

A Model for the Digital Transformation of Islamic Financial Institutions in Strengthening the Halal Industry Ecosystem in the Era of the 5.0 Industrial Revolution

Abdul Basit^{1*}, Oliver William Knight², Reza Arviciena Sakti³, Yudhi Kurniawan Zahari⁴

^{1,3,4}Universitas Islam Al-Azhar, Indonesia
²RMIT University, Australia

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Corresponding Author:
Abdul Basit

Email:
abdulbasit@unizar.ac.id

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ABSTRACT

Introduction: Financial institutions are undergoing a transformation toward the digital era in response to the development of fintech and the digital technology revolution.

Methods: This study employs a descriptive qualitative approach. The data sources in this study were obtained through library research, namely by reviewing various literature, scientific journals, laws and regulations, financial institution reports, and publications from financial services authorities related to digital banking and green banking in Islamic banking.

Results: The findings of this study are that digital transformation, including the use of blockchain, artificial intelligence, big data analytics, and digital financial platforms, has opened new opportunities for Islamic financial institutions to accelerate service processes, expand market reach, and improve operational efficiency—including through digital payment platforms based on Sharia principles. These innovations not only support financial inclusion but also strengthen the integration of the Islamic economy with the real sector, particularly through financing for SMEs and the halal industry, which require faster and more flexible access to financing.

Conclusion and suggestion: This study highlights that digital transformation in Islamic financial institutions is essential for strengthening the halal industry ecosystem in the era of Industry 5.0. Therefore, Islamic financial institutions should accelerate digital adoption and enhance human resource capabilities.

Keywords: Digital, Islamic Financial Institutions, Halal Industry, Industrial Revolution

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INTRODUCTION

Digital transformation has become a mainstream trend affecting nearly every sector of the economy, including the Sharia-based economy and the Islamic banking industry (Ardianto et al. 2024). Financial institutions are required to undergo digital transformation in order to adopt technological innovations to improve efficiency, accessibility, and the quality of services provided to customers (K. Safitri, Fauziah, and Salam 2025). These financial institutions play a strategic role in providing financial services that align with Sharia principles, without relying on direct fund intermediation mechanisms as is customary in conventional banking (Mulyawan, Azwar, and Sumarlin 2025). Integration between Islamic financial institutions and the halal industry ecosystem remains suboptimal. Many halal businesses, particularly SMEs, are not yet digitally connected to Islamic financing systems, halal certification, and technology-based supply chains. This leads to fragmentation within the halal ecosystem, thereby reducing the efficiency, transparency, and competitiveness of halal products in the global market (State of the Global Islamic Economy Report, 2024). Low levels of digital literacy and Sharia financial literacy among the public pose significant barriers to driving the adoption of Sharia-based digital financial services. Although financial inclusion in Indonesia has shown improvement, the gap in the utilization of digital services remains quite high, particularly in regional areas and within the halal SME sector (Bank Indonesia, 2023).

Financial institutions are undergoing a transformation toward the digital era in response to the development of fintech and the digital technology revolution (Apriliyani et al. 2025). This transformation is ushering banks into an era of digital banking services aimed at promoting financial inclusion and providing access to the public without limitations of time or place (Risma et al. 2025). The Industry 5.0 era encompasses profound changes across all industrial activities and human life, driven by the utilization of digital technology and the internet. This involves systematic production using wireless technology and big data, leveraging data more accurately through server systems, and automatically integrating all operations (Ardianto et al. 2024). The public's need for financial services that are fast, easily accessible, and value-based is becoming increasingly prominent in the Industry 5.0 era (K. Safitri, Fauziah, and Salam 2025). Given these conditions, it is evident that one of the technological developments occurring involves financial institutions introducing a breakthrough in the form of digital-based services (Sebagai and Penerapan 2025). Digitalization presents significant opportunities for Islamic financial institutions (IFIs) to enhance efficiency, expand service reach, and address the needs of Muslim consumers who are increasingly tech-savvy (Ropiah 2025).

