

Accelerating Islamic Economy and Finance through Financial Technology: Challenges and Potential in the Digital Age

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Abstract

The Islamic financial industry is increasingly experiencing rapid change and growth with technological advances, especially in the form of Financial Technology (FinTech). This research aims to analyze the regulatory challenges in the application of Financial Technology in the Islamic financial industry in Indonesia. This research uses a qualitative method with a literature study to collect and analyze data from various sources related to the application of FinTech in the Islamic financial industry and the associated regulatory challenges. The research findings show that several regulatory challenges need to be addressed in implementing FinTech in the Islamic finance industry in Indonesia. These challenges include Islamic perspectives on FinTech, efforts from government regulations and policies to encourage Islamic FinTech and the importance of collaboration between financial institutions and regulatory authorities. This research provides insight into the regulatory challenges faced in the implementation of FinTech in the Islamic finance industry in Indonesia. This research can guide the government, Islamic financial institutions, Islamic FinTech companies, and regulatory authorities in developing a regulatory framework conducive to the growth of Islamic FinTech.

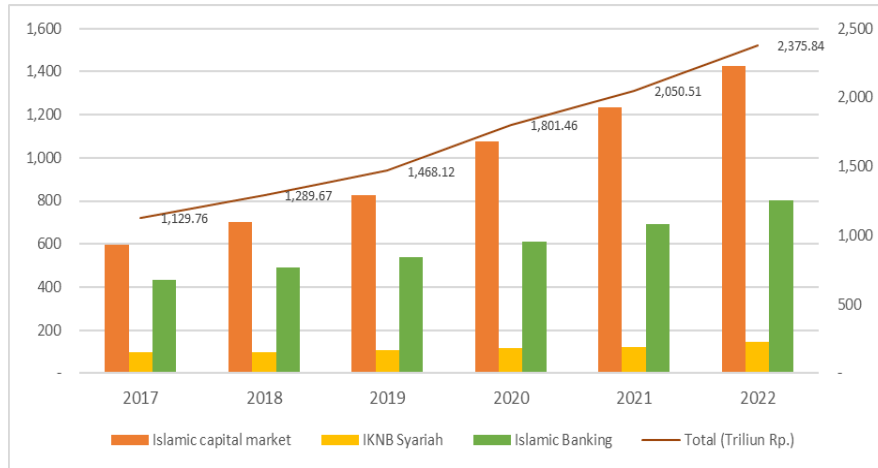
Keywords: Financial Technology; Islamic FinTech; Islamic finance industry; Regulatory Challenges

A. Introduction

Islamic finance constitutes a financial system rooted in the principles of Islamic Sharia, which forbids the charging of interest (riba) and engaging in harmful speculative activities (Muneeza & Mustapha, 2019). In recent years, the Islamic finance industry in Indonesia has witnessed significant expansion. The advancement of new and emerging markets, particularly in Central Asia and North Africa, has further bolstered the growth of Islamic finance. Notably, countries like Kazakhstan, Tajikistan, and Algeria have played a crucial role in supporting the sector's growth, acknowledging its favorable prospects and

activities. The development of these markets has catalyzed the escalating growth observed in the Islamic finance sector within the region.

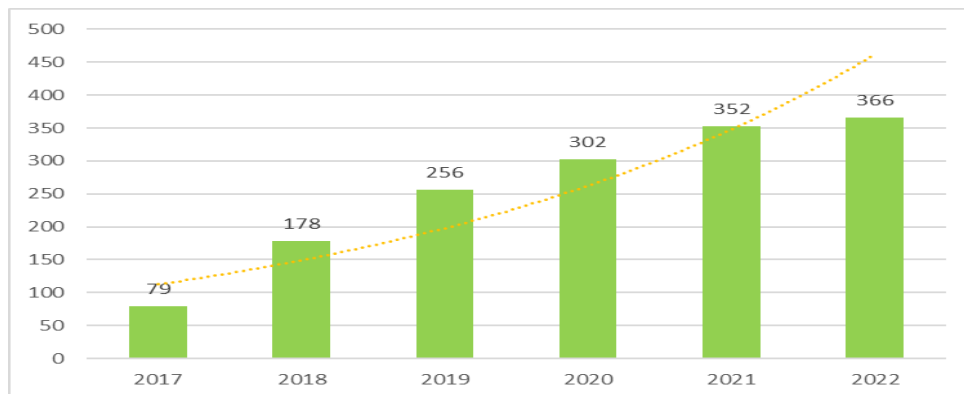
Picture 1. Graph of Total Asset Development of the Islamic Finance Industry



