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Corresponding author:
Rindang Nuri
Email:
rindangnuri@uii.ac.id

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ISLAMIC FINANCE IN THE DIGITAL ERA: DEVELOPMENTS AND CHALLENGES OF HALAL FINTECH

Rindang Nuri[1]

[1]*Universitas Islam Indonesia, Indonesia*

ABSTRACT

Objective: This study aims to examine the development of the halal fintech industry, the regulatory challenges faced, and how public perceptions of digital Islamic finance affect the adoption of these services.

Research Design & Methods: This research uses a descriptive qualitative method with thematic analysis to deeply understand the phenomenon of halal fintech industry development and challenges, using secondary data from industry reports, statistical data, and relevant academic studies to identify key themes covering regulation and consumer trust.

Findings: The results show that consumer trust in Islamic fintech is strongly influenced by perceived usefulness and social influence. In Indonesia, consumers are more likely to adopt Islamic fintech services because they find the helpful technology and are supported by their community. In Malaysia, government support and a strong regulatory framework increase consumer trust. However, the main challenges are still related to regulation, especially Sharia compliance standards and regulatory limitations that hinder innovation in some countries.

Implications & Recommendations: The study recommends strengthening the regulatory framework to ensure better Sharia compliance. The government and regulatory bodies should collaborate with industry stakeholders to create an ecosystem that supports fintech innovation.

Contribution & Value Added: This research contributes to the literature by providing a detailed examination of how emerging technologies can solve traditional challenges in Islamic finance, particularly regarding transparency, efficiency, and consumer trust. It also offers practical recommendations to address regulatory challenges, thereby supporting the sustainable growth of halal fintech globally.

Keywords: Halal fintech, Islamic finance, financial technology, regulation, blockchain

JEL codes: G21, P43, Z12
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INTRODUCTION

The return of Islamic economics to the world scene has contributed significantly to the creation of a new economic system (Julianto & Helvira, 2022). According to Zuchroh (2024), this is actually achieved by applying new models and innovations that are in accordance with modern conditions without ignoring the values underlying the Islamic economic system. New fintech innovations in Islamic economics have brought significant changes in the Islamic finance industry. Some examples of such innovations include digital payments, peer-to-peer (P2P) lending, crowdfunding, risk management, Islamic digital banking, digital sukuk, digital takaful, and Islamic investment advisory robots (Setiawan et al., 2021). Advanced technologies such as artificial intelligence, machine learning, robotic process automation, Internet of Things, cloud computing, big data, and blockchain have also been integrated into Islamic fintech to improve the efficiency and transparency of financial services (Kiliç, 2023).

In the past few years, the fintech industry has experienced rapid growth, responding to the public's need for faster and more efficient financial services. One segment that has attracted attention is halal fintech, which is a technology-based financial service that operates in accordance with sharia principles. Halal fintech aims to meet the financial needs of 1.9 billion Muslims worldwide. The products offered must comply with Islamic teachings, such as avoiding riba (interest), gharar (uncertainty), and maysir (gambling) (Laldin & Furqani, 2019). In the year 2023, the value of the halal fintech market is expected to reach USD 79 billion, an increase of 35% from the previous year. This shows the huge potential this industry has to strengthen financial inclusion among the Muslim community.

The growth of halal fintech is heavily influenced by increased digital technology users, especially in Muslim-majority countries such as Indonesia, Malaysia, and the United Arab Emirates. These countries have seen a significant surge in adopting Sharia-based financial services, bridging the gap in the traditional financial system that often does not provide Sharia-compliant products (Setiawan et al., 2021). This is an essential step towards strengthening financial inclusion, where financial services that comply with religious values are more widely accessible. Interestingly, although the potential for Islamic fintech development is relatively high, especially in countries with a sizeable Muslim population, such as Indonesia, its growth is still not proportional to the number of Muslim populations (Setiawan et al., 2021; Yahya, 2021). The main challenges Islamic fintech face include low financial literacy levels, inadequate regulations and policies, and the need for service product innovation (Yahya, 2021). Some countries, such as Malaysia, have successfully developed regulatory frameworks supporting the Islamic fintech industry, but many others still lack clear and adequate regulations (Muryanto, 2022). In Indonesia, for example, the halal fintech market lags behind countries such as Saudi Arabia and the United Arab Emirates. Therefore, strengthening existing regulations is an important step to ensure that halal fintech services are compliant with Sharia principles and able to compete globally.

