

## Bank Indonesia's Policy Analysis in Facing the Challenges of Digital Payment System Regulation in the Era of Financial Transformation

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**ABSTRAK:** Transformasi digital di sektor keuangan telah mengubah sistem pembayaran di Indonesia dari berbasis tunai menjadi digital yang lebih cepat dan efisien, sehingga menuntut kebijakan yang adaptif dari Bank Indonesia sebagai otoritas sistem pembayaran. Penelitian ini bertujuan menganalisis kebijakan Bank Indonesia dalam menghadapi tantangan regulasi sistem pembayaran digital. Metode yang digunakan adalah pendekatan kualitatif melalui literature review naratif dengan sumber data sekunder berupa jurnal ilmiah dan dokumen kebijakan resmi. Hasil penelitian menunjukkan bahwa kebijakan Bank Indonesia telah mengadopsi pendekatan adaptif dan berbasis risiko melalui Blueprint Sistem Pembayaran Indonesia 2030 serta implementasi QRIS, BI-FAST, Gerbang Pembayaran Nasional, dan Standar Nasional Open API Pembayaran yang memperkuat interoperabilitas, efisiensi, dan keamanan transaksi. Namun, tantangan berupa risiko siber, kesenjangan literasi digital, dan kompleksitas pengawasan masih perlu diatasi. Penelitian ini menyimpulkan bahwa arah kebijakan telah tepat, tetapi memerlukan evaluasi berkelanjutan, penguatan manajemen risiko, dan peningkatan literasi digital untuk menjaga stabilitas dan keberlanjutan sistem pembayaran digital nasional.

**Kata kunci:** Sistem Pembayaran Digital; Bank Indonesia; Regulasi Berbasis Risiko; Transformasi Keuangan

**ABSTRACT:** Digital transformation in Indonesia's financial sector has shifted payment systems from cash-based to more efficient digital transactions, requiring adaptive policies from Bank Indonesia as the payment system authority. This study analyzes Bank Indonesia's policies in addressing regulatory challenges in the digital payment ecosystem. Using a qualitative narrative literature review based on secondary data from academic journals and official policy documents, the findings show that Bank Indonesia has adopted an adaptive and risk-based approach through the Indonesia Payment System Blueprint 2030 and initiatives such as QRIS, BI-FAST, the National Payment Gateway, and the National Open API Payment Standard, which enhance interoperability, efficiency, and security. Nevertheless, cybersecurity risks, digital literacy gaps, and supervisory complexity remain significant challenges. The study concludes that the current policy direction is appropriate but requires continuous evaluation, stronger risk management, and improved digital literacy to ensure sustainable digital payment system stability.

**Keywords:** Digital Payment System; Bank Indonesia; Risk-Based Regulation; Financial Transformation

### 1. INTRODUCTION

The development of digital technology has driven significant transformations in the financial sector, particularly in payment systems. The digitalization of payment systems is shifting people's transaction patterns from cash to faster, more efficient, and more secure technology-based non-cash payment instruments (Alsa et al., 2025). This transformation not only impacts consumer behavior but also demands adjustments to public policy in managing the increasingly complex digital financial ecosystem.

Technological developments in Indonesia have shown significant progress. One of the most visible developments currently is in the financial and payment systems sectors. Bank Indonesia (BI) plays a strategic role as the payment system authority, formulating and overseeing policies that ensure the smooth operation, security, and stability of the national payment system (Atmaja, 2022). This role is crucial amidst the dynamics of digital financial innovation, which is developing faster than conventional regulations.

The massive digital transformation in the financial sector has transformed the way people conduct transactions, moving from cash to fast, efficient, and secure digital payment systems. Bank Indonesia (BI) plays a central role in guiding this dynamic through various policies that support the national digital payment ecosystem. Based on the Indonesian Payment System Blueprint 2025–2030 (BI, 2023), BI's policy direction emphasizes strengthening the integration of the national digital financial economy, enhancing system security, and creating a balance between innovation and financial system stability. Initiatives such as the Quick Response Code Indonesian Standard (QRIS), the National Payment Gateway (GPN), and the National Open API Payment Standard (SNAP) are key milestones in the effort to achieve a cashless society.

However, the development of digital payment systems also presents significant regulatory challenges. These challenges include data security, cyber risks, oversight of payment service providers, and potential disruptions to financial system stability (Prawitasari et al., 2024). The complexity of the digital payment ecosystem demands adaptive and risk-based policies to allow innovation to thrive without compromising consumer protection.