Source: Indonesia Sharia Finance Development Report 2020

However, to reach its full potential, the Islamic finance sector must face various challenges, such as accessibility, operational efficiency, and product innovation (Aysan & Unal, 2023). At the same time, the advancements in information and communication technology, specifically within the domain of Financial Technology (FinTech), have brought about a transformative impact on the worldwide financial industry. FinTech presents inventive solutions for delivering financial services, enhancing operational efficiency, broadening accessibility, and enhancing the overall consumer experience (Senyo & Osabutey, 2020). FinTech in Islamic finance holds immense promise for propelling the sector's expansion and facilitating its transformative journey (Iqbal et al., 2022).

Picture 2. Trends in the Number of Members of the Indonesian Fintech Association



Source: Annual Member Survey of Indonesian Fintech Association 2022

The Islamic finance industry is increasingly experiencing changes and rapid growth with technological advances, especially in Financial Technology (FinTech). Islamic FinTech has significantly contributed to increasing economic growth, financial accessibility, and

empowering MSMEs in Indonesia (Syarifuddin et al., 2021). However, in-depth studies on the application of FinTech in the Islamic finance industry still need to be completed.

Researchers have conducted several previous studies that discuss FinTech in the context of Islamic finance. (Hasan et al., 2020) researched the implementation of technology-based Islamic financial applications in Indonesia. The researcher found that adopting this technology provides significant benefits to the community regarding accessibility, transparency, and efficiency of Islamic finance. However, this study only highlighted a particular aspect, namely Islamic financial applications, so there is an opportunity to conduct more comprehensive research involving various aspects of Islamic FinTech. Research conducted by (Shinkafi et al., 2019) concentrated on examining the effects of Islamic FinTech in enhancing financial inclusivity. Based on the findings, the research discovered that the adoption of Islamic financial technology yields favorable outcomes in terms of promoting financial inclusion, particularly among individuals who were previously marginalized from accessing formal financial services. While this investigation provides valuable insights into the influence of Islamic FinTech, it is crucial to undertake further extensive research to thoroughly explore the complexities and regulatory factors involved in the integration of FinTech in the Islamic finance domain.

While there has been some research on Islamic FinTech, there is a research gap that this study needs to fill. In particular, there needs to be more comprehensive research examining the regulatory challenges associated with the implementation of FinTech in the Islamic finance industry in Indonesia. Previous research has focused more on the benefits and positive impacts of Islamic FinTech. However, it has yet to fully explore the regulatory aspects required to ensure compliance with the principles of Islamic finance. The insufficiency of sufficient research on the regulatory obstacles in the adoption of FinTech within the Islamic finance sector in Indonesia highlights the necessity for further comprehensive research in this particular area. The demand and rapid development of Islamic FinTech demand an in-depth understanding of the regulatory framework required to ensure the principles of Islamic finance are adequately maintained. Through this research, it is hoped to identify and analyze possible regulatory challenges and offer helpful guidance for Islamic finance industry players and regulatory authorities to create a conducive environment for the growth and development of Islamic FinTech in Indonesia.

The objective of this study is to examine the potential and challenges associated with leveraging Financial Technology in the digital era to accelerate the growth of the Islamic economy and finance.

