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Integrating Artificial Intelligence into Islamic Finance: Opportunities and Challenges

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ABSTRACT

The paper critically assesses the application of Artificial Intelligence (AI) in Islamic finance, highlighting the possible benefits that the adoption of AI can bring and the challenges posed by Shariah and ethical governance. This paper adopts the Systematic Literature Review (SLR) approach based on PRISMA 2020 protocol. An exhaustive literature search of Scopus, Google Scholar, and JSTOR databases for academic papers written during the years 2013–2024 identified 487 papers initially. After a thorough selection process, 59 papers were retained in the study. While the incorporation of AI into Islamic finance has enormous benefits for the operations of Islamic financial institutions such as risk management and credit scoring, customer relationship improvement using AI-based interfaces, fraud detection, and regulatory compliance, its success requires overcoming some critical challenges associated with algorithmic transparency, data privacy, algorithmic bias, and Shariah governance frameworks. Therefore, this study develops an integrated framework of responsible AI adoption. This study will be beneficial for policymakers and Islamic financial institutions. The present study adds value to existing literature through a robust and methodically grounded review of existing literature, along with the introduction of a complete framework for governance. This would help to fill an important gap between AI technology and Islamic jurisprudence.

Keywords: Islamic Finance, Shariah Compliance, Financial Technology, Artificial Intelligence, Systematic Literature Review

1. INTRODUCTION

The world's financial ecosystem is witnessing an unprecedented digital revolution brought about by fast-evolving technologies such as artificial intelligence (AI), big data, blockchain, and FinTech. Of all these, AI is proving to be one of the most revolutionary in nature because of its capability to manage large datasets, automate operations, increase predictive capabilities, and offer timely decisions. AI plays a crucial role in credit scoring, algorithmic trading, fraud detection, regulation technology (RegTech), robo advisory, and customer relationship management in conventional finance (Arner et al., 2017;

Gomber et al., 2017). However, this technological revolution is not limited to conventional finance only, and even influences Islamic finance.

The Islamic financial industry, which is based on the principles of Shariah drawn from the teachings of the Quran and the Sunnah, has unique ethics and regulations. The industry forbids *riba* (interest), *gharar* (uncertainty), and *maysir* (gambling), and insists on asset backing, risk sharing, and ethical investments (Čihák & Hesse, 2010). Within the last two decades, the Islamic financial industry has developed into a global industry with assets of more than USD 3.69 trillion in over 80 nations (Fintech News MiddleEast, 2025). The development of the industry in centers such as Malaysia, Saudi Arabia, and UAE, among others, has made operations very complex and challenging. AI presents considerable opportunities for solving the above challenges. Examples include the use of ML for Shariah screening, NLP for customer engagement, and predictive analytics for risk assessment. For example, AI-based alternative credit scoring techniques can help evaluate the creditworthiness of borrowers by employing unconventional datasets, thereby facilitating inclusion for unbanked individuals, a principle that resonates well with the *maqasid al-Shariah* (Dey et al., 2025; Obaidullah, 2021).

Nevertheless, incorporating AI into Islamic finance poses some serious challenges. The opaque nature of deep learning models (the 'black box' problem) contradicts the Islamic concepts of *bayyan* (transparency) and *mas'uliyah* (accountability) (Balasubramaniam et al., 2023). AI may perpetuate biases, posing a threat to the principle of *adl* (justice) (Sadiq & Sadiq, 2022; Alhajjar, 2020). Moreover, its data-driven nature raises considerable concerns related to data privacy and cybersecurity. Moreover, the demand for alignment of AI systems with the complicated Shariah governance framework that is usually controlled by humans makes for an interesting governance gap (Aziz & Zulkepli, 2025). Some recent studies have also started considering the potential of AI in contributing to ESG objectives in the context of Islamic finance (Tezo, 2025).

To guide the review, four research questions were formulated to examine the integration of artificial intelligence into Islamic finance. The first question to examine the main opportunities for integrating AI within Islamic financial institutions. The second question focuses on the main issues concerning Shariah compliance, ethics and governance related to the use of AI. The third explores the novel applications of AI in particular Shariah compliant contractual arrangements and regulatory operations. The fourth considers the limitations within the existing literature that would require future empirical studies.

The study makes several contributions to the literature. First, it contributes to a deeper understanding of AI and Islamic finance integration. Second, it overcomes the methodological limitations of previous narrative reviews by using PRISMA 2020 framework which brings methodological rigor and replicability of the process. Third, the study develops an Integrated Framework for Responsible AI Adoption which links technological capabilities with Shariah compliance, ethical principles, governance mechanisms, and regulatory considerations.

2. LITERATURE REVIEW

In recent years, there have been numerous academic studies exploring the relationship between AI and Islamic finance. The literature repeatedly emphasizes the opportunities for the application of AI technologies in order to increase efficiency while meeting the requirements of the Shariah both in terms of jurisprudence and ethics. An important aspect of AI implementation is its compliance with the goals of Shariah law (*maqasid al-Shariah*) related to such values as justice, transparency, accountability, and wellbeing (Obaidullah, 2021; Zubair & Shah, 2024).

