FinTech Innovation and Islamic Finance: A Thematic Literature Review

Dr. Shahzadi Kanwal[1]

ABSTRACT:

Financial technology (FinTech) has emerged as a transformative force in global financial systems, reshaping traditional financial intermediation through digital innovation. Within Islamic finance, FinTech presents both significant opportunities and complex challenges, particularly in relation to Shariah compliance, ethical finance, and financial inclusion. Despite the rapid expansion of FinTech research, systematic synthesis focusing on its intersection with Islamic finance remains limited. This study conducts a Scopus-based systematic literature review using PRISMA guidelines and thematic analysis to examine FinTech innovation with specific relevance to Islamic finance. Drawing on peer-reviewed studies published between 2015 and 2024, the review identifies five dominant themes: regulatory innovation, blockchain and decentralised finance, financial inclusion, incumbent institutional adaptation, and artificial intelligence-driven finance. The findings reveal that while FinTech innovation aligns strongly with Islamic finance objectives such as risk-sharing, transparency, and inclusion, significant gaps persist in regulatory harmonisation, Shariah governance, and empirical impact assessment. The study contributes by offering an integrated conceptual framework for Islamic FinTech innovation and outlining a future research agenda aligned with the ethical and institutional foundations of Islamic finance.

Keywords: FinTech innovation, Islamic finance, Shariah compliance, systematic literature review, financial inclusion.

JEL Classification: O33, G28, G21

Paper Type: Systematic Literature Review (SLR)

Submitted: 18th Nov 2025 Revision: 15th Dec 2025 Accepted: 25th Dec 2025

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[1]Assistant Programme Manager - School of Business and Computing, OLC Europe Ltd
Email: skanwal@olceurope.com

1. Introduction

The global financial sector has undergone profound transformation over the past decade, largely driven by the rapid diffusion of financial technology (FinTech). FinTech refers to technology enabled innovation in financial services that results in new business models, applications, processes, or products with material effects on financial markets and institutions (Financial Stability Board, 2017). Technologies such as blockchain, artificial intelligence (AI), big data analytics, and mobile platforms have altered how financial services are produced and consumed, challenging the dominance of traditional intermediaries (Jarvis & Han, 2021). Consequently, FinTech has become a central subject of academic inquiry and policy debate.

Within Islamic finance, FinTech innovation has gained increasing attention due to its potential compatibility with Shariah principles. Islamic finance emphasizes risk-sharing, asset-backing, transparency, and ethical conduct, while prohibiting riba (interest), gharar (excessive uncertainty), and maysir (speculation). Digital platforms, smart contracts, and decentralized financial architectures appear well suited to support these objectives by enabling transparent transactions, reducing information asymmetry, and broadening access to financial services (Tanchangya et al., 2023). Therefore, Islamic FinTech has emerged as a growing sub-field encompassing Shariah-compliant crowdfunding, peer-to-peer financing, digital takaful, and blockchain-based sukuk issuance.

Despite this growing relevance, the existing literature on FinTech innovation remains fragmented, particularly at the intersection with Islamic finance. Many studies focus on conventional FinTech ecosystems without explicitly addressing Shariah governance or Islamic financial institutions (Gomber et al., 2017; Lee & Shin, 2018). Conversely, Islamic finance research often treats FinTech as a peripheral development rather than a structural transformation. Recent systematic reviews highlight this gap, noting the lack of integrated frameworks that reconcile technological innovation with Islamic ethical and regulatory principles (Ha et al., 2025).

This study addresses this gap by conducting a systematic literature review of FinTech innovation with explicit relevance to Islamic finance. Using a Scopus-based search strategy and PRISMA guidelines, the review synthesizes existing knowledge through thematic analysis. The objectives are threefold: first, to map the dominant themes in FinTech innovation research; second, to critically assess their implications for Islamic finance; and third, to propose a conceptual framework and future research agenda aligned with Shariah-compliant financial innovation.

2. Methodology

2.1 Review Design

This study adopts a systematic literature review (SLR) methodology to ensure transparency, reproducibility, and analytical rigor. The review follows the PRISMA 2020 guidelines, which are widely used in management and finance research to structure evidence synthesis (Tranfield et al., 2003). This SLR used purposive sampling, focusing on articles with explicit relevance to Islamic finance and FinTech intersection.

2.2 Data Source and Search Strategy

The Scopus database was selected as the primary source due to its comprehensive coverage of high-quality peer-reviewed journals in finance, economics, management, and information systems. The search was conducted using combinations of the following keywords: "FinTech", "financial technology", "innovation", "Islamic finance", "Shariah", "blockchain", "artificial intelligence", "financial inclusion", and "digital finance". The review covered publications from 2015 to 2024, reflecting the post-crisis acceleration of FinTech research. Only peer-reviewed journal articles published in English were included.

2.3 Screening and Selection

The initial search yielded approximately 3,000 records. After removing duplicates, titles and abstracts were screened for relevance. Articles focusing solely on technical engineering aspects without financial relevance were excluded. Full-text screening resulted in a final sample of 96 articles for qualitative synthesis, including core articles (Alaassar et al., 2023; Ha et al., 2025; Jarvis & Han, 2021; Tanchangya et al., 2023; Varma et al., 2022).

