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# DIGITALIZATION AND INFORMAL MSME: DIGITAL FINANCIAL INCLUSION FOR MSME DEVELOPMENT IN THE FORMAL ECONOMY

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## ABSTRACT

This study examines digital financial inclusion and uses Fintech for informal micro small and medium enterprises (MSMEs) to overcome the financing gap. The researchers used primarily qualitative methods, namely a qualitative analysis strategy verification through inductive analysis. The results show that Indonesia's fintech landscape makes MSME a driver of the digital economy so that they can overcome the financing gap in the informal sector. The challenges faced by Fintech in encouraging MSME business efficiency in the form of unbalanced agency distribution, data security, data access problems, low digital financial literacy, low connectivity, and interoperability can be overcome by taking advantage of existing opportunities. These opportunities include the role of MFIs and cooperatives in promoting financial inclusion and the development of telecommunications infrastructure networks in Indonesia. The novelty of this research is the comprehensive evaluation of achieved progress in digital financial inclusion for MSMEs in Indonesia and the developed recommendation for regulations by relevant authorities to encourage the business efficiency of MSMEs through facilitating digital financial inclusion.

**Keywords:** digitalization; financial inclusion; micro small and medium enterprises (MSMEs); innovation; loans

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## INTRODUCTION

The micro small and middle entrepreneurship sector is the primary driver of the Indonesian economy, contributing more than 50% of the

GDP. MSMEs provided 96.99% of employment opportunities, contributed to the supply of foreign exchange in the form of export revenues of 15% of total exports, and 97.02% of workers

were absorbed in this sector (Kementerian Koordinator Bidang Perekonomian Republik Indonesia, 2021). MSMEs tend to adapt more easily to unstable economic conditions than large companies (Dalitso & Peter, 2000). But MSME productivity growth needs to be supported by reliable access to credit. Financing is the main challenge for MSMEs in business planning, maintaining the business, and developing the business.

Informal MSMEs are micro-enterprises that do not have a legal entity, the form of business is very small, and the goods sold are always changing. In addition, it is difficult to get assistance from banks because MSMEs do not have systematic financial administration. Informal MSMEs generally have total assets less than Rp. 50 million, with an average sales turnover of under Rp. 300 million/year, and the number of employees does not exceed four people.

Informal MSMEs come from vulnerable groups and are underserved by a large potential gap in financing applications. MSME financing is generally still at the development stage, where the main funds come from personal funds. Access of MSMEs to loans at formal financial institutions is still limited. This financial gap is an obstacle to the development of MSMEs. The financing gap occurs due to information asymmetry and/or weak creditor protection. Another factor that causes this financing gap is the high cost of reaching and serving MSMEs compared to the potential income earned by banks and financial institutions from MSMEs. The limited availability of appropriate financial products and the lack of collateral are obstacles for MSMEs in obtaining financing. Another obstacle for MSMEs is an economic activity that generally does not have a permanent organization, a physical place of business, and employees with irregular work periods. Formally, banks are regulated not to serve entities that are not legally registered, do not have the necessary documents for identification/verification, or are unable to provide reliable information. One way that financing can be given to MSMEs that are not creditworthy without causing losses is subsidized loans. Digital financing services have transformed the traditional loan process by automating the task of underwriting and lending services, making it significantly cheaper, faster, and easier to provide financing to MSMEs. Using

alternative data on digital funding helps eliminate information asymmetry; thus, creating new credit products and digital payments can help informal businesses build credit histories, potentially opening the door to formal financing. The adoption of mobile applications makes it easier for informal businesses to obtain digital financial services.

Many studies related to using digital financing for MSMEs can affect financial stability so that MSMEs continue to operate sustainably (Yulvan et al., 2021). When financial products are accessible to the public, financial inclusion is high; adequate capital provision supports MSME business operations. Digital financing service products are an alternative to overcome the restrictions on access to formal financial institutions, lack of knowledge, and the complexity of financial institution products (Nugroho & Purwanti, 2018). Capri's research (Capri, 2019) concludes that many MSMEs still use digital technology poorly to obtain financials. This is the biggest challenge in getting financial support, in addition to the lack of trust and information for MSMEs in obtaining information on where and how to get financial support. funds (Mehrotra, 2015). In addition, most small and middle-size firms lack assistance from government agencies, NGOs, and private businesses to improve their internet infrastructure, e-commerce, and digital business activities. Mobile applications are the main technology platform used for many company operations (Mehrotra, 2015).

