

Harnessing AI for Islamic Finance Transformation: From Compliance Challenges to Digital Opportunities

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ABSTRACT

The rapid development of Artificial Intelligence (AI) is transforming the Islamic banking and finance sector by improving operational efficiency, risk management and service quality. However, the implementation of AI still faces challenges related to shariah compliance, data security, lack of expertise and weaknesses in the regulatory framework, especially in Malaysia. This study analyzes the challenges and opportunities of using AI in the Islamic banking and finance sector in Malaysia through a qualitative literature review using thematic analysis. The study examines journal articles, industry reports and policy documents published between 2022 and 2025. The findings show that AI has the potential to improve operational efficiency, strengthen risk management and fraud detection, enhance customer experience and expand financial inclusion through Islamic financial technology or fintech. The study also introduces the concept of Islamic AI Techno-Ethics Governance, which integrates AI governance, shariah governance and *Maqasid al-shariah* as a framework for developing AI that is ethical, shariah-compliant and supports the growth of a sustainable Islamic financial ecosystem. This study contributes theoretically by expanding the discussion on AI governance in Islamic finance through the integration of AI governance, Shariah governance and *Maqasid al-shariah*. Practically, the proposed Islamic AI Techno-Ethics Governance framework can serve as a reference for policymakers, regulatory bodies and Islamic financial institutions in developing AI applications that are ethical, transparent and Shariah-compliant.

Keywords: Artificial Intelligence; Islamic Fintech; Shariah Compliance; Islamic Banking

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INTRODUCTION

The use of Artificial Intelligence (AI) in everyday life is becoming increasingly effective at facilitating transactions and has become the main thrust of the digital transformation of the banking sector. AI can improve operational efficiency, transaction security and customer experience in the banking sector through automation and intelligent data analysis. According to Aysan et al. (2022), a global industry report has mentioned that AI Scalability in Islamic fintech is a top global trend. This is because AI will drive personalization, compliance automation, and data-driven advisors in Islamic finance (Shikoh, 2025). Gulf countries are becoming major investors in shariah-compliant investments through AI in the Islamic banking system, namely Saudi Arabia, UAE (Consult, 2025). The global development of Islamic fintech trends, driven by the combination of a young, digitally native generation and venture capital investments, can accelerate the growth of the shariah-compliant fintech ecosystem safely.

In the development of the situation in Malaysia, traditional banking and Islamic financial institutions can initiate AI in the development of Islamic fintech for the future. Iqbal et al. (2025) stated that major Malaysian banks have announced AI strategies for personal and operational services, including applications such as chatbots, credit modeling and anomaly detection. According to Gustanto et al. (2025), AI opens opportunities for community involvement that have not yet been involved in businesses using Islamic banking, such as micro-entrepreneurs and rural residents, through shariah-compliant micro-financing products. Stability and service are the focus of Bank Negara's monitoring using AI. According to a Maybank's annual report (2024), stated that Bank Negara Malaysia (BNM) is actively monitoring the stability of digital services and service disruption issues that can invite enforcement action.

Service disruption in the Islamic banking system has become a problem that banks need to face when solving customer problems using AI. Previous studies have described many studies related to digital infrastructure in Islamic banking, but the use of AI fintech in Islamic banking is quite limited (Jamshed, 2024; Sari, 2025). Raihan et al. (2024) indicate that AI has improved employee performance and service quality in Islamic banks by 2.936% in the case study of Bank Sumut Syariah. The use of AI in Islamic banking does not lead to a unique exchange of efficiency and stability (Meero, 2025).

In the report statement stated by Shikoh (2025), Global trends show that the GCC and Islamic fintech ecosystems are driving the adoption of AI, while Malaysia is on a growth path with major banks through financial financing from the national bank. Therefore, the digital infrastructure in Islamic banking needs to be monitored and scrutinized by the fatwa council to avoid *gharar* in the use of AI for the Islamic banking and finance ecosystem in Malaysia.

