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A SHARIAH ANALYSIS ON ARTIFICIAL INTELLIGENCE AND ITS ADOPTION IN ISLAMIC FINANCIAL INSTITUTIONS

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ABSTRACT

Artificial Intelligence (AI) has significantly transformed multiple industries, including Islamic finance, where it enhances operational efficiency, automates transactions, and supports better decision-making for both customers and financial institutions. Despite these benefits, the rapid advancement of AI raises important Shariah concerns that not yet fully addresses by Shariah

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scholars. For instance, in automated trading, AI systems can rebalance portfolios or execute sales without human involvement, prompting questions about legal capacity, accountability, and the absence of intention or will in AI-driven actions. This study therefore aims to identify key Shariah issues arising from AI applications in Islamic finance and propose essential considerations for its implementation. A qualitative approach was employed in this study, drawing on both classical and contemporary texts of Shariah principles, and applying a doctrinal analysis to examine AI applications in the Islamic finance industry. The study finds that, from a Shariah perspective, AI is permissible in Islamic finance as a supportive tool for enhancing efficiency and decision-making. However, from a fiqh perspective, responsibility for autonomous transactions remains with accountable human or legal entities, as AI does not possess legal capacity (ahliyyah). The application of AI is permissible provided that algorithmic bias is properly mitigated to uphold justice (ʿadl) for users, and that personal data is processed with valid consent, while safeguarding privacy and preventing harm in accordance with Shariah principles. The study contributes by highlighting future directions for the adoption of AI in Islamic financial institutions (IFIs), particularly in strengthening Shariah compliance and Islamic ethics in AI applications, applying the objectives of Shariah (maqāṣid al-Sharīʿah) as a guiding lens for AI adoption and Shariah governance, as well as encouraging collaboration between scholars and industry players to enhance understanding of AI and foster innovation in IFIs.

Keywords: *Artificial Intelligence, Ethical Technology, Islamic Finance, Shariah Compliance, Transaction Automation*

INTRODUCTION

Artificial Intelligence (AI) refers to the ability of computing systems to mimic human intelligence in performing tasks such as learning, reasoning, language understanding, and problem-solving.[1] AI has revolutionized many aspects of human life, from health services, education, law, to the financial sector. These innovations not only improve efficiency, but also fundamentally change the way humans interact with technology, information, and automated systems.[2]

AI is viewed positively within an Islamic perspective, as its adoption does not conflict with core Islamic principles. Rather, Muslim scholars encourage its use, provided it aligns with ethical values. The pursuit of science and technology in Islam is not only permissible but also encouraged when it promotes human well-being and supports societal progress.[3]

In the context of the financial industry, AI has changed the way financial institutions offer products and services. This technology is now widely utilized in risk management, credit assessment, transaction monitoring, fraud detection, and customer support through smart chatbots.[4] Globally, Islamic banking is also not exempt from this current of change, as Islamic financial institutions (IFIs) begin to adopt AI technology to improve

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[1] Early Ridho Kismawadi, Mohammad Irfan, and Isnaini Harahap, "Integrating Artificial Intelligence in Islamic Financial Management: Opportunities and Challenges in Maintaining Shariah Compliance," in *Indigenous Empowerment through Human-Machine Interactions*, ed. Ghosal, I., Gupta, S., Rana, S. and Saha, D. (Leeds: Emerald Publishing Limited, 2025), 273-288.

[2] Amandeep Kaur, "A Comprehensive Analysis of Types of Artificial Intelligence: Classification, Applications, and Future Directions," *International Journal of Advanced Research in Computer and Communication Engineering* 14, no. 2 (2025): 167–72, https://doi.org/10.17148/IJARCCE.2025.14221.

[3] Mohamad Akram Laldin and Hafas Furqani, "Fintech and Islamic Finance: Setting the Sharī ʻAh Parameters," in *Fintech in Islamic Finance*, ed. Oseni, U. A. and Nazim Ali, S. (New York: Routledge, 2019), 113-119.

[4] Ifan Arsyad, Dona Budi Kharisma, and Jamal Wiwoho, "Artificial Intelligence and Islamic Finance Industry: Problems and Oversight," *International Journal of Law and Management* ahead-of-print, no. ahead-of-print (2025), https://doi.org/10.1108/IJLMA-07-2024-0236.

operational performance, strengthen Shariah compliance, and expand the reach of financial products to customers.[5]

However, the application of AI in the Islamic finance industry presents both advantages and challenges from a Shariah perspective.[6] From a positive perspective, scholars such as Othman et al.[7] view AI as a valuable tool for the Islamic finance industry, particularly in identifying relevant rulings and applications. AI can efficiently provide diverse and reliable information on Shariah matters. For example, AI-powered fiqh platforms offer convenient access to authoritative sources, including classical scholars' texts. This capability can strengthen the process of *istinbāṭ al-ḥukm* (derivation of legal rulings), especially in industry contexts that require timely and well-informed decisions. In terms of disadvantageous aspects, the concerns surrounding AI arise primarily from how it is applied. This is based on the fiqh principle *mā adda ilā al-ḥarām fa huwa ḥarām* (whatever leads to the unlawful is itself unlawful).[8] Therefore, if AI is used in ways that facilitate elements prohibited in Shariah, such as *ribā* (usury), *gharar* (excessive uncertainty), *maysir* (gambling), or other unethical transactions, its application would likewise be considered impermissible.

[5] Narayanage Jayantha Dewasiri et al., "Fusion of Artificial Intelligence and Blockchain in the Banking Industry: Current Application, Adoption, and Future Challenges," in *Transformation for Sustainable Business and Management Practices: Exploring the Spectrum of Industry 5.0*, ed. Aarti Saini and Vikas Garge (Leeds, England: Emerald Publishing Limited, 2023).

[6] Mohammad Alsaghir, "Digital Risks and Islamic Fintech: A Road Map to Social Justice and Financial Inclusion," *Journal of Islamic Accounting and Business Research* ahead-of-print, no. ahead-of-print (2023): 1–18, https://doi.org/10.1108/JIABR-10-2022-0262.

[7] Othman Abdullah et al., "Ai Applications for Fiqh Rulings in Islamic Banks–Shariah Committee Acceptance," *ISRA International Journal of Islamic Finance* 16, no. 1 (2024): 111–26, https://doi.org/10.55188/ijif.v16i1.685.

[8] Zeinab Rezaei, "Reframing Floridi and Cowls' Ai Ethics Framework through Islamic Moral Thought," *AI and Ethics* 6, no. 185 (2026): 1–14, https://doi.org/10.1007/s43681-026-01028-z.

Particularly in the application of AI in the IFIs, key concerns including algorithmic autonomy in financial decision-making, the level of contractual responsibility, data transparency, the risk of *gharar* in automated decisions,[9] algorithm bias,[10] and the the use of AI-driven big data.[11] Shariah analysis in this area remains limited, with minimal scholarly engagement, limited industry application, and significant technical barriers. There is also a clear lack of interdisciplinary expertise combining Shariah and AI. This gap necessitates a Shariah analysis of AI in Islamic finance.

In this regard, this study aims to identify Shariah issues that have the potential to arise as a result of the application of AI technology, especially in the Islamic finance industry. This study covers the following study questions:

1. How does the application of AI affect Shariah compliance in the Islamic finance industry?
2. What are the Shariah compliance requirements for implementing AI in Islamic finance?

This study contributes to the current discourse on AI and Islamic finance by examining the Shariah implications of AI applications and highlighting key considerations for Shariah-compliant AI adoption in IFIs. This article is expected to serve as an initial guide for researchers, policymakers, and industry players in ensuring that AI applications remain based on Shariah principles that are fair, transparent, and ethical.

[9] Miszairl Sitiris and Adbullahi Busari, "The Legal Capacity (Al-Ahliyyah) of Artificial Intelligence from an Islamic Jurisprudential Perspective," *Malaysian J. Syariah & L.* 12 (2024): 31–42, https://doi.org/10.33102/mjsl.vol12n1.453.

[10] Dahlia Fernandez et al., "Robotic Process Automation: Bibliometric Reflection and Future Opportunities," *European Journal of Innovation Management* 27, no. 2 (2023): 692–712, https://doi.org/10.1108/MIP-12-2022-0568.

[11] Anthonette Adanyin, "Ethical Ai in Retail: Consumer Privacy and Fairness," *arXiv* (2024): 1–17, https://doi.org/10.48550/arXiv.2410.15369.

LITERATURE REVIEW

Understanding The AI Technology

AI is a term frequently invoked in contemporary technological discourse. Initially, it referred to computer programs designed to replicate aspects of human intelligence.[12] Over time, its definition has evolved as technologies once considered AI became commonplace, while emerging systems demonstrate more advanced cognitive functions.[13] Scholars generally categorise AI into three levels of capability: Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Superintelligence (ASI).[14] ANI refers to task-specific systems such as facial recognition, language translation, and high-frequency trading, operating within predefined parameters without general reasoning or self-awareness. AGI describes a hypothetical stage where machines can perform diverse cognitive tasks with human-like adaptability, while ASI refers to speculative systems surpassing human intelligence across all domains.[15] At present, AI development remains limited to ANI, as advanced systems still function as specialised tools.[16] Despite this

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[12] Laura Sartori and Andreas Theodorou, "A Sociotechnical Perspective for the Future of Ai: Narratives, Inequalities, and Human Control," *Ethics and Information Technology* 24, no. 4 (2022): 1–14, https://doi.org/10.1007/s10676-022-09624-3.

[13] Mr V SOWRI Babu and KRISHNA Banana, "A Study on Narrow Artificial Intelligence-an Overview," *International Journal of Engineering Science and Advanced Technology (IJESAT)* 24 (2024): 210–19, https://www.ijesat.com/archivesa_view.php?pid=557.