According to the results of Mehrotra's research (Mehrotra, 2015), the volume of MSME credit is considered very small compared to its contribution to GDP, where the number of loans received by MSMEs is disproportionately smaller than corporations even though MSMEs' contribution is more significant to GDP and employment. Less than 60% of SMEs use bank loans as a means of financing. Personal funds continue to be their dominant source of financing (Mehrotra, 2015). Most MSMEs in developing countries state that access to finance is the most binding, so MSME financing programs will be an important channel to achieve growth and create more jobs (Kumar, 2017).

Digital financial inclusion for MSMEs can increase user traffic, and potential borrowers with risk profiles will obtain financing according to measurable targets, which will provide

benefits and create a healthy digital economy ecosystem. Through digital financing, MSMEs will get broad access to loans, and Informal MSMEs can open up opportunities for their development.

This study aims to examine the digital financial inclusion ecosystem and the use of digital finance technology in overcoming the financing gap for Informal MSMEs in Indonesia. This study discovers the challenges and opportunities of Digital Financial Inclusion in encouraging MSME businesses. It ends with a series of studies on the potential policies of the telecommunications sector and other fields related to Fintech. The study was conducted utilizing qualitative methods; a qualitative analysis strategy-verification and inductive analysis were applied. The urgency of research is important to provide solutions to the development of MSMEs as well as the fintech business, its products and business models, and the regulatory and policy frameworks to expand MSMEs access for the digital financing services.

## LITERATURE REVIEW

The digital financial inclusion is essential for the creation of the healthy digital economy ecosystem. These system increases the financial opportunities for the informal MSMEs development.

Financial inclusion contributes to the financial stability under implementation of risk management technologies and strong financial supervision. The financial inclusion increases the level of accessibility of MSMEs to financial products. Blancher (2019) proves that extending credit to MSMEs can contribute to financial stability because it allows banks to diversify their credit portfolios and better risk exposure.

Many studies related to the digital financing MSMEs show the effect of financial stability so that MSMEs continue to operate in a sustainable manner (Yulfan et al., 2021; Le et al., 2019). When financial products are accessible to the public, financial inclusion shows a high level of accessibility.

But only mobile applications are the main technology platform used by MSMEs (Capri, 2019).

Based on research conducted by Baranauskas & Raišienė, 2021; Kurniati & Suryanto, 2022; Valiyev et al., 2022, digitization is the processing

of data into information for both organizations and other end users so that services can be answered quickly and effectively.

Entrepreneurs have turned to digital technology to maintain and develop their businesses and to design and implement strategies in the face of competition in a digital era. (Rusdana et al., 2022; Soegoto et al., 2021).

MSME access to finance focuses on developing appropriate monitoring and evaluation systems to report whether the intervention has the desired effect. Based on the specific financing constraints of MSMEs, the startups' growth can demonstrate better results. It is crucial to provide training and capacity building for MSME managers. Systemic interventions aimed to improve the financial sector operation through policy and regulatory reforms are necessary for success (Kumar, 2017).

The experts of the OECD (2022) stressed the importance of financial inclusion for SMEs under conditions of significant economic shocks (for example, a pandemic) because the SMEs were at the center of the crises impact. Their research has demonstrated the importance of support measures of financial accessibility to all SMEs operation and the reduction of bankruptcies declining.

## METHOD

There are to the research questions objectively, validly, and effectively. It is developed in e-research design and is prepared to obtain a comprehensive answer scheme with a research program. Qualitative research is used to get a complete picture of financial inclusion through the digital finance use by MSMEs in the informal economy from the point of view of financial authorities, developers of digital financing services, financial institutions, telecommunications authorities, and MSME representatives. The research program is designed to provide an understanding of issues through direct interaction involving researchers with digital financing service developers, financial institutions and MSME representatives, and the study of related documents.

The sources of data for this research includes: a) the Director of Telecommunications Kominfo, b) the analyst of Directorate of Fintech Licensing and Supervision OJK, c) the Head of Bumdes Cibogo Hilir Plered.

Determination of data sources in this study was carried out purposively, by taking into account the problem and research objectives, the professional knowledge of informants.

Research data collection includes making report, selecting informants and recording the results of data collection, their analysis and summarizing. Data collection was carried out from December 2021 to April 2022. Data collection techniques were applied by the Forum Group Discussion (FGD) and document review. The Forum Group Discussion (FGD) was held in a structured manner in the formulation of research achievement indicators and research achievement targets. The frequency of holding FGDs was at least 3 times during the research process. The documents review was carried out by digging up information through facts stored in regulations and journals.

The researchers used the technique of testing the validity of the triangulation data, namely (i) the triangulation method to compare information and to avoid the errors in data collection; (ii) theory of triangulation to compare information with relevant theoretical perspectives.