This study will highlight several research gaps in the use of AI in the context of Islamic finance. Previous studies have mostly looked at AI as a driver of operational efficiency in Islamic finance, but its application in integrating AI with Shariah governance to meet the principles of *Maqasid al-shariah* is still limited (Wahab & Mahdiya, 2025). In the context of Malaysia, the implementation of a hub for AI use in the Islamic finance sector for comprehensive studies through governance challenges and opportunities in the Malaysian context is still limited (Zulkepli, 2025).

In addition, this study aims to identify the main challenges of using AI in the Islamic banking and finance sector in Malaysia and to analyze the opportunities for using AI to improve the

efficiency of Shariah compliance operations for the Islamic finance sector. This study also contributes to the literature by synthesizing the main challenges and opportunities for AI adoption in the Islamic banking and finance sector in Malaysia using thematic analysis. The findings provide insights in terms of theory, practice, policy and methodology that support the responsible and sustainable implementation of AI in Islamic finance.

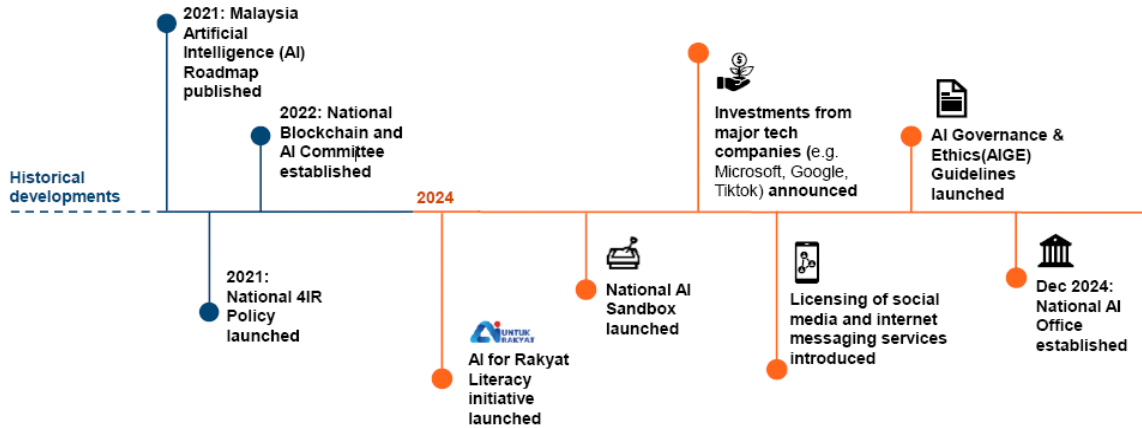
AI IN ISLAMIC BANKING SYSTEM OVERVIEW

Artificial Intelligence (AI) has become one of the most influential technologies in the transformation of the modern banking industry to facilitate financial transactions. Artificial Intelligence (AI) refers to the ability of computer systems to perform human intelligence tasks such as learning, reasoning, and decision-making (Kalyani & Gupta, 2023). Banking systems in the digital era are now experiencing pressure to improve efficiency for more effective customer service quality for financial transaction operations (Abdulsalam & Tajudeen, 2024). The use of AI in the digital era is now able to optimize human resources in carrying out financial transactions and customer service (Tian, 2024). For example, chatbot applications are used for 24-hour customer service, while machine learning-based data analysis helps banks identify financial fraud patterns and assess credit risk more accurately. Therefore, AI in the banking system focuses on conducting banking operations more easily.

In the Malaysian context, the National AI Roadmap 2021-2025 and MyDIGITAL Blueprint have outlined Malaysia's goal to become a digital and AI hub in Southeast Asia for the convenience of the banking system in Malaysia (Ashurov Sharofiddin & Noor, 2025). For example, the financial sector is a key driver in the transformation of the country's digital policy for more efficient banking service operations. According to the Association of Banks Malaysia Report (2025), the launch of AI Malaysia (AIM) on 30 May 2025, involving the banking industry, academia, and government, shows Malaysia's determination to unite the AI construction chain, including in the financial sector. According to Spinell (2025), more than 80% of the use of AI in local banks have implemented at least one AI initiative in the categories of fraud detection, customer behavior analytics, and identity validation processes. Therefore, AI in Malaysian banking can strengthen operational efficiency and customer transaction security.

