

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE FOR INSTITUTE OF
ADMINISTRATION (ICIA 2025)

AHMADU BELLO UNIVERSITY ZARIA - NIGERIA

Website: <https://icia.org.ng> ISBN: 978-978-695-265-9 Volume II, 2025

**BLOCKCHAIN-ENABLED ISLAMIC SOCIAL FINANCE: A SHARIA-COMPLIANT
FRAMEWORK FOR TRANSPARENT AND INCLUSIVE SUSTAINABLE
DEVELOPMENT IN NIGERIA**

Muhammad sambo umar⁶⁵ and ahmad abubakar⁶⁶

Gombe State University, Gombe

muhammadsamboumar5@gmail.com and samboubello@yahoo.com

Research Associate, Shehu Wada SAN and Co. (Legal Practitioners) Abuja, Nigeria.,

ahmedbuba19@gmail.com and ahmedbuba19@yahoo.com

ABSTRACT

This paper investigated the integration of blockchain technology into Islamic social finance as a Sharia-compliant strategy to enhance transparency, accountability, and inclusivity in Nigeria's pursuit of sustainable development. Focusing on the core instruments of zakāt, waqf, and ṣadaqah, the paper explored how blockchain's decentralized, immutable, and transparent ledger system could address persistent governance challenges that have hindered the effective deployment of Islamic social finance mechanisms in the Nigerian context. The research adopted an interdisciplinary approach, combining principles of Islamic commercial jurisprudence (fiqh al-mu'āmalāt), financial technology (fintech), and development studies to evaluate the practical and legal feasibility of blockchain-based models. Particular attention was given to the operationalization of smart contracts for automating zakāt and waqf disbursements, decentralized applications (dApps) for donor and beneficiary tracking, and digital identity systems to enhance financial inclusion for marginalized populations. The study identified key barriers including legal uncertainties, infrastructural deficits, limited Sharia literacy among technologists, and regulatory fragmentation. Nevertheless, it found that blockchain could serve as a transformative enabler for Islamic social finance institutions by promoting trust, real-time auditing, and efficiency, thereby aligning the operational ethos of Islamic finance with the objectives of Islamic law (Maqāṣid al-Sharia). The paper concluded that embedding blockchain into Nigeria's Islamic social finance ecosystem could not only modernize faith-based financial governance but also support national and global development goals, particularly in areas of poverty alleviation, education, and

⁶⁵ Gombe State University, Gombe muhammadsamboumar5@gmail.com and samboubello@yahoo.com

⁶⁶ Research Associate, Shehu Wada SAN and Co. (Legal Practitioners) Abuja, Nigeria., ahmedbuba19@gmail.com and ahmedbuba19@yahoo.com

healthcare. It recommended the development of unified regulatory standards, Sharia-compliant blockchain protocols, and public-private partnerships to harness the full potential of this technological integration for ethical and sustainable development.

1. Introduction

The intersection of Islamic social finance and emerging technologies has increasingly attracted scholarly and policy interest as Muslim-majority and minority jurisdictions alike seek innovative mechanisms to address persistent challenges of poverty, financial exclusion, and institutional inefficiency. In Nigeria, the potential of Islamic social finance — comprising principally of zakāt, waqf, and ṣadaqah — remains significantly underutilized due to systemic inefficiencies, opacity in governance, and weak public trust. These constraints have undermined the realization of Islamic financial instruments as vehicles for socio-economic justice, despite their alignment with the constitutional and religious values of large segments of the Nigerian populace.⁶⁷ The imperative to modernize these mechanisms without compromising their Sharia-compliance has thus become increasingly urgent, particularly in light of the country’s commitment to both the United Nations Sustainable Development Goals (SDGs) and its domestic development agenda.

Blockchain technology, characterised by its decentralised, immutable, and transparent ledger architecture, offers a unique paradigm for restructuring the operational modalities of Islamic social finance.⁶⁸ It facilitates peer-to-peer transactions without the need for centralised intermediaries and provides real-time, tamper-proof records of disbursement and use of funds — features which are especially pertinent in Islamic philanthropic finance where accountability to God and society are integral to legitimacy.⁶⁹ The Islamic legal tradition has historically welcomed technological innovations that promote maṣlaḥah (public interest), provided they do not contravene core legal principles.⁷⁰ Consequently, the conceptual and doctrinal space for

⁶⁷ Abdullahi Ahmed An-Na’im, *Islam and the Secular State: Negotiating the Future of Shari’a* (Harvard University Press 2008) 203–205

⁶⁸ Don Tapscott and Alex Tapscott, *Blockchain Revolution: How the Technology Behind Bitcoin is Changing Money, Business, and the World* (Portfolio Penguin 2016) 6–12

⁶⁹ Muneeza Ishrat, 'Application of Blockchain in Islamic Finance: A Review of Smart Contracts and Its Challenges' (2020) 11 *Journal of Islamic Monetary Economics and Finance* 205–210

⁷⁰ Mohammad Hashim Kamali, *Shari’ah Law: An Introduction* (Oneworld Publications 2008) 234–238

accommodating blockchain within Islamic social finance is both present and expanding, albeit cautiously and unevenly across jurisdictions.

This paper critically investigates the possibility of integrating blockchain technology into the administration of Islamic social finance in Nigeria. Despite the increasing digitisation of financial services globally, including within the Islamic finance sector, most zakāt and waqf institutions in Nigeria continue to rely on traditional, centralised, and often informal models of fund collection and distribution.⁷¹ This status quo has not only limited their scalability but has also engendered inefficiencies, allegations of mismanagement, and a widespread perception of opacity — all of which undermine their legitimacy and socio-economic impact.⁷² Moreover, the multiplicity of regulatory and religious authorities overseeing Islamic financial practices in Nigeria often leads to fragmentation and doctrinal inconsistency, particularly in emerging domains such as Islamic fintech.

This paper aims to construct a Sharia-compliant blockchain framework capable of enhancing the transparency, efficiency, and inclusivity of zakāt, waqf, and ṣadaqah administration in Nigeria. In doing so, it seeks to contribute to a more ethically grounded and technologically adaptive model of Islamic social finance capable of advancing the objectives of Sharia (Maqāṣid al-Sharia), especially the protection of wealth (ḥifẓ al-māl), human dignity (ḥifẓ al-‘ird) and socio-economic justice.

Methodologically, the research adopts a doctrinal legal analysis supplemented by comparative case study insights from jurisdictions where blockchain-based Islamic social finance initiatives have been piloted. It also draws upon secondary sources in Islamic jurisprudence, financial regulation, and development theory, alongside reports from institutions such as the Islamic Development Bank, the Nigerian Supreme Council for Islamic Affairs, and the Financial Action Task Force.