[14] Kaur, "A Comprehensive Analysis of Types of Artificial Intelligence: Classification, Applications, and Future Directions," 167-172.

[15] Ravil I Mukhamediev et al., "Review of Artificial Intelligence and Machine Learning Technologies: Classification, Restrictions, Opportunities and Challenges," *Mathematics* 10, no. 15 (2022): 2552, https://doi.org/https://doi.org/10.3390/math10152552; Shuvo Dip Datta et al., "Artificial Intelligence and Machine Learning Applications in the Project Lifecycle of the Construction Industry: A Comprehensive Review," *Heliyon* 10, no. 5 (2024): 1-17, https://doi.org/10.1016/j.heliyon.2024.e26888.

[16] Antonio Mastrogiorgio and Riccardo Palumbo, "Superintelligence, Heuristics and Embodied Threats," *Mind & Society* (2025): 1–15, https://doi.org/10.1007/s11299-025-00317-0; HyunJin Kim et al., "The Road to Artificial Superintelligence: A Comprehensive Survey of

limitation, AI continues to expand its role in enhancing human capabilities and driving innovation across sectors, including Islamic finance.

In its current form, AI is widely applied across multiple industries, delivering significant efficiency and performance improvements, including autonomous vehicle, finance, healthcare, and education.[17] However, over 108 AI-related incidents were recorded between November 2025 and January 2026, including fraud and deepfake impersonation, misinformation and propaganda, harmful or unethical content, data privacy breaches, and technical system failures.[18] These incidents illustrating the significant challenges associated with AI deployment.

Discussions on AI applications across industries emphasise aligning technological development with principles such as accountability, fairness, inclusivity, and transparency. This focus extends to the design and deployment of AI systems that minimise risks such as bias, discrimination, and lack of transparency. It also highlights the importance of embedding moral values in AI development, particularly in protecting privacy, safeguarding human dignity, and preventing unjust treatment.[19] Overall, these concerns are reflected in the concepts of ethical and responsible AI, which aim to protect users and stakeholders while supporting the sustainable advancement of AI technologies.

Superalignment," *arXiv preprint arXiv:2412.16468* (2024): 1–18, https://doi.org/10.48550/arXiv.2412.16468.

[17] Amna Batool, Didar Zowghi, and Muneera Bano, "Ai Governance: A Systematic Literature Review," *AI and Ethics* 5, no. 3 (2025): 3265–79, https://doi.org/10.1007/s43681-024-00653-w.

[18] Daniel Artherton, "Ai Incident Roundup – November and December 2025 and January 2026," AI Incident Database, 2026, accessed April 19, 2026, https://incidentdatabase.ai/blog/incident-report-2025-november-december-2026-january/.

[19] Muneera Bano et al., "Investigating Responsible Ai for Scientific Research: An Empirical Study," *arXiv preprint arXiv:2312.09561* (2023): 1-10, https://doi.org/10.48550/arXiv.2312.09561.

The Status of AI from Islamic Perspective

Advancements in information and communication technology have catalysed progress across a wide array of scientific domains, including robotics, nanotechnology, biotechnology, quantum computing, and space science.[20] Among these developments, artificial intelligence (AI) stands out as a transformative force with far-reaching implications for social, economic, and institutional systems. Within the broader framework of Islamic civilization, the integration of AI represents both an opportunity and a challenge that necessitates careful consideration through the lens of Shariah.

Historically, Islam has not opposed technological advancement. On the contrary, the Islamic tradition encourages scientific inquiry and innovation, provided that such pursuits align with moral and ethical boundaries. As noted by Laldin and Furqani,[21] the pursuit of science and technology in Islam is considered not only permissible but also desirable when it contributes to human welfare and societal development. This reflects the *maqāṣid al-Sharīʿah* (higher objectives of Shariah), which prioritize the preservation of faith, life, intellect, progeny, and wealth.

In evaluating AI from a Shariah perspective, the foundational legal maxim that "the original ruling in all things is permissibility unless there is evidence of prohibition" (*al-aṣl fī al-ashyāʾ al-ibāḥah*) serves as a crucial interpretive principle.[22] This maxim supports the use of emerging technologies such as AI, as long as their applications do not violate clear Shariah prohibitions. Any prohibition arises not from the technology itself, but from its

[20] Ana Khoirunnisa et al., "Islam in the Midst of Ai (Artificial Intelligence) Struggles: Between Opportunities and Threats," *SUHUF* 35, no. 1 (2023): 26–30, https://doi.org/10.23917/suhuf.v35i1.22365.

[21] Laldin and Furqani, "Fintech and Islamic Finance: Setting the Sharī ʻah Parameters," 113-119.

[22] al-Suyūṭī, *Al-Ashbah wa al-Naẓā'ir* (Bayrūt: Dār Al-Kutub Al-ʻIlmiyyah, 1983), 60.

use in ways that involve unlawful elements or purposes.[23] For example, the use of AI to generate deepfake videos for impersonation, as it involves elements of deception and unlawful appropriation of wealth *(akl al-māl bi al-baṭil)*.[24]

Thus, technological innovation, including AI-driven systems is permitted so long as its use adheres to the ethical and legal principles set forth in Islamic jurisprudence.

Nevertheless, the permissibility of AI is contingent upon several important guidelines. First, the deployment of AI must serve a clear and beneficial purpose, contributing to public welfare (*maṣlaḥah*) and aligning with the broader objectives of Shariah.[25] Second, its usage must not lead to harm (*mafsadah*), in line with the legal maxim that "preventing harm takes precedence over acquiring benefit" (*darʾ al-mafāsid muqaddam ʿalā jalb al-maṣāliḥ*). [26] This implies that any tangible risks associated with AI, including potential misuse, ethical concerns, or socio-economic disruption must be addressed prior to embracing its perceived benefits. Together, these two principles form a dual imperative: AI must promote the public interest while simultaneously preventing foreseeable harm.

A third consideration involves the attribution of legal responsibility in AI-driven systems. Unlike human agents, AI lacks legal personhood and moral accountability. This presents a critical challenge, particularly in autonomous transactions

[23] Muhammad Bilal Zafar and Hassnian Ali, "Shariah Governance Standard on Generative Ai for Islamic Financial Institutions," *SSRN* (2025): 1–31, http://dx.doi.org/10.2139/ssrn.5143165.
[24] Wisnu Uriawan et al., "Preventing Ai Deepfake Abuse: An Islamic Ethics Framework," *arXiv preprint arXiv:2512.17218* (2025): 1–12, https://doi.org/10.48550/arXiv.2512.17218.
[25] Tuan Muhammad Faris Hamzi Tuan Ibrahim et al., "Pengaplikasian Artificial Intelligent Dalam Pembuktian Di Mahkamah Syariah: Tinjauan Awal Berdasarkan Perspektif Fiqh," paper presented at the *E-Proceeding of International Seminar on Usul Fiqh (iSUFI) 2024*, 2024.
[26] al-Suyūṭī, *Al-Ashbah wa al-Naẓā'ir*, 87.

governed by AI. Nazir[27] raises pertinent concerns regarding AI-enabled financial contracts, particularly those that operate without direct human intervention. In such contexts, it is essential to evaluate whether decisions made and executed by AI systems fulfil the requirements of a valid Islamic contract, especially with regard to agency (*wakālah*), consent (*ridāʾ*), and intention (*niyyah*).

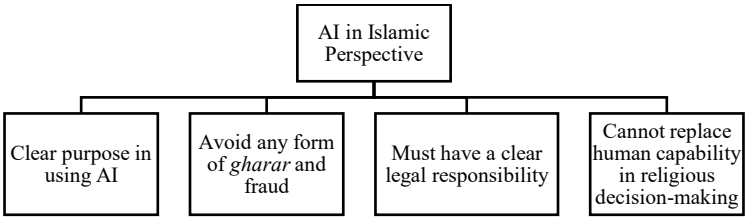
The final consideration is that artificial intelligence (AI) cannot replace human capability in religious decision-making, particularly in the domain of *ijtihād*. Determining matters of halal and haram necessitates human expertise, as these judgments involve high-order cognitive functions such as contextual analysis, ethical reasoning, and value judgement. Although AI systems today possess advanced analytical abilities and can process large volumes of data, they fundamentally differ from humans in how they receive, interpret, and respond to information. This difference is rooted not only in technical limitations but also in the absence of moral consciousness and spiritual accountability. The process of *ijtihād* demands a profound understanding of Shariah sources, comprehensive awareness of contemporary realities *(wāqiʿ)*, and the capacity for ethical deliberation qualities that remain exclusive to qualified human scholars. [28] It is notably the AI's potential to assist in the *ijtihād* process, as it can efficiently retrieve and organise relevant texts and precedents, thus enhancing the speed and accessibility of legal references. However, its role remains as a tool, not a decision-maker in the realm of Shariah legal reasoning.[29]

It is understood that Islamic jurisprudence does not oppose the adoption of AI or related technologies. However, such

[27] Miyan Nazir, "Smart Contracts Islamic Jurisprudence Standpoint," paper presented at the *Al-Baraka Symposium on Islamic Economics*, Jeddah, 2019.
[28] Aliff Nawi et al., "A Preliminary Survey of Muslim Experts' Views on Artificial Intelligence," *Islamiyyat* 43, no. 2 (2021): 3–16, https://doi.org/10.17576/islamiyyat-2021-4302-01.
[29] Abdullah et al., "Ai Applications for Fiqh Rulings in Islamic Banks–Shariah Committee Acceptance," 111-126.

adoption must be guided by established Shariah principles that ensure ethical use, promote societal benefit, prevent harm, and uphold legal accountability. These key guidelines are summarised in Figure 1.0, which outlines the core conditions for the Shariah-compliant use of AI technologies in various activity, including Islamic finance.

