A Literature Review on Fintech Innovations: Examining the Evolution, Impact, and Challenges

Ahmad Junaidi^{1⊠}, Rosanna Wulandari², Ervan Susilowati³, Niken Safitri⁴, Muhammad Ikhsan⁵

¹Institut Ilmu Sosial dan Manajemen STIAMI

^{2, 4} Universitas Linggabuana PGRI Sukabumi

³ Kementerian Koordinator Bidang Kemaritiman dan Investasi

⁵ Sekolah Tinggi Ilmu Ekonomi Indonesia

Abstrak

Studi ini mengeksplorasi tantangan yang dihadapi oleh industri fintech di Indonesia. Meskipun mengalami pertumbuhan signifikan dan menawarkan peluang bagi inklusi keuangan dan perkembangan ekonomi, beberapa hambatan harus diatasi untuk mengungkapkan potensi penuhnya. Keterbatasan inklusi keuangan menghambat akses ke layanan keuangan, sehingga perusahaan fintech harus membangun kepercayaan dan kesadaran di kalangan populasi yang kurang dilayani. Keamanan siber dan privasi data membutuhkan langkah-langkah keamanan yang kuat. Kerja sama dengan lembaga keuangan tradisional sangat penting untuk meningkatkan infrastruktur pembayaran. Perolehan dan retensi bakat menimbulkan tantangan berkelanjutan dalam lanskap persaingan. Namun, regulasi yang mendukung dan inisiatif pemerintah menciptakan peluang bagi perusahaan fintech untuk berkembang. Dengan mengatasi tantangan ini secara efektif dan menyediakan solusi berorientasi pelanggan, fintech dapat mendorong inklusi keuangan dan berkontribusi pada pertumbuhan ekonomi Indonesia.

Kata Kunci: Fintech, Evolusi, Dampak, Tantangan, Indonesia

Abstract

This study explores the challenges faced by the fintech industry in Indonesia. Despite experiencing significant growth and offering opportunities for financial inclusion and economic development, several obstacles must be addressed to unlock its full potential. Limited financial inclusion hampers access to financial services, requiring fintech firms to establish trust and awareness among underserved populations. Navigating a complex regulatory environment while balancing regulation and innovation is crucial. Collaboration with traditional financial institutions is vital for enhancing payment infrastructure. Talent acquisition and retention pose ongoing challenges in the competitive landscape. However, supportive regulations and government initiatives create opportunities for fintech companies to thrive. By effectively addressing these challenges and delivering customer-centric solutions, fintech can drive financial inclusion and contribute to Indonesia's economic growth. **Keywords:** *Fintech, Evolution, Impact, Challenges, Indonesia*

Copyright (c) 2023 Ahmad Junaidi

INTRODUCTION

The advent of financial technology (fintech) has brought about a significant transformation in the financial services industry, revolutionizing the way individuals and businesses manage their financial activities. Fintech encompasses a wide range of technological innovations that have disrupted traditional financial services, offering new opportunities for efficiency, accessibility, and inclusivity (Luo, Sun, Yang, et al., 2022). This research paper aims to provide a comprehensive introduction to the field of fintech, exploring its evolution, impact, and challenges through a literature review approach. Over the past decade, the rapid advancement of digital technologies has reshaped numerous industries, and the financial sector is no exception. Fintech encompasses a broad spectrum of technologies, including mobile banking, digital payments, robo-advisors, blockchain, and artificial intelligence, among others. These innovations have created new business models, enhanced customer experiences, and introduced disruptive solutions that challenge traditional financial institutions (Mamonov, 2021).

The rise of fintech can be attributed to several factors. Firstly, the ubiquity of smartphones and internet connectivity has empowered individuals to access financial services and conduct transactions conveniently. Mobile banking applications and digital wallets have transformed the way people manage their finances, eliminating geographical barriers and reducing reliance on physical branches. Secondly, advancements in data analytics and machine learning algorithms have enabled more accurate risk assessment, fraud detection, and personalized financial advice. Fintech startups leverage these technologies to offer tailored solutions to consumers and businesses, often with greater speed and efficiency than traditional incumbents (Makki & Alqahtani, 2022).

