

A MAQĀṢĪD-ANCHORED SOCIOTECHNICAL FRAMEWORK FOR AI-DRIVEN SHARIAH COMPLIANCE AND ISLAMIC FINTECH DIGITAL TRANSFORMATION: AN INTEGRATED CONCEPTUAL FRAMEWORK

Nasir Abbas¹, Sidra Ghulam Rasool², Shahid Mahmood^{*3}

¹Lecturer, College of Commerce, Government College University, Faisalabad

²Teaching Assistant, Government College Women University, Faisalabad, Punjab, Pakistan

³Research Officer, College of Commerce, Government College University, Faisalabad

¹nasirabbas@gcuf.edu.pk, ²sidraghulamrasool@gcwuf.edu.pk, ³shahidmahmood@gcuf.edu.pk

¹ORCID: <https://orcid.org/0009-0000-1711-2963>

DOI: <https://doi.org/10.5281/zenodo.21153648>

Keywords

Artificial intelligence, Shariah compliance, Islamic fintech, Maqāṣid al-Shariah, dynamic capabilities, technology affordances, digital transformation, explainable AI

Article History

Received on 22 Feb 2026

Accepted on 26 March 2026

Published on 30 March 2026

Copyright @Author

Corresponding Author: *

Shahid Mahmood

Abstract

Purpose – This study develops an integrated conceptual framework that explains how artificial intelligence (AI) reshapes Shariah compliance and the broader digital transformation of the Islamic financial services industry. This responds to the observation that, although scholarly output on Islamic fintech has expanded rapidly, the field remains dominated by technology-acceptance studies and descriptive reviews, leaving the organizational and sociotechnical mechanisms that link AI to Shariah-aligned outcomes under-theorized.

Design/methodology/approach – Adopting a theory synthesis approach, this study integrates three complementary lenses—Maqāṣid al-Shariah as the normative anchor, Dynamic Capabilities Theory as the strategic-organizational layer, and Technology Affordances and Constraints Theory situated within Sociotechnical Systems Theory as the artifact layer—into a single multi-level model. Eight propositions are derived to specify the relationships between the layers.

Findings – The framework reconceptualizes AI not as a neutral efficiency tool but as a bundle of affordances and constraints that must be actualized within a social system of scholars, regulators, and customers, and steered by dynamic capabilities toward the higher objectives of Islamic law. It theorizes the explainability–gharar tension as the pivotal mechanism that determines whether an AI affordance is realized or neutralized, and positions explainable, scholar-supervised AI as a Shariah necessity rather than a technical preference.

Originality/value – This study offers the first multilevel synthesis to combine Maqāṣid al-Shariah with Dynamic Capabilities and Technology Affordances/Sociotechnical Systems Theory, providing a testable architecture for future empirical work and practical guidance for Shariah governance in the age of intelligent automation.

1. INTRODUCTION

The Islamic financial services industry has entered a period of rapid technological reconfiguration.

Global Islamic finance assets reached approximately US\$4.9 trillion in 2023, an increase of 11% on the previous year, and are projected to

continue expanding across banking, capital markets, funds, and takāful (ICD & LSEG, 2024). Running alongside this growth is a parallel and faster-moving phenomenon: the digital transformation of Islamic finance through financial technology (FinTech). Estimates place the global Islamic fintech transaction volume at approximately US\$198 billion in 2024/25, with projections of continued double-digit annual growth toward US\$341 billion by 2029 (DinarStandard & Elipses, 2026). Within this transformation, artificial intelligence (AI) has emerged as a general-purpose technology with the potential to touch nearly every function of an Islamic financial institution (IFI), from credit scoring and fraud detection to robo-advisory, customer service, and, most distinctively, the assurance of Shariah compliance.

The compliance dimension is what makes the Islamic case theoretically distinctive. This compliance dimension is the theoretical difference in the Islamic case. In traditional financial institutions, AI is used mostly for efficiency, risk reduction, and personalization. In addition to these goals, IFIs must ensure that their products, processes, and outcomes are in keeping with Islamic law, meaning that they do not use *riba* (interest), do not have excessive uncertainty (*gharar*), do not use speculation (*maysir*), and promote the higher objectives (*Maqāṣid al-Shariah*) that the law is understood to serve (Dusuki & Bouheraoua, 2011). This double charge results in fruitful tension. On one hand, AI can help automate and enhance Shariah screening, auditing, and monitoring, which is impossible for human scholars to do on a large scale and speed. Conversely, the black-box nature of many machine-learning systems is uncomfortable with a legal tradition that places a premium on clarity and limits the extent of uncertainty in contractual relationships. Deep-learning models, whose power lies in their ability to learn patterns that are complex and difficult to explain, also risk bringing a new form of *gharar* into the center of the compliance function (Abdullah et al., 2024).

This tension is not a peripheral technical issue but a core part of the problem and is accentuated by

the direction of the technology. The more capable an AI system is, the more autonomous (and less interpretable) it is likely to be, and the efficiency dividend and compliance risk go hand-in-hand. By failing to implement AI, an Islamic financial institution will forfeit its competitive edge vis-à-vis conventional and digital-native competitors, while those that take it lightly will jeopardize the Shariah legitimacy that is the foundation of its operation. The industry is thus faced with the not-so-easy question of adoption, but one that is about governance: how to leverage the benefits of AI without losing principled clarity, the foundational bedrock of Islamic finance. We need more than just a love of innovation or fear of it to solve that problem; we need a theory of the interaction of technology, organization, and Islamic legal goals. This study attempts to provide such a theory.

There is increasing but disjointed scholarship on this intersection. Since 2020, there has been an increased number of Islamic fintech studies, as indicated by the systematic reviews carried out by Alshater et al. (2022) and Hasan et al. (2020), which focused on Islamic social finance and decentralized finance, respectively. However, most empirical studies have adapted the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) to account for individuals' intentions to adopt a specific Islamic fintech service. These models shed light on user intention but offer little insight into how an IFI, as an organization, develops the capacity to absorb AI and how the material attributes of AI systems affect the social structures of Shariah governance to generate compliant (or non-compliant) output. In summary, rich is the field of adoption, and thin is the field of transformation. The relationship between AI artifacts, organizational capability, and Shariah objectives remains largely unspecified.

The purpose of this study is to fill this gap. It aims to create an integrated multi-level conceptual framework to understand the embedding and contribution of AI Shariah compliance in the overall digital transformation of Islamic finance. The core argument is that AI is not a neutral efficiency tool but rather a set of affordances and constraints, which only attain meaning when

actualized in a social system of scholars, regulators, technologists, and customers, only when directed by organizational dynamic capabilities towards the Maqāṣid al-Shariah. To develop this argument, this study combines three theories that have never been integrated in the literature on Islamic finance: maqāṣid al-Shariah as the normative layer (Mergaliyev et al., 2021), Dynamic Capabilities Theory as the strategic/organizational layer (Teece et al., 1997), and Technology Affordances and Constraints Theory as the artifact layer within Sociotechnical Systems Theory (Markus & Silver, 2008; Volkoff & Strong, 2013).

