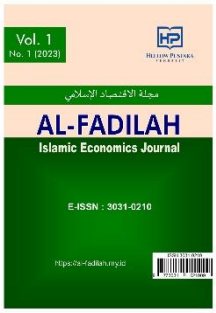

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Research Article

Smart Contracts in Islamic Finance: A Content Analysis of Sharia Compliance and Blockchain Applications

Haryani Santo Hartono

Universitas Islam Internasional Indonesia; haryani.hartono@uiii.ac.id

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Abstract. This paper examines the theoretical embedding and the practical siting of smart contracts in relation to Islamic finance. It uses a qualitative thematic content analysis study to draw conclusions on the ways blockchain-based smart contract system may be incorporated into the values of Sharia using academic resources, regulatory and industry reports of the year 2015 to 2025. The results indicate that smart contracts provide a meaningful opportunity in operational efficiency, where there can be a calculation of zakat based on smart contracts, clear fund management, and financial inclusion with mobile delivery. They have remained difficult nonetheless, especially with regard to reconciling the determinist aspect of code with the codes of the Islamic law which are *niyyah* (intention), *rida'* (mutual consent) and ijtihad (contextual reasoning). Regulatory imprecision, the relative lack of input by the Sharia scholars in the formulation of the system and the challenges in encoding complicated Islamic contracts also limit adoption. In spite of the previous standards, like Sharia Standard No. 59 (2023)

developed by AAOIFI, there is still a developing structure of jurisprudential and ethical framework. The paper suggests Sharia-by-design, interdisciplinary, real-time Sharia audit, unambiguous regulatory fatwa and mechanisms of dispute resolutions as means of facilitating ethical digital transformation. The findings represent a part of the emerging knowledge base on Islamic fintech, as the basic feature of technological adaptation should be the epistemological and normative correspondence of the practice to Islamic law.

Keywords: Smart Contracts, Islamic Finance, Sharia Compliance, Blockchain, Ethical Governance.

INTRODUCTION

Within the past few years, blockchain technology has become a revolutionary tool of financial industry due to some of the features it provides, namely, decentralization, immutability, and transparency. The smart contract, the programmable digital agreement that performs automatically when the pre-determined terms are fulfilled, and that does not involve intermediaries, is one of the most innovative parts of it (Szabo, 1997; Buterin, 2014). The feature can have considerable potential to reduce the means of financial operations, especially in the field of trade finance, asset management, and cross-border funds transfer.

In the case of Islamic finance, which is guided by the Sharia law and provisions, such as the forbidding of *riba* (usury), *gharar* (excessive uncertainty), and *maisir* (gambling), the use of smart contracts is both, an opportunity and a challenge. On the one hand, transparency and traceability of the smart contract can help to sustain Sharia- compliant contracts, as it will make all their terms obvious and checkable (Hassan et al., 2020; Shubber et al., 2022). Conversely, the problem of isolation of smart contract logic into the compatible legal frameworks remain questionable, hovering over the elaborate nature of Sharia regulations and its contextual interpretation which demands scholars to work through the tightly-engineered frameworks of rules (Ali, 2016; Iqbal S Mirakhor, 2011).

This subject has gained a lot of traction in the academic and professional world. When a keyword search in Google Scholar is applied ("Blockchain" AND "Islamic Finance"), one may observe a significant rise of the number of publications-starting with 3 documents in 2018 until more than 107 publications in 2025, in case scholars are currently getting significantly involved in this topic.

Besides, the Islamic fintech sector is developing at a high rate, with the expected annual growth to be US$179 billion in 2026 and US$79 in 2021 (DinarStandard S Elipses, 2023). This direction does not only characterize the increasing popularity of Islamic digital financial services, but it also implies the vital necessity to discuss providing the Sharia compliance of new technologies.