⁷¹ Habib Ahmed, 'Waqf-Based Microfinance: Realizing the Social Role of Islamic Finance' (2013) 21 *World Bank Islamic Research and Training Institute Occasional Paper* 7–10

⁷² Abdulqadir S. Abbas, 'Challenges of Zakat Administration in Nigeria: Lessons from Selected Muslim Countries' (2017) 2 *Journal of Islamic Finance Studies* 65–70

The structure of the paper is as follows: Section 2 establishes the conceptual and definitional framework, elucidating both the instruments of Islamic social finance and the principles of blockchain technology. Section 3 discusses the Sharia foundations for technological innovation, drawing on legal maxims and the objectives of Islamic law. Section 4 examines the feasibility of blockchain integration within the Nigerian context, including technological and regulatory constraints. Section 5 identifies the major challenges, while Section 6 offers a comprehensive Sharia-compliant framework for implementation. The concluding section synthesises the findings and offers recommendations for regulators, Sharia scholars, and development stakeholders.

2. Conceptual Framework

The integration of blockchain technology into Islamic social finance necessitates a clear understanding of the foundational instruments of Islamic philanthropy and the technical architecture of blockchain itself. This section elucidates the legal, theological, and functional dimensions of *zakāt*, *waqf*, and *ṣadaqah*, and juxtaposes them with the defining features of blockchain technology. The objective is to demonstrate their conceptual compatibility and highlight the potential for symbiotic convergence under a Sharia-compliant governance model.

2.1 Islamic Social Finance

Islamic social finance constitutes an essential pillar of the Islamic economic system, embodying the ethical imperative of wealth redistribution in accordance with divine injunctions. The three principal instruments in the Islamic social finance are *zakāt* (obligatory almsgiving), *ṣadaqah* (voluntary charity), and *waqf* (endowment). These are rooted in the twin objectives of economic justice and social solidarity.

Zakāt is a mandatory financial obligation prescribed in numerous Qur'ānic verses, most notably: “Take from their wealth a charity by which you purify them and cause them increase...”.⁷³ Its disbursement is restricted to eight legally designated categories under Qur'ān 9:60, including the poor, the needy, and those in debt.⁷⁴ Zakāt, therefore, is not merely a spiritual obligation but a

⁷³ Qur'ān 9:103

⁷⁴ The Qur'ān 9:60; see also Wahbah al-Zuhaylī, *al-Fiqh al-Islāmī wa Adillatuh* (Dar al-Fikr 2000) vol 2, 879–885

legally enforceable right of the underprivileged. The mismanagement or hoarding of zakāt funds constitutes a moral and fiduciary breach.⁷⁵

Ṣadaqah, in contrast, is voluntary and flexible, lacking the juridical rigidity of zakāt. Nonetheless, it retains legal and spiritual significance, particularly in fulfilling communal needs where institutional gaps exist.⁷⁶

Waqf refers to the inalienable endowment of property or wealth for charitable or public purposes, the usufruct of which is designated perpetually for the welfare of beneficiaries.⁷⁷ Jurists have described waqf as a legal construct that transforms private ownership into a public trust, immunized from alienation or inheritance.⁷⁸ Historically, waqf has financed public infrastructure, education, and healthcare in the Islamic world, often serving as a proto-welfare system.⁷⁹

The governing jurisprudential framework is derived from fiqh al-mu'āmalāt, which regulates contracts and transactions under Islamic law. These instruments, while distinct in form, share a unifying normative goal — the realization of *Maqāṣid al-Sharia*, particularly *ḥifẓ al-māl* (protection of wealth), *ḥifẓ al-naḥs* (protection of life), and *ḥifẓ al-'ird* (protection of human dignity).⁸⁰ However, their full socio-economic potential remains constrained by inefficient governance systems, lack of transparency, and limited institutional trust — challenges which blockchain technology may address.

2.2 Blockchain Technology: Features and Relevance

Blockchain is a distributed ledger technology (DLT) that enables secure, tamper-proof, and decentralised recording of transactions across a network of computers. First popularised by Bitcoin in 2009, blockchain's underlying architecture has since evolved beyond cryptocurrencies to serve diverse applications in governance, finance, and humanitarian aid.⁸¹

⁷⁵ Abd al-Rahman al-Jaziri, *Kitāb al-Fiqh 'ala al-Madhāhib al-Arba'ah* (Dar al-Fikr 2003) vol 1, 519

⁷⁶ Muḥammad Rawwās Qal'ahjī and Hamid Sulayman, *Ma'jamu Lughat al-Fuqahā'* (Dar al-Nafa'is 1996) 174

⁷⁷ Ahmad ibn Idrīs al-Qarāfi, *al-Dhakhīrah* (Dar al-Gharb al-Islāmī 1994) vol 5, 321

⁷⁸ Mona Hassan, *Longing for the Lost Caliphate: A Transregional History* (Princeton University Press 2016) 157

⁷⁹ Timur Kuran, *The Long Divergence: How Islamic Law Held Back the Middle East* (Princeton University Press 2011) 153–156

⁸⁰ Jasser Auda, *Maqasid Al-Shariah as Philosophy of Islamic Law: A Systems Approach* (IIIT 2008) 54–63

⁸¹ *Ibid*,

The core features of blockchain relevant to Islamic social finance include:

1. Decentralisation: Authority is distributed across multiple nodes, reducing the risk of abuse or unilateral control — a critical feature for faith-based institutions prone to accusations of elite capture.⁸²
2. Immutability: Once data is recorded, it cannot be altered without consensus, thereby preventing fraudulent reporting of fund disbursements.⁸³
3. Transparency: Transactions are visible to all network participants, fostering public trust in how zakāt, ṣadaqah, or waqf funds are allocated.⁸⁴
4. Smart Contracts: Self-executing codes that trigger transactions upon fulfilment of predefined conditions, useful for automating disbursements to beneficiaries or managing waqf revenues.⁸⁵
5. Traceability: Each transaction is chronologically and cryptographically linked to the previous one, creating a verifiable audit trail. This is especially crucial for ensuring compliance with both Sharia principles and state regulations.

These characteristics address the key weaknesses in the administration of Islamic social finance: mismanagement, lack of accountability, and inefficient beneficiary targeting. When overlaid with Islamic legal norms, blockchain can serve as a hisbah-compliant monitoring tool — echoing the historical Islamic institution tasked with market oversight and moral accountability.