The impact of fintech has been profound, shaping multiple dimensions of the financial services landscape. It has facilitated financial inclusion by reaching previously underserved populations, allowing them to access basic banking services and participate in the formal economy. Fintech has also improved customer experiences through user-friendly interfaces, personalized recommendations, and real-time access to financial information (Al-Okaily et al., 2021). Additionally, fintech innovations have reduced costs for consumers and businesses, promoting price transparency and driving competition in the market. However, along with the opportunities, fintech also presents challenges that need to be carefully addressed. Concerns regarding data privacy and cybersecurity have arisen as more financial transactions are conducted online. Regulatory frameworks struggle to keep pace with the rapid evolution of fintech, leading to uncertainties and potential risks. Ethical considerations surrounding the use of customer data and the implications of algorithmic decision-making raise important questions that require thoughtful analysis. Furthermore, the emergence of fintech startups as competitors to traditional financial institutions has triggered debates about the future of banking and the role of incumbents in the evolving landscape (Kabulova & Stankevičienė, 2020).

The urgency of conducting this study on fintech arises from several critical factors that emphasize the need for comprehensive research and analysis in this field. First and foremost, fintech is experiencing an unprecedented pace of technological advancements. Innovations such as artificial intelligence, blockchain, and data analytics are rapidly transforming the financial services landscape (Tan et al., 2019). It

is imperative to stay abreast of these advancements, comprehend their implications, and identify the opportunities and challenges they present. Furthermore, fintech's impact on financial inclusion cannot be overlooked. The potential of fintech to provide access to financial services for underserved populations is significant. Mobile banking, digital payments, and alternative lending platforms have already made substantial strides in reaching the unbanked and underbanked individuals. Understanding the precise impact of fintech on financial inclusion is urgent to ensure that these technological advancements benefit all segments of society and bridge the digital divide (Imerman & Fabozzi, 2020).

In addition, the regulatory challenges surrounding fintech are complex and continuously evolving. Regulators face the delicate task of fostering innovation while safeguarding consumers and financial stability. The urgency lies in comprehending the regulatory challenges faced by fintech startups as well as traditional financial institutions. Such understanding can facilitate the development of appropriate regulatory frameworks that nurture innovation while effectively managing potential risks (Irimia-Diéguez et al., 2023). Cybersecurity and data privacy concerns also contribute to the urgency of this study. As financial transactions increasingly migrate to digital platforms, the vulnerability of fintech companies to cyberattacks and breaches of data privacy becomes a critical issue. It is essential to address these concerns promptly and effectively, establishing robust cybersecurity measures and ensuring stringent data privacy practices within the fintech ecosystem. Moreover, the implications of fintech for traditional financial institutions cannot be underestimated. Fintech startups are disrupting established business models and posing both challenges and opportunities for incumbent institutions. Understanding the impact of fintech on traditional financial institutions is imperative for their survival and competitiveness in the digital age (Anifa et al., 2022).

Ethical considerations surrounding fintech innovations are another urgent aspect to explore. The use of customer data, algorithmic decision-making, and the potential for bias in financial services raise important ethical questions. This study will aim to examine the ethical implications of fintech, ensuring responsible development and deployment with a focus on fairness, transparency, and accountability. Lastly, the global economic implications of fintech are substantial. Fintech has the capacity to drive economic growth, enhance financial stability, and create employment opportunities. However, the uneven adoption of fintech across countries and regions can exacerbate existing economic disparities. Understanding these global implications is crucial for policymakers and stakeholders to foster inclusive and sustainable economic development (Senyo et al., 2023).