2.1 AI in Risk Assessment and Credit Scoring

A considerable part of the literature investigates the issue of the role that AI plays in risk management. Islamic financial transactions, such as profit-sharing and joint venture, provide specific and multifaceted risks including Shariah nonconformity risk. Traditional risk assessment methods tend to be qualitative

in nature, hence subjective and time-consuming (Bashir & Azeez, 2022). Artificial Intelligence (AI), especially Machine Learning (ML), represents an opportunity to develop more objective and evidence-based models. There is evidence proving that algorithms such as random forests and SVMs outperform classical logistic regression methods in predicting default probability of portfolios related to Islamic finance (Khaki & Mardani, 2023). Additionally, AI allows integrating alternative data sources and promotes greater financial inclusion by enabling credit assessment of SMEs and unbanked individuals who have limited credit history (Bazarbash, 2019; Malysheva, 2024). AI-based stress testing supports Islamic banks in developing adverse scenarios and enhances capital adequacy forecasting (Metha et al., 2025). The importance of using XAI for the purpose of ensuring transparency of these models is highlighted in the literature (Aziz & Zulkepli, 2025).

2.2 Customer Experience and Digital Engagement

The impact of artificial intelligence on customer service and digital engagement in Islamic finance has been significant. NLP and conversational AI drive chatbots and virtual assistants to offer real-time, 24/7 support for Shariah compliance, zakat calculations, and sukuk investments (Ali & Khediri, 2019). Emerging literature shows that such tools help increase efficiency and lower operating expenses (Shalhoob, 2025). The adoption of AI in Islamic digital banking has been facilitated by regulation and digital development in countries like Malaysia and the UAE (Aziz & Zulkepli, 2025; Zubair & Shah, 2024). Robo-advisory applications in Islamic finance have also been developed to enable investors to build their portfolios according to their values and preferences using algorithmic models. Although the tools allow personalization of advice, there are fears that the traditional human-centered advisory relationships may become extinct in Islamic banking, suggesting the hybrid approach (Wafa et al., 2025).

2.3 Fraud Detection, Compliance, and RegTech

AI is an indispensable technology for fraud detection and regulatory compliance (RegTech). The Islamic financial institutions have a dual regulatory regime which consists of both conventional prudential regulations (such as AML/CTF) and Shariah supervisory regime. The AI-powered systems for fraud detection are substantially better than rule-based compliance frameworks as they analyze enormous amount of transactional data to find suspicious patterns with fewer false positives (Gomber et al., 2017). Besides, AI tools for compliance automation can be used to automatically report to regulatory bodies and monitor Shariah screening requirements in real time (Obaidullah, 2021). However, literature emphasizes that the compliance automation tools should work in compliance with proper Shariah control. The interpretative capability of AI cannot substitute the interpretative capacity of Shariah scholars, and misclassification of financial contracts is a substantial threat (Shalhoob, 2025). It proves the importance of XAI and collaboration governance framework for compliance innovation and its compatibility with Islamic principles (Arner et al., 2017).

2.4 AI Applications in Shariah-Compliant Contract Structures

Application of AI is applicable for several essential Shariah-compliant contract frameworks:

Mudarabah (Profit-Sharing): AI algorithms could automate calculations of profit by analyzing real-time data on performance; however, it should be noted that calculations will be accompanied by the necessary consideration of uncertainties associated with the profit-sharing framework (Al Rahahleh et al., 2019).

Murabaha (Cost-Plus Sale): AI tools could facilitate cost disclosure and transparency in mark-ups and documents, and possibly reduce processing time (Khaki & Mardani, 2023).

Sukuk (Islamic Certificates): AI algorithms could enhance the screening of the underlying assets, prediction of performance indicators, and calculation of risk/reward by analyzing financial texts and fatwas (Zubair & Shah, 2024).

Takaful (Islamic Insurance): Dynamic risk analysis, claims processing automation, and surplus distribution are some AI applications in this domain (Sadiq & Sadiq, 2022).

2.5 AI-Enhanced Smart Contracts in Islamic Finance

The combination of AI with blockchain has resulted in AI-embedded smart contracts that have made it possible to automate the implementation of Islamic finance transactions. This enables:

The Continuous Monitoring of Contract Compliance with Shariah Criteria through AI Algorithms (Wafa et al., 2025). Furthermore, the Conditional Implementation of Actions, such as Payments, through AI-based conditions, e.g., the delivery of products in a Murabaha contract. Moreover, the Dispute Settlement through AI analysis of the terms of the contract and contract performance. Nevertheless, there is a need for the contract logic to be examined by a Shariah scholar (Miskam et al., 2025).

2.6 Ethical and Governance Challenges

One of the main themes in the literature is that of ethical and governance challenges in relation to AI. They include:

Digital Privacy and Security: Given the huge amount of customer data required in AI, it poses risks for data breach and misuse, which may endanger the trust (amanah) and fiduciary duties (Sadiq & Sadiq, 2022).

Bias: The use of biased historic data to train AI algorithms poses an issue that goes against the Islamic justice (adl) rule (Alhajjar, 2020).

Transparency and Explainability: The lack of transparency in the black-box AI models is against the rule of transparency (bayan) and the need to adopt XAI (Balasubramaniam et al., 2023).

Accountability: The lack of accountability mechanisms for algorithmic errors creates ethical and legal issues. This challenge is addressed through the creation of accountability frameworks that specify duties of various stakeholders, including developers, organizations, and Shariah boards (Shalhoob, 2025).

Regulatory Maturity: There are significant differences in the regulatory maturity levels of different regions. Some regions have adopted AI with frameworks and sandboxes while others have not (Asutay, 2019). The current trend in literature focuses on formulating Shariah governance guidelines for AI, which integrate the principles of Islamic ethics at all stages of the lifecycle of AI systems (Ahmad & Zainan, 2025).