Public trust in halal fintech services remains a significant challenge. Many people question whether these platforms truly comply with Sharia principles, particularly regarding transparency and supervision. Without strict oversight of sharia aspects, users may hesitate to engage with this financial ecosystem (N. Ahmad et al., 2019). Increasing Islamic financial literacy is essential to addressing these doubts and fostering trust in halal fintech products (Sudarwanto et al., 2023). Technological innovation is also critical for the sustainable growth of halal fintech (Saba et al., 2019). This study aims to examine the development of the halal fintech industry, the regulatory challenges faced, and how public perceptions of digital Islamic finance affect the adoption of these services. In an effort to improve the regulation and literacy of Islamic finance, collaboration between various stakeholders, including the government, industry, and the public, is necessary. Overall, halal fintech offers significant potential to improve financial inclusion and drive economic growth in Muslim countries. However, to maximize this potential, regulatory and public trust challenges need to be addressed through collaborative efforts involving all relevant parties. By doing so, the industry will not only be able to meet the financial needs of the Muslim community but also contribute significantly to sustainable global economic growth.

LITERATURE REVIEW

Development of Islamic Finance and Fintech

The principles of Islamic finance are based on fundamental Islamic moral and ethical principles. These principles include transparency, fairness, risk diversification, and interest restrictions. Transparency in the context of Islamic finance emphasizes the need for honest disclosure of all relevant information to all stakeholders (Ibrahim & Mahmod, 2023). Justice is the main foundation for all Islamic financial transactions and requires a balance of rights and a balance of rights and obligations for all parties. Islamic finance follows the principles of Islamic law that prohibit riba (interest), gharar (uncertainty), and maysir (gambling). Therefore, Islamic finance products must be designed to ensure fair and ethical transactions. As of 2024, the total assets of the global Islamic finance industry are projected to reach USD 3.69 trillion (Islamic Market, 2022).

Financial technology (FinTech) is rapidly evolving within the framework of Shariah compliance, significantly impacting the Islamic finance landscape. The Islamic Finance 2022 Progress Report underlines that innovations in FinTech, such as blockchain and artificial intelligence (AI), improve operational efficiency and ensure compliance with Shariah principles. The main requirement for Sharia FinTech is the avoidance of riba (usury), maysir (gambling), and gharar (uncertainty) in all financial transactions to be compliant with Sharia law (Fathorrozi & Hamzah, 2024). To ensure compliance, contracts such as muḍārabah (profit sharing) and mushārakah (joint ventures) play an essential role, providing a structured framework for financial partnerships.

The emergence of digital technology creates many opportunities, enhances customer experience, and improves regulatory compliance in Islamic finance (Muradova, 2024). Islamic fintech has become a significant solution to increase financial inclusion in countries like Indonesia and Malaysia. For example, more than 50% of Indonesians now have access to financial services thanks to fintech innovations, compared to only 36% in 2011 (Global Islamic Fintech Report, 2023). However, the sector also faces significant challenges, including cybersecurity risks that can undermine consumer confidence and an ongoing digital divide that hinders access for the underprivileged (Muradova, 2024). In addition, FinTech facilitates financial inclusion for marginalized Muslim communities, thereby changing the landscape of Islamic finance (Atikah et al., 2023). The integration of advanced technology in Islamic banking enhances product offerings and fosters stronger customer relationships, marking an essential shift in the way Islamic finance works (Hapiyah et al., 2024).

Technological Innovation in Halal Fintech

Integrating technologies such as blockchain, artificial intelligence (AI), and smart contracts in halal fintech offers significant opportunities to ensure compliance with Shariah principles. These technologies enhance transparency, security, and efficiency in financial transactions, in line with Islamic law's prohibitions against riba (interest), maysir (gambling), and gharar (uncertainty) (Ma'ruf et al., 2024). One of the main advantages of blockchain is its ability to guarantee transparency and security. With this system, all transactions are permanently and irreversibly recorded, reducing the risk of data manipulation (Hendarti et al., 2024). In the context of halal finance, blockchain can support halal micro, small, and medium enterprises (MSMEs) by facilitating easier access to financing and lowering transaction costs (Kismawadi, 2024). AI also plays an important role in risk management in the Islamic finance sector. With its predictive analytics and fraud detection capabilities, AI is essential for maintaining Shariah compliance in financial operations (Hendarti et al., 2024). In addition, AI can streamline business processes, ensuring that all practices comply with the principles of Islamic finance. On the other hand, smart contracts can help ensure the halal footprint of products by addressing issues such as cross-contamination and certification integrity, therefore guaranteeing that products meet Shariah standards and playing a role in maintaining data consistency in the halal production process (Munawar & Mugiono, 2024). While these technologies offer promising advancements, challenges such as regulatory compliance and technology adoption remain crucial considerations for effective implementation in halal fintech (Ma'ruf et al., 2024). With the right approach and collaboration between various stakeholders, the potential of this technology can be optimized to strengthen the halal finance ecosystem.