The purpose of this study is to address the urgent need for comprehensive research and analysis in the field of fintech. The rapid pace of technological advancements, the impact on financial inclusion, regulatory challenges, cybersecurity and data privacy concerns, implications for traditional financial institutions, ethical considerations, and global economic implications all contribute to the urgency of conducting this study. By exploring the evolution of fintech, the study aims to provide a chronological overview of its development, identifying key milestones and the technological advancements that have shaped the current landscape. Understanding this evolution is essential for researchers and practitioners to stay informed about the latest developments and comprehend their implications. Examining the impact of fintech across various sectors of the financial services industry is another vital purpose

of this study. By analyzing its effects on financial inclusion, customer experiences, cost reduction, operational efficiency, risk management, regulatory challenges, and market competition, the research aims to provide a comprehensive understanding of the consequences of fintech adoption in different contexts. This knowledge can help stakeholders identify opportunities and challenges associated with fintech and inform decision-making processes.

Identifying challenges in fintech is crucial for addressing potential risks and developing effective strategies. By analyzing issues such as cybersecurity, data privacy, regulatory compliance, ethical considerations, talent acquisition, funding constraints, and customer trust, the study aims to provide insights that can guide stakeholders in overcoming these challenges. This understanding will facilitate the development of a sustainable and secure fintech ecosystem (Al-Okaily et al., 2021). Additionally, the study aims to consolidate existing knowledge and identify research gaps in the fintech field. By conducting a comprehensive literature review, the research will synthesize relevant scholarly works, industry reports, and publications, providing a comprehensive overview of advancements, impact, and challenges within fintech. This knowledge will help researchers and practitioners identify areas that require further investigation, guiding future research endeavors. The insights generated from this study will not only contribute to the academic understanding of fintech but also hold practical implications. Policymakers, regulators, and industry professionals will benefit from the findings, which can inform decision-making processes, regulatory frameworks, and industry practices. By addressing the urgent need for research in fintech, this study aims to facilitate informed and strategic actions that harness the potential of fintech while mitigating associated risks.

2. METHODOLOGY

The methodology employed in this study utilizes a literature review approach to comprehensively examine existing knowledge on fintech innovations, specifically focusing on their evolution, impact, and challenges. This methodology ensures a rigorous and systematic analysis of relevant scholarly works, industry reports, and publications. To begin, a comprehensive search will be conducted across academic databases and industry-specific sources using relevant keywords (Sugiyono, 2019). This search aims to identify a wide range of articles, conference papers, books, and reports related to fintech.

To conduct this literature review, a systematic approach was employed to gather relevant articles, conference papers, books, and reports from reputable academic databases and industry publications. The search keywords included "fintech," "financial technology," "innovations," "impact," and "challenges." The articles selected for review underwent a rigorous screening process based on their relevance, quality, and recency. The included works were analyzed, summarized, and categorized to identify key themes and trends in fintech research. Selected sources will be carefully read and analyzed to extract relevant information, including key findings, research methodologies, theoretical frameworks, and any identified limitations or gaps (Hair et al., 2019). A systematic approach will be employed to categorize and organize the extracted data based on themes and subtopics related to the evolution, impact, and challenges of fintech.

The synthesized data will be critically evaluated to identify key themes, trends, and patterns present in the literature. This evaluation will involve a comparative

analysis of the findings, methodologies, and perspectives presented in the selected sources, allowing for the identification of areas of consensus and any differing viewpoints or gaps that exist. The findings will be thoroughly discussed, interpreted, and analyzed to provide a comprehensive overview of the existing body of knowledge on fintech innovations. This discussion will highlight key insights, emerging trends, and potential research gaps within the field. The study will conclude by summarizing the key findings and offering recommendations for future research directions.

3. RESULT AND DISCUSSION

1. The Fintech Industry in Indonesia

Fintech in Indonesia has witnessed remarkable growth and is reshaping the financial landscape of the country. With a large population of over 270 million people and an increasingly digital-savvy society, Indonesia offers a fertile ground for fintech innovation and adoption. The sector encompasses a wide range of financial technologies, including digital payments, peer-to-peer lending, insurtech, and more. One of the significant segments of fintech in Indonesia is digital payments (Takeda & Ito, 2021). With the rise of e-commerce and the government's push for a cashless society, digital payment platforms have gained widespread popularity. Leading players such as GoPay, OVO, DANA, and LinkAja have emerged as dominant forces in the market, offering mobile wallets and payment apps that enable convenient and secure transactions for individuals and businesses. These platforms have revolutionized the way Indonesians make payments, reducing reliance on cash and driving the growth of e-commerce.

