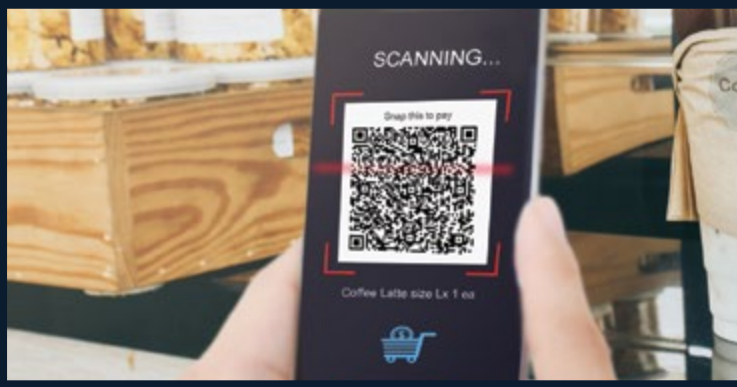
CHAPTER V



Innovation for Integration of Digital Economy & Finance

In the Indonesia Payment System Blueprint (IPSB) 2025, Bank Indonesia has published a strategy to promote integration of the national digital economy and finance; to safeguard the central bank functions of maintaining the integrity of money circulation process; to ensure effectiveness of monetary policy and financial system stability; and to support economic inclusion in the digital era. To implement the IPSB 2025, work is moving forward on strengthening and expanding payment infrastructure; promoting openness and public infrastructure for data; and strengthening the regulatory, licensing and supervisory framework for the payment system.

Digitalization has created to new business models and players while transforming consumer behavior as well as the economic and financial landscape. New business models have begun to transform the financial industry; they place a premium on convenience, gain quick public acceptance, and are accompanied by the emergence of new players. Changing the business model through digital transformation represents a strategic choice for established players in the face of consumer demand for new and ever faster, easier and affordable services on digital platforms. Digitalization has also generated a new paradigm in which data are the new oil for smooth operations; data are not only seen as contributing to innovation and improvements in efficiency, but also as a key lubricant for production of goods and services.[1] This fundamental change poses a policy challenge, namely striking a balance between seizing the opportunities of digital innovation and mitigating the risks that will arise.

Bank Indonesia has developed the Indonesia Payment System Blueprint (IPSB) 2025 as a comprehensive policy response for promoting integration of the national digital economy and finance. The IPSB 2025 sets the course for development of the digital economy and finance in Indonesia, assuring continuity in the functions performed by the central bank and in support economic and financial inclusion. The Blueprint expands upon certain visions for the Indonesia Payment System

> "The IPSB 2025 is a comprehensive response for promoting integration of the national digital economy and finance"

(IPS) that were unveiled by Bank Indonesia at the opening of a Seminar on 27 May, 2019 and known as the IPS 2025 Vision. As shown in Figure 5.1, the first IPS 2025 vision is to promote integration of the national digital economy and finance, including in support of economic and financial inclusion. Effectively, these five visions constitute the long-term goal of Bank Indonesia's policy direction in the payment system. To realize these visions, all efforts will follow the path detailed by the blueprint, through five initiatives (Diagram 5.1), including those implemented directly by Bank Indonesia and others implemented in collaboration with relevant ministries, government agencies and industry. During the implementation of the Blueprint, Bank Indonesia will focus on three key aspects: data openness; development of payment system infrastructure; and integrated regulation of the payment system. These are discussed below in Section 5.2, following a review of the changing landscape in Section 5.1.

1 Yan Carriere-Swallow and Vikram Haksar (2019). "The Economics and Implications of Data: An Integrated Perspective", IMF Working Paper No. 19/16, September 2019.

5.1

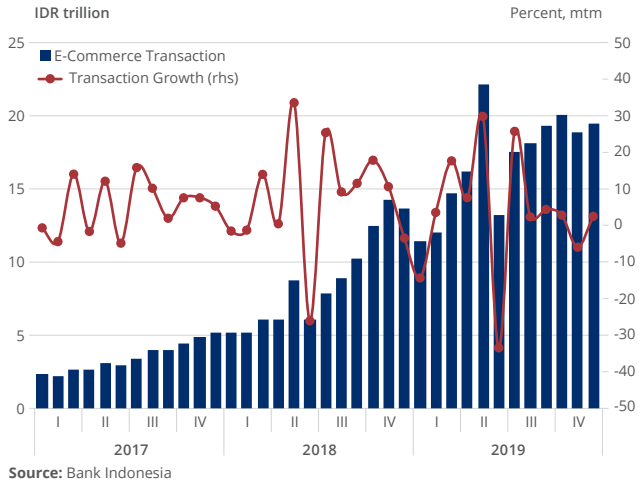
Digitalization Transforms the Economic and Financial Landscape

Advances in digitalization have brought about far-reaching changes to nearly every aspect of human life. The rapid pace of digitalization over the past decade has deeply affected the economy and transformed the wider landscape of the world economy and finance. At least three drastic changes have taken place in response to the rapid development of digital-based technological innovations. First, the digital revolution is transforming the transaction behavior of economic agents. Second, the rapid advance of digital processes has led to fundamental change in activities in various fields. Third, as 'the new oil', data is key to integration of the digital economy and finance. These changes are discussed immediately below.