Various studies have shown that the success of digital payment system policies is largely determined by the regulator's ability to maintain a balance between encouraging innovation and maintaining financial system stability. (Rachman et al., 2024) explain that QRIS implementation cannot rely solely on technological readiness but also requires clear, consistent, and adaptive regulatory support. Therefore, Bank Indonesia is required to fulfill its regulatory role responsively to technological developments while ensuring the resilience and security of the national financial system.

Although numerous studies have been conducted on the adoption of digital payment systems, research specifically analyzing Bank Indonesia's policies in addressing the regulatory challenges of digital payment systems in the era of financial transformation remains relatively limited. Yet, understanding regulatory policies is crucial for assessing the readiness of Indonesia's digital payment system to face the increasingly rapid and complex changes and dynamics of financial transformation (Astuti et al., 2024).

## **2. METHOD**

This study examines the policies formulated by Bank Indonesia, the payment system authority in Indonesia, in response to various regulatory challenges in the era of digital financial transformation. Issues analyzed include the rapid development of digital payment instruments, increasing cybersecurity risks, data protection and consumer rights, maintaining financial system stability, and demands for regulations to keep pace with the pace of financial technology innovation (Astuti et al., 2024). The policy referenced primarily refers to the Indonesian Payment System Blueprint 2025–2030, which emphasizes the importance of integrating the digital financial ecosystem, strengthening payment system infrastructure, and maintaining a balance between encouraging innovation and maintaining national financial system stability (Bank Indonesia, 2024).

This research employed a qualitative approach with a narrative literature review. This method was chosen to examine various relevant references and identify discussion patterns, key themes, and open research gaps related to digital payment systems and

their regulations. This approach allows researchers to understand the development of existing studies and identify aspects that require further analysis (Snyder, 2019).

This research uses secondary data sourced from national and international journals on digital payment systems and their regulations, official policy documents from Bank Indonesia such as the Indonesian Payment System Blueprint and Bank Indonesia Regulations, as well as books and methodological references relevant to policy analysis and literature review.

Data collection was conducted by searching and selecting relevant literature based on topic, year, and credibility, then grouping it according to discussion themes. Data were analyzed using content analysis, reviewing and summarizing key findings to explain Bank Indonesia's policies and identifying similarities, differences, and gaps with previous research (Miles et al., 2014).

### **3. RESULT AND DISCUSSION**

#### **3.1 Bank Indonesia's Strategic Policy in the Digital Payment System**

The results of an analysis of several documents from various sources indicate that Bank Indonesia has designed a structured digital payment system policy through an integrative and gradual approach. This is also confirmed in Law No. 23 of 1999 concerning Bank Indonesia, which states that one of Bank Indonesia's tasks is to maintain and regulate the smooth running of the payment system in order to achieve and maintain the stability of the rupiah. The effective implementation of this task requires the support of an efficient, fast, secure, and reliable payment system, which is the objective of the task of regulating and maintaining the smooth operation of the payment system. An efficient, fast, secure, and reliable payment system is the focus of the task of regulating and maintaining the smooth operation of the payment system.

Payment systems need to be designed with consideration for today's increasingly sophisticated developments. With the rapid development of technology and the internet, which has become an integral part of everyday life, digital technology has replaced traditional roles, influenced various aspects of the economy, and driven change and adaptation, including in the field of payment systems. Technological innovation and changes in people's transaction patterns have further strengthened the strategic role of Bank Indonesia as the payment system authority, both as a regulator, supervisor, and active operator in managing (Bank Indonesia, 2019).

In recent years, people's lifestyles have undergone changes, including in terms of payment methods, due to the widespread wave of digitalization. Payment systems have transformed from cash-based to non-cash systems. Various obstacles in the use of cash (paper and coins) have encouraged new innovations in the creation of non-cash payment methods. These lifestyle changes have encouraged people to make transactions more conveniently through digital means such as websites, mobile applications, USSD, and SIM Toolkits (STK), which enable fast, easy, and secure payments. Therefore, a fast, efficient, secure, and reliable payment system has become the focus of Bank Indonesia in its task of regulating and maintaining the smooth operation of the payment system (Sulfaunsilah et al., 2025).

In its capacity as the central bank, Bank Indonesia plays a strategic role in maintaining the smoothness, security, and efficiency of the national payment system. This role is carried out through its dual function as both supervisor and facilitator of the payment ecosystem.