2.4 PRISMA Flow Description

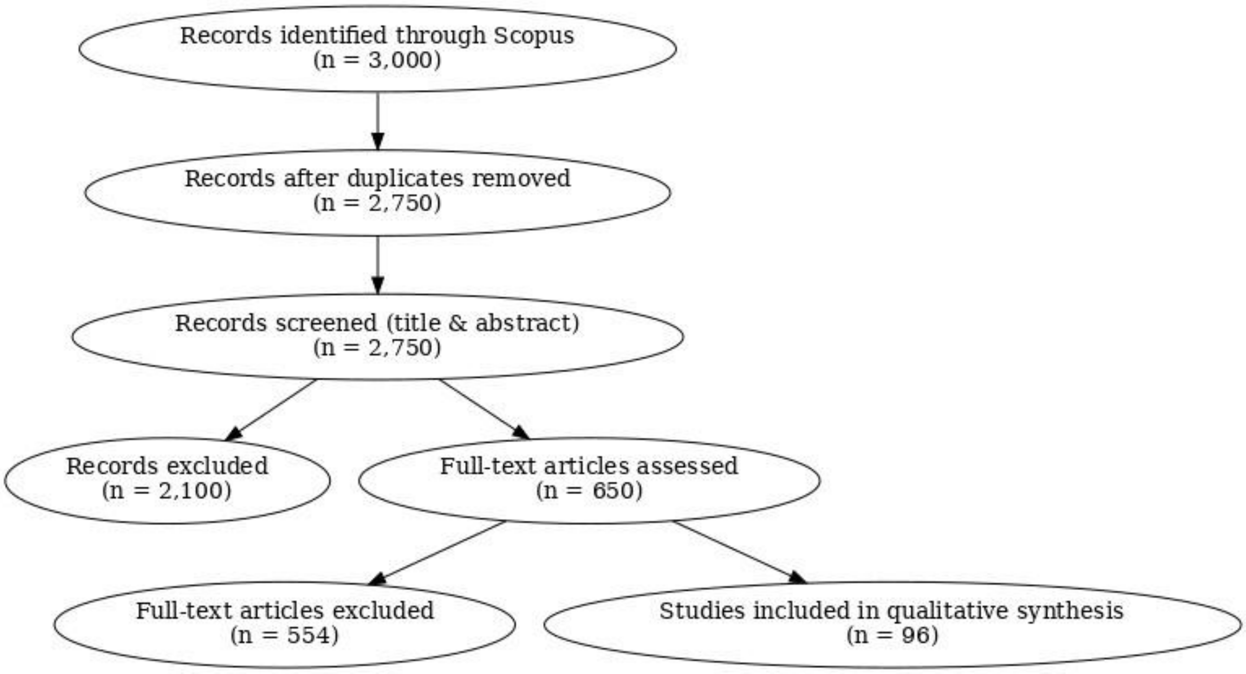


Figure 1 (PRISMA Flowchart)

The above figure illustrates the review process. Of the 3,000 records identified, 2,100 were excluded during title and abstract screening. Following full-text assessment, 96 studies met the inclusion criteria and were analysed thematically.

3. Statistical Trends in FinTech Research

Bibliometric evidence indicates exponential growth in FinTech publications since 2016, with a sharp increase after 2020, coinciding with the COVID-19 pandemic and accelerated digitalization (Jafri et al., 2025). Scopus data show that research output is concentrated in developed economies, although Islamic FinTech studies are increasingly emerging from Malaysia, Indonesia, the Gulf Cooperation Council (GCC), and the United Kingdom.