Figure 1.0: Key Guideline of AI from Shariah Perspective



Source: Authors' own work

The Ascendancy of AI in IFIs

Financial institutions globally have started to adopt AI to remain competitive in a rapidly digitizing financial environment. Arsyad et al.,[30] citing Joyce,[31] categorise the application of AI in financial institutions into three functional layers: front office, middle office, and back office. While some applications, including AI-powered chatbots and "Know Your Customer" (KYC) or "Anti-Money Laundering" (AML) tools have reached a level of operational maturity and are widely adopted, other AI solutions remain in developmental phases or pilot programs. These include more complex implementations in wealth management, capital optimisation, and RegTech applications.

In credit scoring, AI enables more inclusive risk assessments by using alternative data such as utility payments and mobile usage, allowing IFIs to serve individuals with limited

[30] Arsyad, Kharisma, and Wiwoho, "Artificial Intelligence and Islamic Finance Industry: Problems and Oversight," 653-675.

[31] Joyce Lisa, "Ai and the Banking Industry's $1 Trillion Opportunity," The Financial Brand, 2018, accessed May 23, 2025, https://thefinancialbrand.com/news/artificial-intelligence-banking/artificial-intelligence-trends-banking-industry-72653.

credit histories This allows IFIs to serve individuals with limited credit histories, while also improving fraud detection, compliance, and data protection by identifying suspicious transactions and reducing human error. Nevertheless, reliance on large and diverse datasets raises concerns on algorithmic bias and potential unfair discrimination.[32]AI-powered chatbots are transforming customer engagement by providing 24/7 assistance, answering queries, and guiding users through financial processes.[33] For example, Bank Islam Malaysia Berhad has implemented a Shariah-compliant chatbot to improve accessibility and user experience. However, chatbots remain limited in handling complex or highly specific queries that require human judgment.[34]

In regulatory compliance, AI supports anti-money laundering (AML) and counter-terrorism financing (CTF) by detecting suspicious patterns, while also enhancing Know Your Customer (KYC) processes through tools such as identity verification and facial recognition.[35] Regulators like Bank Negara Malaysia and Indonesia's Financial Services Authority have adopted AI-driven e-KYC to strengthen compliance. These systems pose concerns over data privacy, potential inaccuracies, and the risk of misidentification, which may affect individuals' rights and trust.[36]

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[32] Seng Loong Kok and Supaprawat Siripipatthanakul, "Artificial Intelligence (Ai) Adoption: The Case of the Malaysian Financial Industry," *Advance Knowledge for Executives* 2, no. 4 (2023): 1–15, https://ssrn.com/abstract=4644825.

[33] Dewasiri et al., "Fusion of Artificial Intelligence and Blockchain in the Banking Industry: Current Application, Adoption, and Future Challenges," 293-307.

[34] Kismawadi, Irfan, and Harahap, "Integrating Artificial Intelligence in Islamic Financial Management: Opportunities and Challenges in Maintaining Shariah Compliance," 273-288.

[35] Arsyad, Kharisma, and Wiwoho, "Artificial Intelligence and Islamic Finance Industry: Problems and Oversight," 653-675.

[36] Mark Chan, "Malaysia: Digital Payments, Data Regulations, and Ai as Most Promising Areas for Digital Economy Collaboration," in *The Asean Digital Economy*, ed. Paul Cheung and Xie Taojun (Abingdon, Oxon: Routledge, 2023), 76-96.

AI further contributes to investment decision-making through sentiment analysis, which evaluates market trends and customer perceptions using real-time data from social media and news.[37] Additionally, robo-advisory platforms like Wahed provide customed investment recommendations based on ethical and religious preferences, while also expanding into zakat and waqf management to improve allocation and transparency. These applications strengthen Shariah-compliant investment strategies, including asset allocation and risk assessment for instruments such as sukuk and halal equities,[38]and assist in impact analysis for large-scale investment projects.[39] One of the key concerns among researchers is the growing decision-making autonomy of AI systems and the reduced level of human involvement, which may affect accountability oversight.[40]

AI also enhances model risk management by improving pricing and stress testing accuracy,[41] validating assumptions,[42]

[37] Hamed Taherdoost and Mitra Madanchian, "Artificial Intelligence and Sentiment Analysis: A Review in Competitive Research," *Computers* 12, no. 2 (2023): 37, https://do.org/10.3390/computers12020037.

[38] Arsyad, Kharisma, and Wiwoho, "Artificial Intelligence and Islamic Finance Industry: Problems and Oversight," 653-675.

[39] Deepak K Sahoo et al., "Ai-Driven Market Intelligence: Enhancing Competitive Analysis and Market Positioning," in *Ai, Corporate Social Responsibility, and Marketing in Modern Organizations*, ed. Muhammad Nawaz Tunio (Hershey, USA: IGI Global Scientific Publishing, 2025), 89-108.; Meng Wu et al., "Using Ai Technology to Enhance Data-Driven Decision-Making in the Financial Sector," in *Artificial Intelligence-Enabled Businesses: How to Develop Strategies for Innovation*, ed. Dixit, Sweta et al. (New York, USA: Wiley, 2025), 187-207.

[40] Sitiris and Busari, "The Legal Capacity (Al-Ahliyyah) of Artificial Intelligence from an Islamic Jurisprudential Perspective," 31-42.

[41] Uvy Dian Rizky and Abdul Mongid, "Stress Test of Credit Risk Using Montecarlo Simulation: Indonesian Sharia Rural Banks," *Journal of Emerging Economies and Islamic Research* 13, no. 1 (2025): 2135–35, https://doi.org/10.24191/jeeir.v13i1.2135.

[42] Hassnian Ali, Muhammad Bilal Zafar, and Ahmet Faruk Aysan, "Can Ai Think Like a Mufti? Evaluating the Semantic and Jurisprudential Fidelity of Large Language Models in Islamic Finance," *Evaluating the Semantic and Jurisprudential Fidelity of Large Language Models in Islamic Finance (April 17, 2025)* (2025).

and detecting anomalies and potential fraud[43] and improving overall model performance through real-time data processing and feedback mechanisms.[44] In regulation of IFIs side, RegTech powered by AI enables real-time monitoring of regulatory compliance, automates report generation, and flags potential breaches, functions vital for IFIs that must comply with both civil and Shariah regulations.[45] Technologies such as Natural Language Processing (NLP) detects Shariah non-compliance in contracts,[46] while at regulatory level, SupTech enhances oversight by enabling authorities to conduct real-time data collection, automated risk assessments, and AI-driven audits.[47] A key risks in these AI applications is the opacity of automated models, where limited transparency in decision-making may lead to weaken oversight and accountability.[48]

In the Takaful sector, AI (InsurTech) enhances efficiency by improving underwriting, claims management, and fraud detection,

[43] Hatoon S AlSagri, "Hybrid Machine Learning Based Multi-Stage Framework for Detection of Credit Card Anomalies and Fraud," *IEEE Access* 13 (2025): 77039-77048, https://doi.org/10.1109/ACCESS.2025.3565612.

[44] Kismawadi, Irfan, and Harahap, "Integrating Artificial Intelligence in Islamic Financial Management: Opportunities and Challenges in Maintaining Shariah Compliance," 273-288.

[45] Sherin Kunhibava et al., "Selected Issues in the Use of Regtech in the Islamic and Conventional Financial Markets," *Journal of Islamic Accounting and Business Research* 15, no. 5 (2024): 746–61, https://doi.org/10.1108/JIABR-03-2022-0069.

[46] Saikat Gochhait et al., "Enhancing Compliance and Efficiency in Islamic Banking through Regtech Solutions," paper presented at the *2024 International Conference on Sustainable Islamic Business and Finance (SIBF)*, Bahrain, 2024.

[47] Stefan Zeranski and Ibrahim E Sancak, "Digitalisation of Financial Supervision with Supervisory Technology (Suptech)," *Journal of International Banking Law & Regulation*, no. 8 (2020): 308–29, https://doi.org/10.2139/ssrn.3632053.; Tomasz Dziawgo, "Supervisory Technology as a New Tool for Banking Sector Supervision," *Journal of Banking and Financial Economics* 15, no. 1 (2021): 5–13, https://doi.org/10.7172/2353-6845.jbfe.2021.1.1.

[48] Arsyad, Kharisma, and Wiwoho, "Artificial Intelligence and Islamic Finance Industry: Problems and Oversight," 653-675.

enabling more accurate risk assessment and fairer pricing while reducing moral hazard and strengthening trust.[49] Relying on AI in the Takaful sector raises concerns about biased or inaccurate risk assessments, which may lead to unfair pricing.[50] Therefore, despite the expanding adoption of AI in the Islamic finance industry, significant challenges remain in ensuring compliance with both legal requirements and Shariah principles, particularly in areas involving accountability, transparency, and decision-making processes.

Shariah Governance Critical Attention in the Era of AI

Shariah governance is the foundation of Islamic finance, ensuring that all products, operations, and transactions comply with Shariah principles through bodies such as Shariah Supervisory Boards and Committees. Compliance is achieved through structured processes of approval, monitoring, and review, guided by scholarly judgment to ensure accountability and adherence to Shariah objectives.[51]

Despite this established framework, the increasing application of AI in Islamic finance introduces a significant gap, as many AI-driven systems operate without direct Shariah oversight. While these technologies are expanding in many areas of IFIs operations, there is often limited transparency regarding their Shariah evaluation or the involvement of Shariah authorities.[52] This raises critical questions about whether AI-

[49] Hafidh Abdulla Hemed et al., "The Potential Use of Fintech Developments in Takaful," *International Journal of Management and Applied Research* 8, no. 2 (2021): 109–21, 10.18646/2056.82.21-007.