Changes triggered by the digital revolution are transforming the transaction behavior of economic agents. Personal consumption trends have now begun to shift towards shopping on digital platforms. From 2017 until December 2019, e-commerce transactions in Indonesia grew by a remarkable 162% (Chart 5.1). These behavioral changes necessitate ever more mobile, quick and secure methods of payments. Online payment services, now provided by financial technology (fintech) companies, particularly electronic money, have led to growing public preference for, and merchant acceptance of, online payments in e-commerce transactions. This is reflected in significant growth in users of electronic money, especially non-bank electronic money (Chart 5.2). In addition, electronic money, which is all provided by fintech companies, is accounting for a steadily expanding share of the payment transactions used in e-commerce (Chart 5.3).

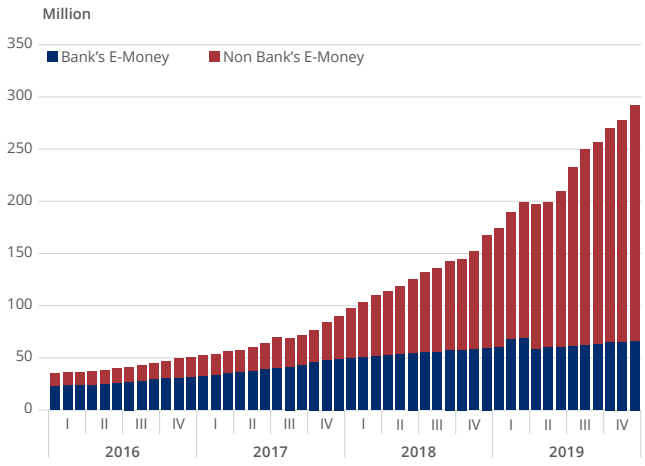
Rapidly expanding digital technology has also fundamentally transformed activities in many different fields. These changes extend to new production processes employed in retail trade covering e-commerce and services like health care, education and various other segments. In finance, digital innovation has led to the emergence of fintech companies offering a wide range of financial services from payments to crowdfunding, peer-to-peer lending, insurance, wealth management and so forth. Digitalization has also encouraged new forms of collaboration among economic agents in the sharing

Chart 5.1. E-Commerce Transaction



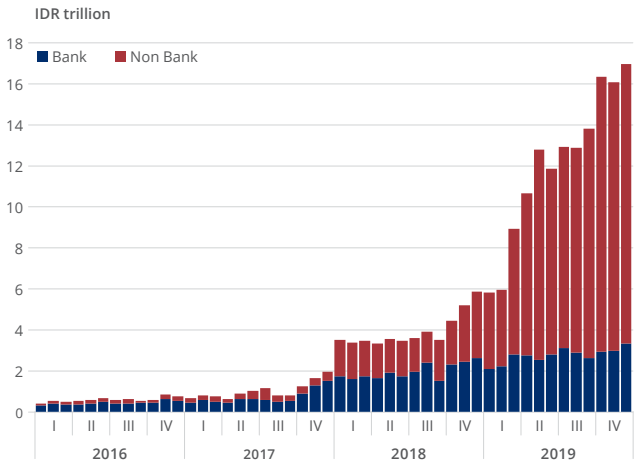
Source: Bank Indonesia

Chart 5.2. Electronic Money User



Source: Bank Indonesia

Chart 5.3. Fintech Payment Transaction (Electronic Money Transaction)



Source: Bank Indonesia

"As the new oil, data is key to integration of the digital economy and finance"

economy with disruptive impact on the role of conventional financial institutions, most notably banks. The role of non-bank operators, ranging from start-ups to global big tech, is steadily expanding. Importantly, these new activities and players are not covered or less regulated by the existing regulatory framework.

As 'the new oil', data is key to integration of the digital economy and finance. Granular data[2] generated by consumer activity has become a rich source of information, especially insofar as proprietorship can provide a large competitive advantage within the industry. Harnessing technology such as big data analytics, artificial intelligence (AI) and machine learning yields products and services that are more appealing to consumers, and the benefits to the public are more pronounced when the data are shared, due to their 'non-rivalry' (that is, their infinitely reusable) characteristic.[3] This broadens the range of available products and services, giving consumers greater choice while expanding markets. Big tech has even used this approach to unbundle conventional financial services from the regular banking system and re-package the service with other products.

2 The term 'granular data' refers to extremely detailed information, effectively the lowest level of information on a particular target of interest.

3 Charles I. Jones and Christopher Tonetti (2019). "Nonrivalry and the Economics of Data", Stanford Graduate School of Business (GSB) Working Paper, August 2019.

Digitalization brings opportunities to support economic financial inclusion and improve stability. Digital technology cuts costs and extends the reach of transactions, thereby promoting economic activity. Digital innovation has brought about changes in social interaction in the direction of economic democratization and improved efficiency resulting from access to information. It also nurtures new business models, industries and new sources of economic growth. The interconnectivity of these economic agents can shorten distribution chains for goods and services, promote more equitable dissemination of information and make economic activities more efficient overall. Technological innovation has also enabled the financial system to become decentralized and possibly more stable. These developments have special implications for financial sector development and financial inclusion. If supportive policies can be designed, the 93.1 million unbanked adults and 62.9 million micro, small, and medium enterprises (MSMEs) in Indonesia can be attracted into the formal economy and the financial sector. The financial inclusion program needs to be expanded beyond the mere holding of payment instruments or bank accounts to encompass full and sustainable access to the financial market and market for goods (economic inclusion). In this way, digital innovations will provide a concrete solution for greater equity in development while enhancing efficiency and productivity.

