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ARTIFICIAL INTELLIGENCE AND SHARĪʿAH AUDIT: DEVELOPING ETHICAL GOVERNANCE MODELS FOR ISLAMIC FINANCIAL INSTITUTIONS

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ABSTRACT

The convergence of artificial intelligence (AI) with Sharīʿah audit mechanisms presents a transformative opportunity for Islamic financial institutions (IFIs) seeking to reinforce ethical governance amid rapid digital disruption. This study investigates how AI-driven tools including natural language processing, machine learning, and blockchain-integrated audit systems can be systematically embedded within the Sharīʿah governance architecture of IFIs without compromising the primacy of divine normativity enshrined in Islamic jurisprudence. Drawing upon a systematic literature review of 40 peer-reviewed sources spanning 2022–2026, complemented by a conceptual framework grounded in Maqāṣid al-Sharīʿah, this paper develops the AI-Integrated Sharīʿah Governance (AISG) model a tiered, ethically bounded architecture that maps AI functionalities to discrete audit domains. The study identifies five principal governance dimensions: compliance automation, fatwa advisory augmentation, risk surveillance, transparency enhancement, and accountability reporting. Findings demonstrate that while AI substantially increases audit efficiency and real-time compliance monitoring, persistent challenges encompassing algorithmic opacity, data sovereignty concerns, the irreplaceability of human scholarly discretion, and cross-jurisdictional regulatory fragmentation must be systematically resolved. The AISG model offers a replicable framework for regulators, Sharīʿah supervisory boards, and fintech developers operating across Muslim-majority and dual-banking jurisdictions. This research contributes to the nascent body of knowledge on AI governance in Islamic finance, offering both theoretical scaffolding and actionable policy recommendations.

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A. INTRODUCTION

The global Islamic finance industry has reached an extraordinary threshold of institutional maturity, yet the governance architecture underpinning it has struggled to keep pace with its exponential expansion. Total assets within the sector are projected to surpass USD 6 trillion by 2026, driven by sustained demand across retail and corporate banking, sukuk issuance, takaful, and Islamic capital markets operating across more than 80 jurisdictions worldwide (Islamic Financial Services Board (IFSB, 2024). This remarkable growth, however, has simultaneously exposed a structural vulnerability that regulators, scholars, and practitioners are increasingly unable to ignore: the Sharīʿah audit function the institution charged with verifying the religious and ethical integrity of Islamic financial transactions continues to operate through predominantly manual, human-intensive methodologies that are fundamentally ill-suited to the velocity, volume, and complexity of contemporary financial operations. The widening disparity between institutional scale and compliance infrastructure represents not merely an operational inefficiency, but a systemic governance risk that, if unaddressed, threatens to erode the very legitimacy upon which Islamic finance derives its distinctive value proposition (Grais & Pellegrini, 2006; Hasan, 2014). Against this backdrop, artificial intelligence has emerged as a potentially transformative response one capable of augmenting human oversight, automating routine compliance screening, and generating real-time analytical intelligence that would be prohibitively resource-intensive to produce through conventional auditing methods alone.

To appreciate the full weight of this challenge, it is necessary to understand what distinguishes Sharīʿah audit from its conventional counterpart and why the stakes of its reform are uniquely high. Conventional financial auditing, while technically demanding, is fundamentally concerned with the accuracy of financial statements, adherence to accounting standards such as IFRS or GAAP, and compliance with applicable regulatory frameworks objectives that are, in principle, amenable to systematic quantification and verification (Karim, 1990). Sharīʿah audit, by contrast, carries an irreducibly dual mandate: it must simultaneously assess whether financial transactions satisfy formal regulatory requirements and whether they conform to the normative principles derived from the Qur'ān, the authenticated Sunnah of the Prophet ﷺ, analogical reasoning (qiyās), and the scholarly consensus (ijmāʿ) of qualified Islamic jurists (AAOIFI, 2017). This second dimension is not merely supplementary; it is constitutive of the entire enterprise. An Islamic financial institution that is financially solvent but Sharīʿah non-compliant is, from the standpoint of its depositors and investors, fundamentally deficient having violated the terms of trust upon which the institution-client relationship is premised (Ginena & Hamid, 2015). The governance environment that results from this dual obligation is simultaneously rule-bound, in that certain prohibitions such as ribā (interest), gharar (excessive uncertainty), and maysir (speculation) admit no contextual exceptions, and judgment-dependent, in that many complex financial structures require nuanced scholarly deliberation that cannot be reduced to binary compliance determinations (Dusuki, 2011; Usmani, 2002). This irreducible complexity is precisely what makes the integration of artificial intelligence into Sharīʿah audit both intellectually compelling and institutionally precarious.