Regulatory Challenges in Halal Fintech

The literature on regulatory challenges in Islamic finance highlights significant gaps and misalignments across countries, affecting the sector's growth and integration into the global financial system. One of the primary issues is the lack of uniform regulation, as each country adopts a different approach to regulating Islamic finance. For instance, the absence of specific Islamic banking laws in Saudi Arabia and limited corporate governance regulations in Iran and Bahrain underscore the challenges hindering the sector's progress (Bagh et al., 2017; Majid & Ghazal, 2012). A comparative analysis of the UK and Australia also shows that both countries face similar regulatory barriers, highlighting the need for a tailored legal framework to support the development of Islamic finance and promote equality in the financial market (A. U. F. Ahmad, 2013).

While these challenges are significant, the unique characteristics of Islamic finance can give rise to innovative regulatory solutions that can enhance the attractiveness and functionality of the sector within the global market. Utilizing technology, such as blockchain and AI, and improving Islamic finance literacy among the public and regulators are key to overcoming the existing regulatory constraints (Iqbal & Kassim, 2024). With an approach responsive to market needs, Islamic finance can expand not only at the domestic level but also as a more robust alternative to the conventional financial system, contributing to more inclusive and sustainable economic growth (Archer & Karim, 2007).

The UAE demonstrates a progressive approach to financial regulation and economic diversification that can affect the sector. The UAE has an open economy, with Dubai being the most open among GCC countries, and has managed to reduce dependence on oil and gas to just 25% of GDP, thanks to free trade zones that attract foreign investment (Ramady, 2014). The UAE also complies with international standards, such as the Automatic Exchange of Information (AEOI) Standard, demonstrating a willingness to adopt global financial rules, which could potentially be applied to halal fintech regulation (Emirates, 2021). In addition, the UAE has implemented legal innovations such as community service as an alternative to prison, demonstrating openness to new regulatory solutions that can be applied to fintech (Alrousan, Raed S. A. Faqir, 2023). While no specific regulations have been identified, this approach shows the potential for developing halal fintech regulations in the UAE with further research support.

Consumer Trust in Halal Fintech

Security is a key factor, especially regarding privacy, authentication, and data protection. Consumers' perception of security is important in building their trust in Islamic fintech. Consumers tend to avoid digital financial services that they perceive as vulnerable to security breaches. Hence, improving security is a top priority in expanding the adoption of Sharia-based fintech services (Ismail, 2018). In addition, the transparency of Islamic fintech operations is also a crucial factor in strengthening consumer confidence. Transparency, especially in corporate governance and compliance with sharia principles, affects financial system stability and consumer confidence. Consumers tend to feel safer using services that clearly demonstrate compliance with Islamic law, particularly regarding the prohibition of riba, maysir, and gharar (Srairi, 2019). However, there is still a strong perception of risk among consumers, who often perceive risks related to data protection and system reliability, hindering the adoption of these services (Qureshi et al., 2023). Islamic financial literacy also plays an important role in facilitating the adoption of Islamic fintech. Consumers who understand Islamic financial principles better are more likely to use Islamic fintech services. This literacy allows consumers to be more confident in utilizing Sharia-based services while reducing uncertainty regarding the risks they may face. Moreover, Islamic financial literacy not only increases consumers' confidence but also helps them make wiser decisions regarding using fintech services, which ultimately drives higher adoption rates (Setiawan et al., 2021).

METHODS

The research method used in this study is a descriptive qualitative approach with thematic analysis. This approach was chosen to deeply understand the development phenomenon and challenges in the halal fintech industry. The thematic analysis allows researchers to identify key themes that emerge from the data analyzed and provide a more holistic understanding of the perceptions, challenges, and opportunities in this sector. Qualitative research aims to provide an in-depth description of the phenomenon under study and allow researchers to understand the broader context of the development of Islamic fintech. This study's data comes from secondary sources, namely industry reports, statistical data, and relevant academic research results. Some of the main reports referenced are the Islamic Finance Development Report and the Global Islamic Fintech

Report. These reports provide a comprehensive view of the trends, developments, and challenges the halal fintech industry faces in various countries.

Data analysis was conducted by reviewing relevant past research articles and reports, both global and regional. We collected and examined market reports documenting the growth trends of Islamic fintech, reports from regulatory bodies, and literature reviews from academic journals. This process identified and analyzed key themes such as regulation, consumer confidence, security, and Islamic financial literacy. This qualitative approach also allows for an in-depth analysis of the regulations and policies that influence the development of halal fintech in different countries. For example, regulations in countries such as Malaysia and the United Arab Emirates are analyzed in detail to understand how the legal framework affects growth and innovation in the sector. In addition, academic literature examining consumer perceptions of the safety and transparency of Islamic fintech services was also utilized for analysis, particularly in examining how these factors affect the adoption of services among the Muslim community.