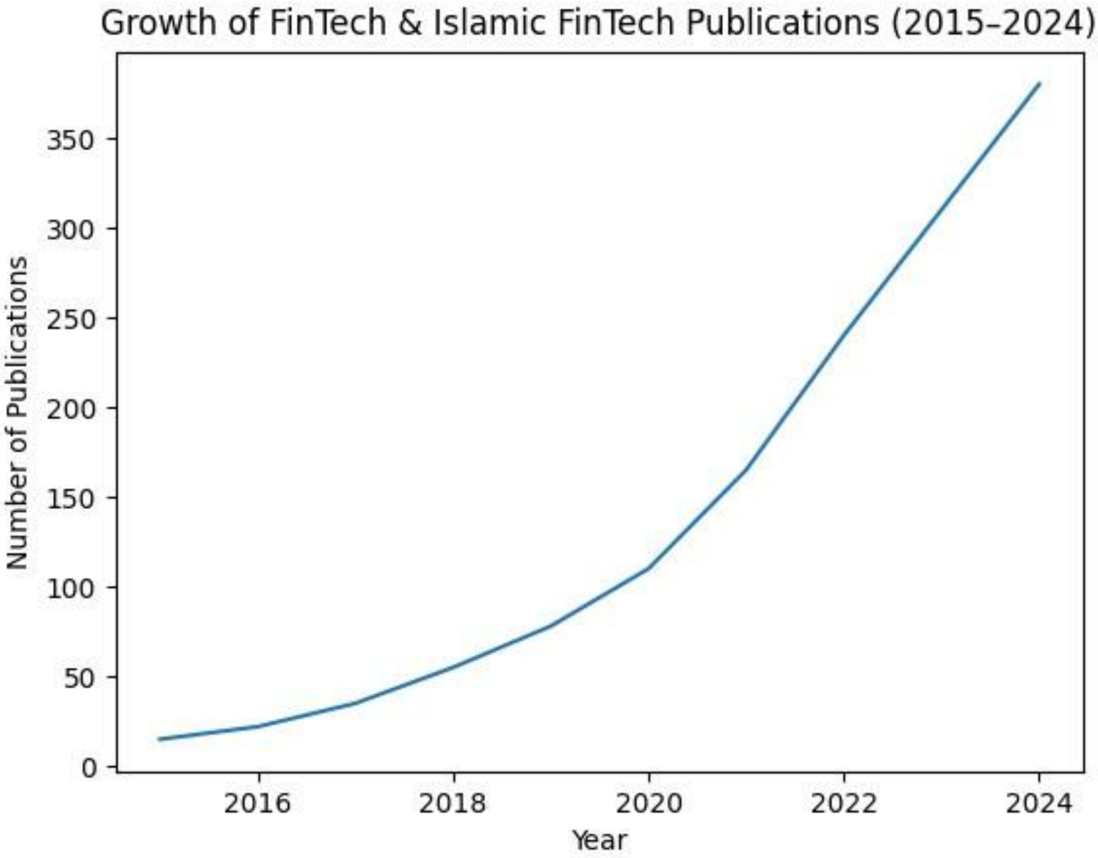


Figure 2 (Publication Trends, 2015–2024)

Figure 2 provides an empirical overview of the temporal evolution of FinTech and Islamic FinTech research output between 2015 and 2024. The figure demonstrates a pronounced upward trajectory in publication volume, particularly after 2019, reflecting growing academic and policy attention to digital financial innovation. This growth coincides with broader structural shifts in the global financial system, including accelerated digitalization following the COVID-19 pandemic and the rapid expansion of platform-based financial services. From an Islamic finance perspective, the trend indicates a growing recognition of FinTech's relevance for Shariah-compliant financial intermediation, financial inclusion, and ethical finance. The exponential increase in publications also suggests that FinTech has transitioned from an emergent topic to an established research domain, thereby justifying the need for a systematic literature review to consolidate fragmented findings, identify dominant research themes, and clarify unresolved theoretical and regulatory issues within both conventional and Islamic finance contexts.