The researcher also uses a qualitative analysis-verification strategy by conducting inductive analysis, which is an approach for the general conclusions making on the base of real facts. This inductive analysis was carried out throughout the study, with the aim of simplifying the data. The procedures of analyzing the obtained data include (i) the performance of data reduction, by selecting data relevant to the research, and focusing attention on the main research problem; (ii) Presentation of summary data in descriptive form; and (iii) Conclusions making to provide problem solving solutions.

The problem identification technique was based on the DMAIC method (Define, Measure, Analyze, Improve, Control). Define is an activity to identify problems that arise. The data was used as input to determine the cause of the problem. Measure is an activity of grouping data that has been obtained and then processed according to existing variables. Analyze means a data analysis activity using the problem tree method (problem tree). The problem tree helps to find solutions by mapping the anatomy of the causes and effects of the problem (structured mind map). The problem tree analysis was done by structuring the causal components related to

the issues prioritized. Improve is an activity focusing on the causes of the problems and their changes. At this stage, developed proposals are given to parties related to the research problem. Control is an activity to maintain the defined condition of goal achievement.

## RESULTS AND DISCUSSION

### Indonesia's Digital Financial Inclusion Ecosystem. Overview of Financial Inclusion in Indonesia

As one of the important parts of financial services, Indonesia's banking credit distribution showed an increase of banking credit by 5.2% in 2021, exceeding the projection of 4% - 5%. An improvement followed this growth in the bad loans (NPL) ratio, 3% in 2021 and 3.06% - in 2020). Likewise, the growth of stock market capitalization as an alternative source of financing in 2021 reached 49.65% of GDP, which is higher than 45% in 2020. Indonesia's financial services sector has been growing, supplemented by the development of new financial products such as Crowdfunding, making it easier for MSME actors to access business capital. It reached Rp. 412 billion in 2021.

The uptake of credit from traditional sources is another essential issue for MSMEs in Indonesia related to financial inclusion that needs to be addressed. There are 65 million MSMEs, or 99.9% of the total business actors in Indonesia, which contribute 97% to the employment (120 million workers) and 60.51% or Rp. 8,573 trillion to GDP (bkpm.go.id). 60.2% of MSMEs have the capital for the maximum three months term (Reza Pahlevi, 2022). On the other hand, in 2020, financing of Microfinance Institutions reached Rp749.42 billion, an increase of 21.68% compared to the previous year (Vika Azkia Dihni, 2021). Meanwhile, MSME loans in Q1/2022 have reached more than IDR 1,171.8 trillion (Pip Kemenkeu, 2022). Loans for the productive sector reached 47.26% (Rp. 54.71 T) in 2021.

### Importance of IT Innovation for Financial Inclusion in Indonesia

The use of IT innovation and blockchain (DLT) in financial services is a technological innovation that provides convenience, efficiency, and broad access to financial products from anywhere and anytime, potentially increasing financial inclusion. Fintech helps old companies and new

companies that do not have bank accounts to receive financial services economically. Fintech as a financial service is delivered through digital infrastructure, including cellular phones and the Internet, that connects individuals and businesses to digital payment infrastructure so creating possibilities of unlimited transactions (McKinsey & Co, 2016).

Most of the Fintech services are offered by start-ups. The IT innovation caused the significant growth of Fintech companies and the share of MSMEs of in the financial services market (Bosnia, 2020). Fintech companies take advantage of IT products and capabilities such as cloud computing to quickly develop digital products and make Fintech companies focus on valuable businesses.

### Fintech Ecosystem in Indonesia

The Fintech in Indonesia is the dynamic, rapidly changing financial services sector. The growth rate of Indonesian FinTech companies during 2017-2021 is 49%, there were 440 companies in 2017, their amount reached 785 companies in 2021 (Fintech in ASEAN, 2021). The Fintech Ecosystem included following types of companies in 2021: companies of payments category – 237 companies (30%), alternative lending – 179 companies (23%), investment tech – 115 companies (15%), finance and accounting – 106 companies (14%), Cryptocurrencies category – 62 companies (8%), Banking Technology category – 38 companies (5%), InsureTech category – 26 companies (3%), RegTecs category – 14 companies (2%) and Blockchain in Financial Services – 8 companies (1%). The dominance of companies of the payments and loan types is explained by the large number of productive age population who are unbanked and underbanked. The number of Indonesian Fintech Companies is the second largest among the ASEAN countries where Singapore (1350 companies) dominates. Meanwhile, the use of Fintech is growing rapidly both in the payment system and in the areas of other products. Bank Indonesia noted that the value of electronic money (EU) transactions during 2021 grew up by 49.06% (reaching Rp305.4 trillion). The Financial Services Authority noted that the accumulation of new lending through Fintech P2P Lending reached Rp.295.85 trillion (an increase of 89.7%) in 2021.