This study makes three contributions. First, to the best of the authors' knowledge, this is the first synthesis that combines Maqāṣid al-Shariah with Dynamic Capabilities and Technology Affordances/Sociotechnical Systems Theory, thereby taking the discussion beyond acceptance models to a true theory of transformation. Second, it treats the long-debated but little theorized "black-box problem" as an explainability-gharar tension and identifies conditions in which AI affordances are realized and not negated. Third, it builds eight testable propositions and a research agenda, and thus makes the essayistic debate a platform for empirical research. The framework is designed to be applicable to both academics and practitioners in developing AI systems that are efficient and Shariah-legitimate at the same time, such as Shariah boards, regulators, and founders of fintech companies.

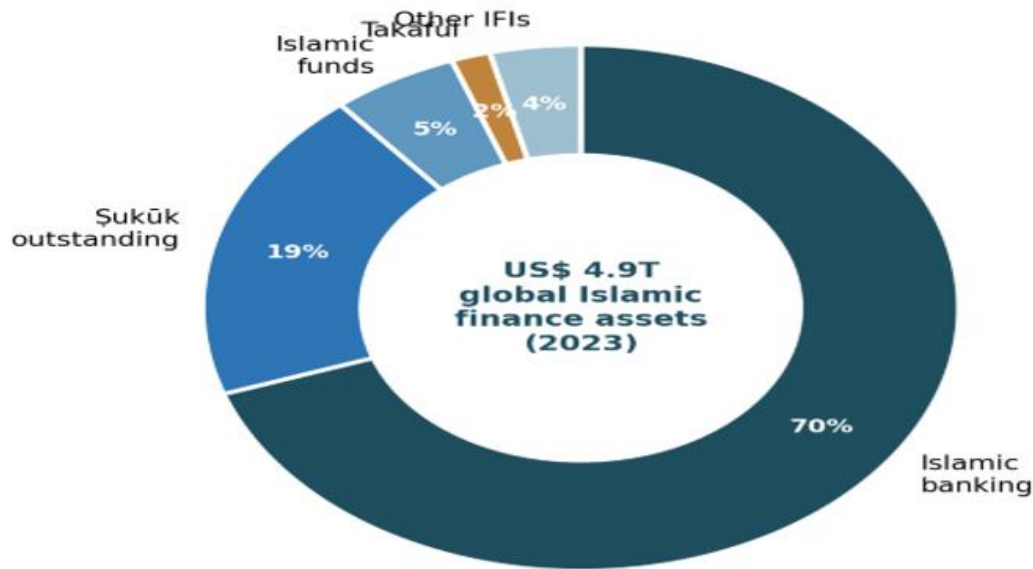
The remainder of this paper is organized as follows. Section 2 situates the study by describing the digital transformation of Islamic finance and

the increasing role of AI. Section 3 reviews the literature on AI-driven Shariah compliance and Islamic fintech. Section 4 discusses the theoretical gap. Section 5 develops the three theoretical foundations and justifies their integration into the proposed model. Section 6 presents the integrated framework, its constituent layers, and the eight propositions, illustrated by a model diagram. Section 7 discusses the theoretical, practical, and policy implications, and Section 8 sets out a future research agenda. Section 9 concludes.

2. The Digital Transformation of Islamic Finance

2.1 From a niche industry to a digital ecosystem

Since the 1970s, when it was a small experiment, Islamic finance has developed into a global industry comprising over 80 jurisdictions. Islamic banking continues to be the largest sector, accounting for approximately three-quarters (75%) of the industry's assets, while the Islamic bond (ṣukūk) market has surpassed US\$1 trillion in the outstanding value of bonds issued in 2024 and 2025 (ICD & LSEG, 2024, 2025). The Islamic Financial Services Board (IFSB, 2024) confirms the industry's continued strength but highlights methodological variations that result in slightly different totals in institutional reports. Such numbers are significant for this argument today because they indicate the scale at which AI could be applied and the systemic importance of getting Shariah governance right: errors that were once confined to a single institution can now ricochet throughout an increasingly digital and deeply interconnected ecosystem.



Source: ICD-LSEG Islamic Finance Development Report 2024 (approximate shares).

Figure 1. Composition of global Islamic finance assets (approximate shares). Source: ICD-LSEG (2024).

In this context, digital transformation is more than just a transition from paper to digital. According to the information-systems literature, it is the reconfiguration of processes, value propositions, and customer relationships that goes across the whole organization and is facilitated by digital technologies (Nawi, 2016). The COVID-19 pandemic served as an accelerator, accelerating the years of expected digital adoption into just a few months and laying bare those IFIs that had not invested sufficiently in digital channels (Nawi, 2016). The result is an industry where fintech has not been on the edges; however, it is altering the aggressive landscape from within.

2.2 The Islamic fintech landscape

Today, the Islamic fintech industry includes hundreds of companies spanning payments,

financing, wealth management, capital markets, and social finance. Some of the recurring sub-domains are blockchain-based şukūk and tokenized assets that can improve the transparency of underlying cash flows, digital takāful, crowdfunding and peer-to-peer financing, and technology-enabled administration of zakat and waqf in Islamic social finance, which can lower intermediation costs (Kunhibava et al., 2021; Saad et al., 2020). In these sub-domains, the market is very focused, with a few top jurisdictions representing the bulk of global transactions (DinarStandard & Elipses, 2026), such as Saudi Arabia, Iran, Malaysia, the United Arab Emirates, Indonesia, and Kuwait. Table 1 summarizes the important industry indicators that set the context for this study.

Table 1. Key indicators of the Islamic finance and Islamic fintech landscape

Indicator	Figure / status	Source
Global Islamic finance assets (2023)	≈ US\$4.9 trillion (+11% YoY)	ICD & LSEG (2024)
Şukūk outstanding (2024)	> US\$1 trillion	ICD & LSEG (2025)
Takāful contributions (2023)	≈ US\$86 billion	ICD & LSEG (2024)
Islamic fintech transaction volume (2024/25)	≈ US\$198 billion	DinarStandard & Elipses (2026)
Projected fintech volume (2029)	≈ US\$341 billion (CAGR ≈ 11.5%)	DinarStandard & Elipses (2026)
Leading fintech markets	Saudi Arabia, Iran, Malaysia, UAE, Indonesia, Kuwait	DinarStandard & Elipses (2026)
Top-10 markets' share of volume	≈ 93% of global total	DinarStandard & Elipses (2026)

Note. Aggregate figures differ across institutional reports owing to scope and methodology; values are presented as reported by each source.