2.3 Synergies and Theological Compatibility

Islamic jurisprudence has historically demonstrated adaptability to socio-economic and technological change through *ijtihād* (independent reasoning) and *qawā'id fiqhiyyah* (legal maxims). The principle of “*al-‘ādah muḥakkamah*” (custom is authoritative) legitimises the use of contemporary technologies where customary use does not contravene Sharia.⁸⁶ Moreover, the maxim “*al-maṣlahah mu‘tabarah mā lam tu‘ārid al-naṣṣ*” (public interest is recognised as long

⁸² Ibid,

⁸³ Ibid,

⁸⁴ Ibid,

⁸⁵ Hamidullah Khan, *The Institution of Hisbah in Islam* (Islamic Research Institute 1982) 25–30

⁸⁶ Al-Qarāfi (n 5) vol 13, 208; *al-‘ādah muḥakkamah* is one of the five universally accepted *qawā'id*

as it does not conflict with scripture) provides further doctrinal basis for embracing blockchain when it enhances the ethical goals of Islam.⁸⁷

Thus, blockchain-enabled zakāt and waqf models may not only be technically feasible but theologically commendable, provided that the technology is implemented in ways that preserve *niyyah* (intent), uphold *‘adālah* (justice), and prevent *gharar* (excessive uncertainty) or *ghulū* (exaggeration) in execution.⁸⁸

2.4 Blockchain Technology and Its Relevance to Islamic Finance

Blockchain technology exists in different architectural forms, most notably public (permissionless) and private or consortium (permissioned) blockchains. Public blockchains, such as Bitcoin and Ethereum, allow open participation and rely on decentralized consensus mechanisms without requiring trust in identifiable intermediaries. In contrast, permissioned blockchains restrict participation to verified and authorized entities, enabling greater control over governance, validation, and access rights. This architectural distinction is particularly significant in financial applications, where regulatory compliance, accountability, and institutional oversight are essential considerations.

For the purpose of developing a Sharia-compliant framework for Islamic social finance in Nigeria, this study adopts a permissioned blockchain model as its foundational technological architecture. This choice is informed not only by technical efficiency but, more importantly, by the normative requirements of Islamic law. Islamic social finance instruments such as zakāt and waqf require structured governance, transparency, and continuous Sharia supervision to ensure compliance with *fiqh al-mu‘āmalāt* and the objectives of Sharia (*Maqāṣid al-Sharia*). A permissioned blockchain provides a controlled yet distributed environment in which these requirements can be meaningfully embedded.

While public blockchains offer a high degree of decentralisation, their anonymous participation model and absence of enforceable governance structures raise practical and Sharia concerns in the management of socially sensitive funds. Accordingly, this paper positions the

⁸⁷ Auda (n 8) 79–82

⁸⁸ Kamali (n 4) 227–230

permissioned blockchain not as a departure from decentralisation per se, but as a calibrated approach that balances technological innovation with ethical oversight. The specific Sharia, governance, and regulatory implications of this architectural choice are examined in detail in the proposed framework discussed in Section 4.

3. Methodology of the Research

The paper adopted doctrinal comparative case study approach. It draws insights from global precedents in blockchain-enabled social impact initiatives and nascent Islamic fintech applications. Selection criteria for these cases included projects demonstrating successful integration of blockchain for transparency and accountability, particularly those with a focus on philanthropic or social welfare applications. Data for these cases were primarily gathered from publicly available whitepapers, project reports, academic analyses, and official *Sharia* board pronouncements where applicable. Each case was then analyzed using a multi-dimensional framework that assessed its technological architecture, governance model, *Sharia* compliance mechanisms, and observed impact on transparency and inclusivity. This systematic analysis allowed for the identification of best practices, common challenges, and critical design considerations, which were then critically evaluated for their applicability and potential adaptation to the unique legal, regulatory, and socio-cultural landscape of Nigeria's Islamic social finance ecosystem.

4. Sharia Foundations for Technological Innovation

The adaptability of Islamic law to evolving socio-economic realities has historically rested on its dynamic interpretative tools and purposive orientation. While *Sharia* is often characterised by its divine immutability, its application in worldly affairs — particularly in matters of transactions (*mu'āmalāt*) — has demonstrated remarkable flexibility.⁸⁹ In considering the application of blockchain technology to Islamic social finance, it is imperative to examine the doctrinal mechanisms that allow for innovation, particularly in light of the higher objectives of Islamic law

⁸⁹ Mohammad Hashim Kamali, *Shari'ah Law: An Introduction* (Oneworld 2008) 174–178

(Maqāṣid al-Sharia), the legal maxims (*qawā'id al-fiqhiyyah*), and the doctrines of *ijtihād* (independent reasoning) and *maslahah* (public interest).

4.1 Maqāṣid al-Sharia and Financial Inclusion

The contemporary relevance of *Maqāṣid al-Sharia* lies in its role as a normative framework guiding the interpretation and implementation of legal rulings. The classical formulation by Imām al-Shāṭibī posits five universal objectives of Sharia: the protection of religion (*ḥifẓ al-dīn*), life (*ḥifẓ al-nafs*), intellect (*ḥifẓ al-'aql*), progeny (*ḥifẓ al-nasl*), and property (*ḥifẓ al-māl*).⁹⁰ These objectives are not only doctrinal ideals but also functional benchmarks for evaluating new practices and technologies. In the realm of Islamic social finance, blockchain's capacity to enhance *ḥifẓ al-māl* (through fraud prevention and secure transfers), *ḥifẓ al-nafs* (through more efficient social service delivery), and *ḥifẓ al-'ird* (through transparent governance) underscores its ethical compatibility with *Sharia*.

Moreover, financial inclusion — which enables broader participation in the economy has emerged as a pressing policy objective within the Islamic finance discourse.⁹¹ Blockchain-based applications that provide unbanked or underbanked populations with access to charitable services and micro-endowments thus align with the *maqṣad of takāmul ijtīmā'ī* (social cohesion) and *raf' al-ḥaraj* (alleviation of hardship).⁹² In this way, the deployment of technology in zakāt or waqf disbursement not only serves operational efficiency but also realises foundational legal and moral purposes.

4.2 Legal Maxims and Innovation in Islamic Jurisprudence

Islamic jurisprudence recognises a number of universal legal maxims (*al-qawā'id al-kulliyyah*) that facilitate the integration of new social phenomena within the framework of Sharia. Among these, the following are particularly relevant to the adoption of blockchain in social finance:

⁹⁰ Abū Ishāq al-Shāṭibī, *al-Muwāfaqāt fi Uṣūl al-Sharī'ah* (Dar Ibn 'Affān 1997) vol 2, 11–13

⁹¹ Habib Ahmed, 'Financial Inclusion and Islamic Finance: Organizational Formats, Products, Outreach, and Sustainability' (2015) *Islamic Research and Training Institute Working Paper*, 3–4

⁹² Jasser Auda, *Maqasid Al-Shariah as Philosophy of Islamic Law: A Systems Approach* (International Institute of Islamic Thought 2008) 65

1. “Al-‘ādah muḥakkamah” (Custom is authoritative): This maxim recognises prevailing practices as legally valid if not in conflict with divine injunctions.⁹³ As blockchain becomes increasingly mainstream in financial governance, its incorporation into Islamic institutions may be justified by virtue of prevailing global norms and expectations.
2. “Al-maṣlaḥah mu‘tabarah mā lam tu‘ārid al-naṣṣ” (Public interest is recognised unless it contradicts textual evidence): This principle permits legal innovation where it produces tangible benefits and does not breach explicit Sharia rulings.⁹⁴ Blockchain’s potential to increase transparency, prevent fraud, and automate compliance satisfies maṣlaḥah in both form and substance.
3. “Al-ḍarar yuzāl” (Harm must be eliminated): This maxim supports the implementation of technologies that reduce inefficiencies and institutional corruption — both of which are prevalent concerns in the administration of charitable funds in Nigeria.⁹⁵