2.7 Regional Disparities in AI Adoption

There is a consistent observation in literature about the existence of regional divergence in AI adoption due to variations in technology infrastructure, regulatory development, and human capital (Asutay, 2019; Zubair & Shah, 2024). While countries like Malaysia, UAE, and Saudi Arabia are leading in terms of adoption of AI through sandbox regulation and national digital strategies, Pakistan and most African countries have not been able to develop due to infrastructural, regulatory, and human capital deficiencies. This can pose a risk to financial inclusion. It necessitates context-based AI policies (Zubair & Shah, 2024; Ali & Khediri, 2019).

3. METHODOLOGY

The literature review uses a Systematic Literature Review (SLR) approach according to the PRISMA 2020 guidelines, which will help in conducting a thorough and replicable literature review (Page et al., 2021).

3.1 Search Strategy

Search strategy was conducted through Scopus, Google Scholar, and JSTOR for scholarly articles, conference papers, and book chapters from 2013 to 2024 that were written in the English language and used a combination of AI-related terms, Islamic finance terms, and governance/ethics terms.

3.2 Inclusion and Exclusion Criteria

Includes peer-reviewed scholarly articles, conference papers, or book chapters; published 2013-2024; written in the English language; related to AI implementation in Islamic finance or Islamic finance governance.

Excludes duplicates; non-peer-reviewed sources such as blogs and editorials; articles not about Islamic finance.

3.3 Screening Process

The review procedure consisted of a four-stage PRISMA 2020 process, as outlined in Figure 1.

- Stage 1 (Identification): Database searches produced 487 studies.
- Stage 2 (Screening - Duplicates): 89 duplicates were discarded, leaving 398 unique articles.
- Stage 3 (Screening - Title/Abstract): Two reviewers screened the titles/abstracts independently, and 287 irrelevant records were excluded from further consideration, leaving 111 articles to be reviewed.
- Stage 4 (Full-Text Assessment): Full texts were evaluated based on inclusion criteria, and 52 articles were excluded either because of lack of focus on AI (n=24), concentration on traditional finance (n=18), insufficient analysis (n=8), or language problems (n=2). The resulting sample comprised 59 articles.

3.4 Quality Appraisal

A modified version of the Critical Appraisal Skills Program (CASP) checklist was applied to evaluate the quality of the selected studies in terms of clarity of objectives, methodology, rigorousness, and relevance. Those studies that received a "Yes" for four or more criteria were selected. All 59 selected studies had satisfied this criterion.

3.5 Data Extraction and Synthesis

Data were extracted through a structured form including authors, objectives, methodology, main findings, Shariah considerations, and research gaps. Thematic analysis was performed on the extracted data according to the themes generated from the literature review.

3.6 Limitations

There are some limitations associated with this review. First, the review was limited to articles published in the English language, which may have resulted in the exclusion of relevant articles published in other languages. Second, the literature search was limited to three databases, namely Scopus, Google Scholar, and JSTOR. While these databases cover a wide range of the literature that is relevant, some studies may not have been included in these databases. Third, the screening process was systematic, but there was no formal interrater reliability measure reported for the screening process. Without a statistic like Cohen's kappa, there is a limit to the assessment of consistency between reviewers.