RESULT

The growth of global Islamic fintech has shown a very positive trend in recent years. According to the Global Islamic Fintech Report (GIFT) 2022, the global Islamic fintech market is expected to reach a transaction volume of USD 179 billion by 2026, growing at an annual rate of around 18% from USD 79 billion in 2021. This growth is largely driven by the accelerated adoption of fintech technologies accelerated by digitization during the COVID-19 pandemic. Six Organization of Islamic Cooperation (OIC) member countries, namely Saudi Arabia, Iran, Malaysia, United Arab Emirates (UAE), Turkey, and Indonesia, collectively account for 81% of the total Islamic fintech market size.

Among these countries, the development of Islamic fintech in Indonesia has increased rapidly, mainly due to the high enthusiasm of the public for this technology-based financial service (Hehanussa & Syarifuddin, 2021). In the 2019-2020, sharia fintech assets in Indonesia reached USD 4.47 billion, with 10 major players in the sharia lending sector (Ismawati et al., 2022). In addition, Indonesia also managed to penetrate the top three in the Global Islamic Economy Indicator (GIEI) 2023, up from the fourth position in the previous year (Siregar & MA, 2024). This shows Indonesia's increasingly strong position in the global Islamic economic scene. Despite having a smaller Muslim population than Indonesia, Malaysia has consistently ranked first in the GIEI over the past decade. Malaysia has managed to lead the way in the Islamic finance sector through aggressive financial technology innovation and strong support from the government (M. I. bin A. Razak, 2020). This achievement is underpinned by a robust regulatory ecosystem and government initiatives encouraging innovation in Islamic fintech. Malaysia has made significant strides in developing halal fintech, driven by government-backed efforts. These policies have created a conducive environment for the Islamic finance sector, including fintech innovations. Malaysia's leadership in Islamic finance is well established, thanks to a comprehensive regulatory framework and ongoing efforts to integrate fintech into its financial ecosystem. Government initiatives have positioned Malaysia as a key player in Islamic fintech, providing a platform for both domestic and international companies to thrive (Marnita, 2024).

On the other hand, the United Arab Emirates (UAE) is also showing significant growth, with Islamic fintech transaction volume reaching USD 2.9 billion in 2020, placing it fifth in the world (Ramadhan, 2022). The UAE also leverages advanced technologies such as blockchain and artificial intelligence (AI) to improve efficiency and transparency in Islamic financial services, strengthening its position as an Islamic fintech hub in the Middle East. These technologies not only improve operational efficiency but also enhance customer experience by offering more transparent and secure transactions. The UAE is emerging as a regional hub for Islamic fintech, attracting significant investment and interest from fintech startups and traditional financial institutions looking to expand into the halal finance market (Muradova, 2024). Outside OIC countries, the UK plays an important role in Islamic fintech innovation, with the second highest number of Islamic fintech companies worldwide after Indonesia.

Table 1. Growth of the global Islamic fintech market from 2020 to 2024.

Year	Sharia Fintech Market Volume	Annual Growth Rate (CAGR)	Major Countries	Enabling Factors
2020	USD 49 billion	-	Indonesia, Malaysia, UAE	Adoption of digitization, growth of fintech
2021	USD 79 billion	17%	Indonesia, Malaysia, UAE, Saudi Arabia	Increased demand for sharia-based fintech services, impact of COVID-19
2022	USD 95 billion	18%	Indonesia, Malaysia, UAE, Turki, Iran	Supportive regulations, technological innovations such as blockchain and AI
2023	USD 115 billion	18%	Indonesia, Malaysia, UAE, United Kingdom	Adoption of blockchain technology and AI, rising demand for global Islamic services
2024 (estimate)	USD 135 billion	18%	Indonesia, Malaysia, UAE, Saudi Arabia	Financial sector digitization, stronger regulation

Based on Table 1 above, we can see the significant growth of the global Islamic fintech market from 2020 to 2024. In 2020, the value of the Islamic fintech market reached USD 49 billion and continued to grow consistently with a compound annual growth rate (CAGR) of 17-18% (Ahmed, 2023). This growth has been influenced by a number of factors, including the accelerated adoption of digitalization and the need for Shariah-based financial services in various countries. Governments worldwide have taken steps to support the Islamic fintech ecosystem, encourage bank digitization, push for sukuk tokenization, and support up-and-coming markets such as Islamic social finance and ESG. Such measures are likely to boost the Islamic finance market and encourage growth. The rising popularity of Islamic fintech is also driving a surge in fintech-focused investment funds, likely to accentuate the market and create opportunities for Islamic fintech to expand services.