Artificial Intelligence (AI) can change the pattern in Islamic financial system affairs in terms of increasing efficiency, Shariah compliance, and customer experience. Kismawadi et al. (2025) have emphasized that major Islamic financial institutions such as Dubai Islamic Bank, Al Rajhi Bank, and Kuwait Finance House have implemented AI-based technology for investment risk security and financial savings. The use of AI also needs to meet the demands of *Maqasid al-shariah* in safeguarding assets for the purpose of digital financial security without elements of *Gharar* and *Maysir*. According to the BNM Financial Sector Blueprint Report (2025), Malaysia, which is recognized as a global Islamic finance hub, can encourage local Islamic banks to use AI approaches in implementing shariah audit processes, improving customer analytics, and strengthening fraud detection systems. Sharofiddin (2025) stated that AI is also used in Islamic FinTech, such as robo-advisors in shariah-compliant investments, zakat, waqf & micro-finance (*Qard Hasan*) platforms, to increase efficiency in the Islamic financial system. Therefore, AI has great potential to be a major catalyst towards the formation of a sustainable, ethical, and inclusive Islamic financial ecosystem in today's digital economy era. Figure 1 shows the History of AI Development in fintech.

Figure 1
History of AI Development in fintech



Source: Teo (2025)

METHODOLOGY

The qualitative approach used in the study takes the form of a literature review that explains the opportunities and challenges of using Artificial Intelligence for Islamic banking and financial systems in Malaysia. According to Snyder (2019), the literature review method is suitable for synthesizing existing knowledge, identifying current trends, and building a more comprehensive understanding.

Secondary data obtained from journal articles, industry reports, policy documents, and publications from institutions related to AI in Islamic finance. Literature sources were identified through academic databases such as Scopus, Web of Science, and Google Scholar from 2022 to 2025. Other literature sources were obtained from reports by Bank Negara Malaysia (BNM), Islamic financial institutions, and regulatory bodies. This study used keywords in the literature search, namely “Artificial Intelligence”, “Islamic Finance”, “Islamic Banking”, “Islamic Fintech”, “Shariah Compliance”, and “Malaysia”. Figure 2 shows the process of thematic analysis.

Figure 2
Thematic Process Analysis



Source: Braun and Clarke (2006)

Based on the thematic analysis published by Braun and Clarke (2006), it is stated that the data analysis process is conducted to identify, categorize, and interpret the main themes that emerge from secondary data. This analysis is carried out in three stages, namely filtering and selecting relevant documents, coding information based on key issues, and grouping findings into research themes. Through this thematic analysis, this study uses groups of challenges and opportunities for the use of AI in the Islamic financial system in Malaysia. Therefore, this

thematic method is able to provide comprehensive results through current developments, Shariah compliance issues, and AI technology challenges for a more inclusive Islamic financial ecosystem.

FINDINGS

Theme 1: Challenges of AI Adoption in Islamic Banking and Finance

The challenges in using AI in Islamic Banking and the financial system have become increasingly worrisome among modern scholars. Compliance with shariah principles is also one of the challenges in implementing a shariah compliance framework for local Islamic banks. Najib et al. (2025); Shalhoob (2025) have mentioned that the risk of *gharar* in AI algorithms requires a strong framework to ensure customer trust in using fintech services is more optimal. However, AI algorithm's function is based on mathematical logic and machine learning that do not necessarily understand the context of Islamic law (Arsyad et al., 2025). For example, an AI-based credit scoring system may assess customer eligibility without considering the prohibitions on usury, *gharar*, and *maysir*. Kismawadi et al. (2025) also believe that Malaysian Islamic financial institutions need to develop AI systems to implement shariah compliance in the use of AI algorithm systems for service operations. Therefore, the shariah compliance framework needs to be audited by Malaysian financial institutions to avoid *gharar*.