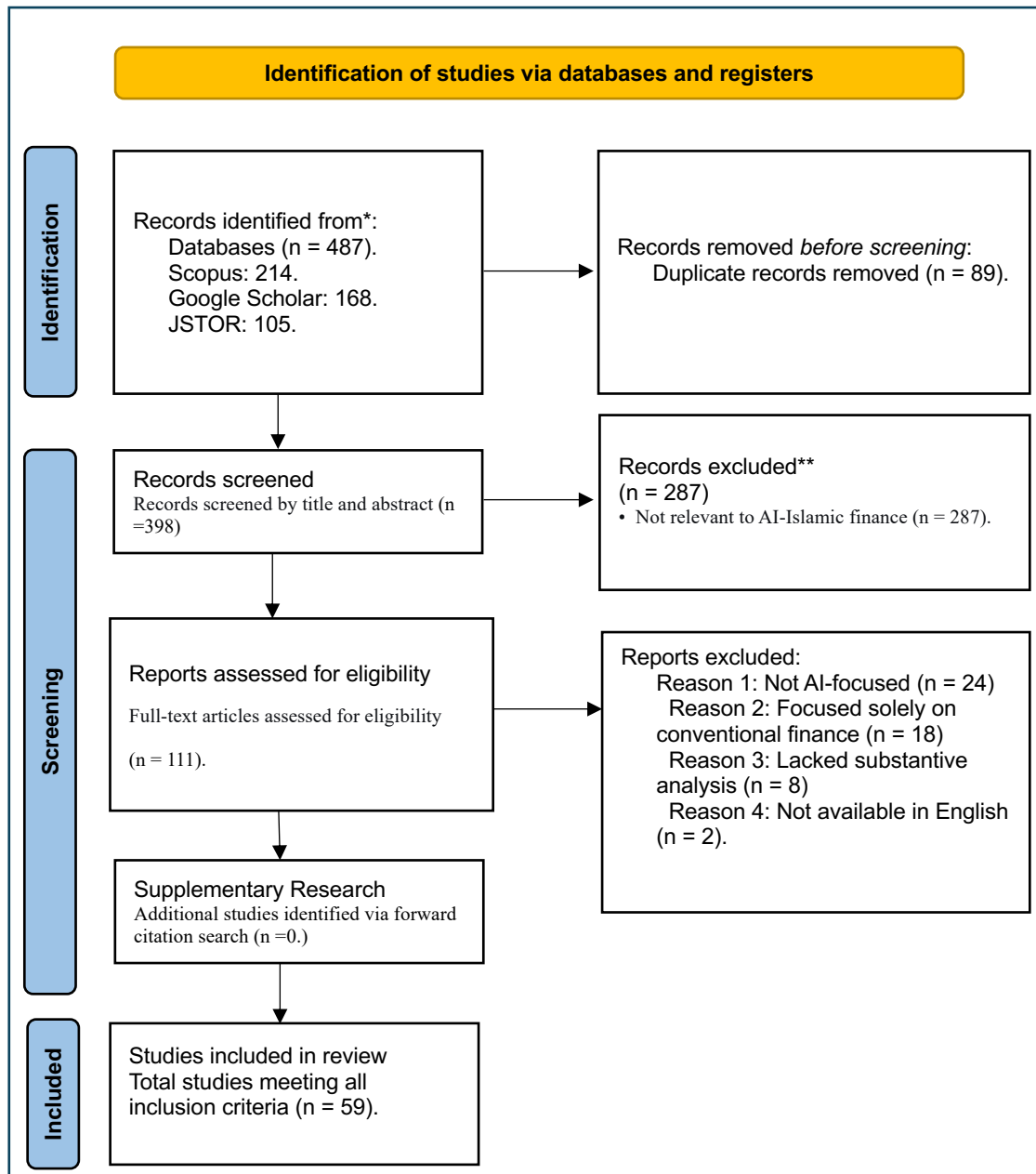


Figure 1. *PRISMA 2020 Flow Diagram for AI in Islamic Finance Literature Review*

Source: Authors' adaptation from PRISMA 2020 flow diagram for original reviews (Page et al., 2021).

4. FINDINGS

The results of the thematic analysis of the 59 studies are shown in Table 1 and explained below.

Table 1*Distribution of Studies by Thematic Area*

Thematic Area	Number of Studies	Percentage (%)
AI in Risk Assessment & Credit Scoring	15	25.4%
Customer Experience & Digital Engagement	12	20.3%
Fraud Detection, Compliance & RegTech	11	18.6%
Ethical & Governance Challenges	13	22.0%
Regional Disparities & General Overview	8	13.6%
Total	59	100%

4.1 AI in Risk Assessment and Credit Scoring

A significant part of the literature since 2013 focuses on the use of artificial intelligence (AI) in risk measurement and credit analysis in Islamic banks because it is acknowledged that the exceptional contractual forms of the Islamic finance necessitate more advanced and context-specific models of risk management. Islamic financial agreements like the murabaha (cost-plus sale), the mudarabah (profit-sharing partnership) and the musharakah (joint venture partnership) are asset-based and risk-sharing by nature, a characteristic that is not shared by traditional debt-based instruments. Due to the fact that returns tend to be associated with the performance of underlying assets or business enterprises, risk exposures in Islamic banks are multidimensional encompassing credit risk, market risk, operational risk and Shariah non-conformity risk. Studies such as the ones by though it was still published before the AI boom were the precursors and showed that Islamic banks have different risk profiles than conventional banks. Based on this, newer studies (2013-2024) have examined how AI tools help improve the accuracy and objectivity of risk quantification in Shariah compliant institutions. The conventional methods of risk assessment in Islamic finance have been significantly dependent on the qualitative analysis, manual reviews of Shariah boards, and relationship lending evaluation. Although these approaches provide compliance control, subjectivity can be introduced, and the processing time is slower and the difference between institutions. As machine learning (ML) and big data analytics develop, researchers claim that Islamic banks can shift to more data-driven decision-making models. As an illustration, Al Rahahleh et al., (2019) and Bashir & Azeez, (2022) show that predictive analytics enhances the accuracy of credit risk classification in Islamic banking portfolios. More recent articles like Khaki and Mardani (2023) show that even more modern algorithms like the random forests, support vector machines (SVM), and even neural networks have a stronger predictive ability of default probabilities in Islamic financing contracts compared to traditional logistic regression algorithms. These models are capable of handling high amounts of structured and unstructured data allowing banks to identify the early warning signs of a possible default.

Fifteen (25.4%) out of the included studies were dedicated to this topic. Consistently, the findings indicated that AI technologies can improve the accuracy and objectivity of risk assessment. AI capacity to work with alternative data sources (mobile transaction, for example) was considered an important factor of financial inclusion (Bazarbash, 2019). A gap was identified in relation to this topic: only 4 out of 15 studies mentioned the question of Shariah compliance in their AI models of risk assessment.

4.2 Customer Experience and Digital Engagement

Twelve (20.3%) of the studies under review were devoted to this topic. As a result of this analysis, it was found out that the implementation of AI in creating chatbots and robo advisors allows increasing the efficiency of service (Ali & Khediri, 2019). The findings indicated the positive influence of AI technology on customers' perceptions of trust when AI systems are transparent. Still, the problem of the loss of privacy and the human touch remains relevant.

With the growing competition in the digital environment of Islamic banks, customers are now demanding instant, seamless, and customized banking services. The technologies powered by AI (especially natural language processing (NLP), machine learning, and conversational AI) allow Islamic banks to automate their interactions with customers without being Shariah-compliant. The initial studies of Ali and Khediri (2019) emphasize the capabilities of AI-based chatbots to answer real-time questions

about the products of Shariah-compliant financing, the calculation of zakat, the structure of investing in sukuk, and takaful plans. Recent research (2021-2024) shows that the conversational AI tools become highly effective in improving the service efficiency through the decrease of waiting times, a minimum of human error, and 24/7 availability. More Islamic banks are establishing AI-based virtual assistants that can process complex customer requests and provide personalized product recommendations in line with the Shariah principles. As an illustration, NLP can be trained to describe the differences between a murabaha and ijara financing agreement or direct customers through online zakat payment systems. This technological integration enhances customer satisfaction and also minimizes the cost of operation in terms of call centers and branch-based services (Shalhoob, 2025). The empirical evidence suggested by the studies of digital banking adoption in the southeast Asian and Gulf region shows that AI-based interfaces have a positive impact on the customer perceptions of ease of use and perceived usefulness, which are considered to be the key factors affecting behavioral intention among customers, in the context of technology acceptance models (TAM).