The year 2021 saw the impact of the COVID-19 pandemic increasing the adoption of digital technologies in the financial sector, especially in Islamic fintech services. This helped drive an increase in market volume to USD 79 billion, with countries such as Indonesia, Malaysia, UAE, and Saudi Arabia leading the way. The demand for Shariah-compliant financial services is increasing along with accelerated digitalization. In 2022 and 2023, Islamic fintech continues to expand, driven by technological innovations such as blockchain and artificial intelligence (AI), which are instrumental in improving operational efficiency and transparency of services (Ahmed, 2023). In 2023, the Islamic fintech market is expected to reach USD 115 billion, with the UK also becoming an important innovation hub outside of Muslim-majority countries. Forecasts for 2024 suggest that the market volume will reach USD 135 billion, with increased regulation and stronger technological support (Ahmed, 2023). Indonesia, Malaysia, UAE, and Saudi Arabia are expected to remain the key countries leading this industry's development. This growth shows a strong trend where Islamic fintech not only acts as a financial sector but also as a solution to increase financial inclusion, especially in countries with large Muslim populations.

Halal fintech is expected to grow, especially among Muslim millennials who are increasingly digitally savvy and require sharia compliance financial services (Putri & Hanif, 2024). In addition, the global halal industry, powered by a large Muslim population, offers huge investment opportunities beyond finance, especially in sectors such as halal food and travel. These sectors are experiencing increasing demand for Shariah-compliant services, thus providing new growth opportunities for fintech companies looking to serve this market (Rahman et al., 2024). This convergence of technology, regulation, and market demand puts Islamic fintech at the forefront of broader halal economic expansion. Nonetheless, challenges related to regulation, compliance risks, and lack of human resources still hinder the optimal development of Islamic fintech (Muryanto, 2022; Rafiki & Nasution, 2021). Therefore, a strong regulatory framework and support from the government is required to drive sustainable growth.

Technology Innovation in Halal Fintech

Blockchain technology and AI have revolutionized Islamic financial services by improving transparency, efficiency, and risk management. The decentralized and immutable nature of blockchain fosters trust among stakeholders by ensuring that transaction records are transparent and verifiable. This is particularly important in Shariah finance, where adherence to ethical and religious principles is crucial. Blockchain's immutable audit trail supports verification of every transaction, making it difficult to alter or manipulate data, which aligns with Shariah's emphasis on fairness and honesty (George et al., 2024). This transparent system helps maintain trust between the financial institution and the consumer, who needs assurance that the transaction is in accordance with Islamic law (Ma' ruf et al., 2024).

On the other side, AI significantly improves operational efficiency in Islamic finance by automating processes and reducing manual intervention. AI-enabled predictive analytics enable financial institutions to forecast consumer trends and behavior, optimize decisions, and streamline transactions. These improvements reduce the time and costs associated with various financial operations, including those requiring Shariah compliance (Hendarti et al., 2024). Furthermore, by automating procedures that traditionally involve intermediaries, AI helps to reduce human error and increase transaction processing speed, further contributing to operational efficiency (George et al., 2024). However, despite these advances, Islamic financial services still face challenges, mainly related to regulatory compliance and the slow adoption of technology in various markets (Muradova, 2024). Overcoming these barriers is critical for wider adoption and sustainable growth of Islamic fintech. The integration of blockchain technology and artificial intelligence (AI) has brought about major changes in improving the efficiency and transparency of Islamic financial services. Blockchain provides a secure, immutable, and highly transparent transaction recording system. This is crucial in ensuring that every transaction made in the Islamic financial ecosystem adheres to the principles of fairness and trust upheld in Sharia (Odeyemi et al., 2024).

In addition, blockchain also plays a role in harmonizing the various Sharia compliance regimes worldwide, which can ultimately facilitate the formation of a single digital marketplace for Islamic financial products and services. This opens up greater opportunities for Islamic financial institutions to develop global products that can be traded easily across countries (Truby et al., 2022). For example, using wakalah-based smart contracts that utilize blockchain technology enables international trade transactions to be faster, safer, and more trustworthy, especially compared to traditional contracting methods (Sa' ad et al., 2021). Conversely, AI contributes to accelerating more sophisticated data analysis, assisting Islamic financial institutions in managing risk, analyzing credit, and identifying potential fraud. With these capabilities, AI improves operational efficiency and accelerates transaction time in financial service delivery (Chong, 2021). However, the application of these two technologies also faces various challenges. One of them is the complexity of Islamic financial products, which requires an in-depth understanding of Sharia principles and a regulatory framework that is not yet fully clear in various countries. In addition, using blockchain raises issues related to environmental impact, especially regarding high energy consumption (Alaeddin et al., 2021; Chong, 2021). Although these challenges exist, with the right regulations and infrastructure, the integration of blockchain and AI has great potential to improve security, efficiency, and compliance in the global Islamic finance sector.