These maxims collectively provide a principled legal basis for embracing blockchain as a tool of public benefit, provided that its implementation does not involve prohibited elements such as *ribā* (usury), *gharar* (excessive uncertainty), or *maysir* (gambling) — concerns more relevant to cryptocurrency speculation than to blockchain architecture per se.⁹⁶

4.3 Ijtihād, Taqlīd, and the Role of Sharia Governance Bodies

The task of determining the permissibility and operational limits of technological innovation in Islamic finance falls within the domain of *ijtihād*, particularly where precedents are lacking.⁹⁷ Classical jurists from the Mālikī and Ḥanafī schools developed models for innovation under *istiḥsān* (juridical preference) and maṣlaḥah mursalah (unrestricted public interest), mechanisms that have long enabled the accommodation of changing social realities.⁹⁸

⁹³ Muḥammad ibn ‘Abd al-Raḥmān al-Qarāfi, *al-Furūq* (‘Ālam al-Kutub 2001) vol 4, 107

⁹⁴ Kamali (n 1) 234

⁹⁵ International Monetary Fund (IMF), *Nigeria: Selected Issues* (IMF Country Report No. 19/93, March 2019) 24

⁹⁶ Ishrat Muneza and Farrukh Habib, ‘Blockchain, Cryptocurrency and Islamic Finance: The Current State and Way Forward’ (2018) 6 *ISRA International Journal of Islamic Finance* 13, 15–18

⁹⁷ Imran Ahsan Khan Nyazee, *Theories of Islamic Law: The Methodology of Ijtihad* (Islamic Book Trust 2002) 120–129

⁹⁸ *Ibid*

In the contemporary context, this role is fulfilled by Sharia advisory councils and governance boards, whose authority to issue fatāwā on emerging technologies is pivotal to the operational legitimacy of Islamic finance institutions.⁹⁹ However, a significant limitation lies in the gap between technical expertise and religious scholarship.¹¹ Many blockchain developers lack Sharia literacy, while many Sharia scholars remain unfamiliar with the technical architecture of distributed systems — creating a deficit of integrated reasoning that could undermine both compliance and effectiveness.

To address this challenge, collaborative *ijtihād jamā'ī* (collective legal reasoning) involving fuqahā', technologists, economists, and regulators has been advocated as a procedural innovation.¹⁰⁰ This model ensures that emerging fintech applications are vetted for both doctrinal soundness and technical feasibility. In Nigeria, where Islamic finance institutions such as Jaiz Bank, Lotus Capital, and state *zakāt* boards operate within a plural legal system, the harmonisation of *Sharia* views across regions is particularly essential.

In conclusion under this subheading, Islamic jurisprudence is not inherently antagonistic to technological innovation. On the contrary, its foundational principles — centred around justice, public welfare, and the elimination of harm — not only accommodate but arguably mandate the exploration of tools such as blockchain where they serve communal benefit. The critical task is to ensure that such technologies are adapted with fidelity to Islamic norms and deployed with an awareness of both legal ethics and socio-economic realities.

5. Integration of Blockchain with Islamic Social Finance in Nigeria

While the theoretical compatibility of blockchain with Islamic social finance has been increasingly acknowledged, its practical operationalisation within the Nigerian context presents both opportunities and constraints. This section explores existing global models, their applicability to Nigeria's institutional and socio-economic environment, and the functional implications of blockchain-enabled *zakāt*, waqf, and *ṣadaqah* disbursement mechanisms. It also critically

⁹⁹ Yusuf Talal DeLorenzo, 'Shariah Supervision of Islamic Mutual Funds' in Natalie Schoon (ed), *Islamic Asset Management: An Asset Class on its Own?* (Edinburgh University Press 2009) 89–90

¹⁰⁰ M. Obaidullah, *Islamic Financial Services* (Islamic Economics Research Center 2005) 77–79

evaluates the role of smart contracts, decentralised applications (dApps), and digital identity systems as enablers of a *Sharia*-compliant, efficient, and transparent ecosystem.

5.1 Rationale for a Permissioned Blockchain Architecture

The proposed Islamic social finance framework is built upon a permissioned blockchain architecture, a deliberate design choice aimed at ensuring both technological robustness and *Sharia* compliance within the Nigerian context. Unlike fully public blockchains, which prioritize unrestricted participation, a permissioned network enables the incorporation of institutional governance structures that are indispensable for Islamic finance. These include *Sharia* advisory oversight, regulatory supervision, and clearly defined accountability mechanisms for institutions managing zakāt, waqf, and other social finance instruments.

A critical advantage of a permissioned blockchain lies in its capacity to integrate *Sharia* supervisory bodies directly into the network's governance architecture. Designated *Sharia* boards or accredited scholars may function as authorized validators or oversight nodes, ensuring that smart contracts, transactional logic, and fund disbursement mechanisms remain compliant with Islamic legal principles on an ongoing basis. This model enhances accountability and facilitates dispute resolution, aligning with the Islamic values of justice (*ʿadl*), trust (*amānah*), and transparency (*bayān*), which are difficult to operationalize in anonymous, permissionless environments.

It is acknowledged that permissioned blockchains exhibit a lower degree of decentralisation compared to public networks. However, within the domain of Islamic social finance, absolute decentralisation is neither an end in itself nor inherently superior. Instead, the objective is to achieve an optimal balance between distributed record-keeping and necessary oversight. The permissioned model preserves key blockchain attributes—immutability, auditability, and resistance to unilateral manipulation—while allowing for structured governance that ensures compliance with *Sharia* and national regulatory frameworks. In this sense, decentralisation is moderated, not abandoned, in favor of ethical and legal coherence.

The trust model underpinning the proposed framework shifts from reliance solely on cryptographic anonymity to a hybrid structure combining technological trust with institutional

credibility. Participation is limited to vetted entities such as Islamic financial institutions, zakāt boards, waqf administrators, regulatory agencies, and accredited non-governmental organizations. This configuration enhances public confidence in the management of donated and endowment funds and reflects the Islamic emphasis on responsible stewardship of communal wealth.

Also, the permissioned architecture further enables granular data access controls, which are essential for protecting sensitive information relating to donors and beneficiaries. Safeguarding privacy aligns with the Sharia objectives of protecting life and dignity (ḥifẓ al-nafs) and wealth (ḥifẓ al-māl). Additionally, the controlled nature of the network facilitates compliance with domestic data protection regulations, such as Nigeria’s data protection regime, and mitigates the legal uncertainties associated with deploying Islamic social finance applications on fully public, globally distributed ledgers.