Some countries like Malaysia and the United Arab Emirates are often mentioned as the first to embrace AI in the Islamic digital banking ecosystems. The regulatory efforts of the Islamic Financial Services Board have also simplified innovation in Malaysia by using digital banking licenses and regulatory sandboxes to encourage the use of AI in Shariah-compliant systems. Equally, the UAE has established itself as a hub of FinTech by integrating AI plans in national digital transformation plans, as well as, ensuring the adaptation of robo-advisory and intelligent compliance tools by Islamic banks. These jurisdictions demonstrate the power of regulatory support, electronic infrastructure and Shariah oversight as combined factors to speed up the adoption of responsible AI (Aziz & Zulkepli, 2025).

The introduction of Islamic-compliant robo-advisory platforms is another example of how AI can be personalized in the Islamic finance industry. Robo-advisors make investment portfolios based on algorithmic portfolio allocation models with an Islamic screen based on ethical standards, which bar industries like alcohol, gambling, and conventional financial services. These systems are integrated to offer individualized investment solutions in harmony with religious values and financial objectives by integrating automated risk profiling with Shariah screening databases. Most recent research (2020–2024) indicates that robo-advisory services can help to diversify the portfolio and cut the costs of advisory services, which makes them more accessible to middle-income and younger clients. Furthermore, AI enhances clarity and accessibility which are two fundamental values outlined in the Islamic commercial jurisprudence. Customers can monitor investment performance, profit-sharing ratios and terms of contract in real time with automated disclosures, smart contracts, and digital dashboards (Miskam et al., 2025). The explicable AI mechanisms can also increase the level of trust by elucidating the procedure of how financing choices or portfolio decisions are made. Trust, in the context of Islamic finance, is no longer a business expectation, but it is a moral and religious conviction (amanah) (Wafa et al., 2025). Literature repeatedly emphasizes the need to ensure that AI systems are made to strengthen this trust with the help of fairness, data protection, and accountability provisions. Nevertheless, researchers also express concerns that excessive automation can pose the threat of undermining the human-centered advisory relationship that is highly appreciated in Islamic banking. As the balanced hybrid model, where the role of AI corresponds to supporting human control without overtaking it, is preferred, it is deemed necessary (Wafa et al., 2025). The privacy of data, cybersecurity and transparency of algorithm are of vital concerns, especially as the amount of customer data grows. With the growing digital eco-systems, regulating authorities are required to make sure that AI-based customer interaction tools are not only regulated by financial laws but also by Shariah principles.

On the whole, the literature has revealed that AI can lead to higher customer service efficiencies, personalization, and online interactions in Islamic finance. Using NLP, chatbots, robo-advisory systems, and automated disclosure platforms, Islamic financial institutions will be able to enhance the quality of operations and increase customer trust and openness. However, the sustainability of such innovations will be anchored on the ethical protection mechanisms, strong governance systems, and adherence to Shariah.

4.3 Fraud Detection, Compliance, and RegTech

A different important research area is the use of artificial intelligence (AI) in fraud detection, regulatory compliance, and regulatory supervisory technologies (RegTech) in Islamic finance between 2013 and 2024. The regulatory regime of Islamic financial institutions is rather twofold: they have to meet the standards of conventional prudential regulation, including capital adequacy, anti-money laundering (AML) regulations, and counter-terrorism financing (CTF) regulations; and at the same time, they have to meet Shariah supervisory regulations, provided by the bodies such as the Islamic Financial Services Board and the Accounting and Auditing Organization of Islamic Financial Institutions. This stratified system of governance complicates operations and reporting requirements more so in the cross border banking settings. With the rise of digital transactions, RegTech that is made with AI has become a key component of enhancing the efficiency of compliance and institutional integrity (Arner et al., 2017).

Machine learning algorithms have been implemented in AI-powered anomaly detection systems that are gaining popularity to improve AML monitoring and fraud detection. In contrast to the conventional compliance frameworks, based on the rule-based frameworks, where the majority of the frameworks regard the predetermined criteria, the AI frameworks could be employed to analyze a large amount of structured and unstructured transactional data and identify the abnormal behavioral patterns in time. Recent publications (since 2018) suggest that supervised and unsupervised learning algorithms, including clustering algorithms and neural networks, are a significant step in detecting suspicious transactions with a significantly smaller number of false positives (Gomber et al., 2017). This ability is especially critical in an Islamic banking setting since reputational risk has ethical and religious, rather than just financial, implications. Enhancement of fraud detection mechanisms is thus a direct contribution towards maintenance of trust (*amanah*), which is part of the foundation of Islamic business transactions. Besides monitoring transactions, AI compliance tools are helpful in providing automated regulatory reporting, risk rating, and real-time monitoring of Shariah screening provisions. Regulatory updates, fatwas, and policy documents can be analyzed using natural language processing (NLP) applications that will enable compliance departments to change internal controls more effectively.