Fintech start-ups force banks and other financial institutions to improve the quality of their business models by adopting IT innovations, improving service, and restructuring and streamlining business models. The bank's digital transformation carried out by adopting Fintech solutions has been going through cloud computing, AI, biometrics, and blockchain/DLT tests to improve business operations.

### Landscape Fintech Payment in Indonesia

Fintech Payment is a digital financial service category that is dominantly used by the community. The adoption of digital payments in Indonesia shows gradual growth in new Fintech ventures. The banks and MNOs introduced new business models and forms of digital payments, although the payment system still relies on cash in Indonesia. Fintech Payment products include (a) Electronic Money; (b) Electronic Wallets; (c) Payment Gateways; (d) Paylater; (e) QRIS. E-money (80.2%) and Paylater (68.9%) products are the two most widely used product variants in 2021 (DailySocial, 2021). The growth of e-wallet usage in 2021 increased by 24% in comparison with the previous year, when 43% of digital transactions used e-wallets (Moses, 2021).

A lot of Fintech companies operating in the digital payment space are referred to the Payment Service Providers (PSPs). BI (Bank of Indonesia) requires PSP to have a license to operate in Indonesia. The PSP category is defined by BI as follows (Peraturan BI Nomor 19/12/PBI/2017):

- E-Money, Issuer of e-money, refers to a company that uses an electronic representation of cash that is issued by one party and received by one or many other parties.
- E-Wallet provider (e-wallet provider) – refers to the "carrier" of e-money and can tie up various sources of funds.
- Payment Gateway Operators. BI has licensed 11 payment gateway operators in Indonesia. The top organizers are Doku, Midtrans and Xendit.
- Merchant Acquirers. The top 4 banks own about 90% of the POS terminals. There are only a few active Fintech companies that are merchant acquirers, the biggest ones are: Cashlez, Moka and Pawoon. Quick Response,

or QR, code is an emerging and new type of POS solution, which has attracted strong interest in Indonesia. Only a few Fintech companies are active in this field in Indonesia.

### Landscape Fintech Lending in Indonesia

There are 103 registered and licensed Fintech Lending providers in Indonesia in 2022 due to the data of the Financial Services Authority (OJK) (OJK, 2022). The Indonesian Fintech Lending providers are grouped into 4 categories, namely: (a) Eduluon, focused on providing education fund loans (Danacita, Edufund, DanaBagus, Pintek, and Installment); (b) Cashloan/Paylater, providing cash loans online (there are 19 Fintech Lending from Findaya, Indodana, Julo to Kredivo); (c) Consumer P2P Lending, a lending group that brings together borrowers and lenders with the use of funds for consumer's needs (there are 27 Fintech Lending agents licensed by OJK such as Finmas, Adakami, EasyCash, 360Kredi to Danakini); and (d) P2P Lending Business, focusing its business on providing productive loan funds (there are 52 fintech lenders, including Amarnya, Investree, KoinWorks, Danamas and others). The Consumer P2P Lending (13.9%), the Productive P2P Lending (13.4%) and Paylater (11.3%) are the Fintech lending categories that occupy the top positions in the use of Financial Lending technology applications (DailySocial.id, 2021). The ease of borrowing is the reason for using this application.

Through Fintech Lending, transactions between borrowers and lenders can occur without the need for a direct meeting. This practice facilitates the process of financial transactions to satisfy the financial needs of the society. In addition, the technology used by Fintech lending are available for people who are not connected to banking and this is the reason for the growing application of this technology. Data from the Cambridge Center for Alternative Finance (CCAF) (Le et al., 2019) shows that 41% of Fintech Lending customers are underbanked, and 21% are unbanked. CCAF also noted that 47% of users are individuals, and 38% of application users come from the MSME sector. Fintech Lending has excellent potential due to many MSMEs and individuals in Indonesia.

### Utilization of Digital Finance Technology in Overcoming the Informal MSME Financing Gap

Indonesian MSMEs have a large financial gap. BI's Money Supply Analysis noted that loans to the MSME sector grew up by 12.3% to Rp1,147.3 trillion throughout 2021. Regulators continue to ask banks to increase the portion of lending to MSMEs up to 30%. Not all banks can disburse credit, but 30% of demand is to be covered by the banking industry, not individual banks. So, all banks must contribute to MSMEs' credit provision by setting a strategy and projected time for achieving MSME credit ratios in their business plans. Bank Indonesia has issued a Regulation (Peraturan BI Nomor 23/13/PBI/2021) concerning Macroprudential Inclusive Financing Ratio (RPIM) for Conventional Commercial Banks, Sharia Commercial Banks, and Sharia Business Units. BI requires the banks to gradually increase the ratio of lending to the MSME sector (20% for 2022, 25% for 2023, and 30% for 2024). The sanctions for the banks those portfolio does not correspond to these requirements are in the form of a written warning or even a material fine (0.1 times the value of lending to MSMEs or a maximum penalty of Rp. 5 billion). The development of financial inclusion for individuals and MSMEs in Indonesia, which is still at a relatively low level, is an opportunity for Digital Fintech lending platforms to fill this gap.