Digitalization also carries potential risks that will need to be mitigated. One of the main risks is the emergence of an unregulated, shadow banking system that could be detrimental to financial sector stability. Digital technology carries other risks, too, like cyber risks, new types of fraud, regulatory arbitrage, unfair business competition and misuse of consumer data. Furthermore, there is potential for near-term disruption of unprepared labor markets as well as the risk of monopolized control of data. An escalation of these risks could, in turn, potentially disrupt monetary stability, financial system stability and smooth operation of the payment system, which are core mandates of Bank Indonesia.

These developments have increased the complexity of the challenges that authorities face. In addressing this issue, it is important to strike a balance between promotion of innovation and mitigation of risks. This would ensure the maintenance of proper oversight, ensuring that the rapid technological change does not prove counterproductive to macroeconomic stability and economic growth in the long run. To this end, the IPSB 2025, as a comprehensive and forward-looking response, is important to maximizing the benefits of digital innovation while minimizing the risks, mentioned above. The payment system has a vital role in economic digitalization and can therefore be used as an underlying determinant of the effectiveness of the policy responses needed to address policy challenges in the digital era.

5.2 The IPSB 2025 Responses to the Challenges of Digitalization

The IPSB 2025 represents the contribution of Bank Indonesia to the challenges of the digital era. The IPSB 2025 is designed to focus on building a sound ecosystem for the digital economy and finance. The design of the IPSB 2025 is based on the IPS 2025 Vision, noted above; these represent the long-term goal of Bank Indonesia policies in this area (Figure 5.1).

The overarching vision of IPS 2025 is to promote integration of the national digital economy and finance while safeguarding the central bank functions of maintaining the integrity of monetary circulation, ensuring the effectiveness of monetary policy, maintaining financial system stability and supporting economic inclusion in the digital era. This first IPS

Figure 5.1. The Indonesian Payment System (IPS) 2025 Vision

1. IPS 2025 reinforces the integration of national digital economy and finance in assuring the proper functioning of central bank mandate in money circulation, monetary policy, and financial system stability as well as financial inclusion
2. IPS 2025 fosters digital transformation within the banking industry to sustain banks role as a primer institution in the digital economy and finance through the implementation of open-banking standard as well the deployment of digital technology and data on their financial product and services
3. IPS 2025 assures interlink between fintech and banks to contain the escalation of shadow-banking risk through the regulation of the use of digital technology (e.g API), business relation, and business ownership
4. IPS 2025 strikes the balance among innovation, consumer protection, integrity, and stability as well as fair competition through the implementation of digital KYC & AML-CFT, data/information/public business openness, and the deployment of Reg-tech & Sup-tech for reporting, regulatory and supervisory
5. IPS 2025 safeguards national interest on cross-border use of digital economy and finance through the obligation of domestic processing for all onshore transactions and domestic partnership for all foreign players under the consideration of reciprocity principle

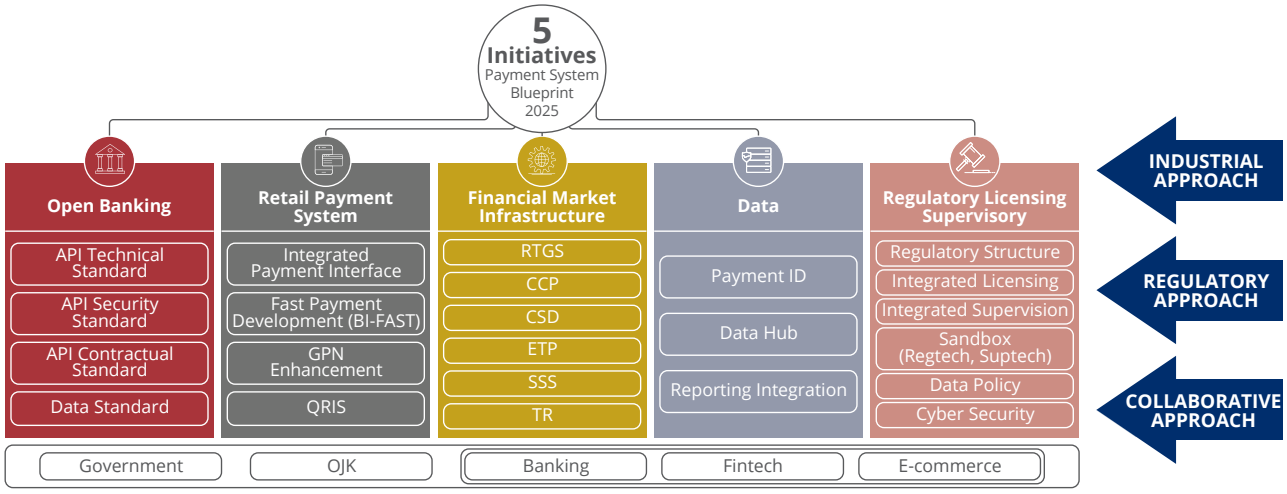
*) IPS aspect comprise of instruments, mechanism, institutions, infrastructures, & cross-border, including synergy & coordination among institutions