Eleven studies (18.6%) explored this field. One of the findings is that there is a reduced number of false positives in fraud detection and, thus, increased efficiency in compliance processes. It is strongly suggested in the literature to utilize Explainable AI (XAI) for compliance decision-making processes, making sure that they are explainable and can be verified by Shariah boards (Shalhoob, 2025).

4.4 Ethical and Governance Challenges

Although artificial intelligence (AI) has the potential to transform the Islamic finance, the 2013 to 2024 literature is consistently marked by a variety of ethical and governance issues that have to be addressed to promote responsible application. AI systems are data-driven in nature, as they use big data to produce predictive information and computer-generated decisions based on large amounts of structured and unstructured data. This dependence poses grave questions about privacy of data, cybersecurity, and confidentiality. The concept of Islamic finance is based on ethical grounds that have focused on honesty (*amanah*), truthfulness, and safeguarding of individual rights in financial dealings. Abuse, unauthorized access, and breach of customer data not only pose a financial and reputational threat but can also be a breach of the Islamic ethical principles of confidentiality and fiduciary duty (Sadiq & Sadiq, 2022). Another significant area of governance is the cybersecurity vulnerability. The more Islamic financial institutions digitalize their work and combine AI-based platforms, the higher their risk of cyber attacks. Breach of data, ransomware attacks, and manipulation of the system can be used to destabilize institutions and reduce customer loyalty. This topic is covered in 13 studies (22.0%). The main findings are associated with the need for transparency in algorithms to ensure accountability (*mas'uliyah*) and fairness (*adl*). It is concluded in most works that AI is supposed to be used only as a tool for making decisions and not substitute the authority of Shariah scholars (Ahmad & Zainan, 2025). In summary, although AI has high efficiency and innovation advantages, its adoption in the field of Islamic finance creates far-reaching ethical and governance issues. The main pillars that have to be adopted in the implementation of AI are data privacy protection, the security of cybersecurity, the fairness of algorithms, transparency, accountability, and alignment with Shariah. To overcome these issues, the interdisciplinary cooperation between regulators, Shariah scholars, technologists, and policymakers is

necessary in order to make sure that digital transformation makes Islamic finance even stronger, instead of weakening it.

4.5 Regional Disparities

The literature repeatedly notes that there are significant regional variations in the implementation of artificial intelligence (AI) in the markets of Islamic finance due to the difference in technological infrastructure, regulatory maturity, institutional capacity, and human capital (Asutay, 2019; Zubair & Shah, 2024). Countries like Malaysia Saudi Arabia United Arab Emirates Islamic Financial Services Board, in which Islamic banks are permitted to test AI in risk management, automated compliance, predictive analytics and customer engagement whilst maintaining compliance with Shariah principles (Islamic Financial Services Board, 2022; Ali & Khediri, 2019). In a similar practice, the UAE has built an ecosystem of FinTech that is facilitated by cloud computing, innovation centers, and AI regulation systems that can allow Sharia-compliant financial services to grow rapidly. Digital transformation in both traditional and Islamic finance under the vision 2030 initiative has seen Saudi Arabia focus on supporting AI-based credit scoring, robo-advisory, and predictive risk analytics, among other areas, which have further shown that the country has a strategic focus on adopting technology (Zubair & Shah, 2024). Eight papers (13.6%) pointed to considerable differences. The leading countries were Malaysia and the UAE because of their proactive regulation and infrastructure development, while the others were far behind owing to a lack of regulation and human resources (Asutay, 2019; Zubair & Shah, 2024).

5. DISCUSSION

The analysis of results shows that the adoption of AI is a revolutionary tool to make Islamic finance more efficient in terms of operations, risk management, and service delivery. However, such integration is surrounded by many problems which should be systematically resolved in order to comply with Shariah principles.

5.1 Opportunities for Enhanced Efficiency and Inclusion

The results of research prove that AI is capable of automating inefficient manual operations and facilitating the process of decision making through data collection, similar to the way it works in the area of conventional finance (Khaki & Mardani, 2023). Credit scoring is one of the areas where AI can be used to collect alternative data to enhance financial inclusion based on the principles of the Maqasid al-Shariah and social justice (Dey et al., 2025). Additionally, fraud detection and RegTech minimize the risks and foster trust.

5.2 The Critical Challenge of Governance and Ethics

Although these advantages were highlighted, it is important to acknowledge that there is an inherent dilemma between the "black box" issue of AI and Islamic teachings of openness (bayan) and accountability. It is important to emphasize, according to literature, that AI cannot supersede the power of Shariah scholars in terms of decision-making and rendering jurisprudential decisions (Aziz & Zulkepli, 2025). In light of this, the construction of Digital Shariah Governance framework is vital. The Digital Shariah Governance framework should embrace AI technology as a supporting mechanism for decision-making through the governance system where there is human supervision by scholars so that the utilization of AI does not contradict any ethical aspects of Islam (Ahmad & Zainan, 2025).

5.3 The Need for a Collaborative and Integrated Approach

The continuous regional differences in terms of AI adoption clearly indicate the immediate need for cooperative governance. An integration of a framework, as suggested in Table 2 below, is required to manage this situation. This framework proposes a multi-pillar approach which entails a balance between technological development and strong Shariah governance, ethical assurance, and regulatory

compliance. For the success of AI in the Islamic financial sector, the cooperation between these three elements is crucial.