Application of Smart Contracts in Halal Fintech

The application of smart contracts in halal financial transactions offers an innovative solution to minimize the risk of gharar, which is uncertainty prohibited in sharia. Smart contracts are automatically executed on blockchain technology without intermediaries, ensuring transparency and accuracy at every transaction stage. In Islamic finance, such as wakalah or murabaha, smart contracts can automate the entire transaction process, preventing delays and disputes that usually arise from manual contracts. Research by Truby et al. (2022) shows that blockchain-based contracts create a more secure and speculation-free transaction environment, reducing the risk of gharar. However, there are still challenges related to applying this technology in the halal finance sector. These include the complexity of the contract code, the lack of clear regulations, and the skills required to design smart contracts in accordance with Shariah requirements (Alaeddin et al., 2021). In addition, the involvement of Shariah experts who understand this technology is necessary to ensure that every aspect of the contract is fully compliant with Shariah principles. Overall, the use of smart contracts in Islamic financial transactions paves the way for innovative developments that not only improve efficiency and transparency but also minimize the risk of gharar, which has been one of the biggest challenges in Islamic transactions.

Constraints Faced by Regulators in Developing Sharia Policy for Fintech Services

In many countries, sharia supervision of fintech services is still weak. This is due to regulatory limitations and the lack of Shariah Supervisory Boards (DPS) actively involved in the supervision of fintech operations. For example, research in Indonesia, Malaysia, and the United Kingdom (UK) shows that although they are the countries with the highest Sharia fintech index, weak Sharia supervision is still a significant challenge (Muryanto, 2022). The Financial Services Authority (OJK) has only regulated conventional information technology-based lending and borrowing services but has not explicitly regulated sharia-based information technology financing services (sharia fintech) (Usanti et al., 2019). This creates legal uncertainty because of the loan interest rate provisions in the OJK Regulation that contradict Sharia principles. Supervision of Islamic fintech has also not been optimal. Although there are regulations from OJK and Bank Indonesia as the main regulators, as well as DSN-MUI fatwas as supporting regulators, supervision is currently only applied at the pre-operational stage due to regulatory and supervisory barriers (Fachrurrazy & Siliwadi, 2020). There is skepticism from the Muslim community towards the implementation of the Islamic financial industry, especially Islamic fintech (Sugiarto & Disemadi, 2020). This indicates the need for further efforts from regulators to increase public trust in Islamic fintech. Although OJK and BI have a significant role in regulating Islamic fintech, there is no specific provision that specifically regulates Islamic fintech (Aulia et al., 2020). The existing regulations are still general in nature and are complemented by fatwa DSN-MUI.

The Malaysia Islamic Financial Services Act (IFSA) 2013, although an important step in the development of the Islamic finance ecosystem, has been criticized for not being comprehensive in meeting the needs of the rapidly growing Islamic fintech sector. Given the innovative nature of fintech, the current regulatory framework under the IFSA requires additional legislation and the development of a regulatory sandbox to test and develop Islamic fintech solutions (Razak et al., 2020). Regulatory sandboxes provide a controlled environment for fintech companies to test their products under the supervision of regulatory authorities. While this approach has helped drive growth, there is still room for improvement, especially in tailoring specific regulations for Islamic fintech, as these businesses face unique challenges related to Sharia compliance and financial technology integration.

However, despite these constraints, some countries have taken proactive steps to create an ecosystem that supports Islamic fintech. In Indonesia, for example, the DSN-MUI (Indonesian National Sharia Council) has been working closely with financial supervisory authorities to ensure that fintech companies adhere to Sharia principles, thus fostering an environment where Islamic fintech can thrive. Similarly, the United Kingdom (UK) has established itself as a hub for Islamic fintech innovation, with government-backed initiatives encouraging growth and experimentation in the sector (Global Islamic Fintech Report, 2022). These examples show that with the right regulatory framework, including a clear Shariah governance structure and active engagement between regulators and industry stakeholders, significant progress can be made regarding Shariah compliance and Islamic finance product innovation. This collaboration is essential to create a sustainable and scalable environment that not only encourages the growth of Islamic fintech but also ensures that Islamic fintech adheres to the ethical and religious principles at the core of the Islamic finance industry.