Additionally, the research aims to identify the advantages that both the Islamic finance industry and the general public can derive from implementing FinTech in this sector. The significance of this research lies in offering a comprehensive comprehension of

the role played by FinTech in driving economic development and shaping the Islamic finance landscape. The researchers foresee that the outcomes of this examination will provide significant insights for key decision-makers within the financial sector, regulators, and other pertinent stakeholders. Moreover, this research is expected to make a meaningful contribution to the progress of academic literature in the field of Islamic finance and FinTech.

The study is structured around two central components, specifically Islamic finance and Financial Technology. This framework will analyze the interaction between Islamic finance and FinTech and its impact on economic acceleration in the digital era. This analysis will cover aspects such as increasing accessibility of Islamic finance, operational efficiency, product innovation, financial inclusion, and empowerment of MSMEs.

B. Literature Review

Islamic finance has experienced significant development in Indonesia in recent years (Butary et al., 2022). This is evident from the rising presence of Islamic financial institutions, such as establishments operating under the principles of Islamic banking, *takaful* (Islamic insurance), and Islamic microfinance institutions. Bank Syariah Indonesia (BSI), Bank Negara Indonesia Syariah, and Bank Muamalat Indonesia are Islamic banks that have successfully operated in Indonesia. In addition, the Indonesian government has also issued various regulations and policies to support the development of the Islamic finance industry. For example, the 2019-2024 Islamic Finance Development Strategy and Action Plan aims to increase Islamic financial inclusion and develop the Islamic capital market (Masterplan Ekonomi Syariah Indonesia 2019-2024, 2018). To encourage the growth of this sector, promotion and education to the public about Islamic finance and its benefits are also carried out (Akbar et al., 2023).

The Islamic finance industry must overcome challenges to achieve sustainable growth. One of the main challenges is increasing the accessibility of Islamic finance for the community, especially in areas far from financial centres (Fianto et al., 2019). In addition, the need for more understanding and literacy of Islamic finance among the public is also a challenge that needs to be overcome (Akbar et al., 2023). However, the Islamic finance industry also faces significant opportunities. High economic growth and a sizeable Muslim population in Indonesia are opportunities for the industry to grow (Muryanto et al., 2021). In addition, integrating technology and innovation in Financial Technology (FinTech) can provide new opportunities to expand accessibility, improve operational efficiency, and offer innovative Islamic financial products. In facing these challenges and capitalizing on these opportunities, the Islamic finance industry must continue innovating and collaborating with stakeholders, including the government, regulators, financial institutions, and the general public. Such collaboration is needed to create an ecosystem conducive to the

sustainable growth of the Islamic finance industry and respond to the needs and expectations of the community (Jan & Marimuthu, 2019).

Financial Technology (FinTech) is a term used to describe the use of technology to provide innovative financial products and services (Arner et al., 2019). FinTech utilizes information and communication technologies such as digital platforms, mobile applications, big data, artificial intelligence, and blockchain to assist financial companies, businesses, and individuals in the transaction process, financial management, and access and management of financial information. The main characteristics of FinTech are agility, speed, efficiency, and careful use of data (Das, 2019). FinTech also often offers more affordable, easier-to-use, and more inclusive solutions than traditional financial services. In addition, FinTech can also change how people interact with financial services and improve the user experience through personalization and ease of access (Senyo & Osabutey, 2020).