There are a number of blockchain-based projects that assert to provide Sharia-compliant digital currency or smart contract-based services: OneGram (UAE), HelloGold (Malaysia) and Caizcoin (Germany). Nonetheless they have not yet been effectively empirically proven as to the effectiveness of their compliance mechanisms and the role of smart contracts in securing or contesting Sharia governance is yet to be

comprehended.

This paper researches how the smart contracts can be implemented in the context of Islamic financial systems through content analysis of scholarly articles, financial regulation, and technical reports on blockchain-based projects. It has concentrated on discussing the possibilities of the advantages and the very nature of the constraints of implementing blockchain-especially automated contractual templates-through the regulatory lens of Sharia regulation. Along with the increasing attention bankruptcy in Islamic fintech, however, there is also an apparent absence of formally structured investigation as to the convergence between such technologies and the legal and ethical underpinning of Islamic finance.

In an attempt to bridge this gap, the paper provides an analysis of major documents such as fatwas and even policy guidelines by DSN-MUI, AAOIFI and whitepapers of blockchain projects which purport to claim Sharia compliance. This is aimed at revealing trends in how AI is written about in modern Islamic finance and indicate areas of repetition about AI compliance and provide a suggestion as to how Isaac financial services are overall transforming in digital age.

The following is the main research question in this study: "What are the ideas, benefits and difficulties of smart contracts that are built in terms of Islamic finance, especially on their compliance with Sharia rules and implementation via blockchain-powered digitalization?". To discuss this superordinate question in more detail, the study answers the following sub-questions:

1. What are the different interpretations and narrations that exist across the literature in academia, regulatory policies, and Islamic blockchain initiatives regarding the concept of smart contracts in terms of Sharia views and governance?
2. What are the opportunities and challenges of smart contracts to facilitate the main Islamic financial concepts like justice, transparency, and avoidance of *gharar* (excessive uncertainty)?

RESEARCH METHODS

To analyze such smart contracts, this study applies a qualitative thematic content analysis of the nature of smart contracts in the discourse of Islamic financial organizations and institutions with special reference as to their relation to Sharia governance and blockchain-based digital innovation. The primary goal is the determination of the ways these technologies are exemplified, controlled, as well as morally defined in academic, regulatory, and technical arenas.

The analysis uses the information in three main categories:

1. Academic Literature: This is a scholarly literature comprising (2015-2025) of peer-reviewed articles that are collected via the Scopus, DOAJ and Google Scholar database search engines under the same key terms of Islamic Finance, Smart Contract, Blockchain, and Sharia Compliance.
2. Regulatory Documents: Fatwas, standards and official guidelines provided by DSN-MUI, AAOIFI and IFSB in dealing with financial contracts and digital governance.
3. Technical Reports: Whitepapers and statements by Islamic blockchain project (e.g., OneGram, HelloGold, Caizcoin) that report and indicate that they are Sharia

compliant.

The criteria adopted through purposive sampling is that texts relevant to the study criteria which are (1) topics that involve smart contracts in Islamic finance (2) have a reference to the mechanism to ensure Sharia compliance (3) published either in English or Bahasa Indonesia (4) published between 2015 and 2025 are only considered. The off-topic or secondary documents were not included in the documents.

To analyse the material, the open and axial coding (Strauss S Corbin, 1998) were used. The concepts that Open coding presented included the concept of contract formation, automation, and Sharia risks. These were next categorized by axial coding into wider themes which comprised regulatory alignment, ethical restrictions, and Sharia by design strategies.

Other than utilizing the CAQDAS programs like NVivo, this study employed the implementation of a manual content analysis. Key concepts were brought in focus with the help of frequent close reading and the notes about codes were taken in spreadsheets. Thematic patterns were developed further by comparing documents and making note of such in conceptual tables and charts created in Microsoft Word and Excel.

To achieve rigor in the analysis, the researcher kept a clear audit trail of coding application and theme formation and the analytic process was utilized to document conceptual changes as well as researcher positionality (Lincoln S Guba, 1985; Nowell et al., 2017). The strategies cultivate transparency, reflexivity, and replicability in qualitative research without upholding software-based analysis.