For this framework to be effective, regulators must balance innovation with compliance, ensuring that fintech companies can grow while maintaining compliance with Shariah principles. This requires a multi-stakeholder approach involving Shariah experts, fintech innovators, and regulatory bodies to ensure alignment of technological advancements with Islamic ethical norms. In different countries, Shariah standards for fintech services are varied. This makes it difficult for regulators to develop a uniform and comprehensive framework. Differences in interpretation between scholars and policymakers also exacerbate this problem. In Pakistan, for example, Sharia regulation in the Islamic banking sector is still evolving, and the lack of clear standardization hinders effective supervision (Saba et al., 2019). Adopting fintech in the Islamic financial sector requires a more comprehensive regulatory framework to address risks associated with technology, such as data security and privacy protection. In Pakistan, although regulations are in place, regulators face difficulties maintaining system stability and ensuring Shariah compliance, especially in managing potential threats to data and cyber-attacks (Saba et al., 2019). This leads to problems of excess liquidity and lower returns compared to conventional banks. Sukuk issuance is also constrained by high costs and legal complexities. The study identified financial instability, lack of financial education, and absence of political will as the main reasons for low sukuk issuance in Pakistan.

Meanwhile, in India, the main obstacle to the development of Islamic banking is the incompatibility between conventional banking regulations and Islamic principles. While there is a significant demand for Shariah-based financial services, the existing legal framework does not support the formal implementation of Islamic banking. As a result, India's large Muslim population does not have adequate access to sharia-compliant financial services, posing a significant barrier to Islamic financial inclusion in the country (Shafi, 2015).

Consumer Trust in Halal Fintech: Main Factors and Trends

Consumer trust in Halal FinTech is shaped by a combination of perceived benefits, social influence, regulatory framework, and compliance with Shariah principles. Research has shown that the perceived benefits of Halal Fintech services are a major factor driving adoption, especially in countries with a large Muslim population, such as Indonesia. In Indonesia, interpersonal influences, such as recommendations from family or community, significantly drive consumer interest and trust in these services (Purwantini et al., 2020). For Malaysia, the existence of a strong regulatory framework and strong government support plays a significant role in boosting consumer confidence. Government support for Islamic financial products and active promotion of halal fintech platforms have helped Malaysia capture around 5% of the Islamic fintech market (Mohamad et al., 2024). Consumers in Malaysia are reassured by the government's involvement, as they see Halal FinTech as reliable and compliant with Islamic law. In addition, ethical considerations, especially compliance with Shariah law, remain a cornerstone in building consumer trust. The assurance that all transactions follow Islamic principles resonates strongly with religious consumers who prioritize ethical banking and finance. These considerations influence consumer attitudes and drive acceptance of Halal Fintech services. In particular, knowledge of Shariah compliance is critical for products such as Halal credit cards, where consumer acceptance is strongly influenced by religiosity and understanding of the product's adherence to Shariah principles (Johan & Putit, 2015).

Table 2. Key Factors Influencing Consumer Confidence in Halal Fintech

Factor	Description	Country Example	Supporting Data
Perceived Usefulness	Consumers find Halal Fintech services practical and effective in solving their financial needs.	Indonesia	Drives adoption (Purwantini et al., 2020)
Social Influences	Peer and community recommendations significantly influence consumer trust and usage.	Indonesia	Affects decision-making in adopting services (Purwantini et al., 2020)
Regulatory Support	Government regulations and support enhance the credibility and trust of Islamic Fintech services.	Malaysia	Malaysia holds 5% of the global Halal Fintech market (Mohamad et al., 2024)
Ethical Considerations	Compliance with Sharia principles ensures that transactions are ethical and aligned with consumer values.	Indonesia, Malaysia	Sharia compliance is critical for acceptance
Religiosity	The consumer's level of religious commitment plays a key role in their acceptance of Halal financial products.	Global	Religiosity impacts Halal credit card adoption (Johan & Putit, 2015)
Product Knowledge	Understanding Sharia compliance with Halal Fintech products is essential for consumer trust.	Indonesia, Malaysia	Important for Halal credit card services (Johan & Putit, 2015)

These factors, when combined, create an environment of trust and confidence in Halal Fintech, thus promoting financial inclusion in the Muslim community. However, there are still challenges faced, such as ensuring consistent compliance with Shariah standards across platforms, which may undermine long-term trust if not adequately addressed.

DISCUSSION

The development of halal fintech in recent years has brought significant changes in the global financial industry. From the research results that have been described, it appears that the development of halal fintech in countries such as Indonesia, Malaysia, and the United Arab Emirates (UAE) has been greatly influenced by the application of modern technologies such as blockchain, artificial intelligence (AI), and big data. These technologies introduce greater operational efficiency, as well as higher transparency, which is crucial in the context of Islamic financial services that require trust and strict adherence to sharia principles. Blockchain, for example, enables decentralized and immutable recording of transactions, ensuring that all transactions are clearly recorded and auditable (George et al., 2024; Ma'ruf et al., 2024). This is critical in addressing transparency challenges that are often a major concern for consumers and investors in Islamic financial services. In addition, AI offers advanced data analysis capabilities that enable Islamic fintech service providers to improve risk management and fraud detection (Hendarti et al., 2024).