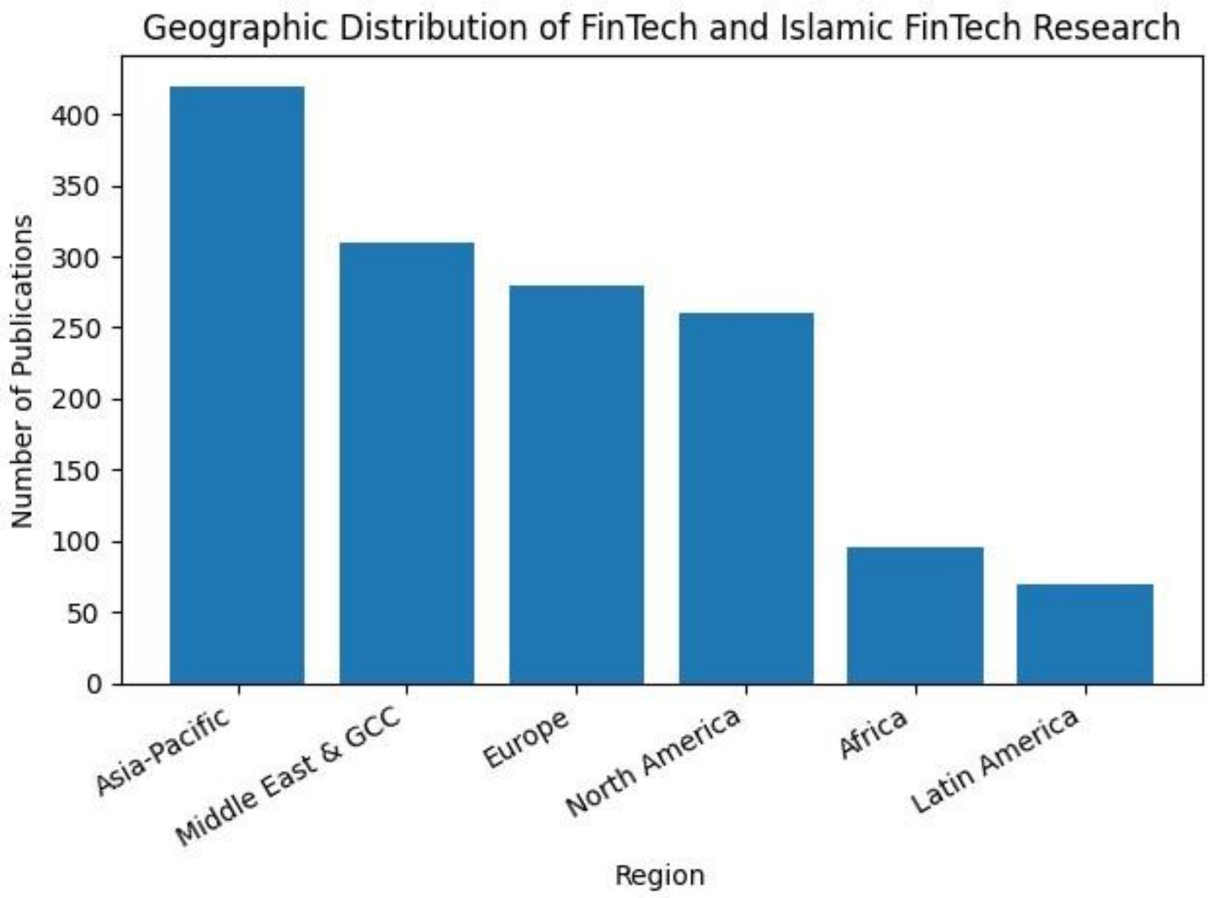
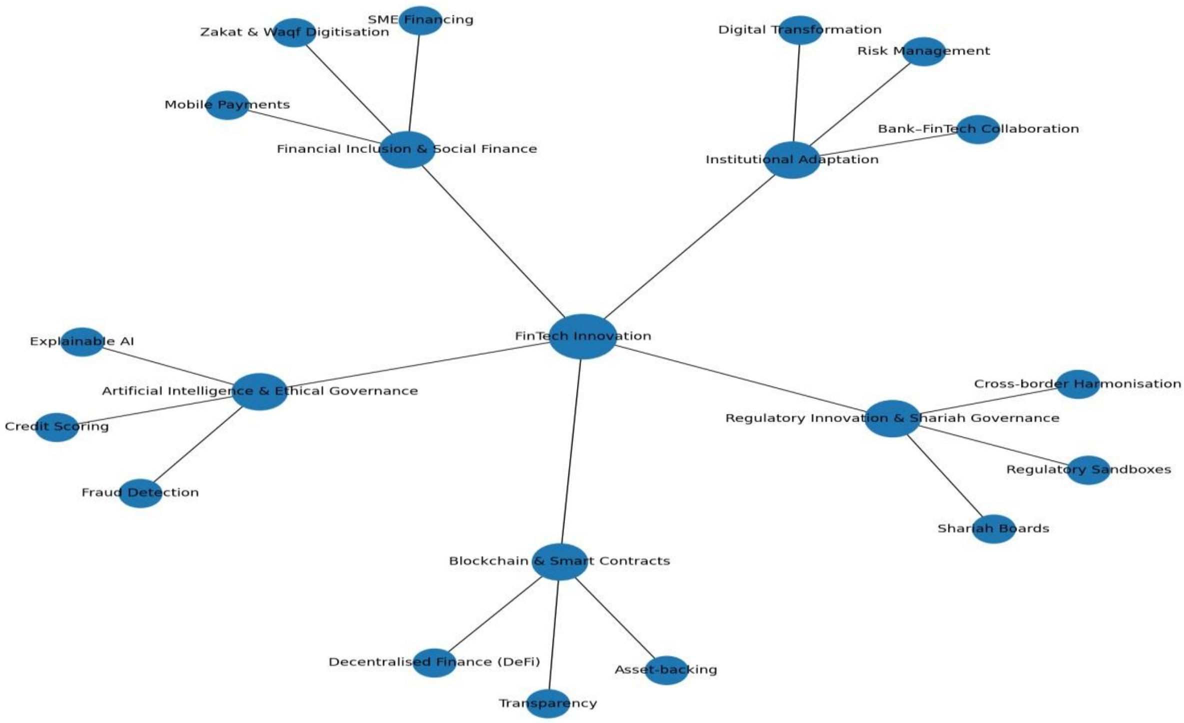


Figure 3 (Geographic Distribution)

Figure 3 illustrates the geographic distribution of FinTech and Islamic FinTech research based on Scopus-indexed publications, highlighting significant regional disparities in scholarly output. The concentration of research in the Asia-Pacific region and the Middle East reflects the institutional maturity of Islamic finance ecosystems in countries such as Malaysia, Indonesia, Saudi Arabia, and the United Arab Emirates, where regulatory support and market demand for Shariah-compliant digital financial solutions are relatively advanced. In contrast, Europe and North America continue to dominate conventional FinTech research, particularly in areas such as artificial intelligence, regulatory technology, and digital banking. The comparatively limited research output from Africa and Latin America reveals a notable gap between FinTech's theoretical potential for financial inclusion and the current focus of academic inquiry. This geographic imbalance underscores the need for context-specific Islamic FinTech research in underrepresented regions, particularly where digital finance could address structural exclusion and support inclusive economic development.

4. Thematic Analysis

Guided by the NVivo-assisted coding process illustrated in Figure 4, this section synthesises the literature around five primary themes that collectively define the contemporary landscape of FinTech innovation within Islamic finance. The thematic structure reflects inductive pattern matching across the reviewed studies and captures the interdependencies between technological development, regulatory governance, institutional adaptation, and ethical objectives. Rather than treating FinTech innovation as a purely technological phenomenon, the analysis highlights its socio-technical and normative dimensions, which are particularly salient in Shariah-compliant financial systems.