FinTech is essential in accelerating Islamic finance by facilitating the development and application of Islamic finance principles more effectively (H. Ali et al., 2019). By utilizing technology, FinTech can increase the accessibility and inclusion of Islamic finance by reaching people who were previously difficult to reach. The provision of Islamic financial products and services through digital platforms and mobile applications opens opportunities for individuals and MSMEs to use Islamic financial services easily and quickly (Ascarya, 2021). In addition, FinTech also provides solutions to several challenges faced by the Islamic finance industry, such as operational efficiency, risk mitigation, financial data and information management, and product innovation (Hasan et al., 2020). Blockchain technology, for example, can be used to manage secure and transparent financial transactions and data storage by sharia principles. Examples of FinTech applications in Islamic finance include:

- 1) Peer-to-peer (P2P) financing: Technology-based P2P platforms enable SMEs and other businesses to obtain funding directly from investors without going through traditional banking mechanisms.
- 2) Mobile banking: Shariah-compliant mobile banking applications allow customers to access accounts, transfer funds, pay bills, and conduct other financial transactions in a Shariah-compliant manner.
- 3) Digital payment: Shariah-based digital payment systems, such as Shariah e-wallets, enable cashless transactions that comply with the principles of Shariah finance without involving interest or usury.
- 4) Robo-advisors: The robo-advisor platform uses artificial intelligence and algorithms to provide investors with investment advice by Sharia investment principles automatically.
- 5) Blockchain: Sukuk financing uses blockchain technology to record and make Islamic investment ownership transparent digitally.

The above examples reflect how FinTech can improve efficiency, accessibility and innovation in Islamic financial services. However, it is essential to remember that the development and application of FinTech in Islamic finance must also adhere to Shariah principles and involve proper supervision and regulation (Muryanto, 2022).

C. Research Methodology

This research uses a qualitative approach with a case study as the research method. The literature review is used as a literature analysis to better understand the acceleration of the Islamic economy and finance through Financial Technology (Fintech) in the digital era. The methodology used in this research consists of data collection and data analysis of relevant information coverage. The researchers collected data for this research through a desk study focusing on literature, scientific journals, books, and related documents. The researchers accessed recent and relevant publications using electronic resources such as academic databases and online repositories.

The data collected was analyzed qualitatively. The qualitative analysis approach involves the process of reading, identifying, and extracting relevant information from the literature. The analysis explored vital themes, concepts, and issues that emerged in the literature studied. In addition to data collection and analysis, the methodology chapter will include information on the conceptual framework used, operational definitions of relevant variables, and data mining techniques in the literature review, such as selecting appropriate literature sources and research limitations. This research aims to understand the challenges and potential of accelerating the Islamic economy and finance through Fintech in the digital era. With a case study using a literature review as the research methodology, this research can provide insights into identifying key factors and handling challenges associated with implementing Fintech in the Islamic economic and financial sector.

D. Results And Discussion

Challenges in Implementing Financial Technology in the Islamic Finance Industry

One of the main challenges in implementing Financial Technology (FinTech) in the Islamic finance industry is ensuring an adequate regulatory and legal framework (Nastiti & Kasri, 2019). Regulations that govern FinTech in Islamic finance are needed to provide legal certainty, protect consumers, and ensure compliance with Sharia principles. Cooperation between regulators, financial institutions, and FinTech industry players is essential in formulating appropriate regulations and supporting sustainable innovation (Alaassar et al., 2020).

Customer data security and privacy are critical issues that need serious attention in implementing Islamic Financial Technology (FinTech) in the Islamic finance industry (Alam et al., 2022). The digital era brings various challenges related to the confidentiality

of customer information and compassionate data, such as financial details and personal identity. To maintain customer trust and comply with Shariah principles, FinTech service providers must implement sophisticated security strategies. This includes using appropriate security technologies, strict access arrangements, and compliance with applicable data security standards in the industry. Adequate data protection is critical to mitigating the risk of customer information leakage, data misuse, and potential Shariah-compliant violations (Li et al., 2021). Therefore, it is essential for FinTech service providers to continuously update and monitor their security systems and invest in research and development of better security technologies to deal with the growing threats in today's digital world. By doing this, the Islamic finance industry can ensure that the integrity of customer data is maintained and meets strict Sharia standards.

