

Role of FinTech Mechanism to Technological Innovation: A Conceptual Framework

Mercurius Broto Legowo
Faculty of Information Technology
Perbanas Institute
Jakarta, Indonesia

Steph Subanidja
Post Graduate Program in
Management
Perbanas Institute
Jakarta, Indonesia

Fangky Antoneus Sorongan
Faculty of Economic and Business
Perbanas Institute
Jakarta, Indonesia

Abstract:- FinTech, a word derived from a combination of "finance" and "technology." Nowadays, this term refers to a new business in finance, something innovative and new that attracts public attention. This research aims to develop a conceptual framework to present the role of the FinTech mechanism for technological innovation. The main problem considered in this study is related to technology, organization, and money flow, which then influences the FinTech mechanism for technological innovation in a Fintech conceptual framework. This research using a descriptive and qualitative approach then secondary data from various surveys also used for analysis in this study. The results of this study indicate that the definition of FinTech is clear for the business sector and results in a conceptual framework of the role of the FinTech mechanism for technological innovation based on surveys and the underlying theories. Contributions from this study can provide insight and understanding for practitioners who wish to develop FinTech related businesses and support ideas for researchers who want to do research related to financial technology in more depth.

Keywords:- Business Driverst; Conceptual Framework; FinTech Mechanisme; Business Peformance).

I. INTRODUCTION

Nowadays, the new business models and technological concepts provide a basis for innovative solutions in finance[1]. The financial industry sectors have been strongly influenced by digitalization in the past few years reflected by the emergence of "FinTech," which represents the marriage or combine of "finance" and "information technology"[1],[2],[3],[4].

The financial industry has long played in technology, often called FinTech[5]. Fintech services refer to companies that develop financial services and products by relying on the use of information technology that is far more intense[6]. The term "fintech" has been defined in many ways. Even though the term "FinTech" is in the limelight of hot public debate in fields of business, finance, and innovations, ambiguous for most of the people[7]. Thus, definitions of meaning or function of Fintech needed in developing a conceptual framework from Fintech. A critical review and analysis of various literature and data surveys used for this purpose.

There is still not much research related to the perspective of the Fintech framework, especially in Indonesia. According to a study conducted by Zavolokina et al., [7] it aims to make insights into how the press and to understand and frame FinTech. In another study conducted by the Erosa[8], the framework was based on several theories underlying the flow of money in the E-Commerce System, not FinTech. Thus, the Fintech conceptual framework built on a suitable theoretical framework. And then, from accurate field surveys.

II. LITERATURE REVIEW

As far as we all know, it said that Technology or later Information Technology is the main driving force of business in various business sectors. Technology also underlies financial services such as mobile payments, data analysis, crowd-based platforms or cryptocurrency[7]. Fintech is an industry that uses IT technology centered on cellular phones/smartphones to improve the efficiency of the financial system[2]. According to Gomber et al.,[1] stated that Internet-related technologies (e.g.,cloud computing, mobile Internet) with established business drivers of the financial services industry (e.g., money lending, transaction banking). Technologies are the main element of the FinTech term have become key in handling financial processes[9].

Organizations included in the Fintech ecosystem will become good business drivers. According to Alt et al., [9] revealed that organizations involved in the Fintech business, include: (1) External Organizations, namely organizations that act as regulators (e.g., Financial Services Authority, Government Organization), (2) Network Organizations, namely organizations that are directly involved in the Fintech business network (e.g., Startups, Fintech Companies, IT Company, Telecommunication Company), (3) The Internal Organization is an organization or a company that uses Fintech services in its business transactions. Meanwhile, the organizations referred to as business drivers in Fintech in the study of Zavolokina, et al.,[7] are Financial Institutions, Regulators, IT Companies, Startups, Accelerators, Consulting companies, Governmental organizations, Retailers and Telecommunication companies. FinTech service organizations are sources or service companies or financial platforms that are supported by IT[7]. Now, newly established FinTech companies or established IT

companies that enter the financial business domain, collectively referred to as FinTech Companies[1].