The institutional context into which AI is being introduced is itself shaped by decades of evolving governance frameworks that have progressively formalised the Sharīʿah audit profession without yet achieving global standardisation. The Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI) has been the primary standard-setting body in this domain, publishing Sharīʿah standards, governance standards, and auditing and ethics standards that have been adopted in varying degrees across Bahrain, Pakistan, Sudan, and several other jurisdictions (AAOIFI, 2021). The Islamic Financial Services Board (IFSB) has complemented this work through prudential standards that embed Sharīʿah governance requirements within broader risk management frameworks (IFSB, 2009). Nationally, jurisdictions such as Malaysia through Bank Negara Malaysia's Shariah Governance Framework (2019) and its predecessor (2010) and Indonesia through the Otoritas Jasa Keuangan's (OJK, 2023) regulatory

guidelines for Islamic financial institutions have developed relatively sophisticated institutional architectures that mandate independent Sharīʿah supervisory boards, internal Sharīʿah audit functions, and periodic external Sharīʿah reviews (Bank Negara Malaysia, 2019; OJK, 2020). The UAE and Saudi Arabia, anchored respectively by the Dubai International Financial Centre framework and the Saudi Central Bank (SAMA) guidelines, have similarly invested in institutionalising Sharīʿah oversight (CBUAE, 2023; SAMA, 2022). Yet across all these jurisdictions, the automation of Sharīʿah audit processes remains nascent and largely uncoordinated, reflecting the absence of a principled governance model that specifies how AI tools should be integrated without compromising the integrity of scholarly deliberation a gap that this paper directly addresses.

Despite growing scholarly interest in the intersection of technology and Islamic finance governance, the academic literature remains characterised by a fragmentation that limits its cumulative theoretical and practical contribution. Studies have made meaningful but narrowly scoped advances across several sub-domains. In the area of compliance screening, Shalhoob (2025) demonstrated that machine learning algorithms can identify Sharīʿah-inconsistent transaction patterns with significantly higher accuracy and speed than manual review processes, though the study's scope was confined to equity screening within Gulf Cooperation Council (GCC) markets and did not address audit documentation or scholarly validation workflows. Dey et al. (2025) examined predictive analytics applications within Islamic banking operations, finding that AI-powered credit risk models could be calibrated to exclude interest-bearing instruments while maintaining predictive accuracy comparable to conventional models a technically significant finding that nonetheless leaves unaddressed the broader question of how such tools fit within a holistic Sharīʿah governance architecture. Elmahjub (2023) contributed a foundational conceptual framework for benchmarking AI systems against Islamic jurisprudential principles, arguing that the objectives of Islamic law *(maqāṣid al-Sharīʿah)* provide a coherent normative standard for evaluating the ethical acceptability of algorithmic decision-making an important theoretical advance that, however, stops short of operationalising this framework within the specific context of Sharīʿah audit. Related work by Muhammed & Muneeza (2022) explored blockchain applications in sukuk documentation, while Hassan et al. (2021) examined fintech disruption in Islamic financial intermediation more broadly. The cumulative picture that emerges is one of disciplinary promise constrained by fragmentation: the existing literature illuminates individual components of the AI-Islamic finance governance nexus without assembling them into a unified, operationally actionable model. Specifically, no extant study has proposed a comprehensive governance framework that specifies, at the level of institutional architecture, how AI tools should be tiered, governed, and constrained within a Sharīʿah audit system—a lacuna that constitutes the primary research gap this paper addresses.

The urgency of bridging this gap is compounded by a set of converging pressures that are reshaping the operational and regulatory environment of Islamic finance with considerable speed. *First,* digital transformation mandates are accelerating across key jurisdictions: Bank Negara Malaysia's Financial Sector Blueprint 2022–2026 explicitly calls for the adoption of supervisory technology (SupTech) and regulatory technology (RegTech) tools within Islamic financial institutions (Bank Negara Malaysia, 2022); the UAE's FinTech Strategy 2031 similarly envisions AI-driven compliance systems as a cornerstone of financial governance (UAE Ministry of Economy, 2023). *Second,* the volume and structural complexity of Islamic financial transactions have grown to a point where even well-resourced Sharīʿah audit functions face capacity constraints in conducting meaningful transaction-level review a problem that is particularly acute in the sukuk market, where deal structures routinely involve multi-jurisdictional asset pools, nested special purpose vehicles, and layered contractual arrangements that challenge manual documentation review (Moody's Investors Service, 2023). *Third,* a global shortage of qualified Sharīʿah scholars with both deep jurisprudential expertise and sufficient familiarity with

complex financial instruments has created a concentration risk in the governance ecosystem, with a small number of prominent scholars serving simultaneously on the Sharīʿah supervisory boards of multiple competing institutions a practice that raises independent concerns about the depth and rigour of oversight that any individual can realistically provide (Farook & Farida Hj. Mohd Faruk, 2011; Hasan, 2009). Against this convergence of institutional pressures, the absence of a principled AI governance framework is not merely a theoretical lacuna but a strategic liability with material consequences for the credibility and resilience of Islamic financial institutions globally.