5.1 Global Precedents and Lessons for Nigeria

Countries such as Malaysia, the United Arab Emirates (UAE), Bahrain, and Indonesia have piloted blockchain-based solutions for Islamic social finance. The Malaysia-based International Centre for Waqf Research has proposed the use of blockchain for waqf land registration and revenue management, aimed at minimising disputes and bureaucratic inefficiencies.¹⁰¹ The UAE’s Emirates Red Crescent has launched blockchain initiatives for humanitarian aid distribution, integrating real-time tracking and transparent reporting.¹⁰² Similarly, Blossom Finance in Indonesia facilitates blockchain-powered ṣukūk and charitable investments in microfinance institutions.¹⁰³

These case studies offer key operational models which, if adapted contextually, could alleviate the endemic challenges in Nigeria’s zakāt and waqf institutions — namely opacity, corruption, and fragmentation of governance.¹⁰⁴ However, the success of such models has

¹⁰¹ International Centre for Waqf Research (ICWR), ‘Blockchain Technology in Waqf Administration’ (ICWR Policy Brief 2019) 3–5

¹⁰² Emirates Red Crescent, ‘Blockchain for Humanitarian Aid Distribution’ (2020) <https://www.rcuae.ae> accessed 26 June 2025

¹⁰³ Matthew Joseph Martin, ‘Blockchain Sukuk for Microfinance’ (Blossom Finance, 2021) <https://blossomfinance.com> accessed 26 June 2025

¹⁰⁴ Abdullahi S. Abbas, ‘Reforming Zakāt Administration in Nigeria: Comparative Lessons from Sudan and Malaysia’ (2019) 4 *African Journal of Islamic Studies* 92–98

depended heavily on regulatory clarity, technological infrastructure, and effective Sharia oversight — areas where Nigeria faces notable deficits.

5.2 Blockchain Application to Zakāt, Ṣadaqah, and Waqf

Zakāt Administration:

Blockchain can revolutionise zakāt administration in Nigeria by digitising contributor and beneficiary records, automating disbursement through smart contracts, and establishing real-time dashboards for state zakāt boards. Smart contracts can be programmed to trigger disbursements once eligibility is verified according to Sharia criteria.¹⁰⁵ For instance, a contributor’s zakāt liability could be calculated automatically, with funds routed through dApps that interface with verified beneficiaries.

Ṣadaqah Platforms:

Unlike zakāt, ṣadaqah platforms offer greater flexibility in distribution. Blockchain can host decentralised platforms where contributors choose causes or beneficiaries, track donations, and receive immutable proof of impact — thereby enhancing donor trust and institutional credibility.¹⁰⁶ This model aligns with the Sharia imperative of niyyah (intentionality) and ensures that contributions are not diverted from their specified cause.

Waqf Digitisation:

Waqf property in Nigeria is often undocumented, disputed, or underutilised. A blockchain registry can record waqf deeds, succession plans, and usufruct rights in an immutable ledger.¹⁰⁷ Smart contracts can automate rental collection, revenue distribution to beneficiaries, and even trigger maintenance contracts. In this model, the mutawallī (trustee) is monitored digitally, allowing for real-time audits by regulators or Sharia supervisory boards. These models would not only streamline administration but also empower regulators and faith-based organisations to identify

¹⁰⁵ Farrukh Habib and Ishrat Muneeza, ‘Smart Contracts in Islamic Finance: Legal and Sharī‘ah Perspectives’ (2020) 8 *ISRA Law Review* 50–54

¹⁰⁶ Nida Khan and Rafic H. Avila, ‘Digitalising Islamic Philanthropy: Opportunities and Challenges’ (2022) 13 *Journal of Islamic Fintech* 17–20

¹⁰⁷ Muhammad Taqi Usmani, *An Introduction to Islamic Finance* (2nd edn, Kluwer Law 2002) 115–116

fraud, non-compliance, or inefficiency through automated compliance flags and transparent audit trails.

5.3 Smart Contracts, dApps, and Digital Identity Systems

The implementation of smart contracts in Islamic finance raises important jurisprudential questions, particularly around intention (*niyyah*), consent (*ridā*), and conditions (*shurūt*).⁸ Nevertheless, many scholars have endorsed conditional contracts (*‘aqd mu‘allaq*) where a legal effect is deferred until a specified condition is met — a logic similar to smart contracts.¹⁰⁸ When encoded in compliance with Sharia, smart contracts can serve to reduce discretionary abuse and ensure ex-ante conformity with Islamic rules of charitable disbursement.

Decentralised Applications (dApps) enable transparent interaction between contributors, institutions, and beneficiaries. For example, a dApp could be designed for the National Zakat and Sadaqat Board, where state-level zakāt committees register verified beneficiaries, enabling nationwide coordination and efficiency. The interoperability of such platforms would also support public-private partnerships involving Islamic banks, NGOs, and international donors.¹⁰⁹

Digital Identity Systems can enhance financial inclusion by enabling undocumented individuals to access waqf-based services or zakāt distributions.¹¹⁰ Using biometric or blockchain-based identity management systems (e.g., uPort or Sovrin), waqf institutions can verify the authenticity of beneficiaries, avoid duplication, and prioritise needs. This is particularly valuable in Nigeria, where informal settlements, internally displaced persons (IDPs), and rural populations often lack documentation required for accessing formal services.¹¹¹

In essence, blockchain offers more than technical infrastructure — it provides a governance architecture that is inherently conducive to the ethical mandates of Islamic finance: transparency (*shafāfiyyah*), justice (*‘adālah*), and accountability (*mas’ūliyyah*). However, the application of

¹⁰⁸ Ahmad ibn Idrīs al-Qarāfī, *al-Furūq* (‘Ālam al-Kutub 2001) vol 3, 98–101

¹⁰⁹ Shinsuke Ebihara and others, ‘Building Inclusive Blockchain Ecosystems: Public–Private Partnerships in Islamic Finance’ (World Bank Working Paper, 2023) 7–10

¹¹⁰ World Bank Group, *The Role of Digital ID for Development* (ID4D Initiative Report 2021) 12

¹¹¹ National Identity Management Commission (NIMC), ‘Strategic Roadmap 2023–2027’ <https://nimc.gov.ng> accessed 26 June 2025

these tools must navigate the complexities of Nigeria’s multi-jurisdictional legal environment, socio-religious diversity, and infrastructural inequality.

6. Challenges and Constraints

Despite the compelling theoretical and practical arguments for integrating blockchain into Islamic social finance, significant challenges persist—ranging from infrastructural and legal deficiencies to Sharia compliance ambiguities and institutional fragmentation. These obstacles not only constrain the operational feasibility of blockchain-based zakāt, waqf, and ṣadaqah models but also expose deeper structural gaps in Nigeria’s Islamic finance governance. A holistic understanding of these constraints is crucial for designing responsive policy and legal frameworks that balance innovation with fidelity to Islamic legal norms.