Money flow occurs when companies pay wages in return for labor or services provided by individuals, and when individuals spend money to get goods or services produced by the company. The money flow is also an important driver of business[7],[5],[8]. Money flow equals the investments, poured to support the development of financial business sectors[7]. FinTech services based on the money flow, mapped into eight categories, there are payments (payments), insurance, (Digital Insurance), planning (Financial Planning), Deposit & Lending (Peer to Peer Lending) and Crowdfunding, Blockchain, Capital Raising and Investment Management, Data and Analytic, and Security[5]. Links formed by technology as a new business model in E-Commerce, with components emerging such as online money flow[8].

Mechanisms of Fintech include creation, improvement of existing service/product/process of business order to increase for the customer or to make it transparent, accessible, costs or fees, etc. [7]. These activities are supported by the use of technological advancements; this is reflected by the aspect of “application of IT to finance”. The disruptive function of FinTech is explained as the creation of alternatives to the existing banking services by, for example, replacing bank as an intermediary[10]. And finally, by doing so, FinTech creates competition not only among the startups working on the service, but also involves banks into the game and makes them compete.

Technological Innovation is a business innovation by relying on IT in the financial business sector. Innovation is very important in business. According to C. Lin [11], the word innovation is originated from Latin word, innovare which means “to make something new” Innovation offers a critical source of sustainable competitive advantage[12]. Financial services using innovative technologies offered by fintech companies[13]. Fadilah et al., [14] suggested innovation is the “use of new technical and administrative knowledge to offer a new product or service to customers. The technological innovation is an instrumental factor in creating new forms of value in such a competitive environment as the current economic, social and political world is[15]. Technological Innovation with digitization has had an impact on new business models[16].

A. Theoretical Framework

This research develops a theoretical framework to produce a conceptual framework of financial technology, as shown in Figure 1. FinTech's conceptual framework used as a new paradigm approach to business and technology innovation in the financial industry sector. This conceptual framework will be a practical guide in field practice and theoretical sources for various studies in the future. Furthermore, the conceptual framework is based on the description of Grand Theory, Middle Theory and Applied Theory to form constructs and dimensions in the Conceptual framework in this study

Nowadays, many say that the Modern Monetary Theory is the theory underlying the problem of FinTech. According to Griffin[17], stated that the Modern Monetary Theory teaches things related to Electronic Money and Monetary Policy then the money supply and the speed of money flow. Another statement of his theory related to the influence of e-money flows over the economy. The next Grand theory further elaborated into the middle theory.

Middle Theory that used first is Resource-Based View (RBV) Theory.

Through the viewpoint of Wernerfelt[18], the essence of Resource-Based View (RBV) theory is that firms could gain and sustain competitive advantages by constructing and employing valuable resources and capabilities.

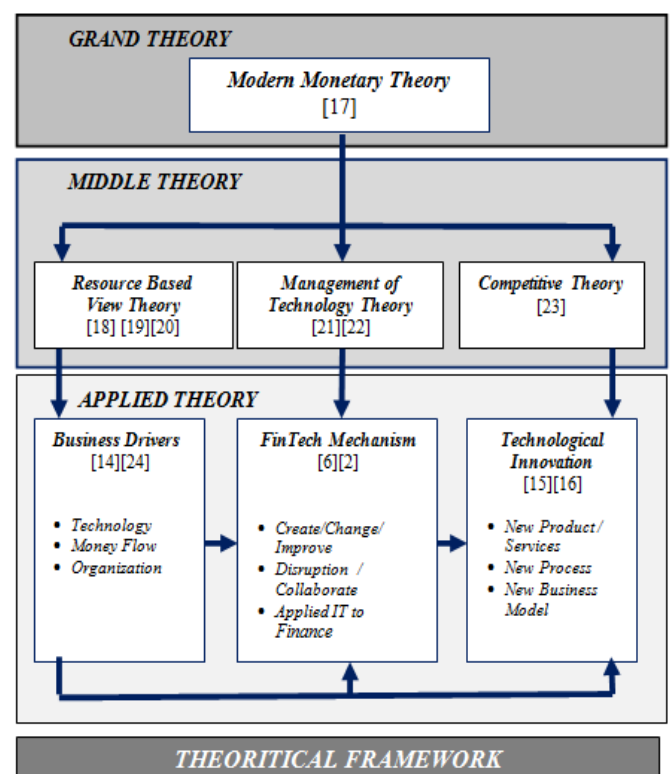


Fig 1:-Theoretical Framework

According to Melville et al., [19] and Barney[20] clearly state that technology and resource as a tangible asset and competence in managing organizations as intangible assets. Management and Technology Theory include the Diffusion of Innovations Theory developed by Roger [21]. Diffusion of innovation theory represents how to make, change, and improve adoption technology. And, organizations apply IT to finance, then create competition in financial technology (FinTech). The speed of the organization in adopting an innovation is necessary[22]. Competitive Theory has a role in describing business innovations to develop markets, new products / services, and new business models[23].