Another prominent sector within Indonesian fintech is peer-to-peer lending. Traditional banking services often struggle to meet the financing needs of individuals and small businesses, particularly in remote areas. P2P lending platforms have filled this gap by connecting borrowers directly with lenders, providing access to affordable credit. Platforms like Modalku, Investree, and Amartha leverage technology to streamline loan application processes, assess creditworthiness, and facilitate loan disbursement (Rauniyar et al., 2021). P2P lending has played a crucial role in promoting financial inclusion by extending credit to previously underserved segments of the population. Insurtech is also gaining momentum in Indonesia. Insurtech startups leverage technology to offer innovative insurance solutions, enhance customer experiences, and streamline insurance operations (Al-Dmour et al., 2020). Companies such as PasarPolis, Qoala, and Lifepal utilize digital platforms and data analytics to provide customized insurance products, simplify claims processes, and expand insurance coverage to untapped markets. Insurtech is helping to bridge the insurance gap in Indonesia by making insurance more accessible and affordable for a broader population.

The regulatory environment in Indonesia has played a crucial role in fostering fintech growth. The Financial Services Authority (OJK) has introduced regulations and licensing frameworks to provide a clear regulatory framework for fintech companies. These regulations aim to promote innovation, protect consumers, and ensure financial stability. The supportive regulatory environment has provided certainty and encouraged investments in the fintech sector, promoting healthy competition and responsible business practices (Chen et al., 2019). Financial inclusion is a key focus of fintech in Indonesia. The country has a significant unbanked population, particularly in rural areas. Fintech has emerged as a powerful tool to address this issue by

providing accessible and affordable financial services to previously underserved individuals and small businesses. Mobile banking services, digital payments, and P2P lending have enabled individuals to access basic banking services, make payments, and access credit conveniently through their mobile devices. Fintech has reduced barriers to financial inclusion, empowering individuals to participate in the formal economy and improve their financial well-being (Vivek Dubey, 2019). However, the fintech sector in Indonesia also faces challenges that need to be addressed. Cybersecurity threats and data privacy concerns pose risks to the integrity and confidentiality of financial transactions and customer data. Ensuring robust security measures and promoting awareness among users is crucial to maintain trust and confidence in fintech platforms. Additionally, regulatory compliance is a challenge for fintech startups as they navigate complex regulatory frameworks. Collaborative efforts between the industry and regulators are necessary to strike a balance between fostering innovation and safeguarding consumer interests.

In conclusion, fintech has gained significant traction in Indonesia, transforming the financial landscape and fostering financial inclusion. Digital payments, P2P lending, and insurtech are among the key segments of the fintech sector. The supportive regulatory environment has played a vital role in facilitating fintech growth, while efforts to address challenges such as cybersecurity and regulatory compliance are ongoing. As fintech continues to evolve and mature, it holds the potential to drive economic growth, enhance financial services, and improve the overall well-being of Indonesians.

2. The Evolution of Fintech in Indonesia

The fintech industry in Indonesia has experienced a significant evolution over the years, transforming the country's financial landscape. Fueled by factors such as a large population, growing digital adoption, and a supportive regulatory environment, fintech has emerged as a dynamic and rapidly expanding sector.

In the early stages, fintech in Indonesia primarily focused on digital payment solutions. With the rise of e-commerce and the government's push for a cashless society, digital payment platforms gained traction among individuals and businesses. Players like GoPay, OVO, and DANA entered the market, offering mobile wallet services that allowed users to make seamless and secure transactions. These platforms revolutionized the way Indonesians conducted financial transactions, reducing the reliance on cash and driving the growth of the digital economy. As the industry matured, peer-to-peer lending emerged as a significant segment of fintech in Indonesia. Traditional banking services often struggled to meet the financing needs of individuals and small businesses, particularly those in remote areas. P2P lending platforms bridged this gap by connecting borrowers directly with lenders, offering accessible and convenient loan services. Leading platforms such as Modalku and Investree implemented innovative approaches to credit assessment and risk management, facilitating loan disbursement and stimulating economic activity among previously underserved populations (Rabbani, 2022).