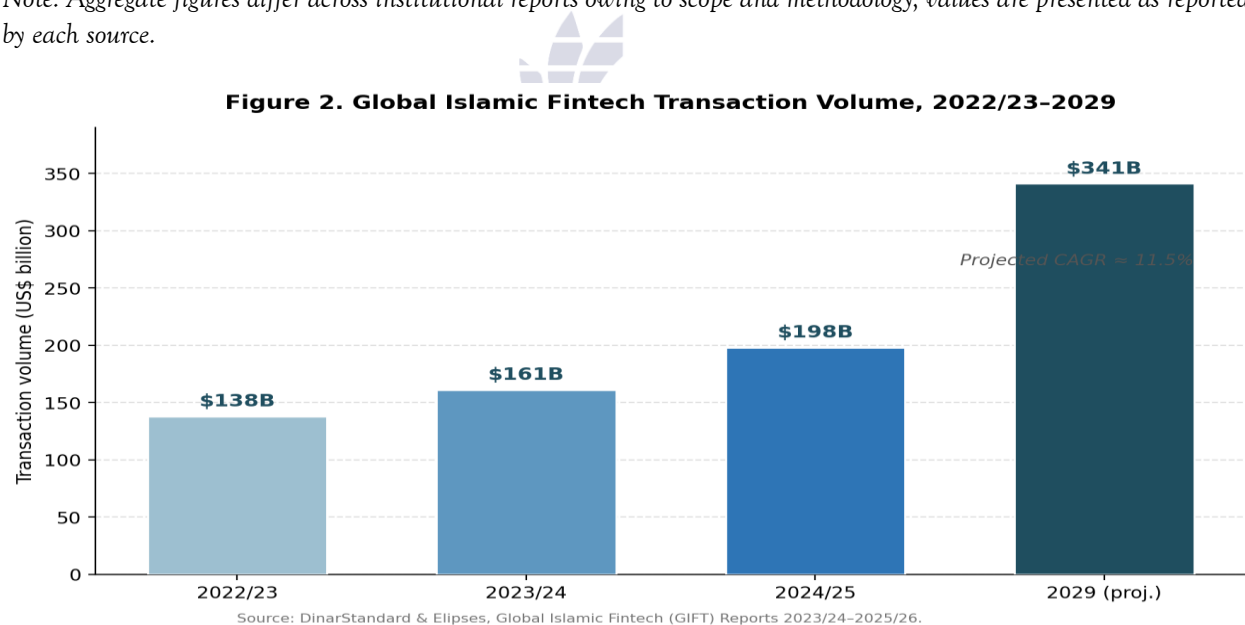


Figure 2. Growth and projection of global Islamic fintech transaction volumes. Source: DinarStandard & Elipses (2023–2026).

2.3 Artificial intelligence enters the picture

AI—defined here as the family of machine learning, natural language processing (NLP), and other related technologies that allow systems to do things that typically need human intelligence—has become a key technology. The bibliometric

mapping of AI in finance reveals a significant surge in the number of publications since 2015 with potential applications in bankruptcy prediction, asset pricing, portfolio management, and anti-money laundering (Ahmed et al., 2022), and an ongoing demand for increased focus on ethics and

explainability (Bahoo et al., 2024). In the Islamic context, however, it seems that AI adoption is slower than conventional banking: comparative evidence shows that Islamic banks are slower to adopt fintech and AI in part due to the fact that they have an extra gate of Shariah-governance approval, which conventional banks do not have. This adoption gap is not a story about conservatism but about a real and yet unsolved issue: how to fit opaque, probabilistic machine reasoning with a deterministic and principle-based legal tradition. This problem is the conceptual hinge on which this paper turns.

The distinction between the principal families of AI techniques is useful based on the type of Shariah question raised. Most screening and credit applications use supervised learning models (classifiers and regressors trained on labeled data), and the Shariah challenge is where the data labels come from and their representativeness; a model trained on conventional benchmarks might encode non-Islamic assumptions. Continuous transaction monitoring is based on unsupervised and anomaly detection methods. The problem with these is that while they can raise the flag, they often cannot explain the pattern, and a flag that is not explained cannot be adjudicated. Fiqh-assistance tools using natural language processing and large language models can retrieve and synthesize juristic sources, but this can lead to fabricated or decontextualized rulings and an inclination to regard probabilistic text generation as authoritative *ijtihad*. The use of reinforcement learning and autonomous agents in trading and portfolio rebalancing is a particularly thorny issue, as the algorithms could end up doing speculative transactions, akin to *maysir* gambling. This taxonomy is important for the framework developed later because it reveals that the Shariah

acceptability of AI is not a dichotomic yes/no determination but rather a systematic variation related to the two dimensions of AI autonomy and opacity, which are the two that the framework will emphasize.

3. Literature Review

3.1 AI-driven Shariah compliance and screening

Shariah equity screening is the most advanced field of automation in Islamic finance; thus, it is the most obvious area where the promise and perils of AI can be seen. The conventional screening process occurs in two steps. The qualitative screen eliminates companies that are engaged in activities that are not considered acceptable: interest-based finance, alcohol, gambling, pork, adult entertainment, and weapons. A quantitative screen then uses the thresholds of financial ratios. The AAOIFI benchmark, often summarized as “30/30/5,” involves keeping interest-bearing debt around 30 percent of market capitalization, interest-bearing deposits about 30 percent of market capitalization and making sure that any income that exceeds this is impermissible and is “purified” by donating it to charity. The index providers implement these principles in various ways, with one approach using total assets as the denominator and the other using average market capitalization over the past 12 months as the denominator. Thus, a single company may be counted as compliant by the former and non-compliant by the latter (Hassan et al., 2022). These thresholds should be interpreted as *ijtihad* benchmarks, which are reasoned scholarly policy decisions based on general principles such as the elimination of hardship and the predominance of lawful earning. This lack of certainty is the reason why automation is being challenged.

Table 2. AI applications across Shariah-compliance domains

Compliance domain	Representative AI application	Principal limitation
Equity / stock screening	ML classification of compliant firms; continuous compliance scoring	Methodological divergence; threshold indeterminacy
Shariah audit & monitoring	Real-time transaction monitoring; anomaly detection for non-compliant flows	False positives; need for scholar adjudication
Fiqh-ruling assistance	NLP “smart assistants” retrieving and synthesizing juristic sources	Madhhab variance; risk of eroding human ijtihād
Robo-advisory	Automated, Shariah-screened portfolio construction and rebalancing	Black-box allocation logic; suitability assurance
Purification calculus	Automated computation of impermissible-income portions	Data quality; disclosure and auditability
RegTech / SupTech	Continuous Shariah-compliance status reporting	Standardization; cross-jurisdiction harmonization

Sources. Compiled from Abdullah et al. (2024); Hassan et al. (2022); Khan & Rabbani (2021); Saad et al. (2020); Shalhoob (2025).

In addition to screening, AI can also be utilized in the Shariah audit process through continuous transaction monitoring, the fiqh ruling process using NLP-based “smart assistants,” and customer-facing services with the use of Shariah-aware “chatbots” (Khan & Rabbani, 2021). The most relevant empirical study to date is the study of the acceptance of the use of AI on fiqh rulings by the members of shariah committees in Islamic banks in Malaysia (Abdullah et al., 2024). This research, conducted via focus groups with committee members, sheds light on how broadly practitioners are receptive to AI tools that can help them improve efficiency and consistency in the ruling process, but also how they want to maintain a purely human final ruling. In terms of screening, there have been methodological developments that have begun to shift from a binary pass/fail approach to more continuous and customizable measures of compliance that are more appropriate for algorithmic portfolio construction (Hassan et al., 2022). Applied reviews suggest that AI can help make compliance more efficient and transparent, but only if it is built to be explainable (Shalhoob, 2025).