RESULTS AND DISCUSSION

Conceptualization of Smart Contracts in Islamic Financial Discourse

The controversy surrounding smart contracts in Islamic finance is a hemlock of the jurisprudence and policy, the technological possibilities, its institutional conservatism, and market zeal. The potential to boost the operational performances, transparency, and eliminate human error in the traditional finance domain have led to the popularity of smart contracts; however, their application in the Muslim finance is still controversial (Christidis S Devetsikiotis, 2016). This is attributed to root legal and spiritual concepts in Islamic law- e.g., *niyyah* (intention), *ridaʾ* (mutual consent), *ʿadalah* (justice)-name but a few, which cannot be easily duplicated in a deterministic computer-based system (Hassan et al., 2020; Shubber et al., 2022).

What is more, Islamic jurisprudence also often resorts to human interpretation (ijtihad) and the need to take into account the interest of the people (*maslaḥah*), and these concepts require the flexibility of ethical reasoning and contextualization, which is not necessarily supported in the context of rigid smart contracts (Kamali, 2008; El-Gamal, 2006; Ali, 2016). Regardless of these philosophical restrictions, some researchers believe that smart contracts can support Sharia conformity by minimizing *gharar* (uncertainty), conducting semi-automated audits, and by enforcing transparency, all of which are aspects that support *maqasid al-sharia*, including protection of wealth (*hifz al-malk*) and religion (*hifz al-din*) (Muneeza S Mustapha,

2021; Akturk et al., 2025; Rabbani et al., 2021). These two arguments contribute to facilitating the emergence of a fruitful concept like the Sharia-by-design strategy where Sharia ethical considerations are incorporated during the initial design phase of a given financial technology as opposed to being imposed later on (Haron, Kassim, S Ismail, 2023). This point of view also brings to the fore a socio-technical process where Islamic finance cannot be isolated with regards to social and religious ideals held (Trist S Emery, 1973; Mumford, 2006).

Institutional reaction to this cautious optimism is as follows In Indonesia, the DSN-MUI has not yet published a particular fatwa on the blockchain or smart contracts, but they do not explicitly prohibit the use of smart contracts due to the existing rulings (e.g., Fatwa No. 117/2018 and No. 124/2018) on the usage of digital contracts in general subject to certain conditions, including *ijab-qabul*, mutual consent, and clarity in definition (Dewan Syariah Nasional Majelis Ulama Indonesia, 2018). Internationally, AAOIFI has gone ahead to be more active and issued Sharia Standard No. 59 (2023) which expressly acknowledges the validity of smart contracts when they are clear, verifiable (*mushahadah*), and free of *riba* and *gharar*.

In its turn, IFSB focuses on a regulatory sandbox environment as the means of testing the blockchain-based innovation without compromising the Sharia compliance and addressing the operational risks that may arise (Islamic Financial Services Board, 2020). The result of a combination of these institutional positions supports the notion of conservatively adaptive period when the forces of innovation and Islamic ethics and interpretive versatility weigh themselves. On the practical level, various blockchain solutions are now seeking to present themselves as Sharia-compliant due to smart contracts.

The most notable ones that have emerged are OneGram, HelloGold and Caizcoin. OneGram is based on actual physical gold as means of reducing riba and maysir through issuance and redemption based on smart contracts, whereas HelloGold based on Ethereum-based contracts to promote Sharia-advised financial inclusion based on investing in micro gold. Caizcoin has an even greater vision of becoming a halal blockchain and beyond, we have remittances, we have zakat, we have halal trade, we have a bigger picture. Such cases are indicative of a growing trend wherein Sharia- compliance is both a regulatory requirement and a branding exercise that gives ethics and marketability.

However, their efficiency requires a solid depth of transparency, Sharia audit, and inclusion of ethics oversight beyond superficial cleansing certifications. The combination of current academic contexts, structure of the institutions and market experimentation highlights an important turning point in terms of Islamic finance: a point at which the syncing between smart contracts needs to take a measure of technological determinism and align it with Islamic epistemology.