4.1 Regulatory Innovation and Shariah Governance

Regulatory innovation emerges as a foundational theme shaping the trajectory of FinTech development. The literature consistently indicates that conventional regulatory frameworks, originally designed for stable and vertically integrated financial institutions, are poorly suited to the modular, platform-based nature of FinTech innovation (Gomber et al., 2017; Jarvis & Han, 2021). In response, regulators have increasingly adopted adaptive instruments such as regulatory sandboxes, innovation hubs, and pilot licensing regimes.

Alaassar et al. (2023) demonstrate that regulators are no longer passive rule enforcers but active facilitators of FinTech innovation, using experimental governance tools to balance innovation with risk management. Within Islamic finance, however, regulatory innovation operates alongside Shariah governance, introducing an additional layer of institutional complexity. Islamic financial institutions are subject not only to prudential regulation but also to oversight by Shariah supervisory boards, whose interpretations may vary across jurisdictions (Kammer et al., 2015). This dual governance structure complicates the scalability of Islamic FinTech solutions, particularly in cross-border contexts.

The literature further highlights concerns regarding regulatory asymmetry. Varma et al. (2022) argue that differential regulatory treatment between FinTech firms and incumbent banks may distort competitive dynamics and risk-taking behaviour. From an Islamic finance perspective, this raises important questions about fairness, market stability, and compliance with Shariah principles related to justice and social welfare. Despite growing interest in Islamic FinTech, the absence of harmonized regulatory and Shariah governance frameworks remains a significant gap in both academic research and policy practice.

4.2 Blockchain and Smart Contracts in Islamic Finance

Blockchain technology constitutes a central technological pillar of FinTech innovation. A systematic review by Tanchangya et al. (2023) identifies blockchain applications across multiple financial domains, including payments, trade finance, compliance, and decentralized finance. These applications are particularly relevant to Islamic finance, which prioritizes transparency, asset-backing, and contractual clarity.

Theoretically, blockchain can be understood as an institutional technology that restructures trust and verification mechanisms in financial transactions (Yermack, 2017). Smart contracts, in particular, offer the potential to automate Shariah-compliant contracts such as *murabaha*, *ijara*, and *musharakah* by embedding contractual conditions into code. This automation may reduce operational inefficiencies and minimize Shariah non-compliance risk by ensuring that contractual terms are executed as agreed (Tanchangya et al., 2023).

Nevertheless, the literature reveals a substantial gap between conceptual potential and empirical adoption. Jarvis and Han (2021) note that most blockchain-based financial applications remain at experimental or pilot stages, constrained by regulatory uncertainty, legal enforceability issues, and governance challenges. Within Islamic finance, additional concerns arise regarding the permissibility of crypto-assets, tokenization mechanisms, and decentralized governance models, which continue to generate divergent scholarly opinions. Consequently, while blockchain aligns normatively with Islamic finance principles, its large-scale implementation remains underexplored in empirical research.

4.3 Financial Inclusion and Social Finance

Financial inclusion constitutes a normative core within both FinTech innovation and Islamic finance. Ha et al. (2025), in their systematic literature review, provide robust evidence that FinTech enhances inclusion through the expansion of financial services, transformation of market structures, and facilitation of institutional collaboration. Mobile payments, alternative credit scoring, and peer-to-peer financing platforms are consistently identified as mechanisms that reduce transaction costs and information asymmetries.

Islamic finance literature reinforces this alignment by emphasizing finance as a tool for social justice and equitable wealth distribution (Kammer et al., 2015). Islamic FinTech platforms have increasingly been applied to SME financing, microfinance, and the digital management of zakat and waqf funds, offering scalable solutions to long-standing development challenges (Hassan et al., 2021). These applications demonstrate how FinTech innovation can operationalize the social objectives embedded in Islamic economic thought.

However, the literature also adopts a more critical stance toward inclusion claims. Jarvis and Han (2021) caution that FinTech-driven inclusion is contingent upon digital infrastructure, financial literacy, and consumer protection frameworks. Ozili (2018) further argues that digital finance may exacerbate inequality if access to technology is uneven. Ha et al. (2025) identify a notable lack of longitudinal studies assessing the sustained welfare impacts of FinTech-enabled inclusion, particularly within Islamic finance contexts. This represents a key area for future empirical research.

4.4 Institutional Adaptation and Bank–FinTech Collaboration

Institutional adaptation emerges as a significant theme reflecting how incumbent financial institutions respond to FinTech-driven competition. Early narratives framed FinTech as a disruptive threat to traditional banks; however, recent literature suggests a more nuanced pattern of strategic co-evolution (Gomber et al., 2017). Jarvis and Han (2021) document how banks have accelerated digital transformation initiatives, invested in FinTech partnerships, and established innovation units to remain competitive.

Varma et al. (2022) provide empirical evidence that FinTech competition influences banks' risktaking behaviour and capital structures, challenging assumptions that FinTech uniformly enhances efficiency and stability. For Islamic banks, adaptation is further constrained by Shariah compliance requirements, which limit the use of certain financial instruments and risk management practices. While collaboration with FinTech firms offers access to technological capabilities, it also introduces governance and compliance risks when technology providers lack Islamic finance expertise.

