

CHAPTER IV

FINANCIAL TECHNOLOGY DEVELOPMENT IN INDONESIA

A. Evolution of Financial Technology

1. Fintech 1.0

Financial and technological development is indeed not a new development in financial service industry. Financial and technology have been engaged and interconnected long ago even from 18th to 19th century. The era of Fintech 1.0 was the first period of reinforcement financial system by technological infrastructure which was started from 1866 to 1987. The telegraph was first introduced in this period and then followed by the successful of transatlantic transmission cables in 1865. The introduction of these two technological infrastructure became the first main period of financial globalization. Credit cards and Interbank Card Association, which is now called as Master Card, also were firstly introduced in 1950 and 1966 (Arner, et al., 2015). The financial sector started to develop telegraphs, railroads, canals, steamships and other technologies globally and mainly in developed countries. The era of Fintech 1.0 is also known as the transformation era from analogue to digital.

2. Fintech 2.0

The beginning of Fintech 2.0 was marked with the introduction of Automatic Teller Machine (ATM). The launched of ATM began the modern era of Fintech 1.0. Financial service industry globally started to purchase IT

products and services in huge scale that led to the development of Fintech in payments and securities sectors. Clearing Houses were established in the payment sector in developed country such as Inter-Computer Bureau in UK and Clearing House Interbank Payments System (CHIPS) in US. Inter-Computer Bureau later formed the basis of Bankers' Automated Clearing Services (BACS). National Association of Securities Dealers Automated Quotations (NASDAQ) was established in securities sector firstly in US. In this era, investment banker started utilizing mobile phone which then launched online bank in 1980s in US and UK (Silalahi, 2018).

Fintech 2.0 was the era where digitalization process in financial service sectors kept increasing. In the late of 1980s, financial service had started to conduct electronic transaction between financial institutions and customers globally. Since the emergence of internet in early 1995, customers in financial market started to be able to do online account checking. In the early 21st century, information technology had significant role in financial service sector where the financing service process had been fully digitized (Arner, et al., 2015). The existence of e-banking provided customers direct access to the accounts and lessen the necessary for customer to come directly to the bank branches.

3. Fintech 3.0

The Global Financial Crisis in 2008 had pushed the development of Fintech into new era of Fintech 3.0. Fintech has started to emerge in developed and developing countries since 2008 until present time. As public

became more understand about the financial crisis, public distrust on traditional banking system also started to develop (Arner, et al., 2015). Eventually, public just saw banks as a financial service provider that generate profit and offer return for shareholders. The financial crisis was also followed by many professional workers in financial sectors that lost jobs and did not get well compensated (King, 2010). These conditions urged a new Fintech 3.0 industry where those financial professionals could implement their skills.

The emergence of start-up players was caused by strict regulations after 2008 Global Financial Crisis. Fintech covered the whole scope of financial products and services that have been offered by traditional financial institutions. Fintech started to involve in five major areas including 1) finance and investment, 2) operations and risk management, 3) payments and infrastructure, 4) data security and monetization, and 5) customer interface (Arner, et al., 2015). Besides the 2008 Global Financial Crisis, Fintech 3.0 emerged due to public expectation and demand for alternative financial options that used to be mainly offered by banks, but then also offered by Fintech players, such as Fintech P2P lending.

4. Fintech 3.5

While Fintech 3.0 emerged as response to global financial crisis in the West, the emerging of Fintech in Asia was mainly caused by rapid economic development. The emergence of Fintech 3.5 in developing countries in Asia was supported by the inefficiency of existing financial

system, the need of development, and the rapid growth of new technology, especially mobile communications (King, 2010). The latest Fintech 3.5 evolution by start-up players generated challenges for participants in financial markets and regulators. Regulators must issue the regulations about Fintech so that banks could compete equally with Fintech companies in terms of regulatory burdens. At the same time, the regulations must allow Fintech institutions, that offer similar products and service with banks, to operate in accordance with regulatory framework and still allow Fintech institutions to develop the business (Arner, et al., 2015). Fintech institutions would be able to support financial inclusion and economic development with clear regulatory framework (Silalahi, 2018).