"The five key initiatives for implementing the IPS 2025 Vision are open banking, the retail payment system, financial market infrastructure, data, and regulation, licensing, and supervision"

2025 vision envisages a process for navigating Indonesia's economic transformation for the digital era. To this end, this vision focuses on efforts to develop a configuration for the digital economy and finance that will support economic empowerment for society and ensure public access to digital data with adequate protections and governance. The thrust of this approach is for the payment system to serve as the infrastructure that meets the demands of the digital era (fast, low-cost, easy, secure and reliable services) and ensures that flows of money and goods are properly organized, standardized and integrated end-to-end. This vision covers the shaping of a regulatory climate that will facilitate the growth of the digital economy and finance.

Four other, more specific IPS 2025 visions elaborate on achieving its overarching vision, discussed above. The second IPS 2025 vision aims to foster the capability of the banking system to undergo end-to-end digital transformation, most importantly with open banking. The open banking approach is also designed to realize the third IPS 2025 vision, that is, ensuring interlinkage between banks and fintech. This linkage is intended to ensure a level playing field between banks and fintech, prevent the risk of monopolistic control and expand opportunities for inclusiveness in broader acquisition of granular data. Bank Indonesia will then put soft infrastructure into place by strengthening the regulatory framework, the entry policy mechanism, and supervision. This comprises realization of the fourth IPS 2025 vision, which envisages the provision of a regulatory regime, an entry policy and simplified and adaptive supervision to ensure preparedness for the rapid pace of innovation in financial technology. Finally, the fifth vision of IPS 2025 aims to create opportunities for interoperability of infrastructure and payment system instruments in cross border transactions while upholding

Diagram 5.1. Operational Framework of Indonesia Payment System Blueprint (IPSB) 2025



Source: Bank Indonesia

the principle of reciprocity to ensure equivalence of rights in bilateral economic relations with other countries.

To achieve the IPS 2025 Vision, five key initiatives will be put into action via the IPSB 2025. Five key initiatives (Diagram 5.1) constitute the means to realize the visions, discussed above. They are: Open Banking; the Retail Payment System; Financial Market Infrastructure; Data; and Regulation, Licensing, and Supervision. The five IPSB 2025 initiatives are being implemented according to the approaches presented in Diagram 5.1. To begin with an industry approach, there will be a role for industry (or business players) in the development of agreements and future direction, including as concerns certain details of issues covered by the IPSB 2025. As for the approach to regulations, the issuance of regulations will be characterized by a top-down approach. However, in creating regulations within this top-down framework, Bank Indonesia will take account of inputs from the banking system, industry actors and other authorities. Finally, a collaborative approach will engage agents across the spectrum of interests as, for example, in banks' linkages with fintech

The implementation of the IPSB 2025's five initiatives is set within the context of three principles: data openness; development of infrastructure; and integrated regulation of the payment system. Openness of data and information will be promoted through the initiative for open banking. Bank Indonesia will also develop the retail payment system infrastructure and promote the strengthening of financial market infrastructure (FMI). Going further, Bank Indonesia anticipates the provision of public infrastructure for data that can guarantee open access for the public and can be employed to build greater economic and financial inclusion. Closing gaps in regulations will also support progress in innovation without sacrificing prudence in mitigating the risks involved. In addition, integrated regulation of the payment system will contribute to fulfillment of the IPS 2025 Vision in its entire scope.

> "The objective of the open banking is to promote digital transformation in the banking system and build interlinks between banks and fintech"

Promoting Data Openness

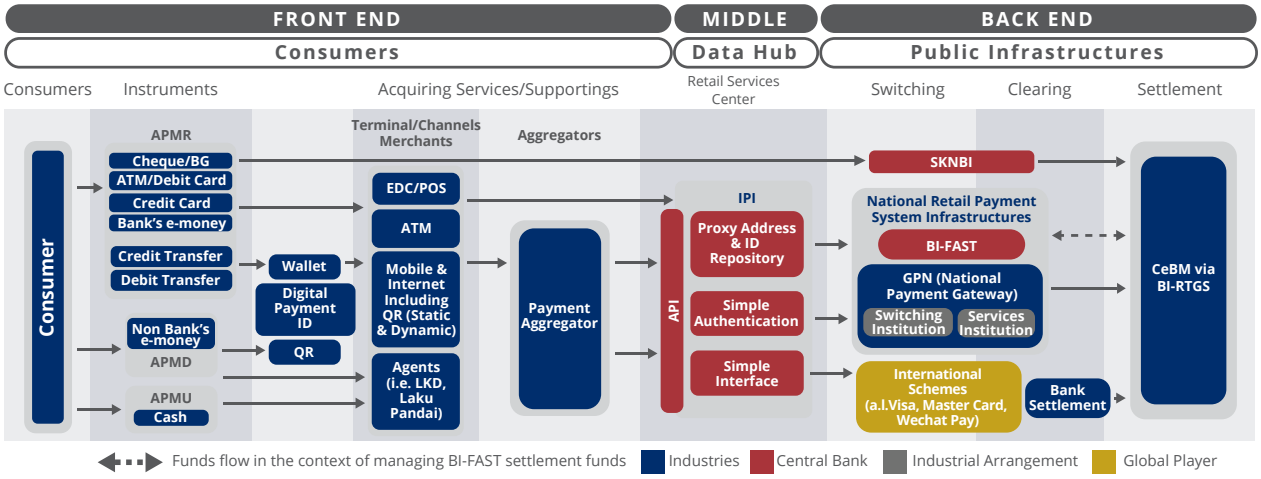
To support the digital economy and finance, Bank Indonesia will promote openness of data and information between banks and fintech through the application of open banking. The objective of open banking is to promote a comprehensive digital transformation in the banking system and build linkages between banks and fintech.[4] The intention is to maintain a level playing field between banks and fintech while encouraging collaboration between the two in a way that will lead to more consumer-friendly services. Other reasons for pursuing the open banking strategy are to curb the risks of shadow banking; accelerate the development of the retail payment system; and to open possibilities for broader economic and financial inclusion.