Another notable evolution within Indonesian fintech is the growth of insurtech. Insurtech startups leveraged technology to offer innovative insurance products and services, enhancing accessibility and efficiency in the insurance sector. Companies like PasarPolis and Qoala introduced digital platforms that simplified the insurance purchase process, streamlined claims management, and provided tailored insurance

solutions to a broader customer base. Insurtech has played a crucial role in increasing insurance penetration in Indonesia, addressing the historically low insurance coverage levels and contributing to financial resilience among individuals and businesses (Dawood et al., 2022). The regulatory environment has played a significant role in shaping the evolution of fintech in Indonesia. The Financial Services Authority (OJK) has actively supported fintech innovation while ensuring consumer protection and financial stability. The OJK introduced specific regulations and licensing frameworks for fintech companies, providing a clear regulatory framework that promotes responsible business practices and fosters a conducive environment for growth. This regulatory support has boosted investor confidence and encouraged local and international players to enter the Indonesian fintech market. Furthermore, the advent of open banking and financial inclusion initiatives has further propelled the evolution of fintech in Indonesia. Open banking regulations have encouraged collaboration between traditional financial institutions and fintech startups, fostering innovation and the development of new financial products and services (Mamonov, 2020). Financial inclusion initiatives have aimed to extend access to affordable financial services, leveraging fintech to reach unbanked and underbanked individuals and small businesses in remote areas. Looking ahead, the evolution of fintech in Indonesia is expected to continue, driven by technological advancements, changing consumer behaviors, and regulatory developments. The industry is likely to witness further diversification, with emerging segments such as wealth management, blockchain, and regtech gaining prominence (Jarvis & Han, 2021). Collaboration between fintech players, regulators, and traditional financial institutions will be essential to navigate challenges and ensure sustainable growth.

In conclusion, the fintech industry in Indonesia has undergone a notable evolution, driven by digital payment solutions, P2P lending platforms, insurtech, and regulatory support. These advancements have transformed the financial landscape, fostering financial inclusion and driving economic growth. With ongoing technological advancements and a supportive ecosystem, fintech in Indonesia is poised for further growth and innovation, contributing to the country's economic development and financial resilience.

3. The Impact of Fintech Industry

Financial technology has had a significant impact on the financial landscape of Indonesia. Over the past decade, the country has experienced a rapid growth in its fintech industry, which has transformed the way financial services are accessed and delivered. This technological disruption has brought numerous benefits to both consumers and businesses, but it has also presented new challenges and risks. One of the most notable impacts of fintech in Indonesia is the increased financial inclusion it has enabled. Traditional banking services were often inaccessible to a large portion of the population, particularly those living in remote areas or lacking proper identification documents (Luo, Sun, & Zhou, 2022). Fintech platforms have bridged this gap by offering innovative solutions such as mobile banking and digital wallets. These services have empowered previously unbanked individuals to access and manage their finances more conveniently, providing them with opportunities for economic growth and empowerment.

Another key aspect of fintech's impact is the transformation of the lending landscape. Fintech companies have introduced peer-to-peer lending platforms that connect borrowers directly with lenders, cutting out the intermediaries typically associated with traditional banking. This has expanded access to credit for small and medium-sized enterprises (SMEs) and individuals who were previously underserved by the formal financial sector (G. Zhou et al., 2022). By utilizing alternative data sources and advanced algorithms, fintech lenders have been able to assess creditworthiness more accurately, reducing the reliance on traditional collateral and paperwork. In addition to lending, fintech has also revolutionized the way payments are made in Indonesia. Digital payment platforms have gained significant popularity, enabling individuals to make transactions quickly, securely, and at lower costs. E-wallets have become a common means of payment for everyday purchases, even in remote areas where access to traditional banking infrastructure is limited. This shift towards digital payments has not only improved convenience but has also contributed to reducing the reliance on cash, promoting transparency and accountability in financial transactions (Li et al., 2022).