6.1 Legal and Regulatory Hurdles

Nigeria’s legal system is pluralistic, comprising common law, customary law, and Sharia law in designated states.¹¹² While this legal heterogeneity provides cultural and religious flexibility, it also poses regulatory incoherence, particularly in emerging sectors like fintech and Islamic social finance. The Central Bank of Nigeria (CBN) and the Securities and Exchange Commission (SEC) have issued guidelines for virtual assets and blockchain applications,¹¹³ yet there is no comprehensive legal framework specific to blockchain-based Islamic finance or philanthropy.

The absence of enabling legislation for digital waqf, for instance, leaves questions regarding title registration, perpetuity, and trustee responsibilities unresolved.¹¹⁴ Similarly, zakāt institutions operate primarily under state-level religious agencies without federal coordination or uniform standards, thereby frustrating efforts to implement a centralised, blockchain-based platform.¹¹⁵ Moreover, data protection laws under the Nigeria Data Protection Act 2023 impose

¹¹² Nnamdi Aduba, ‘Legal Pluralism and the Constitution in Nigeria’ (2008) 2 *African Journal of Legal Studies* 37, 41–43

¹¹³ SEC Nigeria, ‘Rules on Issuance, Offering Platforms and Custody of Digital Assets’ (May 2022) <https://sec.gov.ng> accessed 27 June 2025

¹¹⁴ Iwan Fitri Anwar and others, ‘The Sustainability of Cash Waqf Using Blockchain Technology: A Conceptual Study’ (2024) 5(2) *International Journal of Trends in Accounting Research* 70 <https://doi.org/10.54951/ijtar.v5i2.664>

¹¹⁵ *Ibid*, 23

compliance burdens that may affect the deployment of blockchain systems, especially in managing biometric or identity-linked data.¹¹⁶

The lack of legal clarity also affects smart contract enforceability. While these contracts function automatically on-chain, their recognition in Nigerian courts remains uncertain, especially where disputes involve Islamic legal elements that are not fully codified in civil law.¹¹⁷ Thus, the success of blockchain-based Islamic social finance depends on the harmonisation of civil, regulatory, and Sharia laws in a coherent legislative framework.

6.2 Infrastructural and Technological Constraints

The technological preconditions for implementing blockchain solutions—including high-speed internet, reliable electricity, and secure data centres—are still limited in many parts of Nigeria.¹¹⁸ Rural communities, which are often the primary beneficiaries of zakāt and waqf-based services, may lack the digital literacy and access necessary to interact with blockchain-based platforms. This digital divide risks further marginalising the already underserved, in contradiction to the Islamic social justice ethos.

In addition, the cost of blockchain deployment is non-trivial. While public blockchains are open-source, private or permissioned blockchains suitable for Sharia-compliant governance (e.g., Hyperledger Fabric or Quorum) require significant investment in development, maintenance, and cybersecurity.¹¹⁹ Most zakāt boards and waqf institutions in Nigeria operate with constrained budgets and may lack both the capital and technical partnerships necessary to develop and sustain such systems.

The unavailability of Sharia-literate technologists also impedes the proper implementation of blockchain for Islamic purposes.¹²⁰ Without developers who understand the nuances of Islamic

¹¹⁶ Nigeria Data Protection Act 2023, ss 2–5; see also National Information Technology Development Agency (NITDA), ‘Implementation Framework’ <https://nitda.gov.ng> accessed 27 June 2025

¹¹⁷ Adebayo Aina, ‘Smart Contracts and Nigerian Law: Emerging Questions’ (2023) 3 *Nigerian Commercial Law Review* 14–19

¹¹⁸ World Bank, *Nigeria Digital Economy Diagnostic Report* (2021) 9–12

¹¹⁹ Michael Crosby and others, ‘Blockchain Technology: Beyond Bitcoin’ (2020) *Applied Innovation Review* 6

¹²⁰ Ishrat Muneeza, ‘Sharī‘ah Governance in Islamic Fintech: Gaps and Recommendations’ (2021) 14 *Journal of Islamic Banking and Finance* 30

jurisprudence — such as the prohibition of *ribā*, the rules of intention, or the principles of conditionality — there is a risk that smart contracts or dApps will inadvertently contravene Sharia standards, compromising both efficacy and legitimacy.

6.3 Sharia Governance and Doctrinal Fragmentation

Islamic social finance in Nigeria is regulated predominantly by religious institutions at the state level, with divergent methodologies and degrees of formalisation.¹²¹ Some states, such as Kano and Sokoto, have established structured zakāt boards with legislative backing, while others rely on informal religious bodies.¹²² The lack of a unified Sharia governance framework creates doctrinal inconsistencies, especially in defining zakāt eligibility, calculating nisāb, and regulating mutawallīs.¹² Such fragmentation frustrates the development of interoperable blockchain systems, which require standardisation of rules and protocols to function effectively.

Furthermore, existing Sharia advisory boards often lack expertise in contemporary technologies, limiting their ability to issue authoritative fatāwā on complex technical issues.¹²³ This epistemic gap contributes to hesitation or even outright rejection of blockchain-based solutions by religious authorities who view them as foreign, speculative, or insufficiently grounded in Islamic tradition.¹²⁴

Additionally, there is an ongoing debate among jurists regarding the Sharia status of decentralisation, particularly where it may undermine the authority of traditional custodians of religious charity.¹²⁵ Some scholars argue that decentralised governance may conflict with the Sharia requirement of designated trustees (*amīn* or *mutawallī*) who are accountable for the distribution of charitable funds. Others advocate for a hybrid model where decentralisation is balanced with institutional oversight and human accountability.

¹²¹ Muhammad L. Usman, ‘The Role of State Zakat Boards in Nigeria’s Islamic Economy: A Comparative Study’ (2022) 18 *Ilorin Journal of Islamic Studies* 65–68

¹²² *Ibid*, 67

¹²³ Wahbah al-Zuhayli, *Fiqh al-Islami wa Adillatuh* (Dar al-Fikr 2000) vol 2, 823–826

¹²⁴ Muneeza and Habib (n 5) 28–30

¹²⁵ Yusuf Talal DeLorenzo, ‘Fatwā and Finance: An Introduction to Sharī‘ah Advisory Boards in Islamic Finance’ (2011) *The Oxford Handbook of Islamic Finance* 23

7. A Sharia-Compliant Framework Proposal for Blockchain-Enabled Islamic Social Finance in Nigeria

Given the compelling opportunities and formidable constraints identified in the foregoing sections, this part of the paper proposes a multi-dimensional Sharia-compliant framework for integrating blockchain technology into Nigeria’s Islamic social finance ecosystem. The framework is designed to be doctrinally sound, legally feasible, technologically viable, and institutionally adaptable. It aims to modernise the administration of zakāt, waqf, and ṣadaqah while preserving the core normative commitments of Islamic law — namely justice (*‘adālah*), transparency (*shafāfiyyah*), accountability (*mas’ūliyyah*), and public welfare (*maṣlaḥah ‘āmmah*).