The digital transformation models currently implemented by Islamic financial institutions still tend to be adaptive to conventional systems rather than based on the specific needs of the halal industry ecosystem. This approach results in a lack of integration among actors in the halal ecosystem—such as halal certification bodies, businesses, regulators, and consumers—within a single integrated digital platform. With the emergence of such a digital platform or system, privacy concerns for the public have become more pronounced, and the digitalization within this system has also impacted financial stability (K. Safitri, Fauziah, and Salam 2025). The adoption of digitalization in Islamic finance in Indonesia is not without fundamental challenges. One of these is the still significant digital infrastructure gap, particularly in underdeveloped and rural areas. Additionally, the levels of digital literacy and Islamic financial literacy among the Indonesian public remain relatively low (Ropiah 2025). The public's limited understanding of Islamic finance concepts leads them to be reluctant or hesitant to use Sharia-based fintech services even when they are available online. Furthermore, a lack of human resources to carry out digital transformation will eventually impact the infrastructure setup and cause technological disruptions within the system. A typical customer is generally a layperson who is new to the era of digital transformation (Sebagai and Penerapan 2025).

Digital transformation in Islamic finance cannot be separated from the strengthening of governance, which encompasses regulation, operational capital, and public literacy. Therefore, a high level of dedication is required from Islamic banks—whether through their customers or company directors—to provide education regarding this digital transformation system (I. Safitri and Efendi 2023). This can be achieved by holding regular seminars or

training sessions at each Islamic banking office, free of charge. Undoubtedly, such initiatives can offer innovative new approaches for bank customers and clients to successfully implement the digital transformation system (Kokoreva 2022). Therefore, this systematic study is expected to provide a theoretical contribution to expanding understanding of the digital transformation model of Islamic financial institutions in strengthening the halal industry ecosystem in the era of the 5.0 industrial revolution, as well as supporting Islamic digital transformation. Practically, the results of this study are expected to provide recommendations to Islamic banking institutions in developing digital innovations that comply with Sharia principles, assist the government in formulating adaptive regulations, and encourage technology industry players to develop trustworthy, efficient, and inclusive Islamic financial platforms.

LITERATURE REVIEW

Digital transformation in Islamic financial institutions has become a topic of growing interest in the academic literature, particularly in the context of strengthening the halal industry ecosystem in the era of the 5.0 Industrial Revolution. Various studies indicate that digitalization plays a crucial role in enhancing efficiency, financial inclusion, and cross-sectoral integration within the Islamic economy. Studies on Islamic FinTech confirm that digital transformation is a key factor in expanding access to Islamic financial services. A systematic literature review by Suswanto et al. (2025) found that the adoption of digital technology in Islamic finance is influenced by regulatory factors, public trust levels, and technological infrastructure readiness. However, the study also highlights challenges such as regulatory inconsistencies and low digital literacy as the main barriers to technology adoption (Islamic FinTech) (Suswanto et al. 2025).

The literature on the digitalization of Islamic banking indicates that technological innovations such as mobile banking, blockchain, and peer-to-peer lending can improve operational efficiency and expand the reach of financial services. However, the main challenges faced include a shortage of digital human resources, cybersecurity risks, and regulations that are not yet fully adapted to technological developments (Zakia Rahmah Siahaan and Marliyah 2023) In the broader context of the Islamic economy, research based on a systematic literature review indicates that information technology plays a strategic role in the development of the halal ecosystem. Digitalization encompasses not only the financial sector but also zakat, waqf, and technology-based halal supply chains. Research trends show a significant increase post-2020, with a focus on the integration of technologies such as halal blockchain and the digitalization of the Islamic economic system.