The screening case is worth a closer look because it highlights the underlying epistemological problem. The financial ratio benchmarks are not scriptural; thus, two equally devout methodologies can conclude on opposite sides of the compliance line for the same firm, and a firm can swing from one side of a compliance line to the other depending on how the balance sheet moves between report cards. This indeterminacy is not a problem of automation; it can be reinforced or even exacerbated because an algorithm can implement whatever threshold it has been programmed with consistently and swiftly, and with a supposed objectivity that is actually contestable as a scholarly judgment. In other words, risk is a process of ijtihād – one that can be seen, challenged, and changed – becoming a computational truth that practitioners do not debate. This means that a framework for AI in Islamic finance must maintain the contestability of compliance judgments and not relinquish it to AI, which directly leads to the explainability mechanism theorized in Section 5.

Five tensions surface in this literature. Explainability versus gharar: Opaque models are

not aligned with the need for contractual clarity and the ban on excessive uncertainty, and several authors have argued that explainable AI (XAI) is a Shariah necessity, not a technical nicety. (2) Algorithmic bias: Models developed using traditional or non-Islamic data can incorporate assumptions that affect faith-based decisions, such as determining zakat eligibility or creditworthiness. (3) Juristic pluralism – There is no one automated ruleset that can lay claim to universal validity because there is legitimate disagreement between the different schools of law (madhāhib). (4) Human authority: Excessive use of automation can lead to the loss of human Ijtihad strength as the basis for the legitimacy of Shariah governance. (5) Speculation risk: The presence of speculation risk in high-frequency and algorithmic trading using AI (Arsyad et al., 2025). The tensions between these are not widely denied, but they are also not regularly understood as part of a wider theory, which this paper aims to achieve.

3.2 Islamic fintech and digital transformation

A parallel stream reviews the digital transformation of Islamic finance. The development of blockchain-based *ṣukūk* shows that blockchain technology can improve the transparency of the underlying assets and ease issuance. However, it also poses legal, regulatory, and Shariah challenges regarding tokenization and smart contracts (Kunhibava et al., 2021). Further research can focus on the application of blockchain technology in Islamic social finance, such as enhancing trust in Zakat and Waqf management (Kunhibava et al., 2021). Studies related to Shariah robo-advisory discuss the Shariah and regulatory challenges that arise when the advice of a portfolio is automated (Saad et al., 2020), while emerging research on Islamic RegTech imagines real-time and tech-enabled monitoring of compliance status. All these developments are placed in the context of the objectives of the Shariah, with the underlying argument that any fintech innovation in Islam must be beneficial to all *maqāṣid* (Oseni et al., 2019).

This stream concludes that digital transformation in Islamic finance is a technological, organizational, and normative project. Organizations should reconfigure themselves to adapt to the new capabilities provided by technology, and every reconfiguration should be evaluated according to Islamic legal objectives. However, the literature presents these three dimensions independently, without any framework that connects them, such as technologists describing the artifacts, strategy scholars describing the organizational change, and Shariah scholars adjudicating the normative acceptability. As the following subsection demonstrates, this separation is also reflected in the theoretical decisions made in the field.

3.3 The theoretical gap

An analysis of the literature on Islamic fintech in the empirical context shows a strong focus on theoretical anchors. The predominant models are User Acceptance Models, namely TAM, UTAUT, and UTAUT2, supported by the Diffusion of Innovation and Institutional Theory. These methods have produced useful information regarding the determinants of personal adoption decisions. However, they have two disadvantages for the current application: First, they focus on the individual user of a technology, not the organization; they account for customer or employee use of a technology, not how an institution can develop the capability to transform with it. Second, they view technology as a single stimulus with perceived usefulness and perceived ease of use, rather than as the material properties of the technology itself. This black-boxing is a major oversight, especially when the material consequences of a phenomenon are as serious as AI, where whether or not its reasoning can be audited against Shariah principles is dependent on the specific architecture of the model.

In the field of Islamic finance, three well-known theories are underutilized. Dynamic Capabilities Theory (Teece et al., 1997), which is an approach to understanding how organizations sense, seize, and reconfigure resources in a changing environment, is applied to study digital banking transformation in conventional and adjacent

contexts but is less applied to the Islamic finance sector. Little is mentioned of the Technology Affordances and Constraints Theory (Markus & Silver, 2008; Volkoff & Strong, 2013), which theorizes that technology offers possibilities for action that are realized only in relation to specific users and goals in the Islamic fintech literature. Similarly, the Sociotechnical Systems Theory requires the optimization of both technical and

social subsystems. The result is that the field is not provided with a vocabulary for their own core question of how the material aspects of AI intertwine with the social aspects of Shariah governance to yield compliance. Table 3 illustrates the key theories and their seminal statements, current applications in Islamic finance, and the missing point of each theory.

Table 3. Theoretical anchors in Islamic fintech research and the gap addressed

Theory	Seminal reference	Current use in Islamic fintech	Gap addressed by this paper
Technology Acceptance Model / UTAUT	Davis (1989); Venkatesh et al. (2003)	Dominant; explains individual adoption intention	Ignores organizational capability and technology materiality
Diffusion of Innovation	Rogers (2003)	Common; explains spread of innovations	Descriptive; weak on Shariah-specific mechanisms
Institutional Theory	DiMaggio & Powell (1983)	Used for legitimacy and isomorphism	Underspecifies the technology artefact
Maqāṣid al-Shariah	Dusuki & Bouheraoua (2011); Mergaliyev et al. (2021)	Normative evaluation of products	Rarely linked to organizational or technical layers
Dynamic Capabilities	Teece et al. (1997)	Rare in Islamic finance	Supplies the strategic-organizational layer
Technology Affordances & Constraints	Markus & Silver (2008); Volkoff & Strong (2013)	Essentially absent	Supplies the artefact / sociotechnical layer

Note. The novelty claim is constructive: it rests on the documented dominance of acceptance models combined with the absence of affordance and sociotechnical lenses rather than on any single source asserting that absence.

Recent review articles continue to echo these findings and explicitly call for further research. Systematic reviews in the marketing literature require the use of more diverse methodologies, cross-region, and harmonized Shariah standards. The initial work on agenda setting reveals that the critical point of the unresolved issue that becomes the benchmark for the development of Islamic fintech is the issue of Shariah compliance (Hasan et al., 2020). Empirical research on Shariah-committee acceptance highlights the lack of user perspectives and the need for more comprehensive research on the issue (Abdullah et al., 2024). Regulatory scholarship advocates for regulatory frameworks that regulate AI supervision, such as those that focus on the transparency of decisions, bias, and conflict with Islamic principles (Arsyad et al., 2025). Bibliometric analyses of AI in finance highlight key areas for interdisciplinary research and the importance of explainability and ethics (Ahmed et al., 2022; Bahoo et al., 2024). The framework developed below is a response to these calls and provides the missing connective theory.

4. Theoretical Foundations

The proposed framework integrates three theories, each operating at a different analytical level. This section presents each of these approaches in turn and then justifies their integration.

4.1 Maqāṣid al-Shariah as the normative anchor

The normative basis comes from Maqāṣid al-Shariah (the greater objectives of Islamic law). In the classical doctrine, the QANUN has five purposes: to protect religion (dīn), life (nafs), intellect ('aql), lineage (nasl), and wealth (māl). These goals are achieved through the concept of maṣlaḥah (public interest or benefit) and mafsadah (harm), which provide the underlying rationale for the well-known bans on riba, gharar, and maysir (Dusuki & Bouheraoua, 2011). However, contemporary scholarship has shown that the concept of Maqāṣid can be applied as a functioning principle for measuring Islamic banks' performance against greater ethical goals, as opposed to simply being a philosophical foundation (Mergaliyev et al., 2021).