Data and privacy constraints are a challenge in the use of AI in Islamic fintech. Sari (2025) has suggested that the handling of privacy data in the use of AI for fintech systems needs to be monitored to maintain customer trust and shariah compliance. Islamic banking laws and confidentiality pose difficulties in sharing data through AI systems. Data information for Islamic finance customers needs to be managed comprehensively to avoid any data leakage using AI in Islamic Fintech (Iqbal et al., 2025). For example, Malaysian Islamic banking limits the use of chat boxes in requesting banking customer information. BNM Financial Sector Blueprint Report (2025) needs to maintain the confidentiality of customer privacy data to avoid *gharar* in the use of AI for banking services.

Lack of expertise and infrastructure for AI Technology in Islamic finance in Malaysia is a challenge in implementing effective fintech services. Mhlanga (2023) has suggested that Small Island Developing States do not have the infrastructure needed to support AI technology for Islamic finance. Most local Islamic financial institutions still face a shortage of AI experts and shariah experts who understand digital technology (BNM, 2025). For Syed Musa et al. (2025), the reduction in training support, academic and industry collaboration, and investment in digital infrastructure for AI implementation has not reached optimal levels. The lack of expertise in AI Technology in Islamic finance in Malaysia makes it difficult for Malaysia to achieve a prosperous Islamic finance status in accordance with Shariah compliance.

The legal and regulatory framework in Malaysia is still in the process of simulation with AI technology for Islamic fintech services. Based on the report of BNM (2025), the Digital Banking Strategy (2022–2025) has been introduced, but there is a gap in specific guidelines regarding the use of Shariah-compliant AI in Malaysia. Najib et al. (2025) have mentioned that AI systems in Islamic finance must comply with *Maqasid al-shariah* for the categories of preserving religion, life, intellect, wealth, and lineage, while Akbar (2025) has stated that the use of AI in Islamic finance should be regulated by Islamic technoethics that takes steps and accountability to prevent dangerous risks. The legal and regulatory framework governing AI

applications in Islamic finance should be strengthened and refined to ensure improvements in cybersecurity, while maintaining compliance with Sharia principles.

Customer acceptance and trust are challenges to the success of the Digital Banking Strategy (2022–2025). The integration of artificial intelligence (AI) in Islamic finance has resulted in significant results, with Islamic customers expressing doubts about its use. Alfia et al. (2025) have stated that the potential of AI in Islamic finance fails to align with Islamic ethical standards, requiring collaboration between technologists, academics, and scholars to create ethical AI systems. The need for a robust framework also emphasizes continued alignment with Shariah guidelines (Omar & Sa'ad, 2024). Many customers are still cautious in using AI digital banking platforms due to concerns over the risks of cyber fraud, information theft, and a lack of transparency in the use of personal data (Rashid et al., 2023). A concerted effort between regulators, technology experts, and Shariah scholars is essential to ensure that the use of AI can be governed by the established Shariah framework for local Islamic banking.

Theme 2: Opportunities of AI Adoption in Islamic Banking and Finance

Operational efficiency in the use of AI for the Islamic financial system in Malaysia will be an opportunity to carry out accounting management processes and risk monitoring to increase productivity for Islamic banking service operations in Malaysia (Habib, 2025). The efficiency of using AI for the Islamic financial system is of importance in reducing the risk of usury, *gharar*, and *maysir* for Islamic financial service operations (Kismawadi et al., 2025). Based on BNM Financial Sector Blueprint Report (2025) has stated that the efficiency of using AI for the Islamic financial system can help the level of Fintech use to be more optimal to make MyDIGITALBlueprint a success.

Improvements to the customer experience for the use of Islamic financial services become more sustainable with AI. Ab Aziz and Woods (2023) have stated that Chatbots on banking websites can understand the needs and wants of the customers more effectively for financing Islamic financial products. The use of AI in the Islamic financial system can save costs and energy to come to the inquiry counter at the bank (Lui, 2025). Chatbots in the Islamic financial system in Malaysia can use multiple languages to understand the needs of customers of different races in Malaysia (Association of Banks Malaysia Report 2025; Nnenna et al., 2024). Improving customer experience can improve the quality of banking services.