The digital loan business model that caters to the unbanked, underbanked, and MSMEs is categorized into (1) partnerships between different companies (banks, MNOs and Startup Fintech) and (2) Startup Fintech platforms that facilitate lending. Three different business models form an alliance in the partnership area, and each party performs a function in the cycle to provide loans.

### Challenges and Opportunities for Fintech as Digital Financial Inclusion in Encouraging MSME Business Efficiency.

#### Challenge

Agents are vital in distributing digital financial products to Indonesia's unbanked, underbanked, and MSMEs. The Laku Pandai Program, organized by OJK, and the Digital Financial Services Report, organized by Bank Indonesia, are programs that support the pillars of the National Strategy for Inclusive Finance, related to products, intermediation, and distribution channels, provide the branchless financial services. Laku

Pandai and LKD utilize IT facilities such as cellular phones, electronic data capture, and Internet banking that support bank financial services through agents to reach people in remote areas and reduce financial transaction costs. In 2019, fintech companies reported that 6.2 million agents served cash deposits, transfers, bill payments, digital technology-based credit and other digital technology-based financial services. This amount is sufficient to serve the total population of Indonesia, but there is still an unbalanced distribution where there are many areas that do not have a sufficient number of agents so that services are still difficult to reach. In 2020, Bank Indonesia recorded the highest ratio of the number of LKD agents per 100,000 populations on Sulawesi Island as many as 365 agents, on Java Island - 313 agents, Bali and Nusa Tenggara - 285 agents, Sumatra Island - 278 agents and Maluku & Papua Island - 248 agents.

According to the OJK Survey, the 2019 Indonesian Financial Literacy Index reached 38.03% and the Financial Inclusion Index 76.19%. Only 38.03% of Indonesians have the knowledge, skills and confidence to understand financial products and services. Financial Literacy Index is knowledge, skills and beliefs that have an influence on attitudes to improve the quality of decision making and financial management in achieving prosperity. This low level of financial literacy is one of the most important demand-side challenges for financial inclusion in Indonesia. SNKI notes that there are various financial literacy programs, but many of them are not yet unrelated to the digital financial awareness, which is also an important obstacle to overcome. The lack of financial literacy among the unbanked and the poor has also been identified as an obstacle to further growth and expansion by Fintech companies.

### **Opportunities**

Digitization for Microfinance Institutions and cooperatives is the real opportunity to scale up and reach more informal and formal MSMEs. MFIs and cooperatives have played an important role in driving financial inclusion for the poor and micro-enterprises in rural areas. However, most of these organizations have not leveraged digital technologies, which hinders the growth, scale, and scope of product offerings unless the agents have many resources available. Technology is a crucial driver for financial

inclusion, and the digitization of MFIs and cooperatives is an opportunity for these organizations to leverage their customer base and outreach to rural areas and low-income clients. Digital solutions help financial institutions deepen customer engagement and product use and promote and improve finance.

The Ministry of Communications and Informatics is also working to increase fixed broadband penetration up to 30% (30 million household fixed broadband connections) in 2024 through a regulatory facilitation program to address the reasonableness of land rental fees and the right of way (RoW) for the deployment of telecommunications infrastructure with the Ministry of Communications and Informatics. Relevant central and regional institutions provide assistance in internet services for MSMEs and Public Facilities, which is targeted to 1,500 MSMEs and Fasum for 2022, and by 2024 it should reach 7,000 MSMEs and Fasum spread across several parts of Indonesia.

### **Recommendations**

The use of digital technology is an effective way to conduct financial literacy programs, and Fintech companies can play a role in educating customers through innovative business models. Government programs to promote financial literacy should explore the use of innovative technologies. Technology offers exciting opportunities to communicate with more people regardless of time and place. Indonesia's Fintech P2P lending platform should increase the quantity and quality of education programs for customers, training them on understanding savings and managing finances best. Indonesian Fintech, which uses artificial intelligence (AI), also needs to help its customers manage their finances and develop investment strategies according to their financial capabilities. Fintech needs to focus on providing financial literacy for the poor and unbanked market agents. It is essential to design financial products that are relevant, targeted, and easy to use and understand. Alternative financial literacy programs offered by Fintech companies can complement the OJK and BI programs.