The first construct resulting from the translation of various theories is Business Drivers. Business drivers in the financial industry sector include: technology, organization, and money flows [24],[14]. Fintech is a form of financial service innovation that has lately become a way to facilitate business, especially those related to financial services[2],[6]. Dimensions such as create / change / improve, disrupt, apply IT to finance and create competition which is the dimension that forms the second construct.

Finally, as a result of the existence of a Technological Innovation construct that has a market development dimension due to a new product or service because of the new process and new business models [15][16].

B. Problems Formulation

The definition of the term of Fintech from various sources is very varied, but developing a conceptual framework will provide a clear understanding of Fintech, especially for the financial business sector. The formulation of the problem in this study is how to critically review and analyze the conceptual framework of Fintech that gives meaning and function clearly to Fintech practitioners and academic researchers.

C. Objectives and Benefits

The objective of this study is:

- To identify and critical review the term of Fintech for the financial business sector, especially in Indonesia.
- To analyze the factors and problems that reveal Fintech within the conceptual framework in this study..

The purpose of this study is to develop a Fintech conceptual framework based on financial business drivers and the Fintech mechanism. Then, it has an impact on business innovation in the financial industry sector.

Thus, this conceptual framework will have a very significant contribution to research in the field of information systems and business, in a way that introduces the FinTech phenomenon by presenting a shared understanding through its perceptions at FinTech.

III. RESEARCH METHODOLOGY

This paper is a critical review and analyzes the conceptual framework of FinTech for the financial business sector. This research using a descriptive and qualitative approach as its main of research methodology[25].

A. Samples and Data Collection

To create a conceptual framework, a critical review, and analysis of data from various journal sources and surveys. Data Survey obtained from those using FinTech services, including in research samples obtained through social media, such as WhatsApp's. Convenience sampling techniques used for this study. Of the 160 prospective respondents contacted, 154 usable responses received. The 154 returned questionnaires represent a very satisfactory response rate of 96.25 percent.

B. Data Analysis

Data analysis using descriptive analysis approach. Furthermore, we conduct an evaluation phase to confirm the reliability and validity of FinTech's conceptual framework. This type of evaluation is called the confirmability test[25]. Later, to complete the test we invited the FinTech practitioner and Academic expert in IS and business management, which addresses to confirm a conceptual framework which has to develop and have a comprehensive understanding of FinTech.

IV. RESULTS AND DISCUSSION

In this study, a survey was conducted to the people in Indonesia to find out their perceptions of Fintech. The number of respondents is 154, and they are among students (46.1 percent), freelancer (5.3 percent), followed by the worker in the private sector (30.3 percent) and the government institutions employee (18.4 percent). The age of respondents ranged from 17 years to 55 years. FinTech users are 62 percent, aged between 20-30 years. The survey results stated that 53.2 percent of them quite familiar with FinTech.

A. Defines Meaning and Fuction

The term "fintech" has been defined in many ways. Some researchers state that the meaning of Fintech represents a compound of "finance" and "information technology" [8],[3],[2]. Based on a research survey conducted in several countries in the world by Zavolokina et al., as Reasearch-1 and the results of this research survey, as Research-2 about people's perspectives in Indonesia on the meaning of FinTech, shown in Table 1.

No	Meaning of Fintech	Research-1	Research-2
1	Application IT to Finance	35.7 %	85.7 %
2	StartUps	25.0%	2.6%
3	Financial Sevices	21.4%	7.8%
4	Technologies	17.9%	3.9%

Table 1:- Defines Meaning of FinTech

The results of these two research surveys provide many definitions of Fintech, as IT applications to Finance. Thus, the results of this study, FinTech, as an IT application for finance according to its mechanism, will create various technological innovations in the financial business sector.