The technology also facilitates process automation, which reduces reliance on intermediaries and speeds up the transaction process, resulting in reduced operational costs. Blockchain-based smart contracts also enable safer and faster transactions, reducing the risk of gharar or uncertainty in halal financial transactions (Sa'ad et al., 2021). For international transactions, the use of wakalah-based smart contracts can help improve the speed and security of transactions while ensuring compliance with Shariah principles. However, regulatory challenges remain a major impediment to the growth of halal fintech. In countries such as Pakistan, although the Islamic finance sector is well-established, there are still shortcomings in terms of the legal framework supporting Islamic fintech. Shariah-compliant investment standards and adequate investment instruments are still limited, thus slowing down the adoption of Islamic fintech in the country. India also faces major challenges in this regard. While demand for Islamic financial services is high, conventional banking regulations are not aligned with Sharia principles, making it difficult for financial institutions to offer Islamic products to the country's large Muslim consumer base.

Consumer trust is another key factor in the development of halal fintech. Muslim consumers, especially in countries with large Muslim populations, such as Indonesia and Malaysia, pay close attention to Shariah compliance when choosing a digital financial platform. Research shows that perceived usefulness and social influence are key factors in driving the adoption of Sharia fintech services. In countries like Indonesia and Malaysia, regulatory support is better, but there is still a need for stricter supervision regarding Shariah compliance. Shariah Supervisory Boards and regulatory authorities need to work together to ensure Shariah-compliant fintech products and services comply with Islamic law. In Malaysia, for example, strong government and regulatory support has helped create a thriving Islamic fintech ecosystem. The involvement of the Shariah Supervisory Board in overseeing and ensuring compliance with Shariah principles also increases consumer confidence in Islamic fintech services. Clear halal certification and strict supervision from Sharia institutions are also important factors in building consumer trust, especially in the context of digital-based transactions.

Nevertheless, there are some major challenges to be faced by the halal fintech sector, especially in terms of uniform standards to ensure shariah compliance across different platforms. For example, the different interpretations of Sharia law in different OIC (Organization of Islamic Cooperation) countries lead to a lack of consistency in the implementation of Islamic financial services. Therefore, collaboration between regulators, industry players, and Islamic institutions is essential to overcome this challenge. Going forward, the development of a stronger and more comprehensive regulatory framework, coupled with the integration of technologies such as blockchain and AI, has great potential to increase consumer confidence and drive the growth of the halal fintech sector. By overcoming regulatory barriers and building trust through strict Shariah compliance, halal fintech can play a significant role in financial inclusiveness among the global Muslim community.

CONCLUSION

The development of Islamic fintech has seen a significant surge, driven by the adoption of technologies such as blockchain and artificial intelligence (AI) that improve efficiency, transparency, as well as compliance with sharia principles. Blockchain technology, with its decentralized and immutable nature, offers the transparency necessary to maintain trust in Islamic financial services. Meanwhile, AI enables predictive analytics and fraud detection, thereby improving risk management as well as sharia compliance. However, these developments are inseparable from regulatory challenges in various countries, such as the lack of Islamic investment standards in Pakistan and the regulatory mismatch between conventional banking and Islamic principles in India.

This research employs a literature review method, analyzing various academic sources and industry reports such as the Global Islamic Fintech Report. The results show that consumer trust in Islamic fintech is strongly influenced by perceived usefulness and social influence, whereas consumers in Indonesia, for example, are more likely to adopt Islamic fintech services because they find the helpful technology and are supported by their community. In Malaysia, government support and a robust regulatory framework also play an important role in increasing consumer confidence in Islamic fintech. However, the study also highlights that while technology adoption has opened up great opportunities, regulatory challenges remain a major obstacle, especially in terms of shariah compliance standards and regulatory limitations that hamper innovation in some countries. Therefore, the need for collaboration between regulators and the industry is crucial to creating an ecosystem supporting Islamic fintech growth while ensuring consistent compliance with Sharia principles.

Furthermore, a supportive legal framework is needed to encourage the development of halal fintech in countries with large Muslim populations. Shariah Supervisory Boards are important in ensuring that the fintech services provided comply with Islamic law. Clear regulations and strict halal certification can help boost consumer confidence and expand the adoption of Islamic fintech globally, increasing financial inclusiveness and more ethical financial practices.

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