This paper addresses the foregoing gap through a structured, multi-method inquiry organised around three interrelated objectives that collectively advance both the theoretical and practical frontiers of Islamic finance governance scholarship. The first objective is systematic and cartographic: to map, with greater comprehensiveness and analytical rigour than prior studies, the current terrain of AI applications within Sharīʿah audit and Islamic finance governance, delineating both the demonstrated capabilities of existing tools and the boundaries of their appropriate application. The second objective is critical and jurisprudential: to analyse the ethical, epistemological, and theological tensions that arise when algorithmic systems are introduced into a domain historically governed by human scholarly authority, attending particularly to questions of delegated authority (tawkīl), the permissibility of automated fatwa-adjacent determinations, and the accountability implications of AI-mediated compliance judgements. The third objective is constructive and institutional: to propose the AI-Integrated Sharīʿah Governance (AISG) model—a tiered ethical architecture that delineates appropriate domains of AI functionality at each level of the Sharīʿah audit process while rigorously preserving the epistemic and juridical authority of qualified human scholars at points of genuine normative deliberation. The AISG model is designed not as a speculative ideal type but as an operationally actionable framework that can be adapted to the specific regulatory and institutional contexts of jurisdictions at different stages of Islamic finance development. The paper proceeds as follows: Section 2 reviews the relevant literature across the intersecting domains of Sharīʿah governance, AI ethics, and Islamic fintech; Section 3 outlines the research methodology, including the systematic review protocol and analytical framework employed; Section 4 presents the empirical and conceptual findings through the lens of the AISG model; Section 5 discusses the theoretical contributions and practical implications for regulators, institutions, and scholars; and Section 6 concludes with forward-looking policy recommendations calibrated to the institutional realities of key jurisdictions.

B. LITERATURE REVIEW

1. AI in Islamic Financial Governance: An Emerging Frontier

The application of AI in financial services has accelerated dramatically since the late 2010s, with machine learning, natural language processing (NLP), robotic process automation (RPA), and blockchain-integrated systems fundamentally altering the audit landscape (Fedyk et al., 2022; Han et al., 2023). Within Islamic finance specifically, scholars have identified AI as a dual-natured phenomenon: simultaneously a mechanism for enhanced Sharīʿah compliance and a source of novel ethical risks that must be evaluated through an Islamic normative lens (Iqbal et al., 2025; Rabbani et al., 2022).

Shalhoob (2025) demonstrated that AI-driven compliance tools enhance both efficiency and transparency in Sharīʿah screening processes, enabling near-real-time identification of prohibited transactions such as those involving ribā, gharar, or maysir. Similarly, Mbaidin et al., (2023) found that AI integration, when coupled with robust governance standards, significantly improves financial reporting quality in Islamic banks. These findings align with Bin-Nashwan et al. (2024), who established a TOE-TAM-RDT integrated model showing that AI adoption redefines auditing efficiency and reduces information asymmetry in financial reporting.

At the regulatory interface, Arsyad et al. (2025) identified systemic oversight challenges arising from AI deployment in Islamic finance, including jurisdictional ambiguity, fiduciary accountability gaps, and the absence of standardized AI audit protocols. Baharom (2025) provided a conceptual framework linking AI adoption to internal audit effectiveness in IFIs, highlighting the transformative potential of machine learning in enhancing audit scope without proportional increases in audit costs. Meanwhile, Raza et al. (2026) specifically examined the Malaysian context, finding that AI reimagines Sharīʿah audit effectiveness through automation of routine verification tasks while raising concerns about auditor deskilling.

2. Maqāṣid al-Sharīʿah as an Ethical Framework for AI Governance

The Maqāṣid al-Sharīʿah the overarching objectives of Islamic law encompassing the preservation of religion (dīn), life (nafs), intellect (ʿaql), lineage (nasl), and property (māl) provides a robust normative architecture against which AI governance frameworks can be evaluated. Habib, (2025) demonstrated that AI systems can be assessed through this framework by examining their impact on each Maqāṣid dimension, concluding that AI poses particular risks to ʿaql (intellectual autonomy) when deployed without adequate human oversight.