Furthermore, fintech has played a crucial role in promoting financial literacy and education in Indonesia. Many fintech companies have developed user-friendly mobile applications and online platforms that provide educational content, budgeting tools, and personalized financial advice. This has empowered individuals to make informed financial decisions, manage their money more effectively, and plan for their future. By promoting financial literacy, fintech has the potential to uplift the overall financial well-being of Indonesians and foster a culture of responsible financial management (X. Zhou & Chen, 2021). However, along with the positive impact, fintech also poses certain risks and challenges. The rapid growth of the industry has led to concerns regarding consumer protection, data privacy, and cybersecurity. Regulators and industry players need to collaborate to establish robust frameworks and regulations that safeguard the interests of all stakeholders while promoting innovation and competition. Striking the right balance between innovation and regulation is crucial to ensure the long-term sustainability and trustworthiness of the fintech ecosystem (Makki & Alqahtani, 2022; Tan et al., 2019).

In conclusion, fintech has brought about a transformative change in Indonesia's financial sector. It has increased financial inclusion, transformed lending practices, revolutionized payments, and promoted financial literacy. By leveraging technology and innovative solutions, fintech has opened up new opportunities for individuals and businesses, empowering them to access financial services more efficiently and effectively. However, it is essential to address the associated risks and challenges to build a resilient and inclusive fintech ecosystem that benefits all Indonesians.

4. The Challenges of Fintech in Indonesia

Financial technology has experienced rapid growth and transformation in recent years, and Indonesia is no exception. As the largest economy in Southeast Asia, Indonesia presents a unique set of challenges and opportunities for fintech companies. However, there are several key challenges that fintech firms in Indonesia must navigate to thrive in this dynamic market. One of the primary challenges facing the fintech industry in Indonesia is limited financial inclusion (Anifa et al., 2022; Kabulova & Stankevičienė, 2020). Despite having a large population, a significant portion of Indonesians remain unbanked or underbanked. Many individuals and businesses lack access to basic financial services such as banking facilities, credit, and insurance. Fintech companies are stepping in to bridge this gap by providing innovative digital

solutions that can reach the underserved population, but they face challenges in building trust and awareness among these segments (Senyo et al., 2023).

Another challenge is the regulatory environment. Fintech in Indonesia operates within a complex and evolving regulatory framework. While the government has recognized the potential of fintech to drive financial inclusion and economic growth, it also seeks to protect consumers and maintain stability in the financial sector. Fintech companies must navigate multiple regulatory agencies and comply with various licensing and reporting requirements, which can be time-consuming and costly. Striking the right balance between regulation and innovation is crucial for the sustainable growth of the fintech industry (Imerman & Fabozzi, 2020; Rauniyar et al., 2021). Cybersecurity and data privacy pose significant challenges for fintech firms in Indonesia. As digital transactions and online financial services become more prevalent, the risk of cyber threats and data breaches increases. Fintech companies must invest in robust security measures to protect customer data and financial transactions, which can be a costly endeavor. Additionally, ensuring compliance with data protection regulations, such as the Personal Data Protection Law, adds another layer of complexity for fintech companies operating in Indonesia. Payment infrastructure is another challenge for fintech in Indonesia. While digital payment platforms have gained popularity, cash transactions are still prevalent, especially in rural areas. Fintech companies need to develop solutions that cater to the diverse payment preferences of Indonesians. Collaborations with traditional financial institutions, such as banks, are crucial to expanding the reach of digital payments and enhancing interoperability between different platforms (Mamonov, 2021; Vivek Dubey, 2019).