Open banking will begin with standardization of an open API (Application Programming Interface).[5] The Open API standardization will cover the four main areas of data, technical, security and governance standards. The data standards will address the scope and types of data governed by the requirement for openness by banks and fintech. The technical standards will include, among others: specification guidelines for the Open API for communications protocols; type of architecture; data format; and data structure. The security standards will address minimum requirements for the security to be provided by banks and fintech, including authentication,

4 In the IPSB 2025, open banking is defined as an approach that enables banks to make the financial data and information of their customers available to third parties (fintech) on the basis of customer consent (Bank Indonesia, 2019). The BIS in its Report on Open Banking and Application Programming Interfaces (2019) defines open banking as "the sharing and leveraging of customer-permissioned data by banks with third party developers and firms to build applications and services..." (BIS, 2019).

5 An Application Program Interface is a set of routines, protocols and tools for building software applications. It specifies how software components should interact.

Diagram 5.2. Retail Payment System Configuration: End State 2025



Source: Bank Indonesia

> "Bank Indonesia is strengthening interoperability across payment instruments with the QRIS"

authorization and encryption. Meanwhile, the governance standards will include rules for consumer consent, dispute resolution, the API life cycle and a standards governing body. In addition, contracts for business collaboration will apply the same standards to ensure equal access for all parties. Looking forward, open banking will be implemented in phases with a transition period to provide adequate flexibility to banks and fintech. To this end, supporting regulations will also be fully prepared and put in place.

Strengthening and Expanding Payment System Infrastructure

Advances in digitalization require a quick, mobile, secure and low cost payment methods. Digitalization will be accompanied by tremendous growth in data volume, which will require adequate data management infrastructure. To this end, Bank Indonesia is taking the initiative to strengthen the retail and large value payment systems and to provide public infrastructure for data on a scale commensurate with the IPSB 2025. The thrust of developing a more robust national retail payment system is to build a new structure that will enable a sound digital ecosystem to take shape (Diagram 5.2). The modernization of the retail payment system infrastructure for greater efficiency will be carried out using the latest technology. The objective will be a real time system that operates continuously on a quick, secure, reliable and low-cost basis.

Bank Indonesia is pursuing a number of strategic measures for strengthening the retail payment system infrastructure at the front-, middle- and back-ends. At the front-end, Bank Indonesia is focusing on measures to strengthen interoperability across payment instruments. One of these is the standardization of quick response (QR) codes for payment, known as the Quick Response Code Indonesian Standard (QRIS). In the middle- and back-end areas, an integrated payment interface (IPT) and other new infrastructure capable of processing fast payments will be developed.[6] The IPT will become a single interface connecting to all payment instruments and channels

6 The functional design of the Integrated Payments Interface (IPT) is based on the functioning of the Unified Payment Interface (UPI) developed in India. See https://www.npci.org.in/product-overview/upi-product-overview.

for mobile interoperability.[7] The IPT will support funds transfers among banks and between banks and non-bank institutions in real time. BI-FAST will also become fast payment infrastructure operating as backbone for the infrastructure of the national retail payment system. The connections of the IPT with BI-FAST and the National Payment Gateway (GPN) will enable various mobile-based services to be provided more easily, at lower cost. BI-FAST, which will work alongside the NPG and the Bank Indonesia National Clearing System (SKNBI), is also expected to strengthen the resilience of the payment system into the future, when it will handle a very high frequency of retail transactions.