Azizov et al. (2025) extended this analysis to digital asset regulation, proposing a Maqāṣid-based framework for fintech governance in Muslim jurisdictions that balances innovation imperatives with divine normative constraints. Sawari et al. (2025) applied related principles specifically to Sharīʿah financial compliance for SMEs, while Kholis (2025) demonstrated the utility of Abu Zahrah's Maqāṣid framework in evaluating Islamic insurance products. These works collectively establish Maqāṣid al-Sharīʿah as the most appropriate foundational lens through which AI governance in IFIs should be constructed.

3. Ethical Tensions and Governance Challenges

A recurring theme in the literature concerns the ethical tensions inherent in delegating normative judgment to algorithmic systems. Billah and Zahid (2026) argued persuasively that AI in Islamic fatwa advisory must operate strictly within a 'human-in-the-loop' paradigm, preserving the irreplaceable scholarly authority of qualified jurists while leveraging AI for computational assistance. Usmonov (2025) extended this critique to AI-generated fatwas transmitted through digital media, identifying risks of epistemic fragmentation and the commodification of religious authority.

Elmahjub (2023) proposed a pluralist ethical benchmarking framework for AI development that incorporates Islamic normative principles alongside secular ethics, arguing that Islamic ethical traditions offer unique contributions particularly regarding trusteeship (amānah) and harm prevention (dar' al-darar) to global AI governance discourse. Ali et al., (2025) evaluated existing AI approaches through 'trusteeship ethics' derived from the concept of Khilāfah, finding significant alignment between Islamic ethical imperatives and emerging global AI governance principles.

The governance gaps dimension is addressed by Mohamad & Sulong (2025), who identified critical institutional lacunae in Sharīʿah non-compliance detection within IFIs, concluding that existing regulatory responses are inadequate to address the volume and velocity of AI-mediated transactions. Schiff et al. (2024) documented the global emergence of AI ethics auditing as a distinct professional practice, drawing parallels applicable to the Islamic finance context. Nwachukwu et al. (2025) proposed a control-by-design approach to AI governance in accounting that resonates with Sharīʿah supervisory board functions.

4. Practical Applications: From Theory to Institutional Reality

Jokhio & Jaffer (2024) conducted an experimental study of generative AI in Sharīʿah advisory functions, finding that large language models can correctly interpret established fiqh rulings with approximately 74% accuracy when properly prompted a promising but

insufficient threshold for autonomous advisory deployment. Hamadou et al. (2024) examined Bank Syariah Indonesia as a case study of AI implementation in Islamic banking, identifying measurable improvements in customer service, credit assessment, and fraud detection, while noting persistent gaps in Sharīʿah-specific AI customization.

Alghadi et al. (2023) investigated how AI enhances cyber governance in Islamic banks, demonstrating significant improvements in cybersecurity posture moderated by COVID-19 pandemic effects. Qader & Çek (2024) found that blockchain and AI integration substantially improves audit quality in conventional banking contexts, findings with direct transferability to Islamic audit functions. The convergence of Bayesian learning with Sharīʿah principles for Islamic financial analytics was explored by Sidik et al. (2026), who identified novel applications in risk-adjusted product structuring.

Seethamraju & Hecimovic (2022) provided foundational empirical evidence on AI adoption patterns in auditing more broadly, establishing a baseline against which Islamic audit-specific adoption can be measured. Fritz-Morgenthal et al. (2022) demonstrated that explainable, trustworthy, and responsible AI constitutes a prerequisite for deployment in financial risk management a finding with particular resonance for Sharīʿah audit contexts where algorithmic opacity is a critical ethical concern.

C. METHOD

1. Research Design

This study adopts a qualitative, theory-building research design anchored in systematic literature review (SLR) methodology, complemented by conceptual framework development. The SLR protocol followed PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines adapted for management and Islamic finance research. Forty peer-reviewed sources were identified through targeted database searches across Scopus, Web of Science, and Google Scholar using Boolean search strings combining terms such as 'artificial intelligence,' 'Sharīʿah audit,' 'Islamic finance governance,' 'AI ethics Islamic,' and 'Maqāṣid fintech.' Sources were restricted to the period 2022–2026 to capture the most current developments in this rapidly evolving field.

The conceptual AISG model was developed through iterative thematic synthesis, drawing on interpretive methods appropriate for normative, jurisprudentially grounded research domains. The model's architecture was validated through triangulation against established Islamic governance frameworks specifically the AAOIFI Governance Standards, IFSB-10 Guiding Principles, and BNM's Shariah Governance Framework ensuring regulatory coherence alongside theoretical rigour.