Gaps in technology and financial literacy are fundamental challenges in implementing Islamic Financial Technology (FinTech) in the Islamic finance industry (Qudah et al., 2023). Many public members still need more access to the necessary technology and digital infrastructure, thus presenting difficulties in utilizing Islamic financial services provided through FinTech platforms. In addition, the low level of financial literacy among the public also exacerbates this problem.

This hinders an adequate understanding of FinTech products and services and reduces interest and adoption of innovative Islamic financial solutions. In order to address this gap, serious efforts need to be made to improve training and education related to FinTech and Islamic finance principles (Shinkafi et al., 2019). This initiative should include comprehensive education to improve public understanding of the benefits and safety of FinTech products, as well as increased accessibility of the technology. In this way, the Islamic finance industry can reduce the technology and financial literacy gap, help more individuals access Shariah-compliant services, and ultimately, advance Islamic financial inclusion in society.

Significant changes brought about by adopting FinTech in the Islamic finance industry are often met with resistance from various parties (Dawood et al., 2022). Traditional financial industry players may resist change for fear of competition and significant changes to their business models. The public may also be reluctant to use FinTech services due to a lack of trust and confidence in security and compliance with Islamic financial principles. Appropriate education and communication efforts must be made to overcome this resistance and open up an understanding of the benefits and potential offered by FinTech in the Islamic finance industry (Rabbani et al., 2021).

Overcoming the above challenges will require collaboration between regulators, financial institutions, FinTech industry players, and the public. The government can play an essential role in creating appropriate regulations and encouraging active participation

from all parties. Improving financial literacy and awareness of the benefits of FinTech is also crucial to ensure successful and inclusive adoption in the Islamic finance industry (M. A. Ali et al., 2021).

Potential and Benefits of Economic Acceleration through FinTech in Islamic Finance

FinTech has excellent potential to increase accessibility to Islamic financial products (H. Ali et al., 2019). By using digital technology and online platforms, Islamic financial services can be accessed by more people without being constrained by time and geographical location. People previously hard to reach by the conventional financial system can easily use Islamic financial services through mobile applications or websites. This will expand the consumer base of Islamic finance and help increase financial inclusion in the community. FinTech also provides benefits in terms of operational efficiency and lower costs for the Islamic finance industry (Hasan et al., 2020). By using automation technology and artificial intelligence, businesses can quickly and efficiently perform operational processes such as identity verification, risk assessment, and transaction processing. This reduces the need for significant costs and human resources in traditional banking or financial institution operations. In addition, the use of technology can also reduce the cost of physical infrastructure, such as branch offices, thereby reducing the cost to the consumer (Wang et al., 2021).

FinTech encourages innovation in Islamic financial products and services (Furqani, 2019). Thanks to technological advancements, Islamic financial institutions can deliver new products and services that comply with the principles of Islamic finance. For example, Islamic peer-to-peer financing platforms allow individuals and MSMEs to obtain financing easily and quickly without going through traditional banking processes. In addition, innovations such as mobile applications for Islamic mobile banking, Islamic digital payment systems, and Islamic robo-advisors have also opened up new opportunities to enhance user experience and cater to more specific Islamic financial needs.

FinTech can improve financial inclusion and empower MSMEs through Islamic financial services (Majid & Mawaddah, 2022). With easily accessible Islamic financial services, MSMEs can obtain the funding and financial support needed to grow their businesses. In addition, FinTech also helps MSMEs improve competitiveness through solutions such as e-commerce platforms, technology-based financing, and other financial services. With more accessible and inclusive access to Islamic financial services, MSMEs can grow and develop sustainably, thus contributing to overall economic growth (Hakeem, 2019). Through these potentials and benefits, FinTech is vital in driving an economic acceleration in Islamic finance. In its implementation, cooperation between regulators, financial institutions, FinTech industry players, and other stakeholders is essential to

ensure an adequate framework, consumer protection, and compliance with the principles of Islamic finance (Mohd Haridan et al., 2023).