1. As the supervisory authority, Bank Indonesia establishes regulatory frameworks, operational requirements, and sanction mechanisms for payment service providers to ensure that all instruments, both cash and digital, such as QRIS, operate in an orderly manner and minimize the potential for misuse. These

provisions are reflected in Bank Indonesia Regulation Number 20/6/PBI/2018 concerning Electronic Money. On the other hand, as a facilitator, Bank Indonesia continuously improves the payment infrastructure to support transaction efficiency amid the acceleration of digital transformation.

2. In addition to its supervisory function, the licensing authority is an important instrument in maintaining the integrity of the payment system. Bank Indonesia implements a selective licensing process through Bank Indonesia Regulations No. 23/6/PBI/2021 and No. 23/7/PBI/2021, so that not every entity can freely offer digital financial services. This approach demonstrates a policy orientation that emphasizes prudential principles as well as protection of community economic activities. With this mechanism, the stability of the payment system is expected to be maintained even as financial service innovations develop rapidly.
3. Risk mitigation efforts are also a key focus of payment system policy. The implementation of real-time systems such as RTGS demonstrates the regulator's commitment to improving the speed and security of high-value transaction settlements. This step confirms that strengthening the payment infrastructure is not only aimed at efficiency, but also at managing increasingly complex risks in the digital age.
4. Furthermore, its authority to regulate and develop payment systems places Bank Indonesia as a central actor in orchestrating the national payment ecosystem. Regulations covering various instruments ranging from cash, payment cards, to QR-based payments demonstrate a comprehensive and adaptive approach to technological dynamics. In addition to its regulatory function, Bank Indonesia's facilitative role is reflected in its ongoing efforts to improve the interoperability and reliability of payment systems.

This strategic role has grown stronger since Bank Indonesia assumed primary responsibility for operating the centralized payment system. Through the operation of core infrastructure such as SKNBI and RTGS, Bank Indonesia ensures that clearing and settlement processes run efficiently and securely. As the volume of non-cash transactions increases, Bank Indonesia's institutional capacity and infrastructure readiness are key factors in maintaining the stability of the national payment system (Fauzi et al., 2023).

The implementation mix of payment system policies has been determined by Bank Indonesia through several forms of digital payment technology innovation. The implementation of these policies is reflected in several strategic initiatives, including the standardization of national QR codes through the Quick Response Code Indonesian Standard (QRIS), the strengthening of domestic interconnectivity through the National Payment Gateway (GPN), and the application of the National Open API Payment Standard through the National Open API Payment Standard (SNAP). Substantively, these policies indicate a paradigm shift from a conventional regulatory model to a regulatory orchestration model, in which regulators not only act as supervisors but also as facilitators of innovation. This signifies that Indonesia's digital payment system policies are not reactive but proactive in responding to the dynamics of financial transformation.

### **3.2 Regulatory Challenges in the Digital Payment System Ecosystem**

The rapid development of digital payment systems has brought significant changes to the financial industry landscape, while also presenting new complexities for regulators. On the one hand, digitization promotes efficiency, financial inclusion, and service innovation; however, on the other hand, increased interconnectivity and use of technology also magnify potential risks that must be managed carefully. In this context, Bank Indonesia faces the challenge of formulating policies that are not only responsive

to innovation, but also capable of maintaining stability and consumer protection (Sinaga & Nasution, 2025).

As the adoption of digital payment instruments becomes more widespread, various strategic issues have begun to emerge. The strategic environment dynamics described in the previous section leave a number of challenges that need to be addressed appropriately and measurably, ranging from cybersecurity risks and digital literacy gaps to the complexity of supervising payment service providers (Alviana, 2023).

In terms of digital literacy, Bank Indonesia faces the challenge of ensuring that digital innovations implemented in the form of policies are accessible and efficient for all elements of industry and society. This will enable an equitable understanding of digital payment systems, healthy business competition, and stronger consumer protection.

In addition, the acceleration of digital payment transactions has not been fully accompanied by the strengthening of stability and adequate risk management practices. This condition can be seen from the high operational risk in the payment infrastructure, especially in the retail segment, as well as the suboptimal synergy between Bank Indonesia and industry players. Risk management and control capabilities also need to be continuously improved, in line with increasing cyber threats, fraud cases, and risks related to transaction integrity, including money laundering and terrorism financing. In addition, the gap in capabilities among industry players in meeting risk management standards is still quite wide and poses an important challenge that must be addressed immediately.