2. Data Collection and Analysis Procedure

The 40 source documents were subjected to three-stage thematic analysis. In Stage One, each document was coded according to primary focus area (AI applications, governance frameworks, ethical analysis, regulatory dimensions, or case studies). Stage Two involved cross-document pattern identification, yielding five principal thematic clusters. Stage Three synthesised these clusters into the AISG model's tiered architecture. Throughout this process, analytical rigour was maintained through researcher triangulation, audit trails, and reflexive journaling to mitigate confirmation bias.

Thematic Cluster	Number of Sources	Primary Journals/Venues	Methodology in Sources
AI Applications in Audit & Compliance	11	JIABR, DSL, IJRISS, Heliyon	Conceptual, Empirical, Case Study
Ethical & Islamic	9	Phil. & Tech., KARSA, IJIS	Normative, Interpretive

Thematic Cluster	Number of Sources	Primary Journals/Venues	Methodology in Sources
Philosophy of AI			
Governance Frameworks & Regulatory	8	IJLMA, JFC, IJFUS, Owner	SLR, Doctrinal Legal
AI in Financial Reporting & Accounting	7	IJDNS, FARJ, CHBR, JISEM	Quantitative, Mixed-Methods
Islamic Fintech & Digital Innovation	5	MF, RJSFE, Paradoks, Inf.	Bibliometric, Exploratory

Table 1. Thematic Classification of Literature Sources (n = 40)

3. Inclusion and Exclusion Criteria

Table 2 presents the criteria applied during the systematic screening process. Initial database searches yielded 284 potentially relevant documents. After applying inclusion/exclusion criteria across three screening rounds (title screening, abstract screening, and full-text review), 40 documents were retained for substantive analysis.

Criterion Type	Criterion	Rationale
Inclusion	Published 2022–2026	Ensures relevance to current AI capabilities
Inclusion	Peer-reviewed journal or conference proceeding	Scholarly validity and reproducibility
Inclusion	Focus on AI, Sharīʿah governance, or Islamic finance ethics	Direct thematic alignment
Inclusion	English or bilingual (English abstract available)	Analytical accessibility
Exclusion	Opinion pieces, editorials, or non-peer-reviewed reports	Insufficient methodological rigour
Exclusion	Sources addressing conventional finance only without Islamic applicability	Domain irrelevance
Exclusion	Duplicate publications or predatory journal sources	Quality assurance

Table 2. Inclusion and Exclusion Criteria for Systematic Literature Review

D. RESULT NAD DISCUSSION

Result

1. The AI-Integrated Sharīʿah Governance (AISG) Model: Overview

The central contribution of this paper is the AI-Integrated Sharīʿah Governance (AISG) model a tiered ethical architecture designed to provide a systematic, normatively coherent framework for integrating AI into the Sharīʿah audit and governance functions of Islamic financial institutions. The model comprises three tiers of increasing analytical complexity: (1) Operational AI (task automation), (2) Advisory AI (analytical augmentation), and (3) Supervisory AI (strategic governance support). Critically, the model preserves absolute

human scholarly authority at the highest normative tier, employing AI strictly as a subsidiary tool rather than a jurisprudential agent.

Each tier maps to specific AI functionalities and corresponding Maqāṣid al-Sharīʿah dimensions, ensuring that technological implementation remains grounded in Islamic purposive ethics. The model also incorporates an Ethical Boundary Layer (EBL) a set of normative guardrails derived from Islamic principles of amānah (trust), ʿadl (justice), and maṣlaḥah (public welfare) that operates horizontally across all tiers to ensure that AI deployment never contravenes divine normativity regardless of efficiency gains.

AISG Tier	AI Functionality	Sharīʿah Audit Domain	Maqāṣid Alignment	Human Oversight Level
Tier 1: Operational	RPA, Rule-Based NLP	Transaction screening, contract classification	Māl (Property protection)	Low (automated with exception alerts)
Tier 1: Operational	Anomaly detection algorithms	Prohibited element identification (ribā, gharar)	Māl + Dīn (Religious integrity)	Medium (periodic human review)
Tier 2: Advisory	ML predictive models	Risk profiling & Sharīʿah risk scoring	Nafs + Māl (Life & property)	High (advisory only, human decides)
Tier 2: Advisory	Generative AI (LLM)	Fatwa research assistance, precedent retrieval	ʿAql (Intellectual preservation)	Very High (scholar validation mandatory)
Tier 3: Supervisory	Explainable AI dashboards	Board reporting, governance transparency	ʿAdl (Justice) + Nasl	Absolute (scholars retain authority)
Tier 3: Supervisory	Blockchain audit trail	Immutable compliance records, ESG reporting	Dīn + Māl (All-round integrity)	Absolute (immutable record, human validated)

Table 3. The AI-Integrated Sharīʿah Governance (AISG) Model — Tiered Architecture

2. Operational AI: Automating Routine Compliance

At the operational tier, AI performs high-frequency, rule-bounded tasks that are well-defined, repetitive, and documentable precisely the conditions under which algorithmic systems demonstrate superior accuracy and consistency over human manual processes. The most mature application within this tier is automated transaction screening, wherein NLP-based classifiers analyse contractual documents, term sheets, and transaction records against a pre-coded repository of Sharīʿah-prohibited elements.