[50] Hebah Shalhoob, "The Role of Ai in Enhancing Shariah Compliance: Efficiency and Transparency in Islamic Finance," *Journal of Infrastructure Policy and Development* 9, no. 1 (2025): 11239–39, https://doi.org/10.24294/jipd11239.

[51] Zafar and Ali, "Shariah Governance Standard on Generative Ai for Islamic Financial Institutions," 1-31.

[52] Wazin Wazin, Siti Patimah, and Aan Ansori, "Optimizing Ai Technology in Assessing Islamic Financing Risks: A Swot Analysis of Challenges and Opportunities from an Islamic Legal Perspective (Fiqh)," *Al-Istinbath: Jurnal Hukum Islam* 10, no. 1 (2025): 172–93, https://doi.org/10.29240/jhi.v10i1.11941.

enabled processes can be considered fully Shariah-compliant in the absence of proper governance and supervision.

Various jurisdictions have introduced AI governance frameworks to promote responsible adoption. For example, Saudi Data and Artificial Intelligence Authority (SDAIA) AI Ethics Principles outline lifecycle-based controls, while Smart Dubai's guidelines emphasise transparency, non-discrimination, and human dignity.[53] Similarly, Smart Dubai's AI Ethics Principles and Guidelines[54] emphasise transparency, non-discrimination, human dignity, and societal wellbeing, with implications for AI-enabled financial decision-making.[55] Singapore's Model AI Governance Framework further promotes explainability, fairness, and human-centric design, influencing global practices.[56] In Southeast Asia, countries such as Malaysia, Indonesia, Thailand, and Vietnam are developing national AI strategies,[57] with Malaysia's National Guidelines on AI Governance and Ethics by MOSTI and MIMOS highlighting principles of accountability, transparency, and fairness.[58]

[53] SDAIA, "Ai Ethics Principles," Saudi Data and AI Authority, 2023, accessed October 1, 2025, https://sdaia.gov.sa/en/SDAIA/about/Documents/ai-principles.pdf.
[54] Smart Dubai, "Ai Ethics Principles and Guidelines," Smart Dubai, 2022, accessed October 1, 2025, https://www.digitaldubai.ae/docs/default-source/ai-principles-resources/ai-ethics.pdf.
[55] Maria Amparo Diaz-Llairo, "Exploring a Smart City and the Epicenter of Megatrends in Innovation with Artificial Intelligence: The Case of Dubai," in *Data-Driven Governance through Ai, Digital Marketing, and the Privacy Interplay,* ed. Jose Ramon Saura (New York, USA: IGI Global Scientific Publishing, 2025), 191-238.
[56] SPDPC, "Model Artificial Intelligence Governance Framework," Singapore Personal Data Protection Commission, 2019, accessed October 1, 2025, https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf.
[57] Andrew J Keith, "Governance of Artificial Intelligence in Southeast Asia," *Global Policy* 15, no. 5 (2024): 937–54, https://doi.org/10.1111/1758-5899.13458.
[58] MOSTI, "The National Guidelines on Ai Governance and Ethics," Ministry of Science, Technology and Innovation, 2024, accessed June 21,

Despite global growth in AI and emerging ethical guidelines, no dedicated Shariah standard currently regulates AI use in Islamic finance.[59] Some progress is evident through initiatives by bodies such as the Islamic Financial Services Board, which in 2025 urged stronger supervisory oversight as AI adoption in Islamic banks increases.[60] BNM's "Policy Document on Licensing Framework for Digital Banks" and its 2025 discussion paper on AI signal regulatory openness, though neither provides Shariah-specific or binding guidance.

Recent studies highlight that AI integration in Islamic finance remains fragmented and often operates beyond established Shariah governance frameworks, raising concerns over compliance and oversight.[61] Emerging research further emphasises the need for a dedicated Shariah governance framework for AI, integrating Shariah principles throughout the AI lifecycle to ensure accountability and prevent non-compliant outcomes.[62] Therefore, the absence of Shariah governance in AI creates critical gaps, necessitating a dedicated framework to ensure compliance, accountability, and ethical integrity.

2025, https://mastic.mosti.gov.my/publication/the-national-guidelines-on-ai-governance-ethics/.

[59] Muhammad Saeed Iqbal et al., "Ai in Islamic Finance: Global Trends, Ethical Implications, and Bibliometric Insights," *Review of Islamic Social Finance and Entrepreneurship* (2025): 70–85, https://doi.org/10.20885/RISFE.vol4.iss1.art6; Hanan Qudah et al., "Islamic Finance in the Era of Financial Technology: A Bibliometric Review of Future Trends," *International Journal of Financial Studies* 11, no. 2 (2023): 1–29, https://doi.org/10.3390/ijfs11020076.

[60] Islamic Financial Services Board, *Islamic Financial Services Industry Stability Report 2025* (Kuala Lumpur: Islamic Financial Services Board2025), 1-69.

[61] Anita Priantina, Mimma Maripatul Uula, and Evania Herindar, "Ai in Fatwa Formulation: Transforming Sharia-Compliant Finance," *Journal of Central Banking Law and Institutions* 4, no. 3 (2025): 595–634, https://doi.org/10.21098/jcli.v4i3.446.

[62] Zafar and Ali, "Shariah Governance Standard on Generative Ai for Islamic Financial Institutions," 1-31.

METHODOLOGY

This study adopts a qualitative approach, an advantageous method for in-depth studies.[63] It is appropriate given the evolving nature of AI and the need to explore Shariah issues raised by scholars, enabling the identification of key considerations for ensuring Shariah-compliant AI adoption in Islamic finance. As Shariah analysis of AI requires engagement with primary sources, including al-Qur'an, Hadith, *Ijma'*, (consensus of scholars) and *Qiyās* (analogy), alongside contemporary scholarly discourse, a qualitative design is the only suitable approach. Consistent with strategies highlighted by Merriam and Grenier, [64] data collection is conducted through library research using books on AI technology, fatwas (verdicts), journals, conference papers, and relevant institutional reports. The process involves several steps.

Two categories of sources are used, namely the classical and contemprary. For the classical sources, this study focuses on the classical texts of the four schools of thought and covers a significant number of books that provide fundamental knowledge of the subject matter. Specifically, the researchers include chapters of those books that very relevant of this subject research. The researchers conducted a thoroughly study focusing on the text *(naṣ)* that discuss about the pillars of contract (offer and acceptance, contracting parties, and object of the contract), and its condition.

In regards with the contemporary resources, this study covers books of prominent scholars and research articles of experts and researchers. The contemporary books are selected based on their experts in Islamic finance and its relevance to *fiqh al-mu'āmalat* and financial technology (both in English and Arabic language).

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[63] Patrik Aspers and Ugo Corte, "What Is Qualitative in Qualitative Research," *Qualitative sociology* 42, no. 2 (2019): 139–60, https://doi.org/10.1007/s11133-019-9413-7.a

[64] Sharan B Merriam and Robin S Grenier, *Qualitative Research in Practice: Examples for Discussion and Analysis* (San Francisco: John Wiley & Sons, 2019), 480.

As for the research article, this study only includes Scopus-indexed and other reliable indexed articles such as MyCite, while non-indexed materials are filtered out. Additional data are gathered from conference proceedings, institutional websites, and reports to capture real-world AI practices and emerging issues.

For data analysis, this research employs doctrinal analysis. The researches explore the *naṣ, qawā'id fiqhiyyah,* and *uṣūl,* and utilize them in order to find the Shariah stands of AI. In addition, the researchers strive to discover the relevant of AI and it's adoption in various application of Islamic finance. Moreover, the contemporary resources allow the researchers to synthesise diverse scholarly perspectives on AI and examine operational challenges requiring viable solutions.

FINDINGS AND DISCUSSION

Shariah Scholars Views on AI Adoption in IFIs

In general, Shariah scholars do not view AI in Islamic finance as inherently impermissible. As noted by Abdullah et al.,[65] member of Shariah committees from various IFIs in Malaysia generally regard AI as a permissible means *(wasīlah)* to achieve the *maqāṣid al-Sharīʿah*, particularly in enhancing financial inclusion, streamlining operations, improving risk management, and facilitating ethical customer engagement. To support their opinion, there are some rational can be elaborated:

a) The original ruling in all things is permissibility unless there is evidence of prohibition (*al-aṣl fī al-ashyāʾ al-ibāḥah*).[66] Based on this legal maxim, it is obvious that there is no explicit principle that contradicts the use of AI. Therefore, there should not be any issue to adopt AI in Islamic finance.[67]
b) *Ḥifz al-māl* (preservation of wealth) is one of the parts of *maqāṣid al-Sharīʿah*. Since Shariah gives importance to

[65] Abdullah et al., "Ai Applications for Fiqh Rulings in Islamic Banks–Shariah Committee Acceptance," 111-126.
[66] al-Suyūṭī, *Al-Ashbah wa al-Naẓā'ir*, 60.
[67] Zafar and Ali, "Shariah Governance Standard on Generative Ai for Islamic Financial Institutions," 1-31.

preserve wealth, the AI and its various features offer preservation of wealth in many ways. Based on the necessity of *ḥifẓ al-māl,* therefore AI is aligned with the current tool of the preservation of wealth.

c) The deployment of AI in areas such as robo-advisory services, algorithmic trading, and smart contract automation is seen as an opportunity to increase transparency, reduce human error, and enhance access to Shariah-compliant financial solutions.[68]

However, there are some reservations regarding the use of AI according to scholars. It is known among the scholars that AI is not in a state that can replace human scholars in the process of *ijtihād*. Moreover, studies show that AI system lacks key attributes such as moral responsibility *(taklīf),* intention *(niyyah),* and ethical judgement *(ḥukm),* which are essential in deriving rulings from primary sources.[69] Some of the data that provided by AI are not rooted from the original sources of scholars. Hence, many of the data in AI cannot be trusted and it will not be wise to use the to generate a Shariah ruling without referring the original sources.[70]

Regarding the adoption of AI in IFI, Shariah scholars raise critical concerns about AI deployment in finance. These include the risk of algorithmic bias in areas such as credit scoring and customer profiling, which could lead to unjust outcomes and violate the principle of *ʿadl* (justice),[71] the lack of transparency in

[68] Kismawadi, Irfan, and Harahap, "Integrating Artificial Intelligence in Islamic Financial Management: Opportunities and Challenges in Maintaining Shariah Compliance," 273-288.
[69] Abdullah et al., "Ai Applications for Fiqh Rulings in Islamic Banks–Shariah Committee Acceptance," page.; Sitiris and Busari, "The Legal Capacity (Al-Ahliyyah) of Artificial Intelligence from an Islamic Jurisprudential Perspective," 31-42.
[70] Sitiris and Busari, "The Legal Capacity (Al-Ahliyyah) of Artificial Intelligence from an Islamic Jurisprudential Perspective," 31-42.
[71] Fernandez et al., "Robotic Process Automation: Bibliometric Reflection and Future Opportunities," 692-712.