Table 1. Conceptualization of Smart Contracts in Islamic Financial Discourse. Source: Compiled by the Author (2025)

Theme	Key Concerns	Key Sources
Islamic Legal Compatibility	*Niyyah, rida,* and justice are hard to encode in code.	Hassan et al. (2020); Ali (2016)
Ethical Design (Sharia-by-Design)	Integration of *maqasid* into smart contract architecture.	Rabbani et al. (2021); Haron et al. (2023)
Regulatory Uncertainty	Need for *ijab-qabul* and clarity in digital agreements.	DSN-MUI Fatwas (2018, 2021); AAOIFI SS No.59 (2023)
Technological Promise	Automation may reduce *gharar* and increase inclusion.	Aktürk et al. (2025); Muneeza S Mustapha (2021)
Market Application	Sharia as both compliance mechanism and branding strategy.	OneGram, HelloGold, Caizcoin

Key Points:

1. The theological-legal troubles that confront smart contracts are Muslim jurisprudence, especially since human intentions and interpretation could not be encoded.
2. Researchers understand that there are possible advantages, in particular, minimize ambiguity (gharar) and misrepresentation and improve financial services transparency.
3. Regulatory agencies are both tentative and proscriptive, on the one hand recognizing possibility, on the other hand laying stress upon ethical precautions and procedural articulation.
4. Sharia-by-design is an optimistic way out of the situation, since it can allow the incorporation of Islamic ethics at the design phase of a fintech system.
5. Sharia certification, which is both a compliance measure and a marketability factor, is applied in Islamic blockchain projects that have differing levels of transparency in their auditing.
6. The future of Islamic smart contracts lies in the resolution of the conflict between the deterministic nature of code logic and the adaptability of Islamic legal thinking, Sharia-based ethical reasoning, which has to be accomplished both on the technical and normative level.

Opportunities for Sharia Compliance and Operational Efficiency

A strong case can be made that smart contract can improve efficiency in the operational processes in the Islamic finance world and further adhere to the Islamic Sharia principles. The first and most obvious advantage is automating compliances sensitive activities, including the calculation of zakat, disbursement schedules of sukuk and waqf fund allocation. This helps minimize human error as these smart

contracts are pre- programmed with Sharia conditions, and also standardize the transactions in accordance to the fatwa-derived parameters (Rabbani et al., 2021; Shubber et al., 2022).

The second opportunity is the reduction of *gharar* (uncertainty). What smart contracts give you is transparency and determinism of the terms that are in the contract. This may help to limit conflicts, particularly when it comes to multi-party funding such as *musharakah* or *mudarabah* (Muneeza S Mustapha, 2021). By combining these capabilities with blockchain audit trails, Sharia boards can trace compliance to the real- time, therefore, convert ex-post fatwa validation into real-time in-built governance (OneGram WP, 2017; IFSB TN-3, 2020).

Moreover, as an advantage, there is the aspect of financial inclusion. This is made possible by the deployment of smart contracts on mobile-based systems where the participants in underserved areas can use those to access Sharia-compliant products without paying huge sums of money to physical infrastructure. This has manifested itself in the HelloGold gold-saving contracts and Caizcoin remittance tools that combine blockchain validation with convenient interaction with the unbanked (HelloGold WP, 2018; Caizcoin, 2021).

The shift to the concept of compliance-by-design is, perhaps, the most transformational one. Rather than carry out technical development followed by review of Sharia, ethics have been intertwined with development. This sociotechnical harmonization lowers the dependency of constant manual oversight and helps Islamic identity of a platform not only to be functional but to appear as well (Rabbani et al., 2021; Haron et al., 2023). Also, smart contracts might provide access to harmonization within the different jurisdictions since the Standard No. 59 produced by AAOIFI in 2023 provides a shared understanding that could be used to guide differences in jurisdictions.