5. Fintech 4.0

Fintech 4.0 is the upcoming era and challenges of Fintech. Fintech will be urged to develop more safety and efficiency in technology innovation. This technology innovation allows data integration, gathering, and analysis on broader scale (Nicoletti, 2017). Era of Fintech 4.0 will be more related to macroeconomics sector to create better market condition, issue new regulations, and prioritize customer demand. Fintech 4.0 also tends to enter market of payment, wealth management, insurance, capital market, investment banking, retail, and small-medium enterprises (SMEs) (Gregorio & Araume, 2017). The implementation of digital technology in providing Fintech services becomes the main booster to promote financial inclusion (Tam & Hanh, 2018).

The modern era of Fintech 4.0 will give direct impact to banking and entrepreneurship sectors (Gregorio & Araume, 2017). Since internet gives higher impact on society, banks will be able to create various products and services by utilizing technology and internet. Banks will reach better technological implementation and promote the products and services using internet. Banks will be more focus to improve customer experience and satisfaction by adding more value and efficiency on its products and services. On the entrepreneurship sector, modernization and cost reduction will cause higher investment on entrepreneurship. Fintech companies and traditional financial institutions will be more connected in this era of Fintech 4.0 (Nicoletti, 2017).

B. Regulatory of Financial Technology

The development of Fintech in Indonesia has entered into the era of Fintech 3.5. The emergence of Fintech 3.5 in Asia was urged by the pursuit of economic development and rapid growth of new technology. The development of Fintech in Indonesia also has risen the emergence of two types of Fintech, which are Conventional Fintech (better known as Fintech) and Sharia Fintech. In this era, regulators must issue regulations regarding with the emergence of innovation by Fintech. Regulators faced challenge to meet the balance of benefit and risk potential from new innovation. Central Bank of Indonesia, Indonesia Financial Service Authority, and Indonesian Ministry of Communication and Informatics held the responsibility as Indonesia Fintech regulators (Fintech Singapore, 2018), while

National Sharia Board – Indonesian Council of Ulama has responsibility upon the regulation of Sharia Fintech in Indonesia.

1. Central Bank of Indonesia

Central Bank of Indonesia explains the meaning of Financial Technology as the use of financial service and technology in the financial system that produces new products or services and transforms conventional business model into modern one that gives an impact on monetary stability, financial system ability, and payment system. Financial services by Fintech under the authority of Central Bank of Indonesia are including (Fintech Singapore, 2018) :

- a. eWallets
- b. eMoney
- c. Payment gateways
- d. Principals
- e. Switching companies
- f. Card issuers and acquirers
- g. Clearing houses
- h. Settlement agencies
- i. Cryptocurrency and Blockchain
- j. National payment gateway
- k. Support for payment transaction such as ATM, EDC, and data centers.

Central Bank of Indonesia stated that the development of Fintech in Indonesia brought benefit to consumer, businessmen, and national economy, but on the other hand Fintech also brought risk potential that should be mitigated. Central Bank of Indonesia reacted to the emergence of Fintech

by supporting the development of technology innovation while also gave attention to prudential aspect. In order to create conducive situation for innovation development and mitigate risk, Central Bank of Indonesia emphasizes the promotion of digital technology innovation in financial sector, ensures consumer protection regarding with confidentiality of consumer data and products transparency, requires every business player to comply with macroprudential policies, implements principle of prudence, and conducts coordination and collaboration approach with across authority and international authorities.

2. Indonesia Financial Service Authority

Indonesia Financial Service Authority defines Financial Technology or Information Technology Based Lending and Borrowing Service as the implementation of financial service that meet lenders and borrowers for a loan agreement in Rupiah currency directly through an electronic system using internet network. Indonesia Financial Service Authority also mentions about Digital Financial Innovation, which is in line with Fintech, as the activity of renewing business process, business model, and financial instruments that generate new added value to financial service sector by involving digital ecosystem. Fintech players under the authority of Indonesia Financial Service Authority are including (Fintech Singapore, 2018) :

- a. Peer-2-peer lending
- b. Crowdfunding
- c. Digital banking

- d. Insurtech
- e. Fintech in capital markets
- f. Venture capital
- g. Online financing
- h. Data security
- i. Consumer protection

Indonesia Financial Service Authority stressed that innovation of digital finance need to be directed in order to generate financial innovation that is responsible, prioritize consumer protection, and have decent risk mitigation. Indonesia Financial Service Authority supported Fintech to become innovative, fast, affordable and convenience financial service provider that improve financial inclusion, investment, financing, and other financial service. Generally, Indonesia Financial Service Authority aligned with Central Bank of Indonesia regarding with Fintech. Indonesia Financial Service Authority also emphasized Fintech players to improve compliance with the regulations and implement the principle of consumer protection, product and service transparency, as well as risk mitigation.