No	Function of Fintech	Research-1	Research-2
1	Apply and combine IT to Finance	35.5 %	63.6%
2	Disrupt	25.8%	2.6%
3	Create/Change/improve service	22.6%	28.6%
4	Create competition	16.1%	5.2%

Table 2:-Perception of FinTech's function

The perception of Fintech's function from the two research surveys, shown in Table 2. So, based on the results of the two surveys many stated that the main function of Fintech was to apply and combine IT into the financial industry sector.

B. Critical Review and Analysis

Based on a critical review and analysis of the literature related to Fintech, as well as the basis of various theories, the results of the conceptual framework from Fintech as shown in Figure 2. As can be seen in Figure 2, FinTech has three constructs: business drivers an input (namely the technology, organization and money flow), Fintech mechanisms (create or improve or change, disrupt, apply technology to finance, create competition on the market), and Technological Innovation as an output (creation of new services or products or processes or business models).

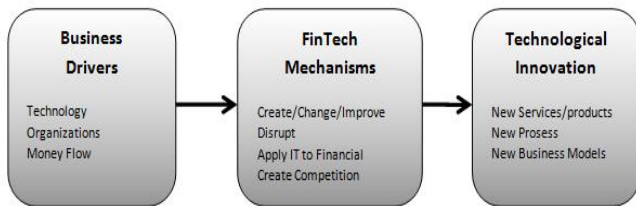


Fig 2: - Conceptual Framework of FinTech

➤ **Business drivers**

Business drivers to transform how FinTech mechanisms create/change/ improve, disrupt, apply IT to finance and, create competition for technology innovation in financial industry sectors. The fact from the survey revealed that Technology is one of the biggest in providing support as a business driver (68.8 percent). Next, money flow (20.8 percent) and followed by the organization (10.4 percent) which supported drive business in this financial sector. As shown in Figure 3. In the line the previous studies that state the importance of technology in conducting business, related to Fintech.

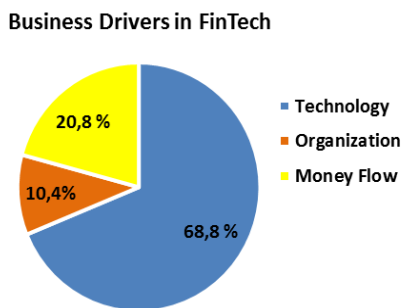


Fig 3:- Business Drivers in FinTech

Referring to the “organizational” the sources mean startups and companies, which focus their activities on providing IT-supported financial services or platforms. Policymakers and regulators as an organization must consistently endeavor to understand these new technologies in order to support innovation in furtherance of important policy objectives. They must also work

collaboratively with fintech innovators to mitigate potential risks.

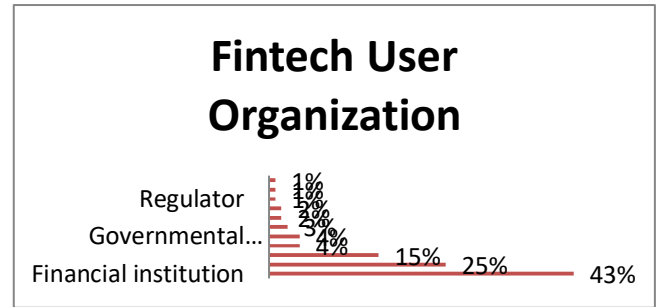


Fig 4:-FinTech User Organization[7]

In Indonesia, there are currently estimated to be more than 140 start -up companies. This Fintech organization predicted to grow continuously in Indonesia. FinTech players, as an organization in Indonesia, are still dominant in paymentbusiness (43%), loans (17%), and the rest are in the form of aggregators, crowdfunding and others. The largest organizations related to Fintech in various countries are Financial Institutions, as shown in Figure 4.

Figure 5. shows the European Region has the most Fintech players (44 percent) compared to the Asian region (8 percent). The views of people related to financial services always see from the side of money flow. The Erosa study[8] shows that the online money flow in e-commerce is very different from the conventional money flow of transactions. The results of this study indicate 20.8 percent of the business drivers are money flow.