Maqāṣid play two roles in the theory of AI in Islamic finance. It is they who set the goal for which any AI implementation should always strive, not efficiency, but efficiency in the name of justice ('adl), benefit (maṣlaḥah), and human flourishing (falāḥ). They draw the boundaries—the red lines of riba, gharar, maysir, and ḡlūm (injustice)—which may not be violated by any efficiency improvement. Therefore, the outputs of the layers below the Maqāṣid are evaluated in terms of the Maqāṣid.

4.2 Dynamic Capabilities as the strategic layer

Dynamic Capabilities Theory explains how organizations can renew their competence in the face of rapidly changing environments (Teece et al., 1997). It identifies three types of capability: sensing (scanning opportunities and threats), seizing (committing resources to opportunities), and reconfiguration (changing the asset base of the organization to remain fit). In the context of Islamic finance, dynamic capabilities refer to an IFI's capacity to scan the AI and fintech horizon and to detect new signals of Shariah risk (sensing); move resources, talent and capital and redesign systems with Shariah governance (seizing); and re-compose resources, re-skill its Shariah board and re-establish its governance-risk-compliance routines (reconfiguring). This layer is important because technology alone cannot transform an organization; it also requires the organization's ability to absorb and orchestrate technology. Thus, the dynamic-capabilities lens provides the mechanism for realizing the potential of AI for organizational change without compromising Shariah legitimacy.

4.3 Technology affordances and the sociotechnical system

The third theory concerns the artifact itself. Technology Affordances and Constraints Theory suggests that a technology is not inherently effective, but rather provides affordances (possibilities for goal-oriented action) and constraints (limits on goal action) that are determined by the interaction of the material features of a technology and an actor and their goal (Markus & Silver, 2008; Volkoff & Strong,

2013). Thus, the affordance of a technology is a potential relationship that can be made real or not. Embedding this concept in the framework of Sociotechnical Systems Theory (SST) provides the perspective that the technical subsystem of a system should be optimized alongside the social subsystem (roles, norms, oversight, skills): an AI system will work well if there are suitable social structures that support its technical system.

The Islamic case is one where this lens is very strong because it brings the central puzzle in the field to a different question. If the social system Shariah scholars, auditors, regulators, and customers can interpret, trust, and act on the outputs that the AI model provides, it is an affordance, meaning the model has the potential to be used for screening securities or flagging non-compliant transactions. However, the opacity of an AI model is a limitation because the social system cannot validate the model in accordance with Shariah principles when a model cannot provide its reasoning. The "explainability gharar" tension is, therefore, an affordance constraint, and the sociotechnical lens provides the vocabulary for theorizing it.

4.4 Justification for integration

Why is it reasonable to use all three theories instead of just one? This is because neither can explain Shariah compliance using AI without being incomplete, and each focuses on different levels of analysis that do not compete. Maqāṣid al-Shariah refers to the why, the normative aims and boundaries, but does not say anything about organisational and technical mechanisms. Dynamic Capabilities are about the how, about the routines through which firms transform, and are normatively neutral and use technology as a generic resource. Technology Affordances and Sociotechnical Systems Theory provide a "how, technically and socially, a relational realization of the possibilities offered by AI; however, they do not include a normative compass or account of organizational capability. These three are linked in an integrated, multilevel architecture: formulating

the objectives in the Maqāṣid, developing the organizational response in dynamic capabilities, and realizing specific AI affordances in the sociotechnical layer. The integration is not just additive but also constraining; that is, each layer demonstrates a discipline of the others in the manner that is the real characteristic of a true synthesis and not just a checklist.

Complementarity can be quantified by identifying how each pair of layers is a solution to the weaknesses of the other. Normative-strategic coupling does not allow for the Maqāṣid to be left as an abstract aspiration; rather, dynamic capabilities are the concrete organizational mechanisms that are how lofty aspirations are translated into governance routines, hiring decisions, and system specifications. Strategic-sociotechnical coupling provides a means of not theorizing dynamic capabilities in a technological vacuum: affordance theory offers an account of the material that the organization is sensing, seizing, and reconfiguring. However, within this sociotechnical-normative coupling, the actualization of an affordance cannot be regarded as a purely instrumental success: an affordance that provides efficiency, but at the cost of violating a maqṣid is, in this sense, a failure and not an achievement. This round-trip "business" (whereby objectives limit capabilities, capabilities shape affordances, and affordances are assessed against objectives) is the reason that the framework is internally coherent and not just a random series of cool words.

5. The Integrated Conceptual Framework

This section presents the proposed integrated framework. Figure 1 depicts its three layers, the flows among them, and the eight propositions that specify their interrelationships. The framework is read from top to bottom as a logic of derivation: objectives shape capabilities, which shape the actualization of affordances, which produce outcomes, and from bottom to top as a feedback loop in which outcomes update the organization's sensing of the environment.