3. Indonesian Ministry of Communication and Informatics

Indonesian Ministry of Communication and Informatics supported the developer or start-up, especially in Fintech sector, to keep innovating. Indonesian Ministry of Communication and Informatics regulated the technical aspect for Fintech development, while Indonesia Financial Service Authority set the operational rule of Fintech. Indonesian Ministry of Communication and Informatics set the regulation regarding with telecommunications, information technology, and aspects of Fintech that

includes in information technology (Fintech Singapore, 2018). Indonesian Ministry of Communication and Informatics together with Indonesia Financial Service Authority discussed the right regulation for Fintech.

Generally, Indonesian Ministry of Communication and Informatics gave full support to development of Fintech, while also paid attention to the risk mitigation. Indonesian Ministry of Communication and Informatics aligned with Indonesia Financial Service Authority to tighten legality permits for Fintech at Indonesia Financial Service Authority to ensure the consumer protection and as an intermediary to establish appropriate regulations for emerging Fintech. Indonesian Ministry of Communication and Informatics also suggested banks to build collaboration with Fintech players that has been done by several banks such as Mandiri Bank, BCA, Bukopin Bank, and BRI (Fintech Singapore, 2018).

4. National Sharia Board – Indonesian Council of Ulama

National Sharia Board – Indonesian Council of Ulama explains Technology-Based Financial Service Based on Sharia Principles as the implementation of financial services based on Sharia principles that connects Financiers with Financing Receivers in order to perform financing contract through electronic system using internet network. National Sharia Board – Indonesian Council of Ulama started to formulate regulations due to the emergence of Sharia Fintech in Indonesia. In 2018, National Sharia Board – Indonesian Council of Ulama along with Indonesia Financial Service Authority issued a rule regarding Sharia Fintech. The rule decided

that the operational of Sharia Fintech is allowed as long as the implementation of Sharia Fintech does not contradict with Islamic principles. In order to be able to legally operate, Sharia Fintech must comply with the rule from National Sharia Board – Indonesian Council of Ulama and must be registered in Indonesia Financial Service Authority.

C. Policy of Financial Technology

1. Policy by Central Bank of Indonesia

Central Bank of Indonesia has issued Bank Indonesia Regulation (Peraturan Bank Indonesia/PBI) and Board of Governor Member Regulation (Peraturan Anggota Dewan Gubernur/PADG) about Financial Technology and Regulatory Sandbox. Bank Indonesia Regulation (PBI) No. 19/12/PBI/2017 about The Implementation of Financial Technology contains explanation of Fintech criteria, obligation to register to Central Bank of Indonesia, licensing and approval from Central Bank of Indonesia for Fintech institution to operate, obligations that must be obeyed by registered Fintech institution, monitoring by Central Bank of Indonesia, and Regulatory Sandbox. Further provision about Regulatory Sandbox along with Registration procedures, risk management and prudential principles, list announcement of registered Fintech institutions, and procedures for submitting data to Central Bank of Indonesia are explained in Board of Governor Member Regulation (PADG).

Board of Governor Member Regulation (PADG) No. 19/14/PADG/2017 contains provision about Regulatory Sandbox for Financial Technology. Regulatory sandbox could be depicted as laboratory where Fintech products and services must be tested first before being launched in the market. Central Bank of Indonesia oversees directly the implementation of Regulatory Sandbox and decides to permit or reject or give other statuses to the Fintech institution. The registration procedures, information submission, and monitoring of Financial Technology providers are explained in more detail in Board of Governor Member Regulation (PADG) No. 19/15/PADG/2017.