Studies on the digitalization of the Islamic economy confirm that digital transformation can strengthen the competitiveness of the halal industry by improving efficiency, transparency, and access to global markets. However, various challenges remain, such as low digital literacy, disparities in access to technology, data security issues, and legal uncertainty regarding the implementation of new Sharia-based technologies. Furthermore, the importance of a *maqāṣid al-sharī'ah*-based approach in guiding digital transformation has become a primary focus in recent literature (Nawasabila et al., 2025). The literature on halal fintech indicates that public trust is a crucial factor in the success of the digital transformation of Sharia financial institutions. Perceptions regarding Sharia compliance, the benefits of technology, and social influence are the primary determinants in the adoption of Sharia-based digital financial services. This demonstrates that digital transformation is not merely technological but also social and cultural (Mulyawan, Azwar, and Sumarlin 2025) From a regulatory perspective, research indicates that the development of Islamic finance regulations in the digital age remains fragmented and has not yet fully adapted to technological innovations. Regulatory fragmentation and the absence of a comprehensive legal framework pose obstacles to the integration of Islamic finance with the digital halal industry ecosystem.

METHOD

Explain in detail about the research design, settings, time frame, variables, population, samples, sampling, instruments, data analysis, reason for choosing the method, and information about the ethical clearance fit test. The editorial team does not recommend a short one-paragraph research method. This study employs a descriptive qualitative approach (Sujianto et al., 2023), aiming to describe the phenomenon of digital transformation within Society 5.0 financial institutions and its implications. This approach was chosen to gain a deep understanding of the dynamics of the digital transformation model of Islamic financial institutions in strengthening the halal industry ecosystem in the era of the 5.0 industrial revolution within a digital-based system, as well as to identify the challenges and opportunities faced by Islamic financial institutions. The data sources for this study were obtained through library research, specifically by reviewing various literature, scientific journals, laws and regulations, financial institution reports, and publications from financial services authorities related to digital banking and green banking in Islamic banking. This secondary data was analyzed thematically by categorizing the information into several main topics, such as the development of digital services, environmental sustainability strategies, and the social and economic impacts of banking technology transformation.

The data analysis technique employed was content analysis, which involves identifying, sorting, and interpreting information from various written sources to draw systematic conclusions. This study also draws upon the theoretical framework from the latest literature on the digital transformation model of Islamic financial institutions in strengthening the halal industry ecosystem in the era of the 5.0 industrial revolution. Using this method, this study can contribute to academic development regarding technology-based innovations in Islamic financial reporting services.

RESULT AND ANALYSIS

The Concept and Urgency of Digital Transformation in Islamic Financial Institutions in the Society 5.0 Era

The rapid evolution of digital technologies has fundamentally reshaped the global financial landscape, compelling institutions across sectors to adapt to new paradigms of service delivery, operational efficiency, and customer engagement. Within this context, Islamic financial institutions (IFIs) face both opportunities and challenges in navigating digital transformation while maintaining adherence to Sharia principles (Bozkurt & Sharma, 2020; Bond et al., 2021). The emergence of Society 5.0 a human-centered society that integrates cyberspace and physical space further emphasizes the necessity for IFIs to embrace technology-driven innovation (García-Peñalvo, 2021). Digital transformation in IFIs is not merely a technological upgrade but a strategic shift involving business models, organizational structures, and value propositions. Technologies such as financial technology (fintech), artificial intelligence (AI), big data analytics, cloud computing, and blockchain significantly enhance efficiency and service quality (Dwivedi et al., 2023; Crompton & Burke, 2023). For instance, AI-driven credit scoring models improve financing decisions, especially for MSMEs, while blockchain ensures transparency and trust in financial transactions (Zawacki-Richter et al., 2020).

Moreover, digital transformation promotes financial inclusion by expanding access to Sharia-compliant financial services for underserved populations. Digital platforms such as mobile banking and peer-to-peer financing reduce barriers to entry and support inclusive economic growth (Zainuddin et al., 2020; Schindler et al., 2021). However, challenges such as limited infrastructure, low digital literacy, cybersecurity risks, and regulatory constraints remain significant (Hodges et al., 2020). Ensuring Sharia compliance in digital innovations requires strong collaboration between technologists and Sharia scholars. The proposed digital transformation model is built upon three pillars: technological integration, regulatory alignment, and ecosystem collaboration. These pillars collectively strengthen the halal industry ecosystem and enhance the role of IFIs as facilitators of economic development (OECD,

2021). Technological integration focuses on developing digital platforms that offer comprehensive Sharia-compliant financial services, including financing, payments, investment, and takaful. The use of big data analytics enables IFIs to better understand customer needs and provide tailored solutions (Crompton & Burke, 2023). These platforms create efficiency and transparency across halal value chains.