Two important components are needed for a digital lending platform to provide loans in Indonesia, namely KYC/identity and a credit risk assessment mechanism. As part of the loan application process, each financial institution

must conduct a Know Your Customer (KYC) check, which consists of a number of customer identity checks that precede the decision to approve a new customer and initiate the onboarding process. While this requirement may be easy for customers in developed countries, it is a significant barrier for the poor in developing countries. Currently, Indonesia has a national ID system that covers 96% of the population aged 17 years and over, and an estimated 92% of the entire population is in the national population database. To evaluate a borrower's credit risk, Fintech platforms use their own alternative credit scoring model and supplement it with data from established credit bureaus in the country. In an environment where unbanked persons have no credit history and have never accessed formal financial products and services, the use of alternative credit scoring mechanisms becomes essential to assess these individuals' credit risk and provide them with access to loans.

The government is intensively ensuring the availability of internet services for the population and business, both in urban and rural areas. Digital infrastructure development must be carried out comprehensively in the context of digital transformation. The government, in this case the Ministry of Communication and Informatics, has realized that there are various challenges in providing broadband services, therefore collaboration is needed with Telecommunications Operators, relevant Ministries/Institutions, and Local Governments to accelerate the expansion of service area coverage and increase broadband service subscriber penetration so that it is expected to encourage the realization of digital transformation to increase Indonesia's economic growth. The collaboration that is needed is not only in the form of facilitating the ease of doing business for telecommunications operators. It also requires certainty for the telecommunications operators to cooperate with other business actors using passive facilities and infrastructure in the cooperative framework. Investment cost efficiency for business actors can be realized in a mutually beneficial, transparent, and non-discriminatory cooperation scheme to get equal opportunities and compete fairly for access to infrastructure. The collaboration of ministries and agencies at the central and regional levels needs to be strengthened. Each economic sector supported by them has the same interest, namely realizing digital-based sector

activities, which can only be discovered through reliable telecommunications infrastructure and continuous adoption of advanced technology. The business world and the community need it to overcome access gaps, especially in access to financial services, that will contribute to financial inclusion and overcome the economic inequality among the various levels of society.

## CONCLUSION

Indonesia's digital financial ecosystem is based on the dynamic fintech landscape. The low-touch concept offered by Fintech contributed to developing a digital economy. Fintech startups, banks, and major technology companies in Indonesia have offered Fintech solutions to individuals and MSMEs, covering many aspects of the financial services sector. Fintech startups are one of the most critical players in the Fintech ecosystem. The communities widely use Fintech Payment as a digital financial service. The adoption of digital payments in Indonesia shows gradual growth as new Fintech ventures, banks, and MNOs, introduction, and high-speed spread of new business models and forms of digital payments. Fintech lending is another dominant digital financial service category where the ease of borrowing is the reason for using such an application. The use of digital finance technology can overcome the financing gap for informal MSMEs, especially for countries like Indonesia, with a sizeable financial gap for MSMEs. Formal financial inclusion for individuals and MSMEs in Indonesia is still relatively low. Digital Fintech lending platforms allow for filling in this gap. The growth of the number of MSMEs that use its services is observed, increasing the variety of products to meet MSME needs and requirements.

Informal MSMEs are an important focus area for P2P business lending platforms in Indonesia. The challenges of Fintech as Digital Financial Inclusion in encouraging MSME business efficiency include: (i) there are relatively enough LP and LKD agents for branchless financial services by utilizing ICT, but they have not yet been distributed in a balanced manner throughout Indonesia; (ii) the weaknesses of data security and access to the SIAK database, in implementing e-KYC and e-signature of prospective fintech customers; (iii) the digital financial literacy index is still low so that fintech expansion is constrained; (iv) low connectivity of smartphones and internet penetration in rural



areas; (v) interoperability between electronic money issuers (banks), telecommunications and Fintech companies is still weak so that the adoption of fintech customers is low. While the opportunities for Fintech as digital financial inclusion include: (i) MFIs and cooperatives play an important role in driving financial inclusion for the poor and micro-enterprises in rural areas. However, most of these organizations are not yet leveraging digital, which slows the growth, scale and scope of product offerings; (ii) the construction of fiber optic cable, terrestrial radio microwave link network to support the fiber optic cable backbone network, satellite network, customer service network (end user) through BTS/Node-B/gNode-B cellular, Optical Distribution Points (ODP) for Fiber to Home (FTH) Wifi and LAN access, and increasing the penetration of the number of household fixed broadband connections, targeting 12458 villages have to be served. Potential policies for the telecommunications sector and other fields related to Fintech include: (i) Fintech needs to focus on providing financial literacy to the public so that it can complement the OJK and BI programs; (ii) Fintech companies can develop their own credit risk mechanisms using non-traditional data and procedures, in order to target previously untapped markets; (iii) development of digital infrastructure must be carried out comprehensively and successively at the first mile, middle mile and last mile network layers in the context of digital transformation. The Ministry of Communication and Informatics collaborates with Telecommunications Operators, related Ministries/Institutions, and Local Governments to accelerate the expansion of service area coverage and increase the penetration of broadband service subscribers. The collaboration is needed not only in the form of facilitating the ease of doing business for telecommunications operators, it also requires certainty for telecommunications operators to cooperate with other business actors to use the necessary facilities and infrastructure.