2. Policy by Indonesia Financial Service Authority

Indonesia Financial Service Authority has issued two regulations regarding Financial Technology in Indonesia. Indonesia Financial Service Authority Regulation (POJK) No.77/POJK.01/2016 about Information Technology Based Lending and Borrowing Services is the first regulation about Fintech issued by Indonesia Financial Service Authority. The regulation mainly explains the definition of Fintech, legal entity of Fintech, minimum modal requirement, application for permission and registration, and Fintech shareholding. Registered Fintech institutions in Indonesia Financial Service Authority are obliged to give periodical report every three months, have qualified human resources who expertise in the field of information technology, have at least one director and one commissioner with at least a year experience in financial service industry, and implement

the principles of transparency, fairness, reliability, data confidentiality, and data security in order to guarantee the consumer protection.

The rapid development of technology in digital financial industry urged Indonesia Financial Service Authority to issue another regulation to support the supervision and control of Fintech. In 2018, Indonesia Financial Service Authority issued Indonesia Financial Service Authority Regulation (POJK) No.13/POJK.02/2018 about Digital Financial Innovation in Financial Service Sector. The main rules contain in this regulation include registering mechanism, as well as monitoring and supervision mechanism. Indonesia Financial Service Authority also obliged Fintech players to follow Regulatory Sandbox by Indonesia Financial Service Authority. The Regulatory Sandbox process will result recommended status, need for improvement, or not recommended status. Indonesia Financial Service Authority also obliged registered Fintech institutions to implement customer protection and report self-assessment that contains risk mitigation.

3. Policy by Indonesian Ministry of Communication and Informatics

Indonesian Ministry of Communication and Informatics issued several regulations regarding technical aspect of Fintech, such as Rule No. 19 Year 2016 about Information and Electronic Transaction, Rule No. 4 Year 2016 about Information Security Management System, and Circular Letter No. 3 Year 2016 about The Implementation of Application Service and/or Content through Internet. Generally, the regulations encourage Fintech sector to improve financial inclusion in Indonesia. Fintech players

must increase public literacy while providing customer protection about the development of Fintech. Indonesian Ministry of Communication and Informatics stressed to Fintech not to misuse user's personal data. Indonesian Ministry of Communication and Informatics will block illegal Fintech that cannot operate according to regulations. In the process of submitting permission, Indonesian Ministry of Communication and Informatics joins collaboration with Indonesia Financial Service Authority in overseeing the process of Regulatory Sandbox.

4. Policy by National Sharia Board – Indonesian Council of Ulama

Due to rapid development of Fintech in Indonesia that has risen the emergence of Sharia Fintech, National Sharia Board – Indonesian Council of Ulama issued a regulation to support Sharia Fintech. Along with Indonesia Financial Service Authority, National Sharia Board – Indonesian Council of Ulama discussed the regulation for Sharia Fintech and issued a rule No.117/DSN-MUI/II/2018 about Information Technology Based Financial Service Based on Sharia Principles. The rule provides general provisions that allow the operational of Fintech Sharia as long as it does not contradict with Islamic principles. In other words, Sharia Fintech must be free from prohibited things in Islamic principles such as interest (*riba*), uncertainty (*gharar*), and gambling (*maysir*). The contracts in Sharia Fintech are in line with Sharia financing service, such as using *Mudharabah* and *Musyarakah* contracts. National Sharia Board – Indonesian Council of

Ulama also encouraged collaboration between Sharia Fintech and Sharia Banks to accelerate the development of Islamic finance in Indonesia.

D. Financial Technology Providers

Central Bank of Indonesia and Indonesia Financial Service Authority emphasize public to pay attention on the status of Fintech providers before deciding to use financial service from Fintech providers. Public must ensure that a Fintech provider has been legally registered in Central Bank of Indonesia or Indonesia Financial Service Authority in order to guarantee customer protection. Central Bank of Indonesia has announced 45 registered Fintech providers until November 2018, while Indonesia Financial Service Authority announced 64 registered Fintech providers in August 2018. Fintech providers that has been registered in Central Bank of Indonesia and Indonesia Financial Service Authority are mentioned as follow:

TABLE 4.1.
Fintech Providers Registered in Central Bank of Indonesia

No.	Fintech Providers	Sector	No.	Fintech Providers	Sector
1	Cashlez Mpos	Payment	24	Danaxtra.com	Market Support
2	Pay by QR	Payment	25	Jaringan IDN & Sistem IDN	Payment
3	Bayarind Payment Gateway	Payment	26	Davestpay	Payment
4	Toko Pandai	Payment	27	Cermati.com	Market Support
5	YoOk Pay	Payment	28	EstaKios	Payment
6	Halomoney	Market Support	29	Infinitium Mobile Secure, Bank Payment Gateway, and Infinitium Mobile eXperience	Supporting Provider
7	Duithape	Payment	30	Kreditgogo.com	Market Support
8	Saldomu	Payment	31	Tupai	Payment
9	Disitu	Market Support	32	SwipePAY	Payment
10	PajakPay	Supporting Provider	33	Member Cards Management System (MCMS)	Payment
11	Wallezz	Payment	34	EasyLife.id	Market Support
12	Lead Generation, Credit Scoring Check, Loan Market Place	Market Support	35	Pampasy	Payment
13	Netzme	Payment	36	Bank as a Service (BaaS)	Payment
14	Mareco-Pay	Payment	37	Sikatabis.com	Market Support
15	iPaymu	Payment	38	Paper.Id	Payment
16	Kanten (KT-Pay)	Payment	39	Midtrans	Payment
17	PrivyID	Supporting Provider	40	Rumah Sahabat Desa	Payment
18	Emvazo	Payment	41	NiX	Payment
19	OttoPay	Payment	42	Oy! Bayar	Payment
20	SatuBon	Payment	43	Brankas	Payment
21	OttoCash	Payment	44	Ayopop	Payment
22	Paprika	Payment	45	Xfers	Payment
23	Celengan.ID	Payment			

Source: Central Bank of Indonesia

TABLE 4.2.
Fintech Providers Registered in Indonesia Financial Service Authority

No.	Fintech Providers	Sector	No.	Fintech Providers	Sector
1	Danamas	P2P Lending	33	Kredivo	P2P Lending
2	Koinworks	P2P Lending	34	Mekar.id	P2P Lending
3	Amartha	P2P Lending	35	PinjamanGo	P2P Lending
4	Investree	P2P Lending	36	iternak.id	P2P Lending
5	Modalku	P2P Lending	37	Kredit Pintar	P2P Lending
6	Danacepat	P2P Lending	38	Kredito	P2P Lending
7	AwanTunai	P2P Lending	39	Crowde	P2P Lending
8	KlikACC	P2P Lending	40	PinjamGampang	P2P Lending
9	CROWDO	P2P Lending	41	TaniFund	P2P Lending
10	Akseleran	P2P Lending	42	Danain	P2P Lending
11	UangTeman	P2P Lending	43	Indofund.id	P2P Lending
12	Dompot Kilat	P2P Lending	44	SGPIndonesia	P2P Lending
13	Taralite	P2P Lending	45	KreditPro	P2P Lending
14	FINTAG	P2P Lending	46	Avantee	P2P Lending
15	Invoila	P2P Lending	47	Do-It	P2P Lending
16	KIMO	P2P Lending	48	Rupiah Cepat	P2P Lending
17	TunaiKita	P2P Lending	49	Danarupiah	P2P Lending
18	Igrow	P2P Lending	50	Danabijak	P2P Lending
19	Qreditt	P2P Lending	51	Cashcepat	P2P Lending
20	Cicil	P2P Lending	52	Danalaut	P2P Lending
21	Dana Merdeka	P2P Lending	53	Danasyariah	P2P Lending
22	Cash Wagon	P2P Lending	54	Telefin	P2P Lending
23	Esta Kapital	P2P Lending	55	Modalrakyat	P2P Lending
24	Ammana	P2P Lending	56	Kawancicil	P2P Lending
25	Gradana	P2P Lending	57	Sanders One Stop Solution	P2P Lending
26	Dana Mapan	P2P Lending	58	Kredotcepat	P2P Lending
27	Aktivaku	P2P Lending	59	Uangme	P2P Lending
28	Danakini	P2P Lending	60	Pinjam Duit	P2P Lending
29	Finmas	P2P Lending	61	Pinjam Yuk	P2P Lending
30	Rupiah Plus	P2P Lending	62	Pinjam Modal	P2P Lending
31	Tokomodal	P2P Lending	63	Julo	P2P Lending
32	Indodana	P2P Lending	64	Easy Cash	P2P Lending

Source: Indonesia Financial Service Authority