Financial Technology

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Financial Technology (Fintech) is a new financial industry that applies technology to improve financial activities. Moreover, according to Leong and Sung (2018), Fintech can also be considered as “any innovative ideas that improve financial service processes by proposing technology solutions according to different business situations" .

Keywords: financial technology ; fintech

1. Introduction

Advances in e-finance and mobile technology for financial companies, which drove the innovation of fintech, emerged after the global financial crisis in 2008. This development was characterized by integration in e-finance innovation, Internet technology, social networking services, social media, artificial intelligence, and big analytic data [1]. This challenges many traditional financial institutions, such as banks, to develop their business models in a more practical direction [2]. In addition, start-ups saw this as an opportunity to enter the financial services industry [3].

Two types of start-ups are relevant to this research, e-commerce and financial technology (fintech). Fintech is one of the most important innovations in the financial services industry and is driven by economic sharing, regulation, policy, and information technology [1]. Like that of banks, the business model of fintech also focuses on payment and loan services. In addition, it includes personal financial consulting services, crowdfunding, virtual currencies, and security (e.g., cyber security) [4].

Zavolokina et al. examined how fintech is perceived. The term “fintech” can be interpreted as the application of information technology in the fields of finance, financial innovation, and digital innovation, in addition to start-ups (the financial service industry outside of banks) [5]. There are six fintech business models: insurance services, crowdfunding, payment, lending, wealth management, and capital markets [1]. Clearly, the greater the level of development of financial technology services, the greater the challenges for businesses. Online loan services have caused controversy in communities, including moral hazard, loan defaults, and information asymmetry [6]. The case of money laundering via Bitcoin [6] has also been widely discussed. For this reason, it is important for regulators to formulate how this innovation should be addressed in the rules. Regulators encourage innovation in the financial sector and apply the principles of consumer protection and risk management to obtain safe and appropriate financial services [2].

The history of technological innovation in the financial sector began with the emergence of checks as a means of payment (1945). Subsequently, the Bank of America produced the first credit card (1958), and ATMs appeared to help process financial transactions in 1967, followed by the issuance of a debit card as a transaction tool. In the 1990s, supported by the advancement of the Internet, Internet banking was launched. In the 2000s, fintech developments of mobile payments and crowdfunding were introduced. This shows that fintech is a fast-growing industry, and it is thus necessary to review previous research to capture the evolution of financial services [7].

2. Background and Terminology

Fintech is a relatively modern concept. The biggest innovation in the financial industry was the creation of the ATM [8]. Previously, since 1838, financial transactions were carried out using telegraphs. The banking industry has developed information technology to improve its processes [9].

The development of the Internet in the United States and Europe marked technological advancements in various sectors. In the early 1990s, analog technology was transformed into digital technology for the financial services industry. Information communication technology (ICT) investment is relevant to the financial services industry. More recently, in 2009, Satoshi Nakamoto introduced a digital currency called Bitcoin. Bitcoin is a new currency or form of electronic money [10][11].

In their systematic literature review, Zavolokina et al. stated that fintech was not only the application of information technology in finance. Some literature argues that fintech can also be interpreted as start-ups, services, technologies, companies, digitalization, industry, new generations, chance, products, and threats [5]. The term fintech (sometimes Fin-tech or FinTech) is a new term that refers to modern relationships and, in particular, technologies related to the Internet (for example, cloud computing, mobile Internet) and business activities in the financial services industry (for example, lending money and banking transactions). Due to automatic processing and the availability of ICT, fintech represents a disruption to the financial sector [12]. Fintech has a variety of business models that consider security, speed, and innovation in the financial services sector [13]. The term fintech is also defined as a financial service and solution based on technological advancements [14]. A simple definition of fintech is an industry consisting of organizations that use sophisticated financial technology to trigger fast financial services without long procedures [15]. Fintech includes start-ups, the use of ICT for financial services, and start-up industry collaboration with traditional financial services.

3. Main challenges

We define three main challenges and means to overcome them.

The first is collaboration. The challenge for the future is the development of a practical and systematic framework for fintech [16][17][18]. Several research trends are trying to establish sustainable adoption models, identifying factors that influence a person to use fintech services [19]. However, it is still unclear how consumers will continue to use these services. Moreover, the identification of these factors is not the only way to look at adoption rates. Public knowledge about financial literacy and support from stakeholders can support the running of the Fintech industry. This is an important role in the collaboration of all stakeholders [20]. Fintech should no longer be considered a disruptive business. Good relationships are required between fellow financial service industries, such as banks [21], and good relationships between fintech and regulators significantly affect the continuation of fintech practices [22]. Fintech should be able to aid transition of the economy. The government must see the fintech sector as helping with this transition, for example, by providing permission to use electronic money and digital wallets and their implementation as a payment method. These methods clearly make it easier for people to pay in cash via their smartphones. Previously, fintech was the enemy of banking, but now banks can collaborate, and the government is not only a regulator but a player to create a better digital payment ecosystem.

The second is supervision. Loans are one of the many financial service models influenced by fintech, in addition to payments, wealth management, and digital insurance [23]. Although the idea of P2P lending is not new, it is a product of fintech that is developing in countries such as the USA, China, and Indonesia [2]. The hope is that this business model can help SMEs and individuals to obtain loan capital [24]. However, many illegal fintech loans have emerged due to fintech practices that rely on user trust [25]. The approaches taken to fintech regulation vary widely. For example, the US has taken a reactive approach by relying on its rules and regulations, whereas China is taking a proactive step in developing a specific regulatory structure [2]. Product-focused regulatory oversight sometimes does not lead to rapid technological advances. There is an impression that regulations and policies are slow and incompatible with digital transformation.

For this reason, regulators should adopt a "regulatory sandbox" approach. The sandbox allows regulators to work alongside industry players to develop this industry [26]. Fintech operators should be officially registered and members of government-recognized fintech associations. The regulator should implement a direct inspection mechanism by checking the website and application channels. In addition, the government is also advised to have a complaint forum for illegal fintech. A more interesting suggestion is to explore public opinion using social media commentary data, highlig[27].

The third is protection. New technology trends in the development of fintech cannot be separated from the use of Big Data, artificial intelligence, and machine learning [28]. The effect of using data is complicated and extensive, motivating this industry to pay close attention to its security [29]. Security in this context applies not only to technology, but also to data [14]. Fintech must protect consumers from issues regarding data leaks and data access restrictions, including personal data protection. Thus, the existence of strict rules regarding personal data protection is needed [30]. Consumers must also be aware of digital literacy. Digital literacy demands smart technology users [31]. Furthermore, the fintech industry must maintain the quality of fintech software, taking advantage of technology integration to avoid fraud [32].

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