The empirical evidence supporting this application is robust. Shalhoob (2025) demonstrated that AI-enhanced Sharīʿah compliance screening reduces false-negative rates instances in which prohibited elements evade detection by up to 38% relative to manual review processes. Bas et al. (2025) documented implementation outcomes in Indonesian Islamic banking, where AI-based compliance systems processed up to 94% of routine transactions within regulatory parameters without human intervention, releasing audit resources for more complex judgments. Kismawadi et al. (2024) specifically examined AI's capacity to combat fraud in Islamic financial institutions, finding that machine learning anomaly detection identifies suspicious transaction patterns with 91% recall substantially outperforming rule-based legacy systems.

The Maqāṣid alignment of Tier 1 operations centres primarily on Māl protection of property and financial rights. By ensuring that ribā-bearing instruments, gharar-laden contracts, and maysir-adjacent products are systematically flagged before execution, operational AI directly serves the Maqāṣid imperative of preserving legitimate financial welfare. However, the literature cautions that Tier 1 systems must be subject to continuous recalibration, as AI models trained on historical compliance data may systematically misclassify novel financial instruments a particularly acute concern in an industry characterised by ongoing product innovation.

3. **Tier 2 Advisory AI: Augmenting Scholarly Judgment**

The advisory tier represents the most intellectually complex and normatively sensitive domain of AI integration within the AISG model. Here, AI systems perform analytical augmentation functions generating probabilistic risk assessments, retrieving and synthesising scholarly precedents, and producing structured information to support Sharīʿah scholars in issuing rulings and conducting complex audits. Crucially, Tier 2 AI operates strictly in an advisory capacity; all substantive determinations remain the exclusive prerogative of qualified human scholars.

The experimental evidence from Jokhio & Jaffer (2024) is particularly instructive. Their study found that while generative AI models could correctly interpret established fiqh positions with approximately 74% accuracy, performance deteriorated markedly on contested jurisprudential questions, minority scholarly opinions, and cases requiring contextual ijtihād. This finding is consistent with Billah & Zahid (2026) framework, which stipulates that AI in Islamic advisory contexts must always function within a human-in-the-loop paradigm—a principle the AISG model formally encodes as an Ethical Boundary Layer constraint at this tier.

Risk profiling applications at this tier leverage machine learning to generate Sharīʿah risk scores for proposed products and portfolios—quantitative assessments of the probability and magnitude of non-compliance exposure. Desky et al. (2025) demonstrated that AI-driven risk management in IFIs substantially improves the identification of concentration risks in Sharīʿah-sensitive asset classes. Desky et al., (2025) and Wazin et al., (2025) conducted a SWOT analysis of AI in Islamic financing risk assessment from a fiqh perspective, concluding that the technology's strengths speed, scalability, consistency—are most effectively leveraged when bounded by jurisprudential guardrails that limit autonomous decision-making.

4. **Tier 3 Supervisory AI: Governance Transparency and Accountability**

The supervisory tier addresses the institutional governance dimension of Sharīʿah compliance specifically, how AI can enhance the accountability, transparency, and strategic reporting functions of Sharīʿah supervisory boards (SSBs). This tier is explicitly concerned with governance architecture rather than individual transaction compliance, and its AI applications are designed to serve the informational needs of SSBs, regulators, and external stakeholders rather than to automate governance decisions.

Explainable AI (XAI) dashboards constitute the primary technology at this tier. Drawing on Mbaidin et al.'s (2023) findings regarding AI's positive impact on financial reporting quality, the AISG model prescribes XAI systems that present Sharīʿah compliance performance data in formats directly interpretable by non-technical scholars visualising compliance trajectories, flagging emerging governance gaps, and benchmarking institutional performance against industry standards. This approach directly addresses the algorithmic opacity problem identified as a primary governance concern (Mohamad & Sulong, 2025; Schiff et al., 2024).

Blockchain integration at the supervisory tier serves an immutable audit trail function ensuring that all Sharīʿah audit findings, board resolutions, and compliance determinations are recorded in tamper-proof distributed ledgers. Alsalih (2026) evaluated this application in depth, finding that blockchain substantially enhances the credibility and verifiability of

Sharīʿah-compliant accounting claims. Qader & Çek, (2024) corroborated these findings in the broader audit context. Astuti et al. (2026) further demonstrated that Sharīʿah audit integration with ESG compliance frameworks facilitated by AI analytics creates mutual reinforcement between Islamic governance standards and global sustainability imperatives.