7.1 Foundational Principles and Compliance Parameters

The framework is anchored in four foundational principles:

1. Maqāṣid al-Sharia Compliance – Every technological integration must be demonstrably aligned with the higher objectives of Islamic law, particularly the protection of wealth (ḥifẓ al-māl), the alleviation of poverty (raf‘ al-ḥājah), and the promotion of social dignity (ḥifẓ al-‘ird).¹²⁶
2. Legal Harmonisation – The model must operate within Nigeria’s existing constitutional and regulatory pluralism, accommodating federal, state, and religious legal structures.¹²⁷ This includes alignment with CBN fintech regulations, state zakāt laws, and the Nigeria Data Protection Act 2023.¹²⁸
3. Sharia Governance Integration – A dual-layer Sharia governance structure is recommended: one at the national level to standardise principles, and one at the institutional level to oversee implementation. This echoes the model used in Malaysia’s Islamic finance system.¹²⁹

¹²⁶ Jasser Auda, *Maqāṣid Al-Sharī‘ah as Philosophy of Islamic Law: A Systems Approach* (International Institute of Islamic Thought 2008) 55–57

¹²⁷ Nnamdi Aduba, ‘Legal Pluralism and Constitutionalism in Nigeria’ (2008) 2 *African Journal of Legal Studies* 39

¹²⁸ Nigeria Data Protection Act 2023, ss 2–8

¹²⁹ International Sharī‘ah Research Academy (ISRA), *Sharī‘ah Governance in Islamic Finance* (ISRA, 2016) 41–45

4. Technological Modularity – The framework must be adaptable across different regions and use cases, accommodating varying levels of digitisation, infrastructure, and doctrinal preference.

7.2 Institutional Architecture

To operationalise the framework, we propose the establishment of a National Islamic Social Finance Blockchain Platform (NISFBP) comprising three primary nodes:

- a) The Central Authority Node, administered jointly by the National Zakat and Sadaqat Board (NZSB), the Nigerian Supreme Council for Islamic Affairs (NSCIA), and a newly established Sharia–Fintech Supervisory Committee (SFSC). This node will set standards, approve smart contract templates, and issue periodic fatāwā on new applications.
- b) State Implementation Nodes, hosted by State Zakat Boards, Waqf Commissions, or relevant Islamic institutions. These nodes will handle registration, beneficiary verification, fund disbursement, and compliance monitoring using decentralised applications (dApps).
- c) Public Access Nodes, available via mobile/web portals for contributors, NGOs, and waqf managers. These will display real-time dashboards of contributions, disbursements, and audited outcomes, ensuring full transparency and participatory accountability.

The architecture should be hosted on a permissioned blockchain (e.g., Hyperledger Fabric or Corda) to allow for controlled access and Sharia oversight, while supporting decentralised trust mechanisms.¹³⁰

7.3 Smart Contract Templates and Use Cases

We propose the development of Sharia-compliant smart contract templates for the following key use cases:

- a) Zakāt Disbursement Contract (ZDC): Automatically releases funds to verified recipients based on pre-defined eligibility conditions (e.g., income level, dependency status,

¹³⁰ Farrukh Habib and Ishrat Muneeza, ‘Blockchain, Smart Contracts and Islamic Finance: A Conceptual and Sharī‘ah Framework’ (2020) 8 *ISRA Law Review* 35–39

disability). It also logs time-stamped transactions to ensure that funds are disbursed within one lunar year (ḥawl).¹³¹

- b) Waqf Revenue Distribution Contract (WRDC): Collects and disburses rental or investment returns from waqf assets to specified beneficiaries. It can include conditions such as prioritising students, IDPs, or health patients.¹³²
- c) Ṣadaqah Impact Contract (SIC): Enables real-time tracking of voluntary charity from donor to project endpoint. Donors receive a digital record verifying the impact (e.g., a school funded, a borehole drilled), thus incentivising continued giving.¹³³

All smart contracts must undergo Sharia audits prior to deployment and include a kill-switch clause to allow manual override in case of legal or religious breaches.

8. Conclusion and Recommendations

This paper has examined the intersection of blockchain technology and Islamic social finance through the lens of Sharia compliance, legal feasibility, and sustainable development imperatives in Nigeria. It has argued that blockchain, when appropriately designed and ethically governed, offers a transformative infrastructure for the administration of zakāt, waqf, and ṣadaqah. By enabling decentralised transparency, automating compliance through smart contracts, and facilitating inclusive financial services, blockchain addresses many of the institutional inefficiencies that have historically plagued Islamic social finance in Nigeria. The Sharia principles of ḥifẓ al-māl (protection of wealth), ‘adālah (justice), mas’ūliyyah (accountability), and maṣlaḥah (public interest) find clear resonance in blockchain’s inherent features—immutability, traceability, and decentralisation. Yet, the full potential of this alignment remains unrealised due to significant legal, technological, and institutional challenges. These include the absence of regulatory clarity, doctrinal fragmentation in Sharia governance, infrastructural deficits, and a lack of expertise at the intersection of Islamic jurisprudence and financial technology.

¹³¹ Muḥammad ibn ‘Abd al-Raḥmān al-Jazīrī, *Kitāb al-Fiqh ‘ala al-Madhāhib al-Arba‘ah* (Dar al-Fikr 2003) vol 1, 519

¹³² Osman Bakar, *Waqf and the Knowledge Society* (IAIS Malaysia 2019) 61–64

¹³³ Nida Khan and Rafic H. Avila, ‘Digitalising Islamic Philanthropy: Opportunities and Challenges’ (2022) 13 *Journal of Islamic Fintech* 21

8.1 Key Findings

1. **Theoretical Compatibility:** Blockchain can be not only compatible with the foundational objectives of Islamic law but also enhances the operational values of transparency, justice, and efficiency in faith-based finance.
2. **Operational Feasibility:** While global precedents demonstrate viability, implementation in Nigeria is hindered by legal uncertainty, poor infrastructure, and fragmented zakāt and waqf governance.
3. **Institutional Gaps:** The current Sharia advisory ecosystem in Nigeria lacks sufficient capacity to engage with blockchain-based innovations in a substantively informed manner.
4. **Strategic Potential:** If adopted correctly, blockchain could redefine Islamic social finance governance and contribute meaningfully to Nigeria’s sustainable development goals (SDGs), particularly in poverty alleviation, education, and health.

8.2 Recommendations

To operationalise this potential, the following multi-level recommendations are proposed:

1. The National Assembly, in collaboration with relevant regulatory bodies, should enact a Digital Islamic Social Finance Act. This legislation should define the legal status of digital waqf, smart contracts, and blockchain-administered zakāt; establish enforcement mechanisms; and provide Sharia-compliant data governance standards.
2. A national body comprising Sharia scholars, fintech experts, legal practitioners, and regulators should be formed to oversee blockchain integration into Islamic finance. This Council should issue fatāwā, certify smart contracts, and monitor doctrinal consistency.
3. The CBN, SEC, and state zakāt boards should collaboratively launch pilot sandboxes for blockchain-based social finance projects, particularly in underserved areas. Lessons from these pilots will inform scalable deployment.
4. Islamic universities, such as Al-Hikmah University, Alqalam University, as well as other public Universities such as Bayero University Kano, Ahmadu Bello Univeristy and so on should integrate fintech and blockchain modules into their Sharia and economics curricula.