One case study of the application of FinTech in the Islamic finance industry is the development of applications to Islamic banking. A clear example is the launch of Islamic mobile banking applications launched by Bank Syariah Indonesia, Bank Mega Syariah, Bank Muamalat, BTN Syariah and other Islamic banks where the application allows customers to access Islamic financial services digitally through their smartphones. The application provides various features such as fund transfers, online payments, account management, and question-and-answer services regarding Islamic financial principles. Through this application, customers can efficiently conduct Sharia financial transactions anywhere and anytime, increasing accessibility and convenience for users of Sharia financial services.

Another case study of the application of FinTech in the Islamic finance industry is Islamic Peer-to-peer lending. This application is one of the FinTech models that provides direct access financing between Islamic lenders and loan recipients. In this model, the FinTech platform brings together lenders who want to invest with loan recipients who need financing (Pişkin & Kuş, 2019).

Table 1.
P2P Lending Application

P2P Lending Application	Website link	Financing focus
Ethis	https://ethis.co.id/	Funding in the sectors of infrastructure, property, and real estate.
Alami Sharia	https://alamisharia.co.id/	It provides financing opportunities to investors based on contracts that comply with the MUI fatwa (Islamic edict). The lending requirements include companies in the form of PT, CV, or Foundation, whose operational activities align with the principles of Islamic law.
Investree	https://investree.id/	It provides sharia-compliant funding, in accordance with the MUI fatwa, to investors. The eligibility criteria for borrowers include entities in the form of PT, CV, or Foundation that strictly adhere to the principles of Islamic law.

Ammana.id	https://ammaana.id/	Funding in the MSME sector
Dana Syariah	https://www.danasyariah.id/	It offers specialized financing for the property sector, including loans for infrastructure development, land purchase, unit sales, and property transactions.

A successful example of Islamic peer-to-peer lending is a platform that provides financing for MSMEs based on Islamic financial principles. This platform has provided easy access to financing for MSMEs that previously had difficulty obtaining loans from conventional financial institutions. With the platform, MSMEs can grow, create jobs, and contribute to economic growth (Melda Maesarach, 2023).

The last case study is Islamic Crowdfunding, where this fintech is a financing model that involves several individuals or investors in financing projects or initiatives that comply with the principles of Islamic finance. Through Islamic crowdfunding platforms, fund recipients, including MSMEs, can present their projects and request financial support from the public who want to invest in a Sharia-compliant manner (Abdeldayem & Aldulaimi, 2022). A successful example of Islamic crowdfunding is a platform that provides financing for Sharia-based MSMEs. MSMEs can utilize the platform to raise funds for business development, production improvement, or market expansion. Islamic crowdfunding provides opportunities for MSMEs to obtain financing by directly involving the community, thus contributing to financial inclusion and the growth of MSMEs (Kamaruddin et al., 2023).

Table 2.
Crowdfunding Apps and Financing Focus

crowdfunding	Website link	Financing focus
SHAFIQ	https://www.shafiq.id/	Islamic stocks and sukuk (Islamic bonds)
LBS Dana Urun	https://www.lbs.id/	Securities crowdfunding

Source: <https://money.kompas.com> 2023

This case study shows how the application of FinTech in the Islamic finance industry has provided concrete benefits in improving financial accessibility, economic growth, and empowering MSMEs. Examples of Sharia banking, Sharia peer-to-peer lending, and Sharia crowdfunding applications prove that FinTech can efficiently connect lenders and loan recipients and provide financing that complies with Sharia finance principles. The success of these implementations shows the great potential of FinTech in accelerating the economy and creating a positive impact in the Islamic finance industry.