AI decision-making,[72] and the ambiguity in legal responsibility when AI autonomously executes contracts or financial decisions, which raises questions about liability in the absence of human intent and consent.[73] These critical issues are further explored in the following section.

In response, scholars have issued strong calls for proactive measures. First, there is a growing consensus on the need for collaboration between Shariah scholars, technologists, regulators, and industry players to reduce the gap between Shariah principles and technical realities. Second, the idea of collective *ijtihād (ijtihād jamāʿī)* is gaining momentum as a means to produce forward-looking rulings tailored to the complexities of AI applications. Third, scholars are advocating for the development of AI-specific Shariah standards, particularly in areas such as robo-advisory, RegTech, SupTech, and automated contract execution, so that IFIs can confidently innovate without compromising Shariah integrity.[74]

In conclusion, contemporary Shariah scholars adopt a balanced perspective, which is embracing AI as a tool that can enhance Shariah compliance and financial inclusion, while also cautioning against ethical risks and legal ambiguities.

Emerging Shariah Concerns in the Application of AI in Islamic Financial Instituions

Within Islamic finance, AI is primarily applied in automated trading and big data analytics. Its rapid adoption has raised significant Shariah concerns due to the absence of clear regulatory standards. Without definitive Shariah guidelines, AI poses risks of non-compliance and ethical ambiguity. The following sections

[72] Alsaghir, "Digital Risks and Islamic Fintech: A Road Map to Social Justice and Financial Inclusion," 1-18.
[73] Sitiris and Busari, "The Legal Capacity (Al-Ahliyyah) of Artificial Intelligence from an Islamic Jurisprudential Perspective," 31-42.
[74] Nazir, "Smart Contracts Islamic Jurisprudence Standpoint,."; Iqbal et al., "Ai in Islamic Finance: Global Trends, Ethical Implications, and Bibliometric Insights," 181-205.

explore key issues related to governance, contractual validity, and *maqāṣid al-Sharīʿah*.

1. Automated Trading Using AI Algorithms Concern

AI systems are increasingly capable of optimising investment decisions by analysing large-scale financial data, identifying market patterns, and employing predictive analytics to make proactive decisions. For instance, AI may autonomously sell off assets in anticipation of a market downturn or rebalance portfolios based on real-time conditions, even in the absence of direct user instructions. While these actions are aligned with the financial objectives of clients, the system's ability to learn and adapt independently introduces a significant degree of autonomous decision-making that may exceed the original mandate provided by the user.[75]

Although AI operates within human-defined parameters, its autonomous nature raises critical Shariah concerns. In Islamic jurisprudence, the validity of a contract or financial transaction is contingent upon the legal capacity (*ahliyyah*) of the contracting parties, specifically on their maturity and accountability for the consequences of their actions.[76] Most scholars agree that AI, lacking sentience and moral agency, does not possess such legal capacity. This creates ambiguity surrounding accountability in the event of contractual breaches or errors resulting from AI-driven decisions. The question of who bears liability, whether it is the programmer, the financial institution, or the AI itself remains a contentious issue within Shariah discourse.[77]

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[75] Alsaghir, "Digital Risks and Islamic Fintech: A Road Map to Social Justice and Financial Inclusion," 1-18.

[76] Wahbah al-Zuḥailī, "Al-Tawarruq Haqīqatuhu, wa Anwāʻ Uhu (Al-Fiqhī al-Maʻ Rūf wa Al-Maṣrāfi al-Munaẓẓam)," paper presented at the *19th Session of the International Islamic Fiqh Academy (Majmaʿ al-Fiqh al-Islāmī)*, Sharjah, United Arab Emirates, 26–30 April 2009.

[77] Nithesh Naik et al., "Legal and Ethical Consideration in Artificial Intelligence in Healthcare: Who Takes Responsibility?," *Frontiers in surgery* 9 (2022): 1–6, https://doi.org/10.3389/fsurg.2022.862322, https://www.frontiersin.org/journals/surgery/articles/10.3389/fsurg.2022.862322/full?gclid=Cj0KCQi.

From a Shariah standpoint, a pertinent analogy is whether AI can be likened to a minor *(ṣaghīr)* who requires a guardian (*wakīl* or *walī*) to legally enter into contracts. The legal capacity (*ahliyyah*) of a minor is well-established within Islamic jurisprudence. Classical jurists distinguish between *ahliyyat al-wujūb* (capacity to acquire rights) and *ahliyyat al-adā'* (capacity to execute legal acts), where a minor possesses the former but only a deficient form of the latter, depending on their level of discernment (*tamyīz*).[78] A discerning minor (*ṣaghīr mumayyiz*) may undertake limited transactions with guardian approval, while a non-discerning minor lacks transactional validity altogether. This framework is grounded in the principle that legal responsibility (*taklīf*) and liability (*ḍamān*) require intellect and intent, which are only partially present in minors.[79] On conceptual perspective, while AI may surpass minors in computational ability and decision efficiency, it fundamentally lacks independent legal personality, moral agency, and intentionality (*qaṣd*), which are prerequisites for liability in Shariah. Unlike minors, who are recognized as human subjects with potential for full legal capacity, AI operates as a tool or extension of its programmer or user.[80] Therefore, comparing AI to a minor is an oversimplification. A more suitable view is that AI is not a legal person, but a tool whose actions are attributed to the human who designs, owns, or uses it. Unlike a minor, AI does not develop toward full legal responsibility. This difference is important because it means liability in AI-driven financial transactions should remain with human actors, not the AI itself.

In current regulatory and Shariah governance frameworks such as those issued by Accounting and Auditing Organizations of Islamic Financial Institutions (AAOIFI) and BNM, considerable emphasis is placed on the legal capacity of the parties executing a financial transaction, reflecting a human-centred legal paradigm.

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[78] Wahbah al-Zuhailī, *Al-Fiqh al-Islami wa Adillatuhu* (Damascus: Dar al Fikr, 1985), 5:2432.
[79] Abd al-Karim Zaydān, "Naẓariyyah Al-'Aqd," in *Al-Madkhal li Dirāsah al-Sharī'ah al-Islāmiyyah* (Bayrut: Mu'assasah al-Risālah, 2012), 296.
[80] Sitiris and Busari, "The Legal Capacity (Al-Ahliyyah) of Artificial Intelligence from an Islamic Jurisprudential Perspective," 31-42.

AAOIFI's Shari'ah Standards explicitly emphasize the legal capacity of contracting parties as a fundamental requirement for the validity of contracts. For example, Standard No. 23 on Agency (*Wakālah*) states in Clause 3/1 that:

> *The agent must have the legal capacity to act on behalf of the principal in the subject matter of the contract* (p. 607).[81]

Similarly, Standard No. 31 on Trading in Currencies stipulates in Clause 2/1 that:

> *The contracting parties must have the legal capacity to conclude the contract and to dispose of the subject matter* (p. 803).[82]

These provisions clearly presuppose that contracting parties are either natural persons or legal entities capable of exercising intention and volition (*ikhtiyār*), and of bearing contractual rights and liabilities. Similarly, BNM's Shariah standards, for instance in the Tawarruq Policy Document,[83] explicitly mention legal capacity under the section on contracting parties. In Part B, Paragraph 11.4, it states:

> *The contracting parties in the tawarruq shall be a natural person or a legal entity that has the legal capacity to enter into each sale and purchase contract in the tawarruq.*

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[81] AAOIFI, "Standard No. (30) on Tawarruq," in *Shariah Standards,* ed. (Manama, Bahrain: Accounting and Auditing Organization for Islamic Financial Institutions, 2017), 607.
[82] AAOIFI, "Standard No. (30) on Tawarruq," 803.
[83] BNM, "Policy Document on Tawarruq," Bank Negara Malaysia, 2018, accessed December 8, 2025, https://www.bnm.gov.my/documents/20124/938039/pd_reissuancetawarruq_dec2018.pdf/bcc4b359-381c-5035-f9f0-3908faebb92a?t=1592249563244.