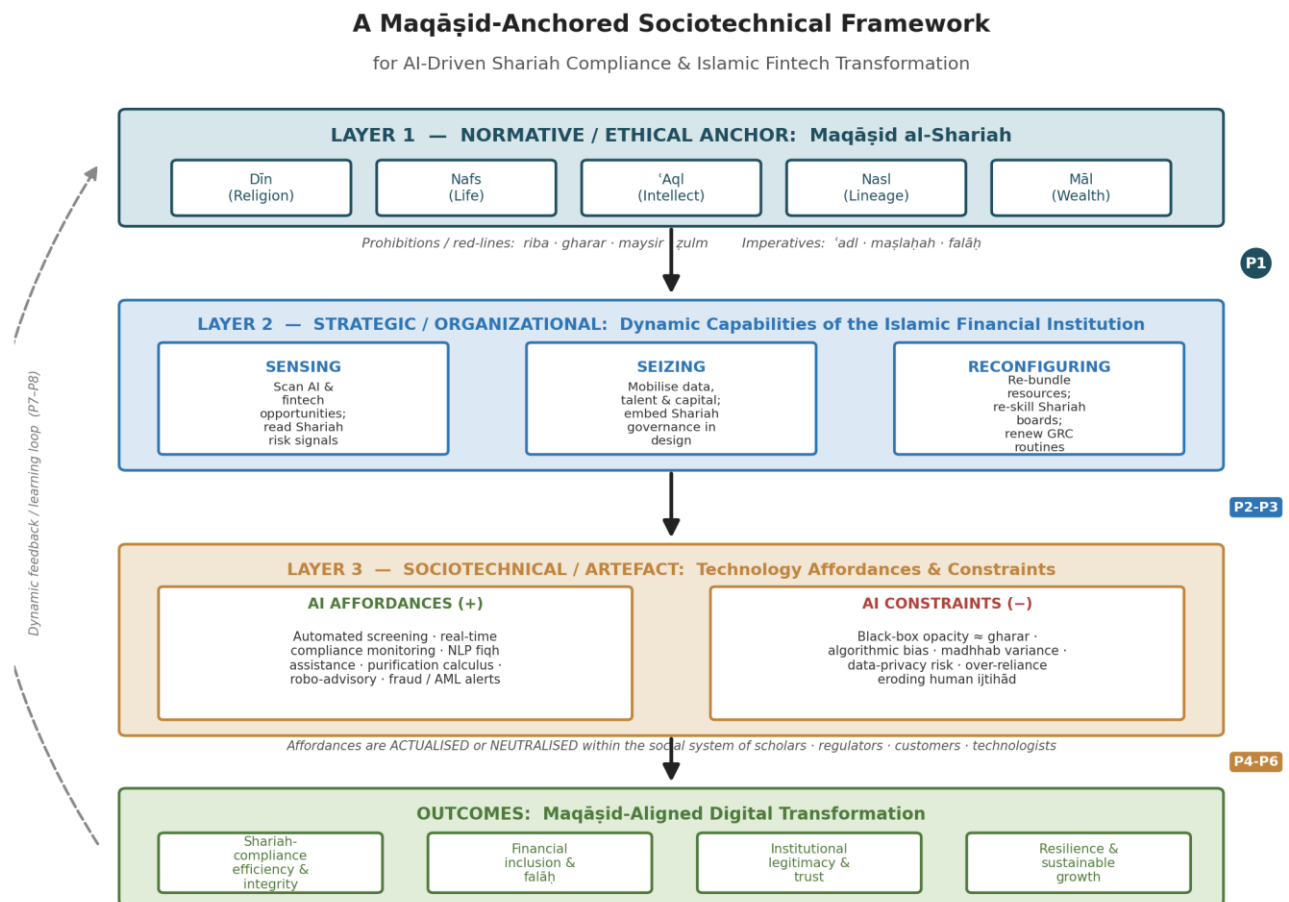


Figure 3. A Maqāṣid-anchored sociotechnical framework for AI-driven Shariah compliance and Islamic fintech transformation.

5.1 Layer 1: the normative anchor

The Maqāṣid al-Shariah are at the top. This layer does not causally drive the system but rather evaluates it and gives the system a sense of forward direction. All affordances at the lower levels and all capabilities created to fulfil them are evaluated regarding maintaining the five essentials and avoiding the prohibited categories. In practice, the application of AI in an IFI does not start with asking the technological question, but also the question of what is the norm that is served by the technology and what is the limit that can be crossed. The first unique assertion of the

framework is the inversion of the typical logic of technology first.

Proposition 1. The extent of the use of Artificial Intelligence in an IFI in the process of digital transformation, which preserves the five essentials while not falling into riba, gharar, and maysir, determines the Shariah legitimacy of the digital transformation that is created, without looking at the efficiency that is achieved.

5.2 Layer 2: dynamic capabilities

The middle layer turns normative objectives into organizational actions via the sensing–seizing–reconfiguring cycle. An IFI with a good sensing

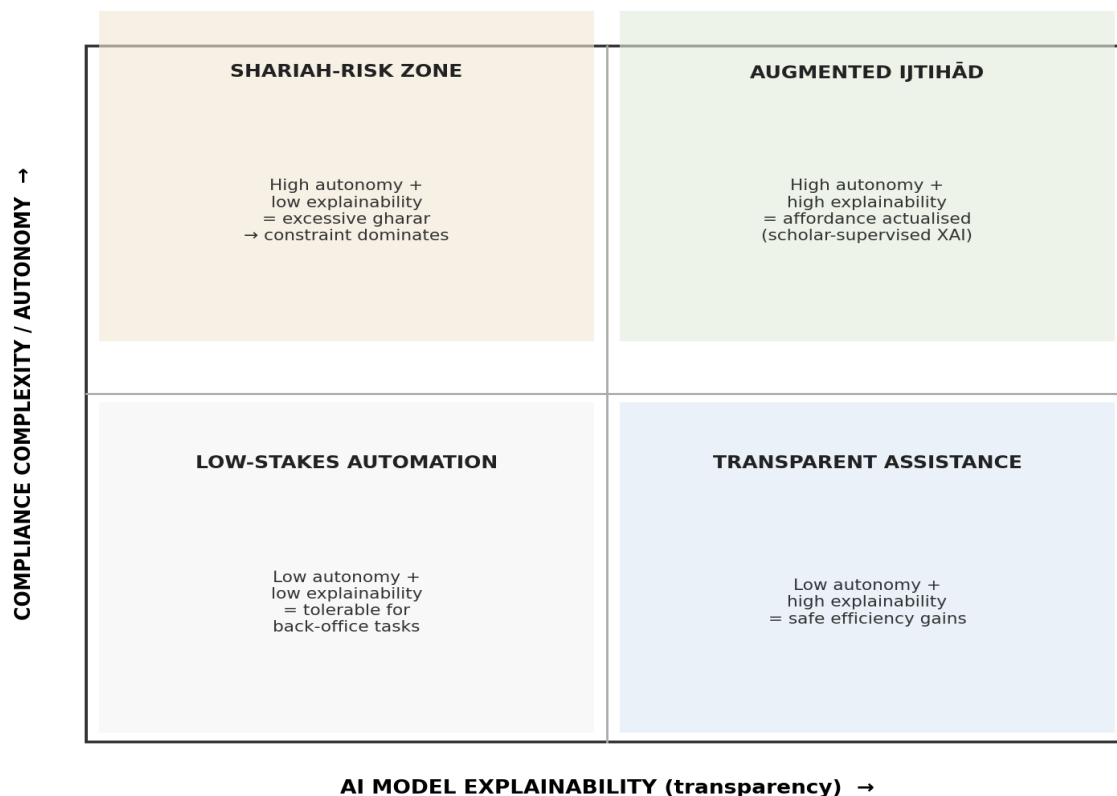
ability will be able to see the opportunities that AI brings and the Shariah risks that AI also carries before they occur. With a strong seizing capability, embedding Shariah governance in the design of an AI initiative is not merely an afterthought. Coupled with its reconfiguring capability, the institution can refresh its routines and, more importantly, reskill its Shariah board to acquire the necessary literacy to interrogate AI as it evolves. Dynamic capabilities are a mediator between the normative and sociotechnical layers; they are a way in which objectives enter systems.

Proposition 2. Dynamic capabilities (sensing, seizing, and reconfiguring) mediate the relationship between the IFI's Maqāṣid-aligned objectives and the actualization of AI affordances: the more powerful the dynamic capabilities, the more the objectives are translated into compliant AI systems.

Proposition 3. IFIs that include Shariah governance in the seizing phase of AI adoption (governance-by-design) are more likely to have high integrity in Shariah-compliant systems than IFIs that only apply Shariah review after the AI system has been deployed.

5.3 Layer 3: affordances, constraints and the explainability-gharar tension

The materiality of AI is on the lower layer. In this study, the framework distinguishes between an automated screening technique, real-time compliance monitoring, NLP-based fiqh assistance, purification calculus, robo-advisory, and fraud detection from the opacity of the black box, algorithmic bias, differences among the madhhabs, data-privacy risk, and the attrition of human ijtihād. Its main theoretical argument is that affordances are not effects, but potentials: what the AI can afford is only manifested when the social system around it is able to interpret and trust the affordances provided by the AI and act on them in the context of Sharia governance. Explainability is a key mechanism. If the reasoning of the model is clear and can be audited by a Shariah scholar, efficiency affordance is achieved; if the reasoning of the model is not clear and cannot be audited by a Shariah scholar, efficiency affordance is not realized, and the affordance is neutralized. This is shown in Figure 4 as a quadrant, where model explainability and decision autonomy are both used as the basis to determine whether AI falls in the Shariah-risk zone or in the “augmented ijtihād” category, empowering rather than displacing scholars.