Besides these advantages, the use of smart contracts also has the possibility of developing trust and accountability in the Islamic financial systems. The unalterable nature of the blockchain records makes it possible to secure the stakeholders against the post-contract manipulations and frauds as the terms of any contract cannot be changed once executed. This is especially important to the Islamic crowdfunding and peer-to-peer (P2P) platforms where trust between parties of interest is high on the priority list (Nienhaus, 2020). Smart contracts have the potential to allow automatic verification of the deployment of capital, proportions of profits, and exposure to risk which are vital to capital structure devices such as *musharakah* and *ijarah* in Islamic finance.

Besides, the compatibility between smart contracts and the Islamic fintech ecosystem can help increase innovation on the larger scale. As an example, using AI and Internet of Things (IoT) devices, they could be coupled so that the sukuk could be issued dynamically on the basis of current data on project performance and would give much better matching between investment performance and Sharia principles (Zulkhibri, 2021). In humanitarian operations, the use of blockchain within waqf management might enhance trackability and allocation effectiveness so that the charity will be respected throughout the life of the fund (Mansoori, 2020).

On the whole, smart contracts have the potential to not only enhance efficiency of Islamic finance but also increase its inclusion and resilience by implementing radical compliance with ethics, saving administrative expenses, and creating global symmetry through standardization.

Table 2. Opportunities for Sharia Compliance and Operational Efficiency. Source: Compiled by the Author (2025)

Opportunity Theme	Description	Key Sources
Automation of Sharia Processes	Smart contracts can automate zakat calculation, sukuk disbursement, and waqf flows.	Shubber et al. (2022); Rabbani et al. (2021); HelloGold WP
Minimization *Gharar*	Code transparency may reduce uncertainty in contracts.	Muneeza S Mustapha (2021); AAOIFI SS No. 59 (2023)
Auditability and Real-Time Tracking	Blockchain's immutability supports continuous Sharia audit.	IFSB TN-3 (2020); OneGram WP
Increased Financial Inclusion	Enables scalable, low-cost delivery of Islamic financial services.	Aktürk et al. (2025); HelloGold WP
Compliance-by-Design	Ethics and rules can be embedded into the smart contract logic.	Rabbani et al. (2021); Haron et al. (2023); Caizcoin WP
Cross-border Standardization	Smart contract may harmonize cross-border Sharia interpretations.	AAOIFI SS No. 59; DSN-MUI Fatwa 117/2018; IFSB WP (2021)

Key Points.

1. Automation of Sharia Process Automation of the Sharia Processes
a. With smart contracts, it is possible to conduct Islamic financial transactions (e.g., zakat, sukuk, waqf) in an automated way.
b. Cut down administrative errors and costs and enhance procedure consistency.
2. Reducing *Gharar* (Uncertainty)
a. The effect of transparent coding is that it will create clarity within contracts which in the Islamic jurisprudence was a point of serious concern.
b. Aids in averting the conflict and clarity of terms and conditions.
3. Real-Time Auditability of Sharia
a. Sharia monitoring and compliance check are possible via the blockchain immutability aspect.
b. Facilitates proactive supervision by the Sharia supervisory boards promptly.
4. Financial Inclusion and access
a. Enables the unbanked and underserved people access low-cost financial services that are mobile friendly.

b. Illustrated in the platforms such as HelloGold (saving in gold) and Caizcoin (Islamic remittance).
5. Compliance-by-Design Approach
a. The Sharia is an inbuilt part of the start-up of the system and it is not an after-market feature.
b. Respects and matches the Islamic ethical values to the technological architecture.
6. Standardization Potential Cross-boundaries
a. Smart contracts would help fill the gap in the interpretation of *fiqh* between various jurisdictions.
b. Supports harmonized fintech development of Islam, which is evident in AAOIFI Standard No. 59.