Regulatory alignment is equally important, as adaptive policies encourage innovation while ensuring financial stability and Sharia compliance. Regulatory sandboxes provide opportunities to test new financial technologies in controlled environments (Bond et al., 2021). This balance between innovation and regulation is critical for sustainable digital transformation. Ecosystem collaboration involves partnerships among IFIs, fintech companies, halal industry players, and government institutions. Such collaboration enables the development of integrated digital ecosystems that streamline transactions and improve supply chain efficiency (Dwivedi et al., 2023). Embedding Sharia governance into digital systems ensures that all processes remain compliant with Islamic principles. Human capital development is also a key factor. IFIs must invest in digital skills and interdisciplinary knowledge to successfully implement transformation strategies. This includes expertise in finance, technology, and Sharia law (García-Peñalvo, 2021).

A Digital Transformation Model for Islamic Financial Institutions in Supporting the Halal Industry Ecosystem

The digital transformation of IFIs has significant economic, social, and technological impacts. Economically, it increases access to financing for halal MSMEs, enabling business expansion and innovation. Digital platforms reduce transaction costs and improve efficiency across the halal value chain (Zainuddin et al., 2020). From a social perspective, digital transformation promotes financial inclusion and equitable access to Sharia-compliant financial services. This enhances public trust and encourages broader participation in economic activities (Schindler et al., 2021). Technologically, it drives innovation and supports the development of transparent and secure systems, such as blockchain-based traceability for halal products (Zawacki-Richter et al., 2020). Despite these benefits, challenges such as cybersecurity risks, data privacy concerns, and the digital divide must be addressed. Governments and regulators need to develop policies that support digital infrastructure, innovation, and capacity building (OECD, 2021). Collaboration between stakeholders is essential to ensure sustainable and inclusive growth. In conclusion, digital transformation represents a strategic opportunity for IFIs to strengthen the halal industry ecosystem in the era of Industry 5.0. By leveraging advanced technologies and fostering collaboration, IFIs can contribute to sustainable, inclusive, and Sharia-compliant economic development (Dwivedi et al., 2023).

Rapid technological advancements are driving the banking sector to further enhance its services by establishing digital Islamic financial institutions. This initiative aims to enable Islamic financial institutions to maximize customer service and improve operational quality, thereby fostering the development of digital banking. (Mardiyyah, Harahap, and Febriza 2025). Technological advancements, shifts in consumer behavior, and business trends serve as driving factors for banks to continue innovating, particularly Islamic banks, which operate under two distinct sets of rules. As technology evolves, digital banking is increasingly shaping every aspect of customers' financial activities (Rohmah, 2025). The success of Islamic banking's digital transformation within the context of the Islamic economy is influenced by various driving and inhibiting factors. On the driving side, rapid advancements in digital technology present significant opportunities for Islamic banks to enhance efficiency and reach a broader customer base. Regulatory support from the government and financial authorities such as the OJK and Bank Indonesia is also a key factor in creating a conducive digital Islamic ecosystem. Additionally, growing public awareness of halal financial products and the high growth of the sharia-based SME sector further strengthen the demand for digital Islamic banking services (Linawati et al. 2025).