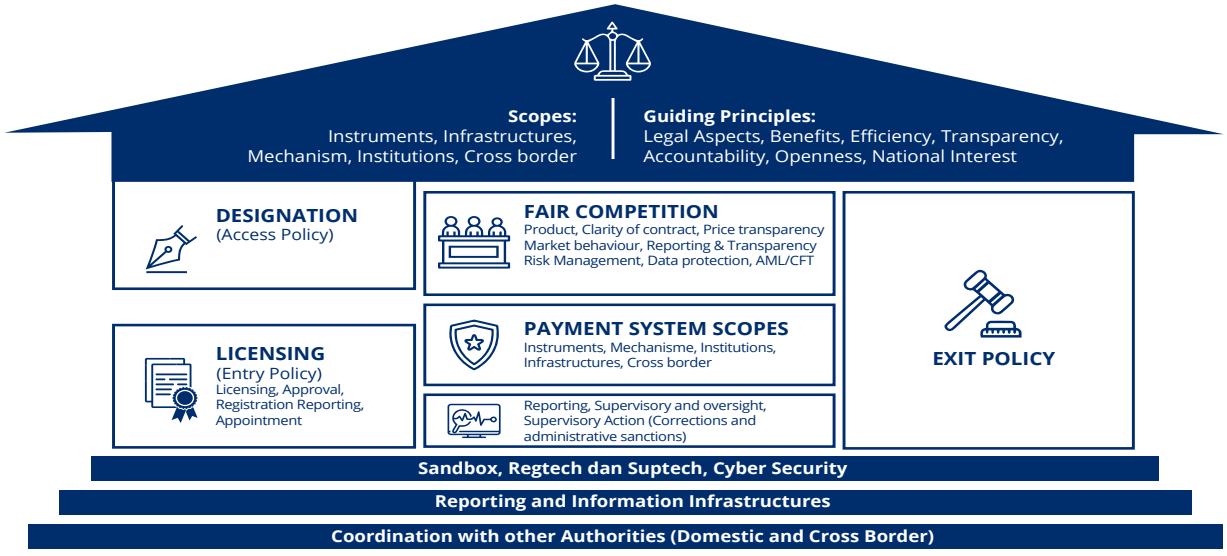
Reinforcement of financial market infrastructure is conducted to improve transparency, efficiency and governance of transactions on financial markets, while complying with the G20 mandate and the guidelines of the Principles for Financial Market Infrastructure (PFMI).[8] Bank Indonesia Real Time Gross Settlement (BI-RTGS) system will be modernized with focus on optimizing services, strengthening efficiency and building risk

"Bank Indonesia will develop a data hub payment data traffic for collecting granular data from the various forms of payment transactions"

7 Except for checks/non-negotiable giro orders and cash transactions.

8 The PFMI Guidelines are international standards that serve as the leading reference for development of financial market infrastructure. PFMI-compliant financial market infrastructure (referenced in the main text) includes the systemically important payment system (SIPS); central counterparties (CCP); the securities settlement system (SSS); the central securities depository (CSD); and trade repositories (TRs). These five forms of infrastructure perform three key functions in post-trade activities on financial markets: clearing (CCPs); settlement (SSS for securities and SIPS for funds); safekeeping (CSD); and recording payments (TRs). The IPSB 2025 also encompasses the ETP, a platform for issuance and auction of securities

Diagram 5.3. Payment System Regulatory Structure



Source: Bank Indonesia

mitigation capacity. BI-RTGS will also be designed as open infrastructure to enable the interconnection of domestic and cross border financial market infrastructure. Alongside BI-RTGS, BI-SSSS will also be modernized to enhance its function as a securities settlement system (SSS) and central securities depository (CSD). Bank Indonesia Electronic Trading Platform (BI-ETP) will also be upgraded to facilitate monetary operations transactions denominated in rupiah and foreign currencies and the government securities auctions on the primary market. Bank Indonesia will continue strengthening the regulatory framework for establishment of central counterparties (CCPs) for over-the-counter (OTC) derivatives; establish a range of standardized money market and forex market instruments; and promote these transactions for use on exchanges or ETP. In addition, development of trade repositories (TRs) will be encouraged to strengthen the implementation of OTC derivative market reforms.

To build adequate data infrastructure, Bank Indonesia will develop a data hub for payment data traffic while collecting granular data generated by the various forms of payment transactions. The data hub is part of the measures to be put in place for mitigating the risk of monopolistic control of data by positioning granular data on payment transactions as public goods. The accumulated granular data on payment transactions will be transformed into high-value information content and assigned a digital identity (payment ID) that will enable the development of payment innovations and deepen economic and financial inclusion. The data hub will also be equipped with a consumer consent mechanism for protection of consumer data.

Strengthening the Regulatory, Licensing, and Supervisory Framework

Changes in the digital era call for strengthening regulatory aspects of the payment system. Adjustments to the regulatory framework are also necessary to support fulfillment of the IPS 2025 Vision. According to assessments of the regulatory framework and scope of regulation in a few other countries, various options exist for strengthening the regulatory scope that can be applied in Indonesia. First, a comprehensive definition and scope of payment instruments and channels need to be adopted that will accommodate advances in instruments and channels across the digital economy and financial sector. Second is the need for institutional restructuring of the payment system in an activity-based approach focused on the parties to be served, including the entry policy mechanism and criteria appropriate to the institutional category of provider. Third, it is necessary to have a grouping of payment system infrastructure by risks or characteristics of the processed transactions and the parties to be served by the payment system infrastructure.

"The entry policy mechanism and integrated licensing will be streamlined without sacrificing prudential regulation"

IPSB 2025's new regulatory framework will have a structure and regulatory approach that provides for future regulatory provisions. The regulatory system will be restructured through an approach based on payment system components that range from instruments to the institutional framework, infrastructure, mechanisms and cross border arrangements (Diagram 5.3). The payment system regulatory structure will also be based on a number of objectives. The first is to revamp the drafting and issuance of payment system regulations so that they will be better structured, more proportional, forward-looking and agile. The second is to streamline the regulations, particularly ones that are still scattered and rigid. The third is to optimize the association and industry role in issuing technical requirements on the basis of approval from Bank Indonesia.[9] The fourth is to apply a more adaptive approach to industry developments. And the fifth is to ensure that the payment system operates securely, efficiently, fast, and reliably, beginning with entry and throughout operation and supervision to exit. To achieve this, sound business practices will be first and foremost, alongside compliance by payment system providers.