Table 2

An Integrated Framework for Responsible AI Adoption in Islamic Finance

Pillar	Description	Key Actions
1. Human-Centered Shariah Supervision	AI serves as a decision-support tool, not a replacement for human jurisprudential authority (ijtihad).	Establish dual governance committees (AI Governance + Shariah Supervisory Board); ensure final approval of financial decisions remains with scholars.
2. Explainable AI (XAI)	AI algorithms must be transparent and interpretable to uphold the principle of bayan (transparency).	Implement XAI technologies; develop audit trails for all AI-driven decisions (e.g., credit scores).
3. Maqasid al-Shariah Compliance	AI application must serve the higher objectives of Islamic law (justice, welfare, protection of faith, life, intellect, lineage, and wealth).	Design AI systems to promote financial inclusion and protect consumer rights; conduct impact assessments.
4. Continuous Shariah & Technical Auditing	AI systems must be subject to ongoing, dynamic audits to ensure ongoing compliance and security.	Conduct regular audits of algorithms (bias, security) and performance in a regulatory sandbox environment.
5. Regulatory Accountability	Clear and harmonized regulatory frameworks are essential for managing risks and fostering innovation.	Develop AI-specific regulations that align with global standards; invest in institutional capacity and coordination between central banks and Shariah authorities.

Source: Authors' synthesis, based on Wahab & Mahdiya (2025); Ahmad & Zainan (2025); and Aziz & Zulkepli (2025).

5.4 An Integrated Framework for Responsible AI Adoption

Based on the synthesis of findings, an Integrated Framework for Responsible AI Adoption in Islamic Finance (Figure 2) is proposed, which shows how AI technologies can be integrated with Shariah principles to ensure sustainable and inclusive growth.

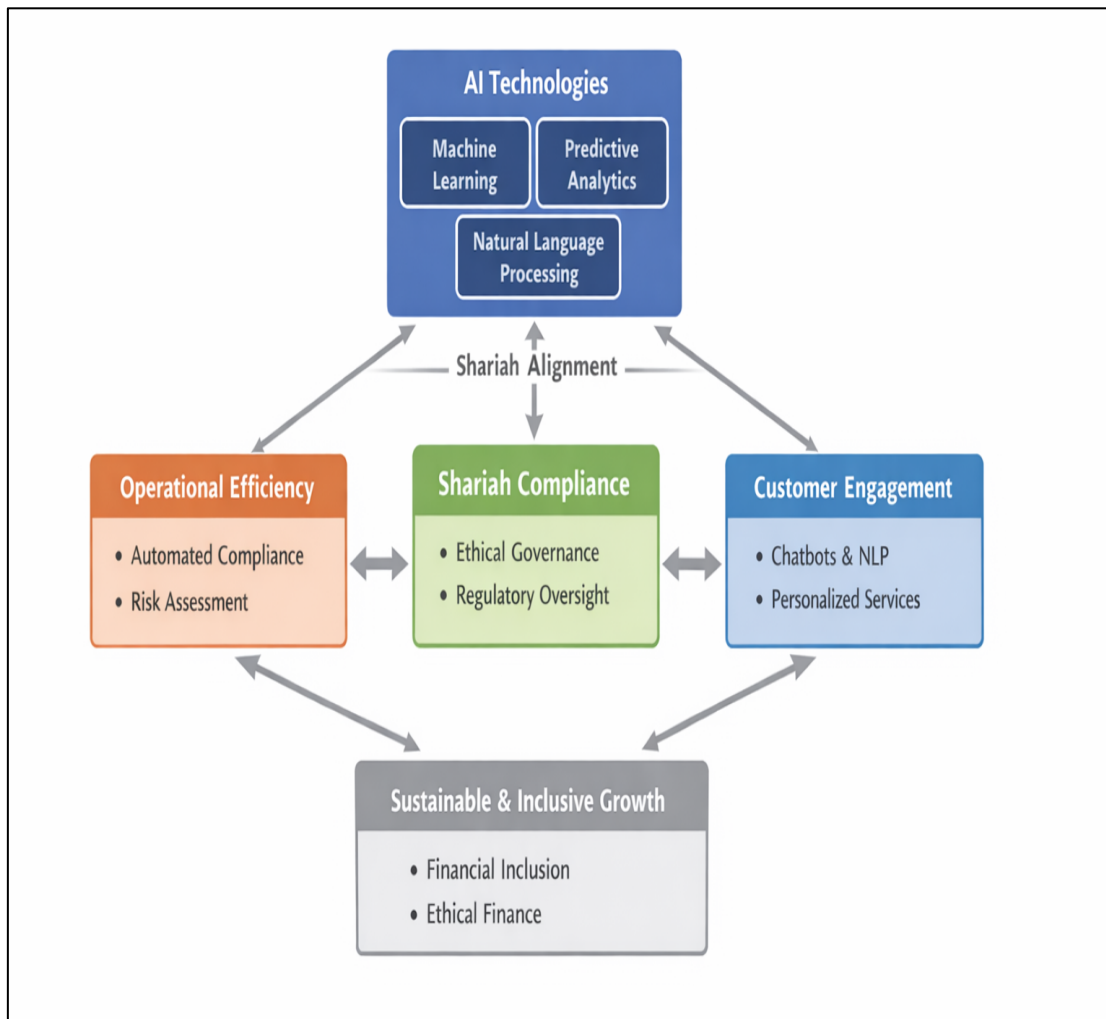


Figure 2. *Conceptual Framework of AI Adoption in Islamic Finance*
Source: Adapted from Ali & Khediri (2019).

The framework shows three pillars: Operational Efficiency, Shariah Compliance, and Customer Engagement, which are supported by the underlying AI technologies: Machine Learning, Predictive Analytics, and Natural Language Processing (NLP), as shown in Figure 2. Shariah Alignment is the foundation of these pillars, guaranteeing that all AI applications are aligned with Islamic ethical and legal standards. The ultimate goal is Sustainable and Inclusive Growth, including financial inclusion and ethical finance. The framework underscores the importance of integrating AI into a comprehensive strategy that aligns with innovation, governance, and the Maqasid al-Shariah.