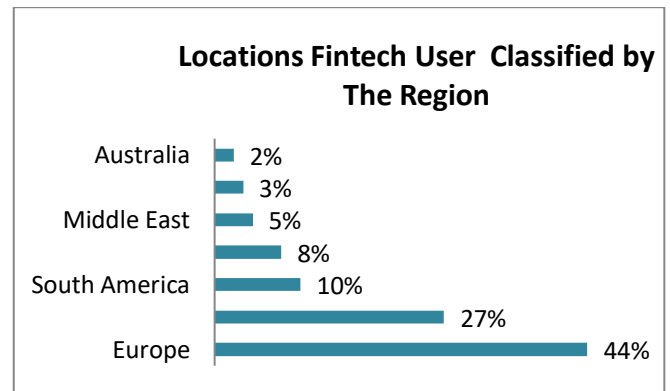


Fig 5:-Location FinTech User Classified by Region[7]

➤ **FinTech Mechanisms**

FinTech Mechanisms can create/change/improve business. Another thing is FinTech brings disruption in the financial sector. Also, implement IT for finance and can lead to business competition. Survey results (Fig. 6), show that Fintech creates /changes/improve business (25 percent), Disrupt (1.9 percent), Implement IT in finance (67.9 percent) and create business competition (5.2 percent). As shown in Figure 6.

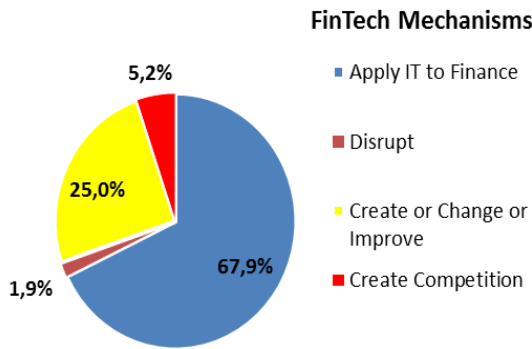


Fig 6:- FinTech Mechanisms

An innovation successfully transforms an existing system or market, introducing practicality, ease of access, access, convenience, and economic costs, and this is called Disruptive Innovation[26]. The emergence of Disruptive Innovation, if it not well anticipated by the business world, can cause a fall. The phenomenon of Disruptive Innovation also occurs in the Financial Services Industry who has disrupted the landscape of the Financial Services Industry global. FinTech companies to have a disruptive influence on banks and create a real threat for the future of these financial institutions within the nearest few years. Fintech creates competition between financial service companies or start-ups. In Indonesia, the creation of competition occurs a lot in online payment services. In this study, respondents to Go Pay products were 80.5 percent, while users of OVO products were 55.8 percent.

➤ *Technological Innovation*

FinTech is a technological innovation that is the result of business innovation in the financial sector, which produces new services/products, new processes, and new business models. The survey results as shown in Figure 7, revealed that technological innovation with Fintech produced services and new products by 37.6%. Furthermore, the survey results also state that 33.8% of FinTech produces new business models. Finally, 28.6% of this technological innovation produces a new process of the business sector in the financial.

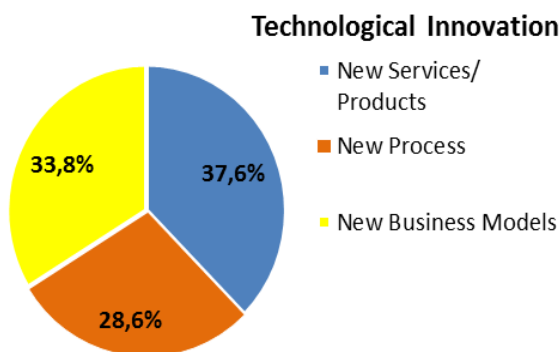


Fig 7:-Technological Innovation

In line with the survey from the Fintech Indonesia Association in 2017, stated that Fintech in Indonesia created a new business model. Startups are a new business model that is growing very fast in Indonesia, and online payment services are the largest of all Fintech services. In Indonesia, according to Teja[27] stated that fintech products usually refer to m-payment products (mobile payment). Based on the results of the survey in this study, 98.7% of respondents had used Fin Tech products through online payments. The Indonesian Fintech Association stated that payment products are the largest produced by Startups in Indonesia, which is 32% percent of all FinTech products available. Technological innovation represents the creativity implementation which gives rise to inventions[15].