Regulatory Challenges in Implementing Financial Technology in the Islamic Finance Industry

Financial Technology (FinTech) in the Islamic finance sector encounters the task of ensuring adherence to the principles of Islamic finance while operating (Firmansyah & Anwar, 2019). Islam has specific guidelines in terms of finance that include the prohibition of *riba* (interest), *gharar* (uncertainty), and *maisir* (gambling). Therefore, it is essential for Islamic FinTech to ensure that its products and services comply with these principles. Such challenges include developing algorithms and systems that comply with the principles of Islamic finance, ensuring fairness and transparency in transactions, and minimizing the risk of non-compliance and misuse of technology in Islamic financial practices (Rabbani et al., 2022).

The government has an essential role in creating an adequate and conducive regulatory framework for the development of Islamic FinTech (Nastiti & Kasri, 2019). The regulatory and policy initiatives of the government should take into account the specific requirements of the Islamic finance sector, including the enforcement of sharia-compliant standards, measures for consumer protection, risk oversight and monitoring, and the safeguarding of the stability of the Islamic financial system. Additionally, promoting transparency and trust can be achieved by incentivizing the adoption of Islamic financial standards and certification within the development of Islamic FinTech. To support the Islamic finance industry effectively, the government should facilitate collaboration and synergy between Islamic financial institutions and Islamic FinTech companies by providing suitable incentives and policy assistance (Bank, 2023).

Collaboration between Islamic financial institutions, Islamic FinTech companies, and regulatory authorities is essential in overcoming regulatory challenges in implementing FinTech in the Islamic finance industry (Barus, 2021). This collaboration includes exchanging knowledge and experience, the development of an adaptive and innovative regulatory framework, and adequate supervision of implementing Islamic financial technology. Islamic financial institutions can play a driving role in developing technological solutions that comply with Islamic finance principles. In contrast, regulatory authorities can create a conducive regulatory environment and ensure compliance with Islamic finance standards and principles. Through close collaboration, financial institutions, FinTech companies, and regulatory authorities can support each other in facing challenges and creating synergies for the growth of the Islamic finance industry in the digital era.

Proper regulatory efforts and good collaboration between financial institutions, FinTech companies, and regulatory authorities can overcome regulatory challenges in implementing FinTech in the Islamic finance industry. A focus on the principles of Islamic finance and strong cooperation among stakeholders will enable the Islamic finance industry to take full advantage of the potential of FinTech innovation while maintaining adherence to Islam's ethical and moral principles (Alshater et al., 2022)

E. Conclusion

This study offers valuable insights into the application of Financial Technology (FinTech) in the Islamic finance sector and the regulatory challenges it entails. The research findings indicate that Islamic FinTech, including Islamic banking applications, Islamic peer-to-peer lending, and Islamic crowdfunding, yield substantial benefits in terms of enhancing financial accessibility, fostering economic growth, and empowering MSMEs. Moreover, the integration of technology into the Islamic finance industry must ensure adherence to the principles of Islamic finance, such as the prohibition of *riba*, *gharar*, and *maisir*. To promote the development of Islamic FinTech, government regulations and policies should consider the unique requirements of the Islamic finance industry. Lastly, effective collaboration among Islamic financial institutions, Islamic FinTech companies, and regulatory authorities is crucial to overcome regulatory obstacles and establish a favorable environment for the growth of Islamic FinTech.

The implication of the findings of this study is the importance of strengthening cooperation between the government, Islamic financial institutions, Islamic FinTech companies, and regulatory authorities in developing Islamic FinTech. Some recommendations include the government's need to develop regulations that pay attention to compliance with Islamic financial principles and create a conducive environment for Islamic FinTech. In addition, Islamic financial institutions can establish partnerships with Islamic FinTech companies in developing products and services that comply with the principles of Islamic finance. Regulatory authorities must also effectively supervise the implementation of Islamic financial technology and ensure compliance with Islamic financial standards and principles. The following recommendation is that Islamic FinTech companies must continue developing their expertise and capabilities in ensuring compliance with Islamic financial principles, including through relevant training and education. Finally, further research needs to be conducted to measure the impact of Islamic FinTech on financial inclusion, economic development, and MSME

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