6. CONCLUSION

The advent of artificial intelligence serves as an important inflection point in the realm of Islamic finance. The sector is poised to seize a rare opportunity to restore its core values of efficiency, inclusiveness, and robustness through this technological revolution. However, the integration of AI technology presents serious complexity in that it must be carefully balanced against the stringent requirements of the moral, ethical, and legal principles of Shariah law. Through the comprehensive review undertaken here, the entire spectrum of such complexity has been mapped out.

Regarding opportunities, there are three major vectors of improvement that can be mentioned. To start with, risk management can greatly benefit from the use of AI and its predictive analytics and machine learning algorithms which will help the Islamic banks foresee things in advance and therefore make appropriate decisions concerning the use of resources and prevent any vulnerabilities. Second, in terms of customer experience, the development of generative AI and personalized robo-advisors will make

high-end services accessible to clients in an unprecedented way. Thirdly, in the domain of regulatory compliance—a field characterized by manual and expensive methods—RegTech solutions powered by AI technology have the ability to automate the process of detecting anomalies in transactions in regard to anti-money laundering (AML), create prudential reports automatically, and even screen contracts for Shariah violations in real time, saving money and eliminating human error.

However, at the same time, the challenges are no less daunting and require the most careful attention. The danger of algorithmic bias should be highlighted first: if AI models get their training from the historical datasets that show socioeconomic differences between people, these models might reproduce the bias or exacerbate it in violation of the Islamic principle of 'adl (justice). The common problem of algorithmic opacity—the so-called "black box" effect—creates another conflict with the Shariah requirement of shafafiyyah (transparency), since scholars need to be able to give fatwas grounded in the transparent process of decision-making. Finally, the extensive use of large volumes of data creates serious threats for cybersecurity and personal data privacy of clients. One security breach might not only cause losses for an organization but also ruin its reputation and client base. Lastly, the lack of a standard framework for the governance of AI in different jurisdictions poses a challenge for the implementation of a coherent and consistent strategy by multinational Islamic financial institutions. To succeed in such a complicated situation, the right way to move forward should be built on a multidimensional system which is far beyond any single institution itself. This system has to include different stakeholders like technologists, Shariah Advisory Boards, central banks, law scholars, consumer protection activists, and academic researchers. There are some important areas of action within such a system:

Human-Centric Regulation ('Human-in-the-Loop' Requirement): It is crucial to develop appropriate rules which will require human involvement in all high-level decisions such as major lending, special transaction rejection and restructuring processes. AI has to be used as a sophisticated tool which will support human experts in their decisions but won't replace them as they have to consider all necessary contextual information and ethical issues.

Dynamic and Continuous Auditing: The traditional annual audit system for compliance is not enough for the dynamicity of AI. Instead, there should be developed dynamic and continuous auditing procedures that would continuously check AI output both for financial accuracy and Shariah compliance. In order to achieve that, there should be created a new type of specialists – Shariah compliant AI auditors who will combine knowledge of Islamic law with data science skills.

Developing the Protocol for 'Explainable AI': In order to overcome the conflict between technical and religious demands, the Islamic banks should pay attention to the development and implementation of the Explainable AI systems. The methods of explaining how complicated models operate, such as LIME (Local Interpretable Model-agnostic Explanations) or SHAP (SHapley Additive exPlanations), can help to clarify decision making processes and provide Shariah scholars with interpretable explanations of AI output.

Ethical Data Governance and Stewardship: Since data is crucial to the industry, having an effective governance system is a must. However, this governance model should go beyond simply adhering to the law by upholding Islamic ethical values, which means data collection based on informed consent, use of data only for its intended positive application, top-notch security in storage, and most importantly, regular cleansing of data sets from biases to ensure their representativeness and fairness of all socio-demographic segments of the population.

Through the implementation of these proactive frameworks, Islamic financial institutions have an invaluable chance to become the drivers of the paradigm change on a global scale and show with solid evidence that technology and spirituality are not opposing elements but complimentary partners, whose harmonious combination can make the industry go beyond its financial intermediary function and transform itself into a model of ethical capitalism, which proves that technology can become a powerful tool not just for economic success and creation of shareholder value but also for fulfilling the goals of Maqasid al-Shariah: protection of faith, life, intellect, lineage and wealth. This potential lies in

displaying a finance model which is not only technologically sophisticated but highly humane, equitable, and moral in its essence. Lastly, this review clearly highlights the necessity of making the transition from abstract theoretical discussion into empirical research.

The next crucial step for researchers is to conduct quantitative and longitudinal research measuring the effect of artificial intelligence integration in practice through evaluation of such indicators as: (a) changes in the credit risk characteristics and profitability of the Islamic banks; (b) connection between AI adoption and measurable improvement of customer satisfaction and financial inclusiveness of previously unbanked and underbanked Muslim communities; and (c) number of Shariah violations caused by the usage of AI. Comparative research in various regulatory jurisdictions is also important to derive best practices for AI governance harmonization. In other words, the path to future success in the field of Islamic finance is not a question of choosing whether to retain traditions or modernize. Rather, it is a matter of successfully merging them in such a way that the technology is utilized as a tool of faithful and intelligent implementation of age-old Islamic ideals. With proper governance and a strong commitment to ethics, this sector will be able to thrive and prosper with the aid of cutting-edge technologies.

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