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## REFERENCES

- Bain & Company, Google, Temasek. (2019). The Future of Southeast Asia's Digital Financial Services. Bain & Company, Inc., Singapore. <https://www.bain.com/insights/fulfilling-its-promise/>
- Baranauskas, G., & Raišienė, A. G. (2021). Expert-based evaluation of digitalization and mass customization in the Baltic non-life insurance online platforms. *Journal of Eastern European and Central Asian Research*, 8(2), 184–201. <https://doi.org/10.15549/jeecar.v8i2.644>
- Blancher N. (2019). Financial Inclusion of Small and Medium Sized Enterprises in the Middle East and Central Asia. IMF Washington, DC. <https://www.imf.org/~media/Files/Publications/DP/2019/English/FISFMECAEA.ashx>
- Bosnia, T. (2020). OJK: Cloud Computing Bisa Efisien Fintech dan Pengawasan, CNBC Indonesia, [Online]. <https://www.cnbcindonesia.com/tech/20180516121346-37-15151/ojk-cloud-computing-bisa-efisien-fintech-dan-pengawasan>
- Capri A. (2019). Micro and Small Businesses in Indonesia's Digital Economy. <https://apfcandamsmc.ca/sites/default/files/2019-03/Micro%20and%20Small%20Businesses%20in%20Indonesia's%20Digital%20Economy.pdf>
- DailySocial.id. (2021). The Convergence of (Digital) Financial Services. DS/innovate. Fintech Report. <https://dailysocial.id/research/fintech-report-2021>
- Dalitso, K., & Peter, Q. (2000). The policy environment for promoting small and medium-sized enterprises in Ghana and Malawi. *University of Manchester*. <https://www.findevgateway.org/sites/default/files/publications/files/mfg-en-paper-the-policy-environment-for-promoting-small-and-medium-sized-enterprises-in-ghana-and-malawi-2000.pdf>
- Fintech in ASEAN. (2021). Digital Takes Flight. Uob.co./fintech2021. Retrieved From: <https://www.uobgroup.com/techecosystem/pdf/fintech-in-asean-2021.pdf>
- Kementerian Koordinator Bidang Perekonomian Republik Indonesia,