Bank Syariah Indonesia (BSI) serves as a prime example of an institution committed to digital transformation. Through the launch of BSI Mobile, the bank offers a range of services accessible online, from opening digital accounts and conducting banking transactions to making zakat and infaq payments, as well as investing in retail sukuk. By leveraging this technology, BSI has successfully reached segments of the population previously underserved by banking services, particularly the younger generation who are more familiar with digital technology. Meanwhile, Bank Muamalat is also undergoing a transformation by updating its digital systems and expanding its services through Muamalat DIN, a digital banking platform compliant with Sharia principles (Marshelynda, 2024). However, there are also a number of obstacles to overcome. One of these is the limited digital infrastructure, particularly in remote areas, which hinders access to digital services. The still-low levels of digital literacy and Islamic financial literacy also pose a challenge, as the public does not yet fully understand how Islamic digital services work or their benefits. Internally, some Islamic banks still face challenges regarding technological development, competent human resources in the digital field, and the integration of Sharia principles into technological innovation. Therefore, the success of the digital transformation of Islamic banking requires synergy between technology, regulation, public education, and institutional capacity building. Digital transformation also enables the creation of a more collaborative halal financial ecosystem. Sharia fintech can connect with zakat collection agencies, sharia cooperatives, BMTs, and halal marketplaces within a single integrated ecosystem. This collaboration drives systemic efficiency and expands the economic impact of Islam into other sectors, such as halal tourism, education, and sharia logistics (Dinar Standard, 2022). However, it is important to ensure that digital innovations remain within the bounds of Sharia compliance. The use of technology must be accompanied by verification by the Sharia Supervisory Board (DPS) to ensure that every product and service is truly in accordance with Islamic principles. This reflects the importance of integrating technology with robust Sharia governance (Abdullah & Oseni, 2020).

Advances in information and communication technology have sparked a wave of digital-based financial innovations, ranging from electronic payment services, peer-to-peer lending, and crowdfunding to cryptocurrency (Ropiah 2025). This phenomenon is not limited to the conventional sector but is increasingly extending into the Sharia finance sector, which now faces the challenge of remaining relevant and competitive amid digital disruption. Digital transformation, including the use of blockchain, artificial intelligence, big data analytics, and digital financial platforms, has opened new opportunities for Islamic financial institutions to accelerate service processes, expand market reach, and enhance operational efficiency—including through digital payment platforms based on Sharia principles (Mulyawan, Azwar, and Sumarlin 2025). These innovations not only support financial inclusion but also strengthen the integration of the Islamic economy with the real sector, particularly through financing for SMEs and the halal industry, which require faster and more flexible access to financing (Nurzianti 2021).

The digitization of services enables Islamic banks to improve operational efficiency and strengthen their competitive position in the financial market (Fadhil et al. 2025). Digital services such as mobile banking and internet banking not only make it easier for customers to conduct transactions but also reinforce the value of Islamic financial inclusion by reaching Muslim communities in remote areas. For example, through the online account opening feature, people no longer need to visit a branch office to access Islamic banking services (Ardianto, 2024). This aligns with the Financial Services Authority (OJK)'s vision of expanding sharia-based financial inclusion nationwide. As a policy implication, synergy is needed between the government, regulators, the industry, and academia to build an inclusive and sustainable digital Islamic economic ecosystem. Progressive regulatory support, incentives for halal innovation, and the integration of digital platforms into Islamic financing schemes are concrete steps that must be prioritized (Mohamed et al., 2019; Salleh et al., 2022). Thus, digital transformation in the Islamic economy is not merely technical digitization, but a structural revolution in building an economic system that is fairer, more efficient, and in line with Islamic values. Technological innovation serves as a strategic instrument to strengthen the halal financial ecosystem in the increasingly complex and globally interconnected 5.0 era.