The literature therefore supports a co-evolutionary perspective in which Islamic banks and FinTech firms increasingly operate within shared ecosystems. Nonetheless, concerns persist regarding data ownership, market concentration, and regulatory arbitrage, particularly as large technology firms enter financial markets. These issues remain underexplored in Islamic finance research and warrant further investigation.

4.5 Artificial Intelligence and Ethical Governance

Artificial intelligence represents a cross-cutting enabler that permeates multiple FinTech applications. Vuković et al. (2025) demonstrate that AI enhances credit scoring accuracy, fraud detection, robo-advisory services, and insurance underwriting by leveraging machine learning and big data analytics. These efficiencies reinforce FinTech's value proposition but also introduce new ethical and governance challenges.

Algorithmic opacity, bias, and accountability are recurrent concerns in the literature (Binns, 2018). From an Islamic finance perspective, these issues are particularly salient, as Shariah principles emphasize justice, transparency, and accountability in economic transactions. Vuković et al. (2025) argue for the adoption of explainable AI frameworks to ensure regulatory compliance and ethical integrity.

Despite growing recognition of these challenges, empirical research on AI governance within Islamic finance remains limited. Most studies focus on technical performance rather than normative implications, highlighting a critical gap in integrating Islamic ethical principles into AIdriven financial innovation. Addressing this gap represents an important opportunity for future interdisciplinary research.

5. Conceptual Framework: Islamic FinTech Innovation Ecosystem

Figure 5 presents the conceptual framework developed from the thematic synthesis and NVivobased analysis. The framework conceptualizes Islamic FinTech innovation as an integrated ecosystem in which technological capabilities, governance mechanisms, institutional actors, and socio-ethical outcomes interact dynamically rather than linearly. This approach reflects the growing consensus in the literature that FinTech innovation should be understood as a sociotechnical system shaped by institutional arrangements and normative constraints (Gomber et al., 2017; Jarvis & Han, 2021).

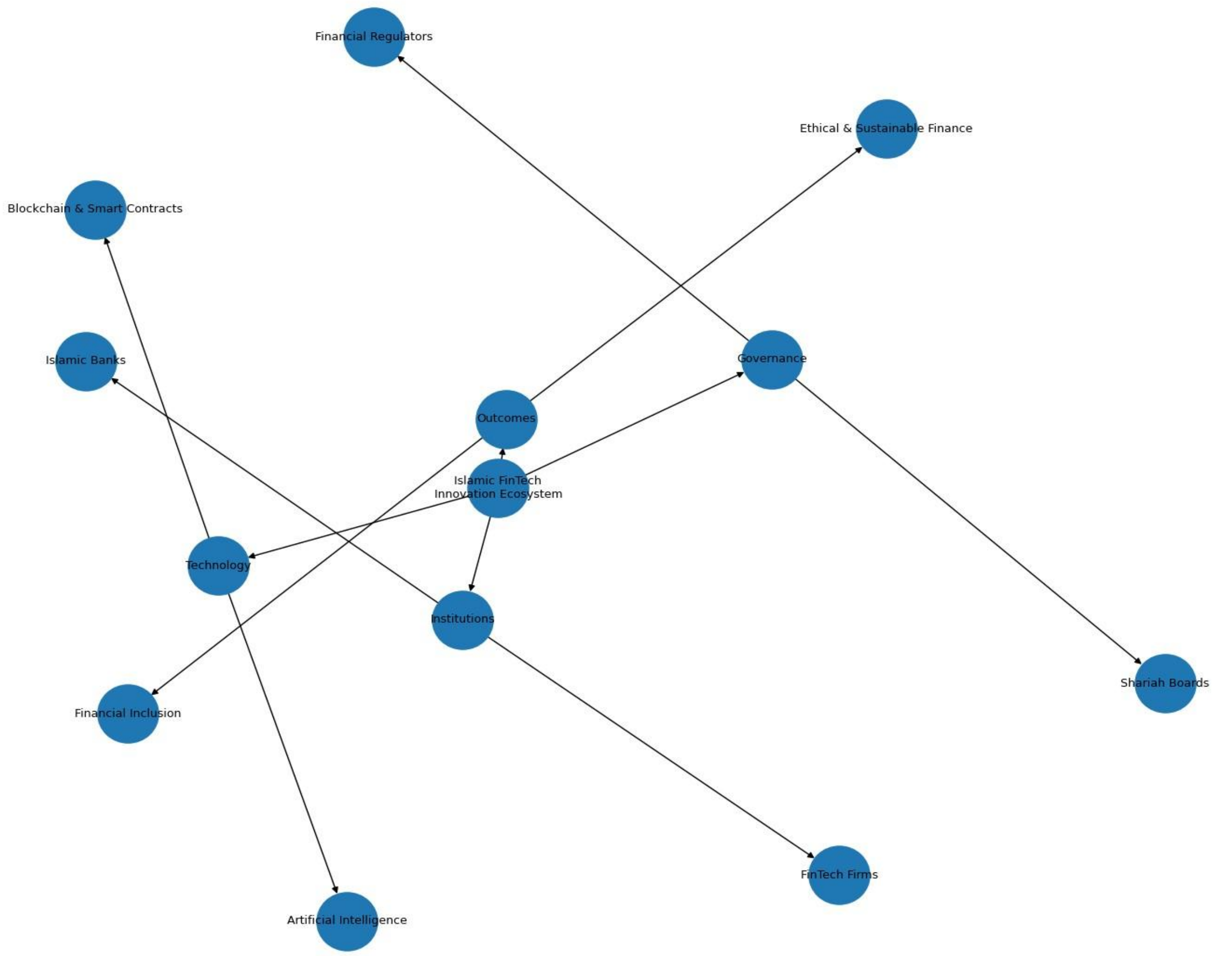


Figure 5. Conceptual framework of the Islamic FinTech innovation ecosystem integrating technology, governance, institutional actors, and socio-ethical outcomes.