Challenges in Aligning Smart Contracts with Sharia Norms

Although smart contracts have potential efficiencies, they have raised significant theological, legal and operational issues when applied in relation to Islamic finance. Such difficulties cannot be classified solely as technical but constitute as well a fundamental incompatibility between the deterministic reasoning that is inherent to code and the moral reasoning of Sharia jurisprudence. Lack of *niyyah* (intention) and *rida'* (mutual consent) in automated transactions is one of the most mentioned ones. Under Islamic contract, the motive of an agreement is important and it can be legally and spiritually binding (Ali, 2016), the lack of which could make the contract non-binding according to Sharia.

More than that, the unresponsiveness of smart contract coding would not be compatible with the adaptability that it will rely on *fiqh*-based statements, which may rely heavily on situational analysis and interpretive legally allowed speculation (*ijtihad*) (Kamali, 2008). Another example is Islamic law which demands the capability of adaptation or disregard of agreements based on the changing conditions often not clearly achievable or enabled by permanent blockchain structures (El-Gamal, 2006). It gives rise to an ethical and legal conflict between accountability and automation.

The adverse adoption is also due to absence of regulatory clarity. Although the AAOIFI issued a step toward formal recognition of smart contracts in Sharia Standard No. 59 (2023), there are no divisions or organizations that have made binding issues directly related to blockchain contracts, including DSN-MUI, IFSB, etc. Such silence on regulation adds to legal uncertainty and curtails the institutional readiness to adopt such technologies (Muneeza S Mustapha, 2021).

Furthermore, there are ethical considerations of the possibility of *gharar* (excessive uncertainty) or *zulm* (injustice). These are bugs in the level of program, unfair terms or failure to provide a dispute resolution mechanism. Smart contracts will not have judicial involvement because they are auto-executed and thus will result in erroneous contracts harming parties without remedy. Lastly, the dearth of the Sharia scholars in the development teams of many Islamic fintech projects contributes to such superficiality in the compliance models and ex post issuance of fatwas, which does not reflect the principles of *maqaṣid al-shari'ah* (Rabbani et al., 2021).

On top of these issues, it is raised that there is an epistemological distance between the coders, and the Sharia scholars. The wrestle among programmers and, more broadly, in computational ways of thinking is against assumptions of logical perfection and binary solutions, whereas Islamic jurisprudent thought is driven by usul al-fiqh that caters to a more gradated, contextualized and layered intentionality. Lack of such epistemic alignment may lead to development of systems that were technically functional, but represented the image and meaning of Islamic contracts inaccurately (Oseni S Hassan, 2015). Take the example; difference between ʿaqd lāzim and ʿaqd ghayr lāzim may not be acknowledged in the automated systems resulting in injustice in its application.

Also, the absence of government institutions within the decentralized systems creates another predicament. Formal checks are provided in traditional Islamic finance by the Sharia boards and institutional accountability. Decentralized autonomous organizations (DAOs) and permissionless blockchains are undermined by lacking hierarchy and complicating implementation of collective decision-making and Sharia-based correction mechanisms (Hassan et al., 2020). This brings about uncertainty of how hisbah (moral enforcement) and collective responsibility will exist in virtual worlds.

In addition, the issue of data privacy and surveillance ethics in smart contract ecosystems has also been raised. On the one hand, transparency is praised; on the other hand, too much openness is a sin that contravenes Islamic principles of satr (concealment of private matters), and sometimes discreetness is a virtue and is particularly important in financial affairs (Abdul Rahman, 2020).