> *Legal capacity of a person, from Shariah perspective, is defined as the capacity to assume rights and responsibilities and capacity to give legal effect to his action. Among the important conditions are that the person must possess sound mind and the capacity to distinguish between what is harmful or beneficial to one's interests. Legal capacity of a legal entity is defined as eligibility of an entity to acquire rights and assume responsibilities. In Malaysia, this legal capacity is also subject to the Contracts Act 1950 and the Age of Majority Act 1971.*

Currently, the standards lack guidance on how to address scenarios involving AI systems, which may autonomously analyse data, learn from new patterns, and execute financial decisions in ways that surpass human cognitive capabilities, while often lacking transparency regarding their internal processes. Unlike human agents or legal entities, from the Shariah point of view, it imposes various criteria for the human being to be legally competent *(mukallaf),* including intellect, discernment, maturity, and intentionality.[84] Comparing these criteria with AI, it seems AI does not meet the requirements of legal capacity, despite displaying characteristics that may resemble an artificial personality.[85] This highlights a significant regulatory and jurisprudential gap in applying existing Shariah standards to AI-enabled financial operations.

Ultimately, these questions demand sustained scholarly engagement to ensure that the development and deployment of AI technologies remain consistent with the foundational principles of Shariah, particularly justice, accountability, and human dignity.

[84] Zaydān, Naẓariyyah al-'Aqd, 317.
[85] Sitiris and Busari, "The Legal Capacity (Al-Ahliyyah) of Artificial Intelligence from an Islamic Jurisprudential Perspective," 31-42.

2. Algorithmic Bias Concern

Algorithmic bias refers to the tendency of AI systems to replicate and reinforce existing inequalities embedded in training data, particularly those related to socio-economic disparities.[86] In this context, the use of AI in customer data management also introduces significant ethical and legal concerns, particularly regarding data security, autonomy, and oversight. A key issue is the loss of human supervision in AI-led decision-making, where autonomous systems may act without regard for social context or moral values. This could undermine users' rights to fairness, autonomy, and privacy.[87] In addition, AI systems trained on biased data sets pose risks of producing unbalanced or discriminatory outcomes.

AI-based credit scoring systems, for example, have been criticised because of the algorithm bias in the operation, including data bias,[88] model bias[89] and the issue of black-box, the unclear method of how AI make a decision that led to transparency issue.[90]

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[86] Fernandez et al., "Robotic Process Automation: Bibliometric Reflection and Future Opportunities," 692-712.

[87] Ezieddin Elmahjub, "Artificial Intelligence (Ai) in Islamic Ethics: Towards Pluralist Ethical Benchmarking for Ai," *Philosophy & Technology* 36, no. 73 (2023): 1–2473, https://doi.org/10.1007/s13347-023-00668-x.

[88] José Rômulo de Castro Vieira et al., "Towards Fair Ai: Mitigating Bias in Credit Decisions-a Systematic Literature Review," *Journal of Risk and Financial Management* 18, no. 228 (2025): 1–30, https://doi.org/10.3390/jrfm18050228.; Jacob Ford, "Fairness in Focus: Quantitative Insights into Bias within Machine Learning Risk Evaluations and Established Credit Models," *Management System Engineering* 4, no. 8 (2025): 1–13, https://doi.org/10.1007/s44176-025-00043-4.

[89] Aliya Bayakhmetova et al., "Artificial Intelligence in Financial Behavior: Bibliometric Ideas and New Opportunities," *Journal of Risk and Financial Management* 18, no. 3 (2025): 1–17, https://doi.org/10.3390/jrfm18030159.; Muhammad Salar Khan and Hamza Umer, "Sacred or Secular? Religious Bias in Ai-Generated Financial Advice," *arXiv preprint arXiv:2504.07118* (2025): 1–36, https://doi.org/10.48550/arXiv.2504.07118.

[90] Jurgita Černevičienė and Audrius Kabašinskas, "Explainable Artificial Intelligence (Xai) in Finance: A Systematic Literature Review," *Artificial*

From a Shariah perspective, such opacity may introduce elements of *gharar* (excessive uncertainty), particularly when users are unable to understand or verify how decisions are made, thereby affecting informed consent in financial transactions.[91]

Tigges et al.[92] analyzed the use of alternative data such as e-commerce and social media in financial technology and found that persistent geographic biases affect rural entrepreneurs. Cai et al.[93] warn that the use of telco data as an element of AI credit scoring could unfairly penalize small women-owned factories that lack digital data. Salami et al.,[94] who found that AI credit scoring systems display loan approval inequality between white and black applicants. Meanwhile, AI fails to take broader socio-economic factors into account in its assessment, thus reinforcing inequalities in financial access.[95]

From a fiqh perspective, such bias should not be viewed solely as an ethical issue, but must be examined in relation to the validity (*ṣiḥḥah*) of financial transactions. Islamic jurisprudence

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Intelligence Review 57, no. 8 (2024): 1–45, https://doi.org/10.1007/s10462-024-10854-8.

[91] Kismawadi, Irfan, and Harahap, "Integrating Artificial Intelligence in Islamic Financial Management: Opportunities and Challenges in Maintaining Shariah Compliance," 273-288.

[92] Maximilian Tigges et al., "Who Gets the Money? A Qualitative Analysis of Fintech Lending and Credit Scoring through the Adoption of Ai and Alternative Data," *Technological Forecasting and Social Change* 205 (2024): 123491, https://doi.org/10.1016/j.techfore.2024.123491.

[93] Jing Cai, Arya Gaduh, and Maria Valencia Elita Sarah, "Innovative Credit Scoring: Unlocking Financial Opportunities for Micro, Small and Medium Enterprises (Landscape Memo)," accessed July 21, 2025, https://www.povertyactionlab.org/sites/default/files/review-paper/Innovative%20credit%20scoring_Unlocking%20financial%20opportunities%20for%20micro%2C%20small%2C%20and%20medium%20enterprises%20.pdf.

[94] Isaac Adinoyi Salami et al., "Addressing Bias and Data Privacy Concerns in Ai-Driven Credit Scoring Systems through Cybersecurity Risk Assessment," *Asian Journal of Research in Computer Science* 18, no. 4 (2025): 59–82, https://doi.org/10.9734/ajrcos/2025/v18i4608.

[95] Fernandez et al., "Robotic Process Automation: Bibliometric Reflection and Future Opportunities," 692-712.

emphasises justice, transparency, and the absence of harm in contractual dealings. This is supported by the principle *al-ḍarar yuzāl* (harm must be eliminated), which requires the prevention of unjust outcomes, as well as *sadd al-dharā'iʿ*, which prohibits means that may lead to injustice. Accordingly, any technological process that produces systematic unfairness must be critically evaluated within the Shariah framework.

The impact of algorithmic bias varies depending on its effect on the essential elements of a contract. Where bias results in discriminatory pricing, unequal access to financing, undermines informed consent, pricing, or contractual terms, it may lead to *fasād* (defect) or *buṭlān* (invalidity). Such rules reflect on the violations the fundamental Shariah requirements of fairness and contractual integrity.

3. AI Personal Data Utilization Issue

The increasing reliance on data-driven decision-making in the financial sector has led to the widespread adoption of AI for processing personal data. Globally, financial institutions have begun integrating AI-powered chatbots not only for customer service but also for behavioural data collection and predictive analytics. In Malaysia, for instance, BIMB has introduced *ADAM*, an intelligent chatbot that provides instant guidance on Shariah-compliant financial products.[96] Similarly, institutions such as Maybank employ AI technologies to personalise financial offerings by analysing customer behaviour at the individual level, thereby enhancing engagement and customer loyalty.[97] These

[96] BIMB, "Bank Islam Malaysia Berhad," n.d, accessed June 19, 2025, https://www.bankislam.com/chat-with-adam/.

[97] Maybank Asset Management, "Maybank Asset Management Launches Ai-Powered Shariah-Compliant Discretionary Portfolio Mandate with Arabesque Ai," accessed June 19, 2025, https://www.maybank-am.com.my/w/maybank-asset-management-launches-ai-powered-shariah-compliant-discretionary-portfolio-mandate-with-arabesque-ai-1.; Syaima Adznan et al., "Islamic Banking and the Fourth Industrial Revolution: The Current Application, Adoption, and Future Challenges of Artificial Intelligence," in *The Future of Islamic Finance*, ed. Smolo, Edib and

initiatives are part of a broader trend toward creating inclusive and responsive financial systems.

Data is a new form of property *(māl)* and it is recognized in fiqh perspective. Traditionally, scholars define property as something that has value, can be owned, and is capable of control and transfer, typically referring to tangible assets.[98] However, contemporary scholars have expanded this definition to include intangible assets, provided they possess recognised value and benefit.[99] A study by Bouheraoua et al.[100] which echoing the position of the earlier traditional jurists, which data fall under the category of intangible property.

In the current era of advanced technologies, the data collected from communication with customer can be utilized by institutions to strategize for further operational enhancement and products offering. At the same time, this data can be sold to the other companies, as its value can have a significant impact on other institutions. Data trading involves the sale, purchase, or exchange of this personal data, either in raw form or as processed datasets to third parties such as advertisers, financial institutions, or data brokers.[101]

For example, the Cambridge Analytica scandal stands as a prominent illustration in which the personal data of millions of Facebook users was commercialised without their consent. Cambridge Analytica used a quiz application to harvest

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Raheem, Mohamed Mahees (Leeds, England: Emerald Publishing Limited, 2024), 207-219.

[98] Zaydān, *Naẓariyyah al-'Aqd*, 205.

[99] Saheed Adbullahi Busari, Hassan Suleiman, and Habeebullah Zakariyah, "Ownership Transfer of Digital Assets in Islamic Wealth Management: A Juristic Analysis," *Journal of Emerging Economies and Islamic Research* 11, no. 3 (2023): 36–47, https://doi.org/10.24191/jeeir.v11i3.22997.

[100] Said Bouheraoua et al., "Shariah Issues in Intangible Assets," *Jurnal Syariah* 23, no. 2 (2015): 287–324, https://doi.org/10.22452/js.vol23no2.5.