- HM.4.6/103/SET.M.EKON.3/05/2021. UMKM Menjadi Pilar Penting dalam Perekonomian Indonesia, Jakarta 5 Mei 2021.  
<https://ekon.go.id/publikasi/detail/2969/umkm-menjadi-pilar-penting-dalam-perekonomian-indonesia>
- PIP Kemenkeu, BLU-Pusat Investasi Pemerintah Kementerian Keuangan RI Ditjen Perbendaharaan. Kredit Usaha Mikro Melesat 94% hingga kuartal I/2022. Retrieved from:  
<https://pip.kemenkeu.go.id/id/data-publikasi/berita-terbaru/139-kredit-usaha-mikro-melesat-94-hingga-kuartal-i-2022.html>
- Kementerian Investasi, BKPM. Upaya Pemerintah untuk Memajukan UMKM Indonesia.  
<https://www.bkpm.go.id/id/publikasi/detail/berita/upaya-pemerintah-untuk-memajukan-umkm-indonesia>
- Kumar R. (2017). Targeted Financing For Sme's And Employment Effects: What Do We Know And What Could Be Done Differently? Jobs Working Paper Issue World Bank Group. 2017 (3).  
<https://doi.org/10.1596/27477>
- Kurniati, P. S., & Suryanto, S. (2022). The Role of the Indonesian Government in the Era of Banking Disruption Innovation. *Journal of Eastern European and Central Asian Research*, 9(1), 93–100.  
<https://doi.org/10.15549/jeecar.v9i1.881>
- Le, T. H., Chuc, A. T., Taghizadeh-Hesary, F. (2019). Financial inclusion and its impact on financial efficiency and sustainability: Empirical evidence from Asia. *Borsa Istanbul Review*, 19(4), 310–322.  
<https://doi.org/10.1016/j.bir.2019.07.002>
- McKinsey & Company. (2016). *Unlocking Indonesia's Digital Opportunity*. October 2016  
[https://www.mckinsey.com/~media/McKinsey/Locations/Asia/Indonesia/Our%20Insights/Unlocking%20Indonesias%20digital%20opportunity/Unlocking\\_Indonesias\\_digital\\_opportunity.ashx](https://www.mckinsey.com/~media/McKinsey/Locations/Asia/Indonesia/Our%20Insights/Unlocking%20Indonesias%20digital%20opportunity/Unlocking_Indonesias_digital_opportunity.ashx)
- Mehrotra, M. (2015). Digital Banking for Small and Medium-sized enterprises, Improving access to finance for the underserved. Retrieved from:  
<https://www2.deloitte.com/content/dam/Deoitte/sg/Documents/financial-services/seafsi-digital-banking-small-medium-enterprises-noexp.pdf>
- Moses Lo. (2021). Xendit: e-wallet tumbuh 300 persen.  
<https://mediaindonesia.com/ekonomi/457888/xendit-e-wallet-tumbuh-pesat-hingga-400-persen-akibat-pandemi>
- Nugroho A., Purwanti, E. Y. (2018). Determinan Inklusi Keuangan Di Indonesia (Global Findex 2014). *Jurnal Dinamika Pembangunan*, 1(1), 1–13.  
<https://doi.org/10.14710/jdep.1.1.1-13>
- OECD (2022), *Financing SMEs and Entrepreneurs 2022. An OECD Scoreboard*, OECD Publishing, Paris,  
<https://doi.org/10.1787/e9073a0f-en>
- Otoritas Jasa Keuangan (OJK). (2022). *Perusahaan Fintech Lending Berizin*. Retrieved From:  
<https://www.ojk.go.id/id/kanal/iknb/financialtechnology/Documents/penyelenggara%20fintech%20lending%20berizin%20per%203%20Januari%202022.pdf>
- Peraturan Bank Indonesia Nomor 19/12/PBI/2017 Tentang Penyelenggaraan Teknologi Finansial.
- Peraturan Bank Indonesia Nomor 23/13/PBI/2021 tentang Rasio Pembiayaan Inklusif Makroprudensial Bagi Bank Umum Konvensional, Bank Umum Syariah, dan Unit Usaha Syariah.
- Reza Pahlevi. (2022). Survei : 60,2% UMKM Hanya Memiliki Modal untuk Bertahan Maksimal 3 Bulan. Retrieved from :  
<https://databoks.katadata.co.id/datapublish/2022/01/19/survei-602-umkm-hanya-memiliki-modal-untuk-bertahan-maksimal-3-bulan>
- Rusdana, N. R., Choirani, S. J., & Friska, A. S. (2022). Digital Marketing Communication Strategy for Micro, Small and Medium Enterprises (MSMEs) in Business Competition. *International Journal of Research and Applied Technology*, 2(1), 163–168.  
<https://doi.org/10.34010/injuratech.v2i1.6913>
- Soegoto, E. S., Amelia, N., Dhafina, N. A., & Berlianti, W. (2021). Utilization of Word-of-Mouth Marketing Strategy in Culinary Business. *International Journal of Research*

and Applied Technology, 1(2), 439–447.  
<https://doi.org/10.34010/injuratech.v1i2.6779>

Valiyev, A., Rustamov, F. V. oglu, Huseynova, R. A., Orujova, M. S., & Musayev, S. N. (2022). The Digitalization Effectiveness As An Innovative Factor Development Of The Agriculture In Azerbaijan. *Journal of Eastern European and Central Asian Research*, 9(2), 194–205.

<https://doi.org/10.15549/jeecar.v9i2.902>

Vika Azkia Dihni (2021). Meningkatkan 21,68% Pembiayaan Lembaga Keuangan Mikro Capai Rp.749,42 Miliar pada 2020. Retrieved from:

<https://databoks.katadata.co.id/datapublish/2021/10/08/meningkat-2168-pembiayaan-lembaga-keuangan-mikro-capai-rp-74942-miliar-pada-2020>

World Bank Indonesia. (2021). Beyond Unicorns Harnessing Digital Technologies for Inclusion in Indonesia. Flagship Report. The World Bank. 1818 H. Street NW, Washington DC 20433.

Yulfan A N, Melia K, Devi N. (2021). Fintech, Financial Inclusion, and Sustainability: A Quantitative Approach of Muslim SME's. *IJIBE (International Journal of Islamic Business Ethics)*, 6 (1): 54-67. E-ISSN: 2502-0633, P-ISSN: 2502-4647

<https://doi.org/10.30659/ijibe.6.1.54-67>

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