Figure 4. The Explainability-Gharar Tension as an Affordance-Constraint Quadrant*Figure 4. The explainability-gharar tension is represented as an affordance-constraint quadrant.*

Proposition 4. The actualization of AI compliance affordance depends on the explainability of the underlying model: the less explainable the underlying model, the more the gharar of opacity neutralizes the affordance for compliance.

Proposition 5. Explainability plays a moderating role between high-autonomy AI and integrity in Shariah compliance: when explainable, high-autonomy systems increase integrity (augmented ijtiḥād); when opaque, high-autonomy systems decrease integrity (Shariah-risk zone).

Proposition 6. Actualization is not purely technical but is more complete in IFIs with higher AI literacy in the social subsystem (Shariah scholars, auditors, and regulators).

5.4 Outcomes and the feedback loop

The outcomes of the framework have been designed to be plural and maqāṣid-referenced:

Shariah compliance efficiency and integrity, financial inclusion and falāḥ, institutional legitimacy and trust, resilience, and sustainable growth. These are not the results. The outputs of AI implementation are cascaded again to the AI sensing of the organization, thus causing a dynamic feedback effect that generates new risks, new opportunities, and new queries regarding Shariah. This loop is the reason the framework can be termed a model of transformation, not a static input-output mapping.

Proposition 7. Outcomes that align with the maqāṣid feed back into the IFI's sensing capability; thus, those institutions with more feedback over time develop Shariah-AI capability more quickly (path-dependent learning effect).

Proposition 8. Convergence on explainable, scholar-supervised AI standards minimizes cross-jurisdictional Shariah compliance divergence,

thereby minimizing the systemic Shariah non-compliance risk in the interconnected Islamic finance ecosystem at the industry level.

Table 4. Summary of propositions

P#	Proposition (abbreviated)	Primary theoretical layer
P1	Maqāṣid alignment, not efficiency, determines transformation legitimacy	Normative
P2	Dynamic capabilities mediate objectives → affordance actualization	Strategic
P3	Governance-by-design outperforms post-hoc Shariah review	Strategic
P4	Affordance actualization is contingent on explainability	Sociotechnical
P5	Explainability moderates the autonomy → integrity relationship	Sociotechnical
P6	Social-subsystem AI literacy enables affordance actualization	Sociotechnical
P7	Feedback loops drive path-dependent Shariah-AI capability	Cross-layer
P8	Standards convergence reduces systemic non-compliance risk	Industry

Note. The propositions are empirically testable. Section 8 outlines the measurement and design strategies used in this study.

6. Discussion and Implications

6.1 Theoretical implications

The framework contributes to theory in three ways. First, it moves the study of AI in Islamic finance from the individual-adoption paradigm to a multilevel theory of organizational transformation in response to calls for more methodological and theoretical diversity (Ahmed et al., 2022; Hasan et al., 2020). In doing so, it raises questions that cannot be addressed by acceptance models: capability accumulation, governance design, and social realization of technical potential. Second, it provides a correct theorization of the main issues in this field. Instead of the “black-box” concern being expressed as “some moral thing to worry about,” the framework makes it a concrete affordance-constraint relationship with explainability as the moderator and explains it as a Shariah requirement based on the principle of prohibition of gharar rather than an imported best practice. Third, it shows that there is generative power in mixing a faith-based normative theory with secular

normative theories of organizations and information systems; other faith-sensitive technology areas could follow a similar pattern.

6.2 Practical implications

Design guidance is applied to the framework and provided to practitioners. This is a shift from adjudicating specific products to system governance, which means that Shariah boards will need to learn how to ask AI to explain its logic, and institutions need to be able to assist with this, which is an example of the reconfiguring capability. The quadrant in the framework (Figure 4) provides a pragmatic means to categorize deployments in a Shariah-risk zone, where they must be avoided or limited, and systems in a zone where they can safely enable high-autonomy deployments to be supported. Therefore, for fintech founders and IFI technologists, explainability should not be minimized in compliance, but rather a prerequisite for Shariah legitimacy and hence market access in this space, and explainability and auditability are Shariah

compliance enablers. The governance-by-design proposition (P3) calls for institutions to make Shariah review an integral part of any AI initiative and not consider it a downstream gate.

6.3 Policy and regulatory implications

The framework facilitates the development of Islamic RegTech and SupTech at the system level and the harmonization of standards. The convergence of explainability and human supervision requirements for AI in regulated Islamic finance, as suggested by Proposition 8, could have significant implications for mitigating the systemic risk of Shariah non-compliance by standard-setting bodies such as the AAOIFI and IFSB (Arsyad et al., 2025). The Islamic finance ecosystem is highly interdependent, and its activities are largely concentrated in a few jurisdictions (DinarStandard & Elipses, 2026). Even a few coordinated regulators could help push the industry towards the “augmented ijtihād” quadrant. This brings the discussion of model design back to the level of industry governance and stability.

6.4 Boundary conditions and scope

As in all conceptual endeavors, the framework comes with boundary conditions that restrict the extent of its claims and indicate where it can be applied. First, the explainability-gharar mechanism is more potent for compliance-critical AI applications such as screening, audit, assistance, and advisory in fiqh, where the judgment of Shariah is directly involved, whereas for only back office applications like document digitization, the explainability-gharar mechanism is less potent because there is no contractual uncertainty. Second, the framework assumes an institutional environment where there is a Shariah governance apparatus in place; in other jurisdictions where the Shariah governance apparatus is in its infancy, the social subsystem of the framework, which actualizes affordances, may be too thin to take on that role; this is an empirically interesting limiting case. Third, the Maqāṣid are described as a constant for evaluating the law, but there are many interpretations, and the model does not resolve the disagreement, nor

does it adjudicate between the different interpretations; it merely places them outside the subsystem of the law. The recognition of these limits is not a limitation of the framework itself; it identifies the limits of the applicability of the framework's statements and is a prerequisite for the rigorous testing of these statements.

The other scope consideration is the rate at which technology changes. Generative AI and autonomous agents have been developing at a much swifter rate than governance practice, and the framework is intentionally model agnostic, meaning that the questions it poses—what is the objective of the Shariah that this serves, what capability is required to govern it, and can its reasoning be validated by the social subsystem?—are architecture-independent. This is a design choice that will ensure that the framework remains useful as the underlying technology changes, a characteristic that sets an architecture based on a principle apart from one that is dependent on the affordance of a specific generation of models.