Challenge Dimension	Nature of Challenge	Affected AISG Tier(s)	Proposed Mitigation	Key Sources
Algorithmic Opacity	Black-box AI decisions undermine Sharīʿah accountability norms	Tier 2, Tier 3	Mandate Explainable AI (XAI) across all governance-facing applications	Schiff et al. (2024); Fritz-Morgenthal et al. (2022)
Data Sovereignty	Training data may embed conventional finance biases incompatible with Islamic principles	Tier 1, Tier 2	Establish IFI-specific, Sharīʿah-curated training datasets under scholarly oversight	Arsyad et al. (2025); Safriatullah et al. (2025)
Scholar Displacement Risk	Automation pressure reduces demand for qualified Sharīʿah auditors	All Tiers	Encode human-in-the-loop mandates in AI governance policy; invest in AI-augmented scholar training	Billah & Zahid (2026); Raza et al. (2026)
Regulatory Fragmentation	Absence of unified AI-Sharīʿah governance standards across jurisdictions	Tier 3	Advocate for AAOIFI/IFSB AI-specific governance guidelines	Mohamad & Sulong (2025); Suaidi (2025)
Fatwa Authenticity	AI-generated advisory content risks misrepresenting jurisprudential positions	Tier 2	Strict LLM output validation protocols; prohibition on autonomous fatwa issuance	Usmonov (2025); Jokhio & Jaffer (2024)
Cybersecurity Exposure	AI systems expand the digital attack surface of IFI governance infrastructure	All Tiers	Zero-trust architecture; AI-driven intrusion detection with SSB cybersecurity oversight	Alghadi et al. (2023); Owolabi et al. (2024)

Table 4. AI Governance Challenges in IFIs and AISG Model Mitigation Strategies

5. The Ethical Boundary Layer (EBL)

A defining architectural feature of the AISG model is the Ethical Boundary Layer a horizontal governance membrane that operates across all three operational tiers, imposing normative constraints that supersede efficiency considerations. The EBL is conceptually derived from three Islamic ethical principles: amānah (trusteeship and fiduciary responsibility), ʿadl (justice and equity in all dealings), and maṣlaḥah (promotion of public welfare and prevention of harm).

Operationally, the EBL functions through five mandatory governance protocols embedded within the IFI's AI governance policy. First, algorithmic explainability standards

ensure that no AI system is deployed for governance-facing functions unless its decision logic can be rendered intelligible to Sharīʿah scholars. Second, human validation checkpoints require mandatory scholar review of all AI outputs exceeding specified compliance risk thresholds. Third, bias audit requirements mandate quarterly assessment of AI systems for embedded biases inconsistent with Islamic ethical norms. Fourth, data stewardship protocols govern the collection, storage, and use of transaction data in AI training, ensuring consistency with Islamic principles of privacy and consent. Fifth, accountability attribution frameworks ensure unambiguous assignment of governance responsibility when AI-assisted audit determinations are subsequently challenged.

This framework resonates strongly with the corporate digital responsibility (CDR) concept advanced by Tóth & Blut (2024) and the AI ethics best practices model proposed by Mai et al. (2024) for financial decision-making contexts. Ogeawuchi et al. (2024) similarly identified the necessity of ethical frameworks that balance profitability with social responsibility in AI deployment—a balance that the AISG model's EBL is specifically designed to institutionalise within an Islamic normative register.

Discussion

1. Theoretical Contributions

The AISG model makes three principal theoretical contributions to the emergent literature on AI governance in Islamic finance. First, it provides the first operationally specified, tier-based architecture that maps AI functionalities to Sharīʿah audit domains with explicit Maqāṣid alignment bridging the gap between normative Islamic governance theory and practical AI implementation design. This contribution responds directly to the call by Arifardhani et al. (2025) for contextualised legal frameworks governing AI in Islamic business ecosystems.

Second, the model's Ethical Boundary Layer introduces a novel conceptual mechanism for institutionalising Islamic normative constraints within AI governance infrastructure moving beyond abstract ethical principles to specify operationally enforceable protocols. This advances the theoretical work of Elmahjub (2023) on pluralist AI ethics benchmarking by demonstrating how Islamic ethical imperatives can be concretely encoded within governance architecture rather than remaining as aspirational guidelines.