Impacts and Implications of Digital Transformation on Strengthening the Halal Industry Ecosystem

This digital transformation has also introduced a wider variety of financial products, such as digital Sharia gold savings accounts, digital microfinance (Sharia QRIS), and lifestyle banking features grounded in Islamic values (K. Safitri, Fauziah, and Salam 2025). For example, features such as prayer time reminders, zakat calculators, and access to digital waqf constitute the unique aspects of Islamic banks' digital services that distinguish them from conventional banks (Sukron, 2021). These innovations demonstrate that digitalization is not merely a tool for efficiency but also serves as a means of da'wah and the strengthening of Islamic economic identity. One of the most prominent digital innovations is the emergence of Sharia P2P lending platforms. Research by Ahyadatul Khoiriyah and Miswan Ansori explains that Sharia P2P fintech offers microfinance alternatives to MSME actors using musyarakah and mudharabah contracts, which differ from the interest-based system in conventional finance. Platforms such as ALAMI and Ammana have made it easier for the public to quickly access halal financing without having to go through bureaucratic banking processes (Khoiriyah, 2024).

These findings are supported by the results of a study by Hartutik, Maesarach, and Jaharuddin, which show that Sharia-compliant fintech based on P2P lending not only helps small business owners but also encourages the general public to become micro-investors. The public can now participate in financing the real sector with small capital and relatively low risk because it is managed based on profit-sharing principles and without interest. This proves that Sharia fintech serves as a means of value-based financial inclusion (Hartutik, 2023). Another innovation is Sharia-based digital wallets, which are beginning to be developed by various Sharia financial institutions in Indonesia. According to Rozi, Safitri, Khowatim, and Rochayatun, halal digital wallets provide convenience in storing funds, conducting transactions, and paying zakat and infaq in real-time with sharia certainty. They state that public interest in this product continues to rise as awareness grows regarding the importance of avoiding riba-based transactions in daily life (Khowatim, 2024). However, this rapid growth is also accompanied by a number of challenges. In her study, Ine Nurul L argues that the main challenge facing the development of Sharia fintech is the public's lack of literacy regarding Sharia principles and the operational mechanisms of digital technology itself. Many users do not yet understand the Sharia contracts used in digital transactions, and this has the potential to lead to misperceptions regarding products that are actually halal (Lutfiah, 2024). In line with this, Fatkhul Wahab and Mohammad Ihsan highlight the need for a paradigm shift in digital Islamic banking. According to them, digital transformation is not merely about replacing service methods but also demands changes in organizational structure, employee mindset, and marketing strategies. Islamic banks must be able to understand the needs of millennials and Gen Z, who prefer all-digital applications with simple and fast interfaces.

Based on these dynamic capabilities, Islamic financial institutions are developing digital transformation strategies that include the implementation of digital platforms, partnerships with fintech companies, strengthening of technological infrastructure, and staff training to improve digital literacy. These strategies are designed to steer digital transformation toward tangible innovation. This innovation is then divided into three main aspects: technological innovation (such as web- or mobile-based applications for financial services), process innovation (e.g., digitization of workflows for operational efficiency), and service innovation (such as digital products that enhance the customer experience). The result of this entire process is the creation of a system that is more adaptive, innovative, and competitive. The combination of external and internal contextual factors, managed through dynamic capabilities and digital transformation strategies, enables Islamic financial institutions to generate innovations relevant to market needs. This diagram highlights how internal factors, such as organizational flexibility and leadership support, interact with external dynamics to create sustainable innovation in the digital age.

CONCLUSION

Digital transformation in the Islamic economy has become a key driver of financial inclusion and the effectiveness of the halal financial system. The digital transformation of Islamic financial institutions (IFIs) is a strategic element in strengthening the halal industry ecosystem in the era of the 5.0 Industrial Revolution. This transformation is not only oriented toward the digitization of financial services but also encompasses system integration, enhanced financial inclusion, and strengthened connectivity among actors within the halal ecosystem. This aligns with findings that digitalization plays a crucial role in enhancing efficiency, transparency, and the competitiveness of the halal industry at the global level. Digital transformation, including the use of blockchain, artificial intelligence, big data analytics, and digital financial platforms, has opened new opportunities for Islamic financial institutions to accelerate service processes, expand market reach, and improve operational efficiency—including through sharia-compliant digital payment platforms. These innovations not only support financial inclusion but also strengthen the integration of the Islamic economy with the real sector, particularly through financing for SMEs and the halal industry, which require faster and more flexible access to financing.

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