7. Future Research Agenda The framework is conceptual, and the propositions are presented to provide a foundation for empirical research. This has led to several research strategies. The explainability mechanism (Propositions 4 and 5) can be explored in an experimental context by showing Shariah scholars the decisions reached by the screening models and asking them to certify either those that are more explainable or those that are less. Another approach would be to provide vignette-based examples where the transparency of the model and the autonomy of the decision are manipulated and measure the willingness of Shariah scholars to certify screening decisions. Proposition 2 (dynamic capabilities) and Proposition 3 (governance-by-design) can be used to compare different IFI cases with AI compliance instruments and understand how outcomes are affected by the sensing, seizing, and reconfiguring capabilities. Proposition 6 (social subsystem literacy) opens the door for the construction and validation of a Shariah-AI literacy scale for Shariah board members. Propositions 7 and 8 (feedback loops and standards convergence) require a longitudinal and cross-jurisdictional design, which may be a

combination of bibliometric, regulatory content, and panel-data designs.

The framework provides guidance for more general programs, such as designing and evaluating explainable Shariah-screening models, which will provide an explanation of the models' reasoning to scholars; an analysis of human-AI co-ijtihād, including understanding the conditions under which AI can enhance, rather than diminish, the authority of jurists to interpret the law; a comparative study of how the rules for compliance are being embedded in algorithms across different schools of law and jurisdictions; and the incorporation of the framework with the sustainability and ESG agenda that is reshaping Islamic finance (ICD & LSEG 2025). Each program addresses the reported needs in literature and expands the framework to new empirical territory.

8. Conclusion

As the Islamic finance industry faces a sweeping digital revolution, AI will be one of the most important technologies powering this shift, and Shariah compliance will be the unique dimension that makes the Islamic case unique. However, the current literature is still mostly technology-acceptance models and description reviews, and has not yet found a theory that can explain the combination of AI artifacts, organizational capabilities, and Shariah objectives that can create compliant transformation. In this paper, such a theory has been provided. It has combined Maqāṣid al-Shariah, Dynamic Capabilities Theory and Technology Affordances and Constraints Theory in a sociotechnical perspective and has demonstrated that the AI is not a neutral efficiency tool, but rather a collection of affordances and constraints that requires organizational capability and social validation to be realized, and whose value can be assessed in relation to higher purposes of Islamic law.

The key takeaway is that the oft-cited 'black-box problem' is, when correctly theorized, an explainability-gharar tension and that explainable AI, under scholar supervision, is thus a Shariah requirement, not a technical preference. These eight propositions now try to make this insight

more tangible in a form of research that can be tested, while the discussion has managed to extract concrete implications for Shariah boards, fintech founders and regulators. However, with the continued development of AI and the explosive growth of Islamic fintech transactions, whether or not to integrate AI into the Islamic fintech industry is not the question at hand: it is how to do so without undermining the Shariah integrity that is the foundation of its legitimacy. The framework provided here is designed to be a contribution to that question, being both theoretically rigorous and practically relevant.

REFERENCES

- Abdullah, O., Shaharuddin, A., Wahid, M. A., & Harun, M. S. (2024). AI applications for fiqh rulings in Islamic Banks: Shariah committee acceptance. *ISRA international journal of Islamic finance*, 16(1), 111-126.
- Ahmed, S., Alshater, M. M., El Ammari, A., & Hammami, H. (2022). Artificial intelligence and machine learning in finance: A bibliometric review. *Research in International Business and Finance*, 61, 101646. <https://doi.org/10.1016/j.ribaf.2022.101646>
- Hassan, M. K., Alhomaidi, A., & Smolo, E. (2022). A new model for screening Shariah-compliant firms.
- Alshater, M. M., Saba, I., Supriani, I., & Rabbani, M. R. (2022). Fintech in Islamic finance literature: A review. *Heliyon*, 8(9), e10385. <https://doi.org/10.1016/j.heliyon.2022.e10385>
- Arsyad, I., Kharisma, D. B., & Wiwoho, J. (2026). Artificial intelligence and Islamic finance industry: problems and oversight. *International Journal of Law and Management*, 68(4), 653-675.
- Nawi, N. M. (2016). Islamic Fintech and digital transformation: Opportunities and Shariah governance challenges. *Georgetown Journal of International Law*, 47(4), 1271-1319.

- Bahoo, S., Cucculelli, M., Goga, X., & Mondolo, J. (2024). Artificial intelligence in Finance: a comprehensive review through bibliometric and content analysis. *SN Business & Economics*, 4(2), 23.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160. <https://doi.org/10.2307/2095101>
- DinarStandard & Elipses. (2026). Global Islamic fintech report 2025/26. DinarStandard.
- Dusuki, A. W., & Bouheraoua, S. (2011). The framework of Maqasid al-Shari'ah and its implication for Islamic finance. *Islam and Civilisational Renewal (ICR)*, 2(2).
- Hasan, R., Hassan, M. K., & Aliyu, S. (2020). Fintech and Islamic finance: Literature review and research agenda. *International Journal of Islamic Economics and Finance*, 3(1), 75-94. <https://doi.org/10.18196/ijief.2122>
- Islamic Financial Services Board. (2024). Islamic financial services industry stability report 2024. IFSB.
- ICD & LSEG. (2024). Islamic finance development report 2024: From niche to norm. London Stock Exchange Group.
- ICD & LSEG. (2025). Islamic finance development report 2025: 50 years of exponential growth. London Stock Exchange Group.
- Khan, S., & Rabbani, M. R. (2021). Artificial intelligence and NLP-based chatbot for Islamic banking and finance. *International Journal of Information Retrieval Research*, 11(3), 65-77. <https://doi.org/10.4018/IJIRR.2021070105>
- Kunhibava, S., Mustapha, Z., Muneza, A., Sa'ad, A. A., & Karim, M. E. (2021). Şukūk on blockchain: A legal, regulatory and Sharī'ah review. *ISRA International Journal of Islamic Finance*, 13(1), 118-135. <https://doi.org/10.1108/IJIF-06-2020-0120>
- Markus, M. L., & Silver, M. S. (2008). A foundation for the study of IT effects: A new look at DeSanctis and Poole's concepts of structural features and spirit. *Journal of the Association for Information systems*, 9(10), 5.
- Mergaliyev, A., Asutay, M., Avdukic, A., & Karbhari, Y. (2021). Higher ethical objective (Maqāṣid al-Sharī'ah) augmented framework for Islamic banks: Assessing ethical performance and exploring its determinants. *Journal of Business Ethics*, 170(4), 797-834. <https://doi.org/10.1007/s10551-019-04331-4>
- Oseni, U. A., & Ali, S. N. (2019). Fintech in Islamic finance. In *Fintech in Islamic finance* (pp. 3-14). Routledge.
- Rogers, E. M. (2003). Diffusion of innovations (5th ed.). Free Press.
- Saad, A. A., Alhabshi, S. M., Mohd Noor, A. B., & Hassan, R. (2020). Robo-advisory for Islamic financial institutions: Sharī'ah and regulatory issues. *European Journal of Islamic Finance*, 15(1), 1-15.
- Shalhooob, H. (2025). The role of artificial intelligence in enhancing Shariah compliance: Efficiency and transparency in Islamic finance. *Journal of Infrastructure, Policy and Development*, 9(1), 11239.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Tornatzky, L. G., & Fleischer, M. (1990). The processes of technological innovation. Lexington Books.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478. <https://doi.org/10.2307/30036540>

Volkoff, O., & Strong, D. M. (2013). Critical realism and affordances: Theorizing IT-associated organizational change processes. *MIS Quarterly*, 37(3), 819-834. <https://doi.org/10.25300/MISQ/2013/37.3.07>