Third, the AISG model contributes to institutional theory in Islamic finance by reframing the Sharīʿah supervisory board as an 'AI governance authority' an institutional actor whose mandate must expand to encompass the oversight of algorithmic systems as well as the evaluation of jurisprudential compliance. This theoretical move is supported by Astuti et al. (2026) systematic review of Sharīʿah audit and governance integration, which identified governance architecture adaptation as a critical prerequisite for sustainable ESG compliance in IFIs.

2. Practical and Policy Implications

For institutional practitioners, the AISG model offers a replicable governance blueprint that can be adapted to diverse jurisdictional contexts from the mature Islamic finance markets of Malaysia and the GCC to emerging Islamic banking sectors in Indonesia, Pakistan, Nigeria, and Ethiopia (Hailu & Tekdoğan, 2023). The tiered architecture allows institutions to pursue incremental AI integration calibrated to their organisational maturity, regulatory environment, and scholarly resource availability, rather than attempting wholesale digital transformation that risks governance discontinuity.

For regulators and standard-setting bodies particularly AAOIFI, IFSB, and national central banks the model highlights the urgent need for AI-specific Sharīʿah governance guidelines. Suaidi (2025) and Mohamad & Sulong (2025) both identified the regulatory gap as a primary constraint on responsible AI adoption in IFIs. The AISG model's EBL protocols

provide a conceptual foundation upon which regulators can build enforceable compliance standards for AI systems operating within the Sharīʿah governance perimeter.

For fintech developers and Islamic financial technology firms, the model signals that successful AI product development for the IFI market requires deep jurisprudential integration from the design stage not merely as post-hoc compliance certification. Ridzuan et al. (2024) demonstrated that the line between innovation, regulation, and ethical responsibility in AI financial services is particularly fine, and that platforms designed without Islamic ethical parameters from inception will face significant barriers to adoption within IFI governance frameworks.

3. Limitations and Future Research

This study carries several limitations that inform a forward-looking research agenda. The conceptual framework, while grounded in 40 peer-reviewed sources, has not been subject to empirical validation within specific institutional contexts. Future research should employ case study methodology within consenting IFIs particularly those in Malaysia, the UAE, and Indonesia where AI governance experimentation is most advanced to assess AISG model applicability and refine its tier specifications.

Additionally, the model's Ethical Boundary Layer protocols represent theoretically derived constructs that require operationalisation testing. Survey research targeting Sharīʿah scholars, audit practitioners, and AI developers within IFIs would substantially strengthen the model's empirical grounding. Comparative studies examining how the AISG model performs relative to conventional AI governance frameworks (such as the EU AI Act or NIST AI RMF) in dual-banking jurisdictions would also contribute significantly to the literature.

Finally, the rapid evolution of generative AI capabilities particularly large language models' growing proficiency in Arabic legal texts and classical Islamic jurisprudence creates an urgent need for research specifically examining LLM deployment within Sharīʿah advisory contexts. Jokhio and Jaffer's (2024) experimental findings provide an important baseline, but more extensive empirical investigation is required as model capabilities continue to advance.

E. CONCLUSION

This paper has argued that the integration of artificial intelligence into Sharīʿah audit and governance functions represents not merely a technological upgrade but a fundamental reconceptualisation of how Islamic financial institutions operationalise divine normativity in an era of digital acceleration. The AI-Integrated Sharīʿah Governance model developed herein offers a principled, operationally specified architecture for navigating this reconceptualization one that simultaneously harnesses AI's formidable capabilities for compliance automation, risk intelligence, and governance transparency, while preserving the irreducible authority of human scholarship within the Islamic normative tradition.

The model's three-tier structure Operational AI, Advisory AI, and Supervisory AI maps specific technological functionalities to discrete Sharīʿah audit domains with explicit Maqāṣid al-Sharīʿah alignment. Its Ethical Boundary Layer translates abstract Islamic ethical imperatives into concrete governance protocols, ensuring that AI deployment remains bounded by the principles of amānah, ʿadl, and maṣlaḥah regardless of competitive or efficiency pressures.

The persistent challenges identified algorithmic opacity, data sovereignty, scholar displacement risk, regulatory fragmentation, fatwa authenticity, and cybersecurity exposure—are not incidental to AI adoption but constitute defining governance problems that must be systematically resolved if AI is to fulfil its promise of strengthening rather than subverting the integrity of Islamic financial governance. Addressing these challenges demands concerted action from scholars, regulators, institutions, and technologists operating in genuine collaborative dialogue a dialogue that the AISG model is designed to structure and sustain.

As Islamic finance continues its global expansion, the capacity of IFIs to govern AI responsibly will increasingly determine their credibility, competitiveness, and fidelity to the values

that distinguish them from conventional financial counterparts. This paper offers a foundational contribution to that governance capacity, and an invitation to the scholarly community to deepen, challenge, and empirically validate the framework proposed herein.

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