The payment system will also have an integrated regulatory structure featuring an entry policy mechanism, supervision and reporting in line with best practice and sound business conduct. The entry policy mechanism and integrated licensing will be streamlined without sacrificing prudential regulation. Besides the licensing process for payment system service providers (PJSP), a designation process will be applied to payment system operators as part of the entry policy approach. Licensing for payment system service providers will be activity-based and classified by size, scale and scope. Furthermore, licensing requirements, including development of activities and cooperation, will be adjusted to the level of complexity or risk inherent in the type of activity to be undertaken. Regarding supervision, the methodology to be applied will represent a synergistic combination of risk-based supervision and compliance-based supervision. The supervision methodology will also be strengthened with the use of granular data by optimizing the opportunities provided by the data hub and reporting integration application. Beyond that, the availability of granular data from the use of data collection and data analytic technologies will create opportunities for more robust implementation of licensing and supervision. with regtech and suptech solutions.[10] The potential of regtech and suptech can be harnessed by industry and regulators by making use of the sandbox.[11]

9 Refer to Surat Edaran Bank Indonesia Number 13/7/DASP concerning Self-Regulatory Organizations in the Payment System.

10 Regulatory technology (regtech) refers to applications of innovative technologies that support compliance with regulatory and reporting requirements by regulated financial institutions (FSB, 20017). Supervisory technology (suptech) is the use of innovative technology by supervisory agencies to support supervision (BIS, 2018).

11 The 'sandbox' is a controlled technology environment that is mainly used to assess whether consumers would be adequately protected in using new applications, products or services (BIS FSI, 2019).

5.3 Creating an Ecosystem for the Development of Digital Economy and Finance in Indonesia

The digital revolution currently under way has taught some important lessons. First, management of data and information is key to management of the economy in the digital area. The potential of granular data can be harnessed for economic and financial inclusion with the ability to mitigate the risks of data concentration and silos. The risks of data concentration can be mitigated by open data access extending across providers with consumers having full control over the right to determine access.[12] Data openness will increase market competition in line with the growing number of actors able to make use of the granular data for product enhancements or to develop new products. The increased diversity of products and competition will in turn expand the range of options and promote efficiency in pricing and quality for consumers. A second important lesson is that to enable digital technology innovations to deliver a positive contribution to economic development and stability, good management is necessary to ensure that potential for market failure does not materialize.

Strengthen the presence and role of authorities is important to ensure market discipline in safeguarding and ensuring the continuity of digital innovation within a sound and stable ecosystem. Bank Indonesia, in its capacity as payment system authority, will play a crucial role in structuring the digital economy and finance, owing to the critical role of the payment system. A robust, reliable payment system is decisive for the smooth flow of goods and services. As such, the payment system will also be decisive for the effectiveness of monetary policy transmission and financial system stability.[13] Digitalization implies the emergence of new players in the payment industry, and these must be regulated to ensure that they do not pose a risk of shadow banking or a risk to monetary stability through a process of excessive money creation.

Strengthening the role for authorities is also necessary to mitigate the risk of market failure caused by monopolistic behavior. In the micro-economic dimension, the characteristics of the payment system make it a public good along the lines of electricity and transportation infrastructure. Both the Government and private sector/industry can play a role in provision of the payment system.[14] [15] Besides this, the possession and control of consumer data acquired from a large, but exclusive, digital network can also lead to concentration and market domination by, for example, big tech companies. Such an enormous economy of scale in the hands of big tech can ultimately become a barrier to entry for other companies, thereby eliminating competition within the financial industry. In this scenario, dominant market players can easily control the supply of products

12 Rafe Mazer (2018). "Emerging Data Sharing Models to Promote Financial Service Innovation: Global Trends and Their Implications for Emerging Markets", June 2018.

13 According to Manning and Russo (2007), monetary policy and financial system stability are rooted in the traditional duties of central banks in payment systems. Mark Manning and Daniela Russo (2007), "Payments and Monetary and Financial Stability", European Central Bank-Bank of England Conference, November 2007.

14 Ingves (2018) and Manning and Russo (2007) conclude that when payment infrastructure is provided by the private sector, this will lead to a natural monopoly due to the combination of economy of scale and network effects. Stefan Ingves (2018), "Money and payments – where are we heading?", Sveriges Riksbank, June 2018.

15 Tobin (1987) concludes that it is difficult for payment system services infrastructure to be provided efficiently by the private sector. James Tobin (1987): "A Case for Preserving Regulatory Distinctions." Challenge 30 (5).

and increase the prices charged to consumers. This underscores the importance of the central bank's position as payment system authority performing the roles of regulator, supervisor and system operator.