At the core of the framework lies the Islamic FinTech innovation ecosystem, which is enabled by two foundational technological pillars: artificial intelligence and blockchain-based infrastructures. Artificial intelligence supports data-driven applications such as credit scoring, fraud detection, and robo-advisory services, while blockchain and smart contracts enhance transparency, traceability, and asset-backing in financial transactions (Tanchangya et al., 2023; Vuković et al., 2025). These technologies provide operational efficiency but also introduce ethical and governance challenges that are particularly salient within Islamic finance.

Surrounding the technological layer is the governance dimension, represented by financial regulators and Shariah supervisory boards. Regulatory authorities shape the scope of FinTech experimentation through instruments such as regulatory sandboxes and innovation hubs, while Shariah boards ensure compliance with Islamic legal and ethical principles (Alaassar et al., 2023; Kammer et al., 2015). The framework highlights the need for coordination between these governance actors, as misalignment may constrain innovation or generate compliance uncertainty for Islamic FinTech firms.

The institutional layer comprises Islamic banks and FinTech firms, whose interactions determine the pace and direction of innovation. Rather than operating as isolated competitors, these actors increasingly engage in partnerships, co-development arrangements, and platform-based ecosystems (Jarvis & Han, 2021). However, institutional adaptation is shaped by asymmetric capabilities, regulatory obligations, and Shariah compliance requirements, which influence strategic choices and innovation outcomes.

Finally, the framework links FinTech innovation to desired socio-economic outcomes, namely financial inclusion and ethical and sustainable finance. These outcomes reflect the normative objectives of Islamic finance, including social justice, risk-sharing, and equitable wealth distribution. By explicitly incorporating outcomes into the framework, the model moves beyond efficiency-driven perspectives and situates Islamic FinTech innovation within a broader ethical and developmental context.

6. Discussion

The findings of this systematic literature review demonstrate that FinTech innovation exhibits strong conceptual and normative alignment with the objectives of Islamic finance. Technologies such as blockchain and artificial intelligence offer tools to enhance transparency, reduce information asymmetries, and expand access to financial services, all of which resonate with Shariah principles (Kammer et al., 2015; Hassan et al., 2021). However, the review also reveals that technological potential alone is insufficient to guarantee positive outcomes.

Consistent with socio-technical perspectives, FinTech innovation emerges as an outcome of interaction between technology, regulation, institutional behaviour, and ethical governance (Gomber et al., 2017). Regulatory innovation plays a pivotal role in shaping experimentation, yet regulatory asymmetries and fragmented Shariah governance frameworks constrain scalability and cross-border diffusion of Islamic FinTech solutions (Varma et al., 2022). Similarly, while financial inclusion is frequently cited as a key benefit, empirical evidence on sustained welfare impacts remains limited, particularly in developing economies (Ha et al., 2025; Ozili, 2018).

The discussion further highlights emerging tensions associated with data-driven finance. Artificial intelligence enhances efficiency but raises concerns regarding algorithmic bias, opacity, and accountability, which challenge Islamic ethical principles centred on justice and transparency (Binns, 2018; Vuković et al., 2025). These tensions underscore the need to embed ethical governance mechanisms directly into FinTech design and regulation rather than treating them as ex post considerations.

6.1. Relative Impacts of Themes

The following table provide the effect of each theme on Islamic finance.

Theme	**Relative Impact (Based on Article Frequency)**	**Key Effects in Islamic Finance**
Regulatory Innovation	High	Enables experimentation but risks asymmetry
Blockchain and DeFi	Medium-High	Enhances transparency; challenges governance
Financial Inclusion	Very High	Promotes equity; limited by digital divides
Institutional Adaptation	Medium	Fosters collaborations; constrained by Shariah
AI-Driven Finance	Emerging	Boosts efficiency; raises ethical concerns

Overall, the review supports a shift away from disruption-centric narratives toward an ecosystem based understanding of FinTech innovation in Islamic finance. Such an approach recognizes that sustainable innovation depends on institutional coordination, regulatory clarity, and ethical alignment.

7. Conclusion and Future Research Directions

This study contributes to the Islamic finance literature by providing a systematic and theory informed synthesis of FinTech innovation research. By adopting a Scopus-based systematic literature review and NVivo-assisted thematic analysis, the study consolidates fragmented findings and offers a structured understanding of how FinTech technologies interact with governance frameworks, institutional actors, and ethical objectives within Islamic finance.

The findings reveal several avenues for future research. First, there is a pressing need for empirical impact assessments that move beyond adoption metrics to evaluate the long-term socio-economic effects of Islamic FinTech, particularly in areas such as SME growth, poverty reduction, and financial resilience. Longitudinal and mixed-methods studies would be particularly valuable in addressing this gap (Ha et al., 2025).