C. *Revealed Results Findings that Refer to The Objective Study*

Defining the meaning of Fintech based on the survey results in many countries[7] and in this survey in Indonesia, stated that Fintech is the application of IT to finance. On the other hand, there are many researchers claim Fintech is a combines technology with finance[7],[3],[2]. Another perception that Fintech is Technology comes from the side of the IT Company. Fintech is a financial service, if from financial perspective. From the business side, it assumed that Fintech is Startups. It is this view that until now continues to develop this business. It is this view that until now continues to develop these new business models. Policy makers and regulators as Fintech organizations consistently try to understand this new technology and to support this innovation in advancing important policy. They also have to work collaboratively with Fintech innovators to reduce potential risks.

Conceptual Framework of Fintech provides a focus on this business for Fintech practitioners. The scope of Fintech is a business driver, Fintech mechanism and technological innovation. FinTech has the potential to change fundamentally to change for the financial and economic business sector. While still early in its evolution, Fintech can, for example, promote financial inclusion, expand access to capital for individuals and small businesses, and more broadly reshape how society interacts with financial services. This view challenges academic researchers for the understanding of Fintech studies. The evaluation confirm-ability test, where the test is used to test the reliability and validity of the FinTech conceptual model. Researchers invited FinTech practitioners, Financial Analyst and IT/IS experts who know the problem of FinTech implementation. They stated that 80% confirmed that model and 20% confirmed with some notes. Hopefully, with the FinTech conceptual framework produced from this study, it will contribute to practitioners and academics for the development of FinTech in the future.

D. Implications and Limitation of the Research

Theoretical implications Financial Technology is based on the diffusion of innovation theory and is based on the contribution of technological, organizational, and money flow concepts to develop FinTech conceptual frameworks accurately in modern organizations today which are highly dependent on Financial Technology.

Managerial implications, for owners and managers of the Fintech company in the financial industry sector, to consider Fintech adoption more efficient. The results of this study allow the financial business sector to implement Fintech because this new technology will improve their technological innovation in their business.

The study has several limitations. First, the data source, which is literature from scientific journals and secondary data from various surveys, may have a bias. Because of that the results and discussion must be taken carefully. Second, the present study has limited by the relatively small size of the sample. And third, the questionnaire approach is not free to form a subjective opinion of the respondents.

V. CONCLUSION

This research aims to develop a conceptual framework to present the role of the FinTech mechanism for technological innovation for financial business sectors.

The results of this study indicate the definition of FinTech, as an IT application for finance according to its mechanism, will create various technological innovations in the financial business sector. FinTech's conceptual framework generated from this study was formed based on several underlying theories, as well as reinforced the results of the survey from this study. Business Driver, the mechanism of Fintech, and Technological Innovation are the main constructs in the FinTech concept.

Finally, with the FinTech conceptual framework produced from this study, it will contribute to practitioners and academics for the development of Fintech in the future. In the future, FinTech's conceptual framework produced can be tested in an empirical study.