Exchange programmes and dual certifications between Islamic scholars and tech developers are also recommended.

5. Strategic partnerships between Islamic banks (e.g., Jaiz Bank, Taj Bank), fintech startups, and zakāt institutions should be encouraged to co-develop Sharia-compliant blockchain platforms, with public funding matched by private innovation.
6. International Islamic finance bodies such as the Islamic Development Bank (IsDB), the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), and the International Waqf Fund should be engaged to provide technical and financial support for Nigeria's blockchain-based Islamic social finance ecosystem.

REFERENCES

- Abbas, A. S. (2017). Challenges of zakat administration in Nigeria: Lessons from selected Muslim countries. *Journal of Islamic Finance Studies*, 2, 65–70.
- Abbas, A. S. (2019). Reforming zakāt administration in Nigeria: Comparative lessons from Sudan and Malaysia. *African Journal of Islamic Studies*, 4, 92–98.
- Aduba, N. (2008). Legal pluralism and the constitution in Nigeria. *African Journal of Legal Studies*, 2, 37–43.
- Ahmed, H. (2013). *Waqf-based microfinance: Realizing the social role of Islamic finance* (Occasional Paper No. 21). Islamic Research and Training Institute.
- Ahmed, H. (2015). *Financial inclusion and Islamic finance: Organizational formats, products, outreach, and sustainability* (Working Paper). Islamic Research and Training Institute.
- Ainscow, M. (2020). Inclusion and equity in education: Making sense of global challenges. *Prospects*, 49, 123–134. <https://doi.org/10.1007/s11125-020-09506-w>
- An-Na'im, A. A. (2008). *Islam and the secular state: Negotiating the future of Shari'a*. Harvard University Press.
- Anwar, I. F., et al. (2024). The sustainability of cash waqf using blockchain technology: A conceptual study. *International Journal of Trends in Accounting Research*, 5(2), 70. <https://doi.org/10.54951/ijtar.v5i2.664>
- Auda, J. (2008). *Maqāṣid al-Sharia as philosophy of Islamic law: A systems approach*. International Institute of Islamic Thought.
- Bakar, O. (2019). *Waqf and the knowledge society*. IAIS Malaysia.
- Crosby, M., et al. (2020). Blockchain technology: Beyond Bitcoin. *Applied Innovation Review*, 6.

- DeLorenzo, Y. T. (2009). Shariah supervision of Islamic mutual funds. In N. Schoon (Ed.), *Islamic asset management: An asset class on its own?* Edinburgh University Press.
- DeLorenzo, Y. T. (2011). Fatwā and finance: An introduction to Sharia advisory boards in Islamic finance. In *The Oxford handbook of Islamic finance*. Oxford University Press.
- Dike, V. E. (n.d.). Governance and Nigeria's weak institutions: Is the 2020 project achievable? <http://www.gamji.com/article8000/NEWS8396.htm>
- Ebihara, S., et al. (2023). *Building inclusive blockchain ecosystems: Public–private partnerships in Islamic finance* (World Bank Working Paper). World Bank.
- Emirates Red Crescent. (2020). *Blockchain for humanitarian aid distribution*. <https://www.rcuae.ae>
- Habib, F., & Muneeza, I. (2018). Blockchain, cryptocurrency and Islamic finance: The current state and way forward. *ISRA International Journal of Islamic Finance*, 6, 13–18.
- Habib, F., & Muneeza, I. (2020). Smart contracts in Islamic finance: Legal and Sharia perspectives. *ISRA Law Review*, 8, 50–54.
- Habib, F., & Muneeza, I. (2020). Blockchain, smart contracts and Islamic finance: A conceptual and Sharia framework. *ISRA Law Review*, 8, 35–39.
- Hassan, M. (2016). *Longing for the lost caliphate: A transregional history*. Princeton University Press.
- International Centre for Waqf Research. (2019). *Blockchain technology in waqf administration* (Policy Brief). ICWR.
- International Monetary Fund. (2019). *Nigeria: Selected issues* (IMF Country Report No. 19/93). IMF.
- International Sharia Research Academy. (2016). *Sharia governance in Islamic finance*. ISRA.
- Kamali, M. H. (2008). *Shari'ah law: An introduction*. Oneworld Publications.
- Khan, H. (1982). *The institution of hisbah in Islam*. Islamic Research Institute.
- Khan, N., & Avila, R. H. (2022). Digitalising Islamic philanthropy: Opportunities and challenges. *Journal of Islamic Fintech*, 13, 17–21.
- Kuran, T. (2011). *The long divergence: How Islamic law held back the Middle East*. Princeton University Press.
- Martin, M. J. (2021). *Blockchain sukuk for microfinance*. Blossom Finance. <https://blossomfinance.com>
- Muneeza, I. (2020). Application of blockchain in Islamic finance: A review of smart contracts and its challenges. *Journal of Islamic Monetary Economics and Finance*, 11, 205–210.
- Muneeza, I. (2021). Sharia governance in Islamic fintech: Gaps and recommendations. *Journal of Islamic Banking and Finance*, 14, 30.

- Muneeza, I. (2023). Closing the Sharia–tech gap in Islamic finance education. *Global Islamic Finance Education Review*, 4, 10–14.
- Nyazee, I. A. K. (2002). *Theories of Islamic law: The methodology of ijtiḥad*. Islamic Book Trust.
- Obaidullah, M. (2005). *Islamic financial services*. Islamic Economics Research Center.
- Qal‘ahjī, M. R., & Sulayman, H. (1996). *Ma‘jam lughat al-fuqahā’*. Dar al-Nafa‘is.
- SEC Nigeria. (2022). *Rules on issuance, offering platforms and custody of digital assets*. <https://sec.gov.ng>
- SEC Nigeria. (2022). *Fintech roadmap and sandbox rules*. <https://sec.gov.ng>
- Sisk, T. D. (2003). *Power sharing. Beyond Intractability*. https://www.beyondintractability.org/essay/power_sharing
- Tapscott, D., & Tapscott, A. (2016). *Blockchain revolution: How the technology behind Bitcoin is changing money, business, and the world*. Portfolio Penguin.
- United Nations Economic and Social Commission for Asia and the Pacific. (n.d.). *What is good governance*. <https://www.unescap.org/sites/default/files/good-governance.pdf>
- Usmani, M. T. (2002). *An introduction to Islamic finance* (2nd ed.). Kluwer Law.
- Williams, C. (2006). *Leadership accountability in a globalizing world*. Palgrave Macmillan.
- World Bank. (2021). *Nigeria digital economy diagnostic report*. World Bank.
- World Bank Group. (2021). *The role of digital ID for development* (ID4D Initiative Report). World Bank.