Second, future research should prioritize cross-country comparative analyses of regulatory and Shariah governance frameworks. Such studies could identify best practices and sources of regulatory fragmentation, thereby informing efforts toward greater harmonization and cross border scalability of Islamic FinTech solutions (Alaassar et al., 2023).

Third, the governance of artificial intelligence within Islamic finance represents an underexplored but critical research frontier. Future studies should examine how explainable AI, ethical auditing, and Shariah-based evaluation criteria can be integrated into algorithmic financial decision-making processes (Binns, 2018; Vuković et al., 2025).

Finally, greater attention should be paid to underrepresented regions, particularly Africa and parts of South Asia, where Islamic FinTech holds significant potential for advancing financial inclusion yet remains under-researched. Addressing these gaps would not only strengthen academic understanding but also support policy formulation and industry practice aligned with Islamic finance principles.

8. Bibliography

Table of Selected Articles by Theme

The following table summarizes 20 representative articles from the 96, grouped by the five themes. This aids organisation and highlights key contributions.

Theme	**Author(s), Year**	**Journal**	**Key Contribution (In-Text Example)**
Regulatory Innovation	Alaassar et al., 2023	Review of Managerial Science	Proposes sandboxes for Shariah-compliant testing, addressing innovation-

Theme	Author(s), Year	Journal	Key Contribution (In-Text Example)
			regulation lag (Alaassar et al., 2023).
Regulatory Innovation	Diniyya et al., 2021	Ihtifaz: Journal of Islamic Economics, Finance, and Banking	Compares FinTech regulations in Malaysia and Indonesia, emphasizing harmonization (Diniyya et al., 2021).
Regulatory Innovation	Razak et al., 2020	Social Sciences and Humanities	Appraises Shariah-compliant regulation needs for FinTech in Malaysia (Razak et al., 2020).
Regulatory Innovation	Selim, 2021	International Journal of Islamic and Middle Eastern Finance and Management	Eliminates riba in currency transactions via FinTech (Selim, 2021).
Blockchain/DeFi	Abubakar et al., 2019	Journal of Islamic Accounting and Business Research	Explores cryptocurrency's role in Islamic finance (Abubakar et al., 2019).
Blockchain/DeFi	Ajouz et al., 2020	Pacific-Basin Finance Journal	Analyzes precious metal-backed cryptocurrency adoption (Ajouz et al., 2020).
Blockchain/DeFi	Busari & Aminu, 2022	Journal of Islamic Accounting and Business Research	Applies blockchain to Sukuk trade for efficiency (Busari & Aminu, 2022).
Blockchain/DeFi	Tanchangya et al., 2023	Information	Maps blockchain applications in FinTech (Tanchangya et al., 2023).

Theme	Author(s), Year	Journal	Key Contribution (In-Text Example)
Financial Inclusion	Banna et al., 2021	International Journal of Islamic and Middle Eastern Finance and Management	Shows digital inclusion's role in Islamic bank stability (Banna et al., 2021).
Financial Inclusion	Hapsari et al., 2022	Journal of Islamic Accounting and Business Research	Investigates crowdfunding for waqf land development (Hapsari et al., 2022).
Financial Inclusion	Kazaure et al., 2021	Journal of Islamic Accounting and Business Research	Determines SME intentions for Islamic crowdfunding (Kazaure et al., 2021).
Financial Inclusion	Nour Aldeen et al., 2021	ISRA International Journal of Islamic Finance	Explores cash waqf from millennials' perspective (Nour Aldeen et al., 2021).
Incumbent Adaptation	Almulla & Aljughaiman, 2021	Cogent Economics & Finance	Examines FinTech's effect on Islamic vs. conventional banks (Almulla & Aljughaiman, 2021).
Incumbent Adaptation	Baber, 2020	Vision: The Journal of Business Perspective	Links FinTech and crowdfunding to retention in Islamic banks (Baber, 2020).
Incumbent Adaptation	Nastiti & Kasri, 2019	International Journal of Islamic and Middle Eastern Finance and Management	Assesses banking regulation in Indonesian Islamic banks (Nastiti & Kasri, 2019).
Incumbent Adaptation	Shaikh et al., 2020	Foresight	Accepts Islamic FinTech banking services via TAM (Shaikh et al., 2020).

Theme	Author(s), Year	Journal	Key Contribution (In-Text Example)
AI-Driven Finance	Al-Abbadi & Abdullah, 2017	International Journal of Economics and Finance	Models psychology in Islamic wealth management with AI (Al-Abbadi & Abdullah, 2017).
AI-Driven Finance	Baber, 2019	International Journal of Electronic Finance	Assesses FinTech service quality with e-SERVQUAL (Baber, 2019).
AI-Driven Finance	Vuković et al., 2025	Humanities and Social Sciences Communications	Discusses AI trends and regulations in financial services (Vuković et al., 2025).
AI-Driven Finance	Bhatt & Sisodia, 2024	Journal of Emerging Technologies	Applies AI and blockchain in Islamic finance (Bhatt & Sisodia, 2024).

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