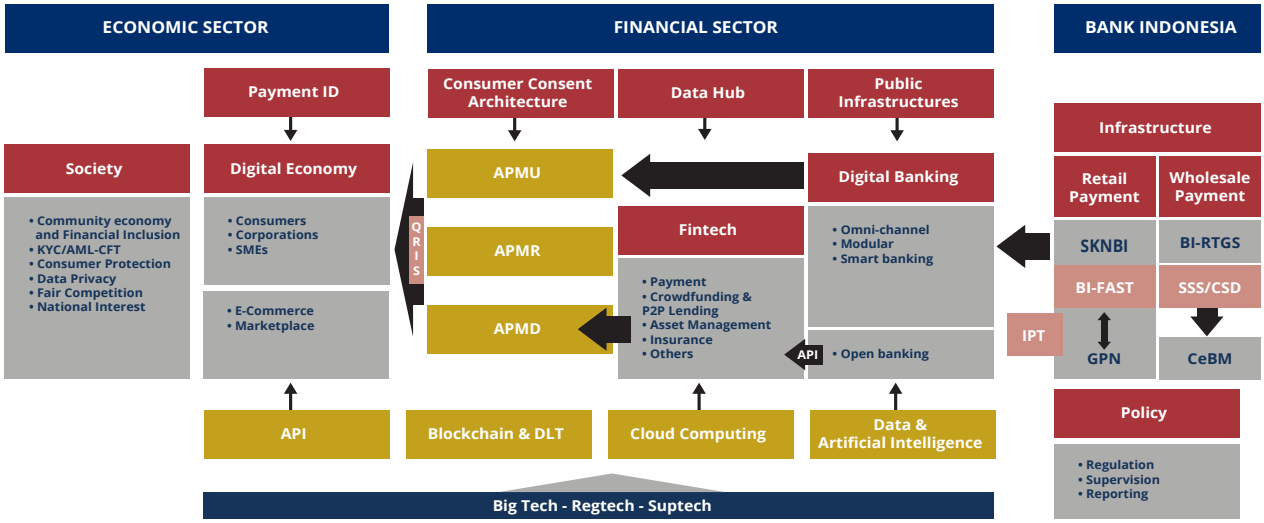
Bank Indonesia will maintain a sound economic and financial structure with the aim of supporting sustainable economic development. As suggested by the overarching vision for IPS 2025, Bank Indonesia will focus policy on integrating the digital and financial economies so as to support the economic empowerment of society and guarantee openness of public access to digital data (Diagram 5.4). Bank Indonesia will ensure that the payment system has the capability for integrating the economy and finance into the digital era and in so doing enable currency circulation; monetary policy transmission; financial system stability; and economic and financial inclusion to operate on a sound basis. In this context, payment system infrastructure will become the key conduit to bring about integration of the digital economy and finance. As such, it will ensure the smooth operation of the processes for circulation of cash currency and non-cash instruments extending to all members of society.

> "The structuring of a digital ecosystem will be undertaken by Bank Indonesia by ensuring the availability of hard and soft infrastructure for the public and business in keeping with the demands of the digital era"

Creating a sound digital ecosystem will be carried out by Bank Indonesia in its capacity as payment system authority. This will be achieved by ensuring that hard and soft infrastructure are available to the public and the business community in line with the demands of the digital era. The hard infrastructure comprises financial system, especially payment system infrastructure that has the necessary capabilities for responding to the needs of the public and business. This public infrastructure for payments and data will be developed to ensure that all economic agents, ranging from individual consumers to MSMEs and large corporations, are connected through a digital platform. To complement this, the strengthening of soft infrastructure will be directed at supporting efforts to establish a facilitative regulatory climate for growth of the digital economy and finance. Bank Indonesia will put in place the soft infrastructure by strengthening the regulatory framework, entry policy mechanism and supervision. The regulatory regime and the entry policy will aim to be simplified and more adaptive in the expectation of fast-paced innovations in financial technology. The regulatory structure will be designed for restructuring the payment system ecosystem so that it serves as robust foundation for licensing, supervision, reporting and operation of the payment system so as to support economic and financial inclusion in the digital era.

The various efforts for development of the Indonesian digital economy are highly relevant to support economic and financial inclusion in Indonesia. Digitalization of payments should enable coverage at all levels of society, most importantly for those who so far have lacked sufficient access to financial services. For example, the QRIS project in the retail payment system initiative can be developed further in the payments area, effectively without limits. The availability of the QRIS as the front-line interactive tool for

Diagram 5.4. Configuration of Digital Economy and Finance 2025



Source: Bank Indonesia

all payment transactions will ensure equal opportunity for all adult persons to connect with financial services. For MSMEs, the opportunity to receive payments using the QRIS will generate highly granular, information-rich data on payment transactions. For instance, each merchant connected to the QRIS will be entered into the National Merchant Repository. That means there will be an Indonesia-wide merchant database that will be very useful for merchant/MSME mapping and development. From there, it will be possible for all transactions using the QRIS to be recorded and used for purposes extending beyond payments.

Payment data will provide the impetus for wider economic and financial inclusion. The payment data recorded through the QRIS will be stored in secure data infrastructure and made available to the public. The data will be developed for the interests of these merchants, such as better recordkeeping and accounting or even inventory management. Furthermore, it will be possible for payments to be processed so that they provide a picture of creditworthiness for these MSMEs, such as in credit scoring. With a clear and consistent record of payment transactions, MSMEs will have greater opportunity to access more financial services, such as increased financing. Using digital solutions, it is now possible to break through the silos of viability that in the past have pushed MSMEs and other people in Indonesia into the category of citizens who lack access to financial services.