[101] Solon Barocas, Moritz Hardt, and Arvind Narayanan, *Fairness and Machine Learning: Limitations and Opportunities* (country: MIT press, 2023), 250.

psychographic data from up to 87 million users, which was then sold and employed to profile individuals and influence political decisions through microtargeting.[102]

More worryingly, this valuable data in the digital ecosystem is traded by tech companies or advertisers without adequate control, as happened in the case of the Rikunabi scandal in Japan when student data was sold to employers to assess their tendency to quit their jobs.[103] In many instances, users are not informed how their data is used or traded, thus compromising their rights over their own personal information and undermining the foundation of trust in AI technology.[104]

The data trading phenomenon raises serious concerns from an ethical, privacy, and fairness standpoint, particularly when personal data is collected, profiled, and sold without the knowledge or explicit consent of the user. This process is often not transparent, and even AI models used to analyze customer behavior patterns can reinforce systemic biases against certain groups through algorithms trained on disproportionate historical data.[105]

In the context of Islamic finance, these concerns are magnified, as Shariah emphasises justice, transparency, and the protection of individual rights. From a contemporary fiqh perspective, personal data may be classified as a form of property based on its recognised economic value (*qīmah*) and utility (*manfaʿah*), thereby subjecting it to rules of ownership (*milkiyyah*)

[102] J. Isaak and M. J. Hanna, "User Data Privacy: Facebook, Cambridge Analytica, and Privacy Protection," *Computer* 51, no. 8 (2018): 56–59, https://doi.org/10.1109/MC.2018.3191268.isaak

[103] Kudo Fumiko, Hiromi Arai, and Arisa Ema, "Ethical Issues Regarding the Use of Ai Profiling Services for Recruiting: The Japanese Rikunabi Data Scandal," *arXiv* (2020): 1–7, https://doi.org/10.48550/arXiv.2005.08663.

[104] Shahmar Mirishli, "Ethical Implications of Ai in Data Collection: Balancing Innovation with Privacy," *arXiv* (2025): 1–16, https://doi.org/10.48550/arXiv.2503.14539.

[105] Adanyin, "Ethical Ai in Retail: Consumer Privacy and Fairness," 1-17.

and protection.[106] The unauthorised use of personal data violates the principles of trust and public interest, and can be viewed as a breach of human dignity and sanctity. For example, if a company collects data of users and sell them to other party the question will raise if such action will be considered permissible or not from Shariah perspective. In response to that, the fatwa of Islamweb.net resolves that if the data of users protected by their right, the selling of such data will be considered as impermissible (*ḥarām)* due to the violations to their rights. However, if their data is open for public, selling of such data will be permissible.[107] Furthermore, the legal maxim: "acting upon the property or rights of others is impermissible without their consent" (*al-tasarruf fī māl al-ghayr lā yajūz illā bi idhn al-ghayr)*[108] reinforces the necessity of obtaining explicit permission before collecting or processing personal data.[109]

This principle also supports the recognition of personal data as a proprietary right (*ḥaqq mālī*), where unauthorised use constitutes unlawful appropriation (*taʿaddī*) and is impermissible, even in the absence of harm. Where no harm (*ḍarar*) is established and the essential elements of the contract remain unaffected, the transaction remains valid (*ṣaḥīḥ*), although the act remains sinful (*ithm*). However, where such misuse results in harm, the party responsible bears liability (*ḍamān*), and if it affects consent,

[106] Titis Thoriquttyas and Nita Rohmawati, "Maqasid Al-Sharia and the Digital Data Ownership: From Al-Shatibi to Jasser Auda," *Journal of Islamic Law on Digital Economy and Business* 1, no. 2 (02/27 2026): 168–81, https://doi.org/10.20885/JILDEB.vol1.iss2.art5.

[107] Islamweb.net, "Hukmu Jam'il Bayanat Minal Mawaqi' Al-Iliktroniyyah Bighairi Izni Ashabiha," Islamweb.net, accessed May 13, 2026, https://www.islamweb.net/ar/fatwa/51569/حكم-جمع-البيانات-من-المواقع-الإلكترونية-بغير-إذن-أصحابها.

[108] Mohd Shahid Mohd Noh and Mohd Zaidi Daud, *Kaedah-Kaedah Fiqh Dalam Muamalat Asas Dan Aplikasi* (Kuala Lumpur: Universiti Malaya Press, 2024), 50.

[109] al-Zuḥailī, "Short al-Tawarruq Haqīqatuhu, wa Anwāʻ Uhu (Al-Fiqhī al-Maʻ Rūf wa al-Maṣrāfī al-Munaẓẓam)."

pricing, or contractual fairness, the contract may be rendered invalid (*bāṭil*).[110]

Globally, several legal frameworks have been developed to address challenges posed by AI in areas such as liability for harm, intellectual property rights, fair lending practices, data privacy, and employment protection. However, the fundamental challenge lies in reconciling these frameworks with the unique nature of AI, which lacks the moral or legal subjectivity of human agents. This has led to increasing calls for AI-specific regulatory models that prioritise accountability, transparency, and adherence to ethical and humanitarian values.[111]

In light of these concerns, IFIs must develop a comprehensive compliance framework that includes ethical guidelines, operational standards, and Shariah-based protocols for the responsible use of AI. Such a framework must guarantee fairness, transparency, and accountability in all aspects of data collection and analysis, while upholding the privacy rights of customers. This approach will not only strengthen public trust in IFIs but also lay the foundation for a more ethical, inclusive, and Shariah-oriented financial ecosystem.[112]

Future Directions in Adapting AI in IFIs

The growing concerns among scholars regarding the implications of AI highlight the need for a comprehensive and well-structured strategy to safeguard adherence to Shariah principles. Among the Shariah principles that should be embodied in the adoption of AI such as the mutual consent of contracting parties, establishing the

[110] Usman Shihab Ahmad, Ikram Naif Muhammad, and Amir Muhammad Atiyah Alluhaibi, "Financial Rights and How Islam Preserved Them - the Theory of Money as a Model," *Durar Journal for Islamic Studies* 1, no. 2 (2024): 1–42, https://doi.org/10.62921/djis.2024.01201.

[111] Paulina Karolina Pankowska, *Framework on Ethical Aspects of Artificial Intelligence, Robotics and Related Technologies* (Amsterdam: European Union, 2020), 152.

[112] Sitiris and Busari, "The Legal Capacity (Al-Ahliyyah) of Artificial Intelligence from an Islamic Jurisprudential Perspective," 31-42.

legal capacity from Shariah perspective, avoiding *ribā, gharar* and *maysīr*, not causing any *ḍarar* or harm to the stakeholders, not leading to unethical activities. The following section outlines several pertinent aspects for in-depth exploration.

1. Preservation of Shariah Compliance

Ensuring Shariah compliance in the application of AI within IFIs requires an in-depth and holistic consideration of the principles of Islamic law, including prohibitions against *ribā*, *gharar*, and *maysīr* (gambling), unethical activities, as well as the imperative to avoid *ḍarar* (harm). These principles serve as ethical benchmarks that must be embedded throughout the lifecycle of any AI system.

One of the most pressing concerns is the risk of *ribā* replication through AI systems trained on conventional datasets. Many AI models, particularly those used in credit scoring and lending platforms, are developed using data from interest-based financial environments. Without careful filtration and ethical input curation, such models may unknowingly reproduce interest-like structures in Islamic contexts, contradicting the prohibition of *ribā*.[113] While the final product may appear Shariah-compliant in its contractual form, its underlying logic as according to researchers' view, may still be influenced by impermissible elements, particularly if the AI system, such as those used in credit scoring, is trained on externally sourced datasets containing conventional, interest-based financial assumptions. As observed by Shalhoob and Babiker,[114] AI applications that rely on unfiltered traditional financial data risk embedding non-Shariah-compliant patterns, even when their outputs superficially conform. Without explicitly defining Shariah-aligned parameters from the outset, the AI may inadvertently replicate *ribā*-based or otherwise unethical

[113] Abdullah et al., "Ai Applications for Fiqh Rulings in Islamic Banks–Shariah Committee Acceptance," 111-126.

[114] Hebah Shalhoob and Iman Babiker, "Exploration of Ai in Ensuring Sharia Compliance in If Institutions: Focus on Accounting Practices," *Open Journal of Business and Management* 13, no. 2 (2025): 1435–48, https://doi.org/10.4236/ojbm.2025.132075.

criteria, thereby undermining the integrity of the entire decision-making process.

Moreover, AI systems often operate as "black boxes," producing outcomes that are statistically accurate but logically unexplainable. In Islamic jurisprudence, however, the value of *bayān* (clarity) is integral to the validity of any transaction. The Qur'anic injunctions against ambiguity and deception reflect a broader concern for contractual transparency and informed consent as emphasized in Surah al-Baqarah (2:282), which instructs believers to document financial agreements clearly. The inability to trace or explain how an AI arrived at a decision, whether in investment selection, credit approval, or automated contract enforcement introduces elements of *gharar*, undermining the ethical foundation of Islamic transactions.[115] This concern is especially critical in smart contracts, where automation can lead to execution without sufficient understanding or agreement among the contracting parties.[116]

The use of predictive analytics and algorithmic decision-making as previously discussed also raises concerns related to *maysīr*. When AI models are built to maximise, gains based on volatile, probabilistic, or speculative behaviour such as in algorithmic trading, the risk mimicking the essence of gambling. In Islamic finance, wealth must be generated through real economic activity and risk-sharing, not through chance or zero-sum dynamics. AI systems that recommend products or investment opportunities solely based on high-risk, high-reward parameters could breach this boundary, especially if users are unaware of the speculative nature of such recommendations.[117]

[115] Alsaghir, "Digital Risks and Islamic Fintech: A Road Map to Social Justice and Financial Inclusion," 1-18.
[116] Kismawadi, Irfan, and Harahap, "Integrating Artificial Intelligence in Islamic Financial Management: Opportunities and Challenges in Maintaining Shariah Compliance," 273-288.
[117] Iqbal et al., "Ai in Islamic Finance: Global Trends, Ethical Implications, and Bibliometric Insights," 70-85.