Table 3. Challenges in Aligning Smart Contracts with Sharia Norms. Source: Compiled by the Author (2025)

Theme	Description	Key Sources
Missing Intent (*Niyyah*) and Consent	Lack of conscious intention and mutual agreement in auto-executed contracts.	Ali (2016); Dusuki S Abozaid (2007)
Legal Rigidity vs Ijtihad	Smart contracts lack the flexibility required for contextual legal interpretation.	Kamali (2008); El-Gamal (2006)
Regulatory Gaps	Absence of formal fatwas or standards addressing smart contracts.	Muneeza S Mustapha (2021); DSN-MUI (2021)
Ethical Risk and *Gharar*	Risks of injustice and uncertainty due to immutable execution and code bugs.	Shubber et al. (2022); Rabbani et al. (2021)
Weak Sharia Involvement	Limited input from Sharia scholars in smart contract development teams.	Rabbani et al. (2021); Haron et al. (2023)
Contractual Limitations	Some Islamic contracts are incompatible with automatic execution.	Aktürk et al. (2025); Hassan et al. (2020)

Key Points.
1. Lacking *niyyah*: No open declaration of intention in robotic performance.
2. The consent of the user might not be conscious or outspoken.
3. Narrow ijtihad: Uncompromising systems cannot tolerate contextual interpretation of laws.
4. Improper regulations: Uncertainty of any directive by the people in the Sharia.
5. Risk of *gharar*/located in its system errors, which are the cause of uncertainty and injustice.
6. Little standard Sharia: The *fiqh* scholars are seldom involved in technical development.
7. Incompatible contracts: Islamic contracts have conditions that cannot be easily coded such as verbal or complicated ones.
8. Lack of dispute resolution: Disputes or mistakes are hard to correct where there are immutable systems.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study reveals that while smart contracts offer tangible opportunities for enhancing operational efficiency and Sharia compliance in Islamic finance, their deterministic nature presents deep challenges to Islamic legal and ethical frameworks. On the opportunity side, automation can streamline zakat, waqf, and sukuk processes, reduce gharar, and foster financial inclusion through mobile platforms. Regulatory developments, such as AAOIFI's Sharia Standard No. 59 and experimentation by blockchain-based initiatives like OneGram, HelloGold, and Caizcoin, further illustrate the sector's movement toward digitized Islamic finance with built-in compliance mechanisms.

However, these advancements are tempered by theological and regulatory concerns. The absence of niyyah (intention) and rida' (consent), the rigidity of coded logic that resists ijtihad (legal reasoning), regulatory ambiguity, and minimal involvement of Sharia scholars pose significant risks. Moreover, many Islamic contracts remain difficult to automate due to their nuanced and conditional nature, while smart contracts often lack proper mechanisms for dispute resolution, raising concerns over zulm (injustice) and systemic risk.

Recommendations

Providing a close step towards the implementation of smart contracts in Islamic finance, it would be necessary to have a unified Sharia-by-Design principle, whereby the system has to be designed in a way that ethical and law-related principles of Islam are encoded and embedded immediately. This necessitates robust cross-disciplinary cooperation between jurists, technologists and regulators to balance the degree of flexibility in the jurisprudence with the technical constraints. Regulatory authorities such as DSN-MUI and IFSB are to come up with clear contextual fatwas and guidelines on blockchain and smart contracts. Blockchain should also be used to create real-time

Sharia auditing tools that keep an organization in check. It is also important to bridge the gap in knowledge, which can be done by improving the literacy of the scholars in the digital area and providing the basic training of Sharia to the developers. Smart contracts should have their own integrated dispute resolution methods and regulatory sandbox environments should be extended to allow test beds of a safe nature. Lastly, any plans that are purported to comply with Sharia must show true accountability by means of clear audits and ethical certification processes. The next research needs to focus on practical application of Sharia-by-Design and evaluate whether the regulatory ecosystem is ready to embrace blockchain-based Islamic finance innovation.

BIBLIOGRAPHY

Aktürk, B., Gürbüz, Y., S Turkan, Y. (2025). The Expansion of Islamic Fintech. Hershey, PA, United States: IGI Global.

Ali, S. N. (2015). Modern Challenges to Islamic Law. Cambridge: Cambridge University Press.

