactions require reliable internet connectivity, and the availability of this infrastructure remains a work in progress.

Other specific inhibiting factors include the issue of Merchant Discount Rate (MDR) costs for merchants and resistance to changing established cash payment habits. Although the MDR for QRIS is standardized and relatively low for MSMEs, some merchants with thin margins still find the deduction burdensome, with some even attempting to pass the MDR fee on to consumers. Moreover, cash payment habits that have been deeply ingrained for decades are difficult to change (Sari, 2020). Many consumers and merchants still feel more comfortable with cash, considering it simpler, requiring no additional devices, and not relying on internet signals. Overcoming this cultural resistance requires continuous education, concrete demonstrations of benefits, and time for adaptive behavioral changes.

3.4. Interaction and Impact in the Digital Payment Landscape

In the Indonesian digital payment landscape, the interaction between QRIS and e-wallets is a complex and dynamic phenomenon, often exhibiting a complementary rather than solely competitive nature. Literature consistently reveals that QRIS functions as a back-end standard enabling interconnectivity, while e-wallets act as front-end applications that attract users with engaging user experiences and innovative features. This interaction creates a stronger, more integrated, and inclusive digital payment ecosystem. QRIS, with its "one QR for all" principle, has successfully unified various payment platforms, eliminating the fragmentation that previously confused merchants. This means e-wallets don't have to compete with each other regarding which QR codes merchants accept; instead, they can focus on developing features, services, and loyalty programs to attract and retain their users.

This complementary nature can be observed in how users and merchants interact with both systems. Users might be drawn to aggressive cashback or discount programs offered by specific e-wallets, encouraging them to use those applications frequently. However, when dealing with merchants, the convenience of QRIS becomes highly relevant. Users simply scan a single QRIS code with their preferred e-wallet, without needing to confirm specific compatibility. This means e-wallets benefit from QRIS's broad reach, as any merchant accepting QRIS automatically becomes a merchant for all QRIS-connected e-wallets. On the merchant side, they gain operational efficiency by only needing to manage one QR code, while still being able to serve a diverse customer base using various types of e-wallets. This interaction creates a symbiosis where e-wallets drive transactions, and QRIS ensures those transactions can be universally accepted.

The overall impact of both systems is a significant increase in financial inclusion. QRIS, in particular, has become a bridge for many Micro, Small, and Medium Enterprises (MSMEs) that were previously unbanked or underbanked to enter the formal digital payment ecosystem. By accepting payments via QRIS, MSMEs automatically generate neat and verifiable digital transaction records. These records are crucial because they can be used as valid historical financial proof when MSMEs apply for loans or financing from

formal financial institutions. Before QRIS, MSMEs that only conducted cash transactions struggled to demonstrate their financial capacity, making it difficult to access capital. Now, digital transaction data from QRIS opens doors for MSMEs to gain easier access to financing, catalyzing their business growth.

Beyond financial inclusion, the presence of QRIS and e-wallets also impacts increased economic efficiency at various levels. For MSMEs, operational efficiency improves due to reduced time spent counting, managing, and reconciling cash. The risk of cash loss is also drastically reduced, enhancing transaction security (Maharani, 2023). With automated recording, MSMEs can focus more on their core business operations. For consumers, digital payments offer convenience, speed, and often incentives that make transactions more appealing. At the macro level, the shift from cash to digital increases transaction transparency, assists the government in monitoring economic activity, and potentially boosts tax revenue. This increased efficiency contributes to overall economic growth by creating a more dynamic and modern business environment.

Furthermore, the ability to analyze transaction data generated from the use of QRIS and e-wallets provides valuable insights not only for regulators but also for MSMEs themselves. This data allows MSMEs to identify customer purchasing patterns, peak sales times, best-selling products, and even seasonal trends. This information is crucial for more strategic business decision-making, such as optimizing inventory, designing more effective marketing strategies, or developing new products/services that align with market demand. For payment service providers, this data helps them to continually innovate and develop more relevant features. Thus, the interaction between QRIS and e-wallets not only facilitates payments but also creates a data-driven ecosystem that empowers all involved parties, fostering competitiveness and innovation in Indonesia's digital payment landscape.

4. Conclusion

Based on a comprehensive literature review comparing QRIS and e-wallets within Indonesia's digital payment landscape, it can be concluded that these two systems are not merely competing but are also complementary, collectively driving both user adoption and merchant acceptance. E-wallets have successfully attracted users through financial incentives and broad ecosystem integration, while QRIS, with its standardization and interoperability, has become an efficient solution highly valued by merchants for simplifying operations and transaction reconciliation. Despite persistent challenges like diverse digital literacy and uneven infrastructure, the synergy between the attractive front-end of e-wallets and the standardized back-end of QRIS has significantly boosted MSME financial inclusion by enabling better transaction recording for financing access, while also enhancing business efficiency and competitiveness. Therefore, both QRIS and e-wallets stand as crucial pillars for advancing Indonesia's digital economy towards a more inclusive and efficient future.

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Their dedication to advancing knowledge and providing relevant data has allowed us to comprehensively analyze and synthesize information, offering an in-depth understanding of the impact of both QRIS and e-wallets on Indonesian MSMEs. We sincerely hope this research complements existing knowledge and makes a small contribution to enriching the academic landscape, while also supporting efforts to foster a more inclusive and efficient digital payment ecosystem in Indonesia.

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