On the other hand, rapid innovation has not been accompanied by a commensurate increase in literacy and consumer protection, creating vulnerability to risk. The threat of cyber attacks continues to grow and is a major concern as digitalization accelerates. The rise in cybercrime and incidents shows that there is a real and growing threat. Based on data from Statista, the FBI, and the IMF, global losses due to online crime are projected to jump to around US\$23.84 trillion in 2027, a sharp increase from US\$8.44 trillion in 2022. In Indonesia, fraud cases related to card usage still dominate. In addition to data leaks and loss of individual assets, which can undermine trust between consumers and financial institutions, the existence of other payment instruments, especially virtual assets with their own ecosystems and platforms, also makes it increasingly difficult to control risks related to money laundering and terrorist financing (PUPT) (Bank Indonesia, 2024).

The discussion explains that behind the sophistication of technology that can simplify and accelerate the digital payment process, in its implementation, there needs to be a cautious and meticulous attitude in responding to every risk and challenge that cannot be overlooked. Therefore, Bank Indonesia needs to respond appropriately in facing a number of challenges and risks that threaten the implementation of the policy mix for the application of digital payment systems.

### **3.3 Analysis of Policy Suitability with Regulatory Challenges**

The development of digitalization has had an impact on various aspects of the economy in society, such as changes in the way people conduct transactions. This shows that digital technology has had a significant impact in transforming the previously conventional economic system. Various challenges and risks accompany this financial transformation. Bank Indonesia, as the payment system authority, is required to maintain financial system stability, protect consumers, ensure the security of digital transactions, and continue to promote inclusive and efficient technological advancement (Atmaja & Paulus, 2022).

Analysis of several sources shows that Bank Indonesia, in creating payment system regulations, has normatively adopted an adaptive and risk-based approach. Bank Indonesia published the Indonesian Payment System Blueprint (BSPI) as a policy direction guide for the payment system to navigate the role of the payment system

industry in the era of digital economy and finance. The presence of the 2030 Indonesian Payment System Blueprint (BSPI) is a solution to address new policy challenges in the era of digital technology development. BSPI 2030 brings a vision that includes five main directions that form the basis for the future development of the payment system (Nuraha & Diaulhaq, 2025).

One important step taken is the implementation of open banking by utilizing Application Programming Interface (API) as a system that enables open collaboration between banks and third parties. In order to accelerate digitalization, open banking also serves to bridge the relationship between banks and fintech companies. In a broader context, Bank Indonesia's National Open API Payment Standard (SNAP) is here to encourage integration, interconnection, and interoperability between payment service providers. SNAP also provides customers with easy access to digital banking services and fintech applications, as well as ensuring the security of personal data in transactions.

In addition to SNAP, strengthening the retail payment system is also a key focus through the development of BI-FAST, GPN, QRIS, and Integrated Payment Interface. This infrastructure supports the public's need for fast, easy, cheap, secure, and reliable transactions (CEMUMUAH). Not to be left behind, Bank Indonesia has also developed QRIS (Quick Response Code Indonesian Standard), which is a national QR Code-based payment standard that can mitigate the risk of recording errors or losses because transactions occur quickly, securely, and are recorded in real time. It can protect data and reduce the risk of fraud because it uses a strong authentication and encryption system.

#### **4. CONCLUSION**

This study shows that the digital payment system policy formulated by Bank Indonesia has been designed to be adaptive and risk-based in order to respond to the rapidly developing digital financial transformation. Based on an analysis of literature and policy documents, the regulatory direction outlined in the 2030 Indonesian Payment System Blueprint confirms Bank Indonesia's commitment to maintaining a balance between innovation and financial system stability. Initiatives such as QRIS, BI-FAST, the National Payment Gateway, and the implementation of the National Open API Payment Standard through an Application Programming Interface (API)-based open banking approach reflect an integrative strategy that not only strengthens the payment infrastructure but also promotes national interoperability and financial inclusion. These findings address the research issue that regulators no longer play a conventional role as passive supervisors, but rather as orchestrators who proactively shape the digital payment ecosystem.

Analytically, this policy is in line with the concepts of regulatory adaptive governance and risk-based regulation that are widely discussed in the literature on digital finance, where regulators are required to be flexible towards innovation while maintaining systemic stability. The main strength of Bank Indonesia's policy lies in its comprehensive regulatory design, strengthening of real-time infrastructure, and national standardization that improves transaction efficiency and transparency. QRIS, for example, has successfully created cross-provider interoperability and mitigated the risk of recording errors through a stronger authentication and encryption system. Similarly, the implementation of SNAP has accelerated the integration of banking and fintech services in a more open but controlled manner.

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