An increasingly important but under-discussed dimension of Shariah compliance in AI is the protection of personal data and the mitigation of *ḍarar*. The concept of *ḍarar*, rooted in the legal maxim: "no harm shall be inflicted nor reciprocated" (*lā darar wa lā dirār)*,[118] requires Islamic institutions to safeguard individual welfare in all aspects. AI systems depend heavily on personal data, ranging from financial records and behavioural patterns to geospatial and biometric inputs. Mishandling, profiling, or exploiting such data can lead to substantial ethical harm, privacy breaches, and even systemic discrimination. According to Nawi et al.,[119] the use of AI has prompted global attention to data ethics, with frameworks like the EU Artificial Intelligence Act (EU AI Act) (Europen Commission, 2024) emerging to protect user rights. Islam's teachings align closely with modern data protection standards. The Qur'an emphasizes the sanctity of personal privacy, for example, *Surah al-Ḥujurāt* (49:12) and *Surah al-Nūr* (24:27) both forbid unwarranted intrusion and uphold respect for private boundaries. It is related with contemporary cybersecurity and data privacy norms, particularly around privacy, honesty, and the prevention of harm.[120]

Ultimately, compliance with Islamic law must be deeply systemic, critically reflective, and spiritually accountable. Islamic finance is distinguished not only by what it prohibits, but by what it promotes, including transparency, trust, fairness, and human dignity. Therefore, AI in IFIs must be shaped by values that transcend mere technical efficiency and are rooted in a divine ethical framework.

[118] Mohd Noh and Daud, *Kaedah-Kaedah Fiqh Dalam Muamalat Asas Dan Aplikasi*, 60.
[119] Nawi et al., "A Preliminary Survey of Muslim Experts' Views on Artificial Intelligence," 3-16.
[120] Soleh Hasan Wahid, "Exploring the Intersection of Islam and Digital Technology: A Bibliometric Analysis," *Social Sciences & Humanities Open* 10 (2024): 1–28, https://doi.org/10.1016/j.ssaho.2024.101085.

2. Compliance with the Objective of Shariah (*Maqāṣid al-Sharī'ah*)

One of the most concern related to AI application in Islamic finance is ethical values, including fairness and transparency. Ethical-compliance is the higher moral standard to compliment Shariah compliance.[121] This means that the application of AI in Islamic finance is not just compliant with Shariah in the context of form, but takes into account its substance by prioritizing social justice, integrity, and the well-being of the parties involved.[122] For instance, a product can be legal in terms of fiqh but still fail to meet the demands of Islamic ethics if it ignores the principles of *maqāṣid*.

In regard to preservation of wealth (*ḥifẓ al-māl*) in *maqāṣid al-Sharī'ah,* the adoption of AI seems helpful for people to navigate their wealth in different portfolios. In addition, it is convenient for the people to track their financial activities through adopting AI. However, a user should also consider that relying on AI may cause unexpected events in their financial activities, which may lead to lose their wealth or property. The 2012 Knight Capital incident demonstrates the risks of opaque automated financial systems, where a software error caused unintended market transactions and massive financial losses.[123] Similarly, in 2021, Zillow's AI-based pricing system led the company to enter property contracts at inflated prices, resulting in losses exceeding USD 500 million. These cases show that reliance on automated or AI-driven systems in financial transactions may create unintended contractual liabilities and substantial financial losses.[124] These

[121] Abdullah Haron and Ahmad Zakirullah Mohamed Shaarani, *Ethics in Islamic Finance* (Kuala Lumpur: IBFIM, 2013), 5-10.

[122] Habib Ahmed, "Maqasid Al-Shari'ah and Islamic Financial Products: A Framework for Assessment," *ISRA International Journal of Islamic Finance* 3, no. 1 (2011): 149–60, https://journal.inceif.edu.my/index.php/ijif/article/view/116.

[123] Securities and Exchange Commission, "Sec Charges Knight Capital with Violations of Market Access Rule," accessed May 14, 2026, https://www.sec.gov/newsroom/press-releases/2013-222.

[124] Patrick J. Kiger, "Flip Flop: Why Zillow's Algorithmic Home Buying Venture Imploded," accessed May 14, 2026,

cases show that reliance on AI in financial transactions may lead to unexpected contractual liabilities and major financial losses. Hence, considering strategies in preserving the wealth and to avoid any unexpected events is essential.

Shariah governance constitutes the backbone of Islamic financial institutions, as it ensures compliance with Shariah principles and minimises the occurrence of Shariah non-compliance events. Nevertheless, the governance of AI applications requires a distinct and more adaptive approach due to the unique characteristics of AI, including opacity, autonomy, and automated decision-making.[125] Hence, a comprehensive Shariah governance framework is essential to ensure that the application of AI remains aligned with Shariah principles and subsequently safeguards the preservation of wealth for users in the contemporary era.

For example, to mitigate algorithmic bias and AI opacity in decision-making processes, institutions should adopt explainable AI (XAI) frameworks such as SHAP and LIME, alongside robust testing and validation mechanisms.[126] User informed consent must also be obtained to ensure transparency regarding the implications of AI-driven data processing. In addition, institutions should establish clear ethical boundary clauses governing AI deployment and usage.[127] Finally, continuous Shariah audits, real-time compliance monitoring, and effective oversight mechanisms should be integrated into operational practices.[128] Accordingly, the implementation of AI in

https://www.gsb.stanford.edu/insights/flip-flop-why-zillows-algorithmic-home-buying-venture-imploded.

[125] Kismawadi, Irfan, and Harahap, "Integrating Artificial Intelligence in Islamic Financial Management: Opportunities and Challenges in Maintaining Shariah Compliance," 273-288.

[126] Alsaghir, "Digital Risks and Islamic Fintech: A Road Map to Social Justice and Financial Inclusion," 1-18.

[127] Salami et al., "Addressing Bias and Data Privacy Concerns in Ai-Driven Credit Scoring Systems through Cybersecurity Risk Assessment," 59-82.

[128] Ella Gorian and Noor Dzuhaidah Osman, "Digital Ethics of Artificial Intelligence (Ai) in Saudi Arabia and United Arab Emirates," *Malaysian Journal of Syariah and Law* 12, no. 3 (2024): 583–97, https://doi.org/10.33102/mjsl.vol12no3.798.

IFIs can preserve Shariah compliance while simultaneously fostering technological innovation.

3. Effective Awareness and Promotions through Innovation, Collaboration and Education

In response to the advancements of AI, scholars have issued strong calls for effective application. In response to the advancement of AI, scholars have issued a strong call for effective applications. To ensure that AI applications meet Shariah standards, one of the most important aspects that needs to be taken into account is cross-disciplinary collaboration involving fuqaha (scholars), technologists, regulators, and industry practitioners to ensure that scholars stand on a common understanding of this technology and smoother discussions related to it. Such collaboration can help bridging the gap between Shariah principles and technical realities.

Continuous education towards AI also significant step to be taken. The rapid evolution of AI is making existing knowledge about it quickly obsolete, requiring professionals and researchers to constantly update their understanding of the latest technology, risks, and ethical aspects. The knowledge gap that exists between the development of AI and the capacity of users to understand it can lead to misuse, ethical concerns, and policy implementation errors.[129] Therefore, continuing education initiatives aimed at increasing critical awareness of AI including technical training, understanding of human values, and understanding of social impacts need to be systematically implemented at various levels of organizations, including in higher education institutions.[130]

[129] Ernesto Giralt Hernandez, "Towards an Ethical and Inclusive Implementation of Artificial Intelligence in Organizations: A Multidimensional Framework," *arXiv:2405.01697* (2024): 1–15, https://doi.org/10.48550/arXiv.2405.01697.

[130] Maya Usher and Miri Barak, "Unpacking the Role of Ai Ethics Online Education for Science and Engineering Students," *International Journal of STEM Education* 11, no. 35 (2024): 1–14, https://doi.org/10.1186/s40594-024-00493-4.

Foster continuous innovation, and dedicated research centers for AI and Islamic Finance can be set up to explore new solutions. Training and skill development for human resources is essential to ensure that professionals in the industry have the necessary skills to effectively implement and manage AI technology. International collaboration will also accelerate AI adoption and innovation, with the exchange of knowledge and best practices between IFI in different countries.[131] This is very important because technology, including AI, is developing rapidly and it requires having consistent understanding among Shariah scholars and swift decisions to ensure Shariah compliance in applications.[132]

CONCLUSION

The study identifies that the application of AI technology in IFIs has great potential to improve operational efficiency and drive service innovation. However, it also raises concerns among scholars from the point of view of Shariah compliance, especially regarding the issue of AI capacity and qualification from legal aspects, algorithmic bias, and the use of personal data using this technology. The implications of the study point to the urgent need to build a new compliance framework that is more responsive to AI's unique features such as automation, data usage, and legal accountability. Therefore, this research recommends strengthening focus on the development of a comprehensive AI Shariah compliance model, compliance with *maqāṣid al-Shariah*, as well as close collaboration between technology experts and Shariah scholars to ensure that Islamic finance remains relevant, progressive and competitive in the digital age. Future research might consider providing a Shariah framework for adopting AI in IFIs focusing on a specific segment of financial services i.e. banking, investment, and capital market.

[131] Kismawadi, Irfan, and Harahap, "Integrating Artificial Intelligence in Islamic Financial Management: Opportunities and Challenges in Maintaining Shariah Compliance," 273-288.
[132] Zafar and Ali, "Shariah Governance Standard on Generative Ai for Islamic Financial Institutions," 1-31.

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