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REFERENCES

- [1]. P. Gomber, J.-A. Koch, and M. Siering, "Digital Finance And FinTech : Current Research And Future Research Directions," *J. Bus. Econ.*, vol. 87, no. 5, pp. 537–580, 2017.
- [2]. Y. Kim, Y. Ju Park, J. Choi, and J. Yeon, "The Adoption of Mobile Payment Services for ' Fintech ,'" *Int. J. Appl. Eng. Res.*, vol. 11, no. 2, pp. 1058–1061, 2016.
- [3]. R. Minerva, "The Potential Of The FinTech Industry To Support The Growth Of SMEs In Indonesia," 2016.
- [4]. K. P. Prawirasasra, "Financial Technology in Indonesia : Disruptive or Collaborative?," *Reports Econ. Financ.*, vol. 4, no. 2, pp. 83–90, 2018.
- [5]. V. R. Wulan, "Financial Technology (FinTech) A New Transaction In Future," *J. Electr. Eng. Comput. Sci.*, vol. 2, no. 1, pp. 177–182, 2017.
- [6]. D. Varga, "FinTech, The New Era Of Financial Services," *Budapest Manag. Rev.*, vol. 11, no. 3, pp. 22–32, 2017.
- [7]. L. Zavolokina, M. Dolata, and G. Schwabe, "FinTech – What's in a Name?," *Thirty Seventh Int. Conf. Inf. Syst. Proceeding*, no. May 2018, pp. 1–19, 2016.
- [8]. V. E. Erosa, "Online Money Flows : Exploring the Nature of the Relation of Technology ' s New Creature to Money Supply — A Suggested Conceptual Framework and Research Propositions," *Am. J. Ind. Bus. Manag.*, vol. 8, pp. 250–305, 2018.
- [9]. R. Alt, R. Beck, and M. Smiths, "FinTech and the transformation of the financial industry FinTech and the transformation of the financial industry," *Electron. Mark.*, no. August, pp. 2–10, 2018.
- [10]. O. Oshodin and S. Karanasios, "Is FinTech a Disruption or a New Eco-system? An Exploratory Investigation of Banks ' Response to FinTech in Australia," *Australas. Conf. Inf. Syst. Proceeding*, pp. 1–11, 2017.
- [11]. C. Lin and C. Jung, "Factors affecting the innovation in logistics information systems for logistics service providers in Taiwan," *J. Inf. Inf. Sci.*, vol. 27, no. 3, pp. 629–648, 2006.
- [12]. S. Khazanchi et al, "Innovation-supportive culture : The impact of organizational values on process innovation," *J. Oper. Manag.*, vol. 25, no. 4, pp. 871–884, 2007.
- [13]. S. Saksonova and I. Kuzmina-Merlino, "Fintech as Financial Innovation – The Possibilities and Problems of Implementation," *Eur. Res. Stud. J.*, vol. XX, no. 3, pp. 961–973, 2017.
- [14]. M. Z. . Fadilah, S. Abdul Wahab, A. Al-Mamun, A. S. Yacoob, N. K. Al Sami, and S. A. Fazal, "Defining the Concept of Innovation and Firm Innovativeness : A Critical Analysis from Resorce-Based View Perspective Defining the Concept of Innovation and Firm Innovativeness: A Critical Analysis from Resorce-Based View Perspective," *Int. J. Bus. Manag.*, vol. 11, no. 6, pp. 87–94, 2016.

- [15]. L. . Radu, “Investments in Technological Innovations: A Literature Review of Organization Determinants,” *Eur. Sci. J.*, no. February 2015, pp. 52–59., 2015.
- [16]. I. Pollari, “The rise of fintech,” *Finsia J. Appl. Financ.*, no. 3, pp. 15–21, 2016.
- [17]. R. Griffith and S. F. Austin, “Electronic Money and Monetary Policy,” *Southwest. Econ. Proc.*, pp. 47–56, 2004.
- [18]. B. Wernerfelt, “A Resource-Based View of the Firm: Ten Years After,” *Strateg. Manag. Journal*, vol. 16, no. 3, pp. 171–174, 1995.
- [19]. N. Melville and K. Kraemer, “Information Technology And Organizational Performance: An Integrative Model Of IT Business Value,” *MIS Q*, vol. 28, no. 2, pp. 283–322, 2004.
- [20]. J. B. Barney, “The Resource-Based View of the,” *J. Manage.*, vol. 27, no. January 2001, pp. 625–641, 2001.
- [21]. E. . Rogers, “Diffusion of Innovation , 5 th ed ., Everett M . How does new innovation spread out?,” *Free Press*, no. 1995, pp. 0–2, 1995.
- [22]. W. Pease and M. Rowe, “Diffusion of Innovation - the adoption of e- commerce by small to medium enterprises (SME 's) - a comparative analysis,” *Australas. J. Inf. Syst.*, vol. 13, no. 2005, pp. 287–294, 2011.
- [23]. M. . Porter and V. . Millar, “How Information Gives You Competitive Advantage,” *Harv. Bus. Rev.*, vol. July-Augus, no. 85415, pp. 1–6, 1985.
- [24]. C. Fernandes, J. Ferreira, and M. Raposo, “Drivers to Firm innovation and Their Effects on Performance: An International Comparison,” *Electron. Mark.*, vol. August 201, no. 46776, pp. 1–23, 2013.
- [25]. J. Creswell, *Research Design John Creswell 2015*, vol. 1. 2015.
- [26]. J. L. Bower and C. M. Christensen, “Disruptive Technologies: Catching the Wave,” *Harv. Bus. Rev.*, no. February, pp. 43–54, 1995.
- [27]. A. Teja, “Indonesian Fintech Business: New Innovations or Foster and Collaborate in Business Ecosystems? Literature Study and Hypothesis Development,” *Asian J. Technol. Manag.*, vol. 10, no. 1, pp. 10–18, 2017.