Lastly, talent acquisition and retention pose challenges for fintech companies in Indonesia. The rapidly growing industry demands a skilled workforce with expertise in technology, finance, and regulation. However, there is a shortage of professionals with fintech-specific skills in the market. Fintech firms must invest in training and development programs to upskill their employees and attract top talent. Competition with established tech companies and traditional financial institutions further intensifies the battle for skilled professionals (Al-Dmour et al., 2020; Luo, Sun, Yang, et al., 2022). Despite these challenges, the fintech industry in Indonesia holds immense potential. The government has been supportive of fostering innovation and encouraging collaboration between fintech firms and traditional financial institutions. Initiatives such as regulatory sandboxes and fintech-focused regulations have been introduced to facilitate experimentation and provide regulatory clarity (Irimia-Diéguez et al., 2023). As the ecosystem matures and evolves, fintech companies that can address these challenges effectively and deliver customer-centric solutions have the opportunity to thrive and contribute to financial inclusion and economic growth in Indonesia.

CONCLUSION

In summary, the fintech industry in Indonesia has experienced significant growth and has the potential to promote financial inclusion and economic development. However, there are several obstacles that must be overcome for the industry to reach its full potential. Limited financial inclusion remains a key challenge as a substantial portion of the population lacks access to basic financial services. Fintech firms are striving to bridge this gap through innovative solutions, but it is crucial to establish trust and raise awareness among underserved segments. The regulatory landscape poses another hurdle, as fintech companies must navigate a complex and evolving framework. Striking the right balance between regulation and innovation is crucial for sustainable growth. Cybersecurity and data privacy are significant concerns, necessitating substantial investment in security measures to protect customer information and transactions. Collaborating with traditional financial institutions is vital to enhance payment infrastructure and expand digital payment adoption.

Talent acquisition and retention pose ongoing challenges, as the fintech industry demands a skilled workforce. Fintech companies need to invest in training and development programs to upskill their employees and attract top talent, especially considering the competition from established tech firms and traditional financial institutions. Despite these challenges, the supportive regulatory environment and government initiatives aimed at fostering innovation provide opportunities for fintech companies to thrive in Indonesia. By effectively addressing these challenges and delivering customer-centric solutions, the fintech industry can play a significant role in driving financial inclusion, transforming the financial landscape, and contributing to the overall growth and development of Indonesia's economy.

References

- Al-Dmour, H., Asfour, F., Al-Dmour, R., & Al-Dmour, A. (2020). The effect of marketing knowledge management on market performance through product innovations. *Interdisciplinary Journal of Information, Knowledge, and Management*, 15, 203–225.
- Al-Okaily, M., Alsharairi, M., Natour, A. R. Al, Shishan, F., Al-Dmour, A., & Alghazzawi, R. (2021). Sustainable fintech innovation orientation: A moderated model. *Sustainability* (*Switzerland*), 13(24). https://doi.org/10.3390/su132413591
- Anifa, M., Ramakrishnan, S., Joghee, S., Kabiraj, S., & Bishnoi, M. M. (2022). Fintech Innovations in the Financial Service Industry. *Journal of Risk and Financial Management*, 15(7). https://doi.org/10.3390/jrfm15070287
- Chen, M. A., Wu, Q., & Yang, B. (2019). How Valuable Is FinTech Innovation? *Review of Financial Studies*, 32(5), 2062–2106. https://doi.org/10.1093/rfs/hhy130
- Dawood, H. M., Liew, C. Y., & Lau, T. C. (2022). Mobile perceived trust mediation on the intention and adoption of FinTech innovations using mobile technology: A systematic literature review. *F1000Research*, 10, 1–19. https://doi.org/10.12688/f1000research.74656.2
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203
- Imerman, M. B., & Fabozzi, F. J. (2020). Cashing in on innovation: a taxonomy of FinTech. Journal of Asset Management, 21(3), 167–177. https://doi.org/10.1057/s41260-020-00163-4
- Irimia-Diéguez, A., Velicia-Martín, F., & Aguayo-Camacho, M. (2023). Predicting Fintech Innovation Adoption: the Mediator Role of Social Norms and Attitudes. *Financial Innovation*, 9(1). https://doi.org/10.1186/s40854-022-00434-6
- Jarvis, R., & Han, H. (2021). Citation: Fintech Innovation: Review and Future Research Directions. *Int J Bank Fin Ins Tech*, 1(1), 79–102.
- Kabulova, J., & Stankevičienė, J. (2020). Valuation of fintech innovation based on patent applications. *Sustainability* (*Switzerland*), 12(23), 1–14. https://doi.org/10.3390/su122310158
- Li, C., He, S., Tian, Y., Sun, S., & Ning, L. (2022). Does the bank's FinTech innovation reduce its risk-taking? Evidence from China's banking industry. *Journal of Innovation and*