Risk Management and Fraud Prevention need to be improved by the banking sector for the management of bank service quality to be more sustainable with the use of AI. Bank Negara Malaysia Report (2024) has stated that AI is also able to identify suspicious transaction fraud patterns. Cho et al. (2023) have mentioned that Machine Learning and Data Mining can increase fraud detection activities on financial transactions using AI. Predictive modeling of Islamic financial transactions using AI can improve the security of storing digital money (Kismawadi et al., 2023). Therefore, smart risk management on the use of AI can reduce *gharar* for customers.

Financial Inclusion through Islamic Fintech using AI is more effective in increasing customer trust. Arsyad et al. (2025b) have stated that the use of AI in providing zakat assistance is more effective and accurate for assessing the eligibility conditions for receiving zakat in Malaysia. Digitization of Islamic banking account registration through facial scanning can improve the quality of user security to access the digital financial system (Mohd Haridan et al., 2023). Therefore, collaboration between financial institutions, regulators, and technology developers

is essential to develop a regulatory framework that supports the sustainable integration of AI in Islamic finance in Malaysia.

DISCUSSION

The study findings show that the use of AI in the Islamic finance sector presents an opportunity to face implementation challenges in Malaysia. The analysis of shariah compliance themes in AI indicates that technological advancements in financial systems are still limited in Islamic governance mechanisms. This study aligns with Arsyad et al. (2025), who claim that AI algorithms require continuous shariah monitoring to avoid elements of *gharar* and *maysir*. Najib et al. (2025) opine that AI governance needs to be guided by *Maqasid al-shariah* to ensure ethical financial practices. Additionally, operational efficiency in detecting fraud for financial inclusion has shown that AI can enhance the competitiveness of Islamic financial institutions. This study's findings align with Habib (2025), Kismawadi et al. (2025), who stated that the use of AI in Islamic financial systems can help the decision-making process in identifying operational performance for customer services. Implementing AI in Islamic financial systems can improve shariah compliance governance for AI usage.

This study has contributed to integration through AI governance, shariah governance, and *Maqasid al-shariah* in explaining the challenges and opportunities for the Islamic financial system in Malaysia. It also fills a gap in the literature by connecting technology, shariah compliance, and governance into one comprehensive analysis of Malaysia's Islamic financial system. Additionally, this study introduces a new dimension called Islamic AI Technoethical Governance in AI Development that meets the principles of *Maqasid al-shariah*. Practically, it provides guidance for Islamic financial institutions and technology developers to build more efficient AI systems. On the policy side, the study suggests that Bank Negara Malaysia (BNM) and the Securities Commission Malaysia (SC) develop specific guidelines related to Shariah-compliant AI to strengthen the MyDIGITAL Blueprint plan.

This study has a few limitations. First, the study uses a qualitative approach based on literature review and thematic analysis, so the findings rely on secondary sources without empirical verification from Islamic financial institutions. Second, the study's scope is only focused on Malaysia, which means the findings are limited when applied to other countries with different governance systems and regulatory environments. Therefore, future studies are suggested to use empirical methods such as interviews or surveys and to make cross-country comparisons to improve the reliability of the findings.

CONCLUSION

The use of Artificial Intelligence (AI) in the Islamic banking and finance system in Malaysia opens a new dimension in strengthening operational efficiency and customer trust in Islamic financial institutions. AI is not only capable of automating banking processes and accelerating risk analysis but also helps in ensuring compliance with shariah principles through more efficient data screening. Successful implementation depends on ethical issues, data privacy, and expertise constraints that can be addressed comprehensively. Regulators such as Bank Negara Malaysia (BNM) and the Securities Commission (SC) need to strengthen guidelines on shariah-compliant AI and promote the development of experts who combine technological and shariah knowledge. At the same time, Islamic financial institutions are advised to develop ethical AI models based on *Maqasid al-shariah* to ensure a balance between technological advancement and the principles of Islamic justice.

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