Ali, S. N. (2016). Sharia Governance for Islamic Financial Institutions. Edinburgh: Edinburgh University Press.

al-Shāṭibī, I. (1997). Al-Muwāfaqāt fī uṣūl al-sharīʿah. Al-Khubar, Saudi Arabia: Dār Ibn ʿAffān.

Auda, J. (2008). Maqasid al-Sharia as philosophy of Islamic law: A systems approach. Herndon, VA: International Institute of Islamic Thought (IIIT).

Buterin, V. (2014). A Next-Generation Smart Contract and Decentralized Application Platform. Zug, Switzerland: Ethereum White Paper.

Caizcoin. (2021). Project vision and Sharia overview. Retrieved from https://www.caizcoin.com

Christidis, K., S Devetsikiotis, M. (2016). Blockchains and smart contracts for the Internet of Things. IEEE Access, 4, 2292–2303.

Dewan Syariah Nasional Majelis Ulama Indonesia. (2018). Fatwa No. 117/DSN-MUI/II/2018 tentang layanan pembiayaan berbasis teknologi informasi berdasarkan prinsip syariah. Jakarta: DSN-MUI.

Dusuki, A., S Abozaid, A. (2007). A critical appraisal of Shari'ah issues on ownership in asset-based sukuk as implemented in Islamic debt market. International Journal of Islamic and Middle Eastern Finance and Management, 1(1), 7–25.

El-Gamal, M. A. (2006). Islamic Finance: Law, Economics, and Practice. Cambridge: Cambridge University Press.

Elipses, D. S. (2023). Global Islamic Fintech Report. Salaam Gateway.

Haron, R., Kassim, S., S Ismail, R. (2023). Ethical Considerations in Islamic Smart Contracts: A Sharia-by-Design Framework. Journal of Fintech Ethics, 4(2), 25–41.

Hassan, M., Mollah, S., S Amin, M. (2020). Islamic FinTech: Blockchain, smart contracts and Sukuk. Pacific-Basin Finance Journal, 65.

HelloGold. (2018). Whitepaper: Democratising gold for the unbanked [Amanie review summary]. Kuala Lumpur: HelloGold.

Iqbal, Z., S Mirakhor, A. (2011). An Introduction to Islamic Finance: Theory and

Practice. Singapore: John Wiley S Sons.
Islamic Financial Services Board. (2020). Technical note on financial technology (fintech). Kuala Lumpur: Islamic Financial Services Board (IFSB).
Kamali, M. H. (2008). Shari'ah law: An introduction. Oxford: Oneworld Publications. Lincoln, Y., S Guba, E. (1985). Naturalistic inquiry. Newbury Park, CA: Sage.
Mumford, E. (2006). The story of socio-technical design: Reflections on its successes, failures and potential. Information Systems Journal, 16(4), 317–342.
Mumford, E. (2006). The story of socio-technical design: Reflections on its successes, failures and potential. Information Systems Journal, 16(4), 317–342.
Muneeza, A., S Mustapha, Z. (2021). Islamic fintech. In M. Ma'Sum Billah (Ed.), Islamic fintech and financial inclusion (pp. 173–190). Cham, Switzerland: Springer International Publishing.
Nowell, L., Norris, J., White, D., S Moul. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. International Journal of Qualitative Methods, 16(1), 1–13.
Rabbani, M., Arshad, S., S Rohail, I. (2021). Sharia compliance in fintech: A hybrid Sharia governance model for Islamic fintech. Journal of Islamic Accounting and Business Research, 12(5), 694–709.
Shubber, K., Rizvi, S., S Naqvi, B. (2022). Blockchain for Islamic finance: Opportunities and challenges. Research in International Business and Finance, 62.
Strauss, A., S Corbin, J. (1998). Basics of qualitative research: Techniques and procedures for developing grounded theory. Thousand Oaks, CA: Sage.
Szabo, N. (1997). Formalizing and Securing Relationships on Public Networks. First Monday, 2(9).
Trist, E., S Emery, F. (1973). Towards a Social Ecology. New York: Plenum Press.