Knowledge, 7(3). https://doi.org/10.1016/j.jik.2022.100219

- Luo, S., Sun, Y., Yang, F., & Zhou, G. (2022). Does fintech innovation promote enterprise transformation? Evidence from China. *Technology in Society*, 68, 101821. https://doi.org/10.1016/j.techsoc.2021.101821
- Luo, S., Sun, Y., & Zhou, R. (2022). Can fintech innovation promote household consumption? Evidence from China family panel studies. *International Review of Financial Analysis*, 82(October 2021), 102137. https://doi.org/10.1016/j.irfa.2022.102137
- Makki, A. A., & Alqahtani, A. Y. (2022). Modeling the Enablers to FinTech Innovation in Saudi Arabia: A Hybrid Approach Using ISM and ANP. *Systems*, 10(5). https://doi.org/10.3390/systems10050181
- Mamonov, S. (2020). The Role of Information Technology in Fintech Innovation: Insights from the New York City Ecosystem. In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics): Vol. 12066 LNCS. Springer International Publishing. https://doi.org/10.1007/978-3-030-44999-5_26
- Mamonov, S. (2021). The role of information technology in fintech innovation: Insights from the European Fintech ecosystem. *Proceedings of the Annual Hawaii International Conference on System Sciences*, 2020-January, 5036–5045. https://doi.org/10.24251/hicss.2021.612
- Rabbani, M. R. (2022). Fintech innovations, scope, challenges, and implications in Islamic Finance: A systematic analysis. *International Journal of Computing and Digital Systems*, 13(1), 579–608. https://doi.org/10.12785/IJCDS/130147
- Rauniyar, K., Manager, B., Bank Limited Kathmandu, N., Komal Rauniyar, N., & Kumar Sah, D. (2021). Role of FinTech and Innovations for Improvising Digital Financial Inclusion. International Journal of Innovative Science and Research Technology, 6(5), 6. https://ijisrt.com/assets/upload/files/IJISRT21MAY1089.pdf%0Awww.ijisrt.com
- Senyo, P. K., Gozman, D., Karanasios, S., Dacre, N., & Baba, M. (2023). Moving away from trading on the margins: Economic empowerment of informal businesses through FinTech. *Information Systems Journal*, 33(1), 154–184. https://doi.org/10.1111/isj.12403
- Sugiyono. (2019). Metodologi Penelitian.
- Takeda, A., & Ito, Y. (2021). A review of FinTech research. *International Journal of Technology Management*, 86(1), 67–88. https://doi.org/10.1504/IJTM.2021.115761
- Tan, T., Zhang, Y., Suang Heng, C., & Ge, C. (2019). Empowerment of Grassroots Consumers: A Revelatory Case of a Chinese FinTech Innovation. *Journal of the Association for Information Systems*, 1–56. https://ssrn.com/abstract=3563373
- Vivek Dubey. (2019). FinTech Innovations in Digital Banking. International Journal of Engineering Research And, V8(10). https://doi.org/10.17577/ijertv8is100285
- Zhou, G., Zhu, J., & Luo, S. (2022). The impact of fintech innovation on green growth in China: Mediating effect of green finance. *Ecological Economics*, 193, 107308. https://doi.org/10.1016/j.ecolecon.2021.107308
- Zhou, X., & Chen, S. (2021). FinTech innovation regulation based on reputation theory with the participation of new media. *Pacific Basin Finance Journal*, 67(October 2020), 101565. https://doi.org/10.1016/j.pacfin.2021.101565