

## **Electronic Security and Sharia Compliance: Addressing Legal Challenges In Digital Banking In Indonesia**

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### **Article History**

Received : 08/Jun/2025

Revised : 27/Aug/2025

Accepted : 21/Sep/2025

Published : 30/Sep/2025

### **Keywords:**

Islamic banking, digital transformation, legal challenges, OJK, data protection

### **DOI:**

10.54045/jeksyah.v5i02.2836

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### **Paper type:**

Review paper

### **Abstract**

This study employs a literature-based approach by analyzing academic sources, legal texts, and regulatory documents. The purpose is to examine the legal challenges faced by Islamic banking in Indonesia amid the digital transformation of financial services. Rapid digital developments have reshaped banking services, including Islamic banking. While offering significant opportunities, this transformation also presents complex legal challenges. The study identifies key issues, such as the security of electronic transactions, compliance with digital security standards, personal data protection, and the consistent application of Sharia principles in digital financial innovations. These challenges are further complicated by the need to align them with Indonesia's legal framework, particularly Law No. 21 of 2008 on Islamic Banking and regulations issued by the Financial Services Authority (OJK). The findings highlight the importance of adaptive legal frameworks and cross-institutional collaboration. Strong coordination among regulators, industry actors, and Sharia scholars is required to establish a digital Islamic banking ecosystem that is both legally sound and compliant with Islamic values.

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## **Introduction**

Islamic banking has offered an alternative financial system rooted in Islamic economic principles. With the rise of digital technology, its services and operations are undergoing fundamental transformation. While digitalization enhances efficiency and innovation, it also introduces complex legal issues that demand adaptive regulatory responses (Risfandy et al., 2023). The transformation of Islamic banking through digital technology represents both an opportunity for innovation and a fundamental regulatory challenge.

On one hand, technological adaptation enables Islamic financial institutions to expand outreach and improve service quality. On the other hand, it raises crucial questions regarding data protection, electronic transaction security, digital literacy, and most importantly, the alignment of these innovations with Sharia principles. The legal framework governing Islamic banking in Indonesia is still evolving and must keep pace with rapid technological change (Fattah et al., 2022).

The central issue explored in this study concerns the legal disharmony between the regulatory frameworks of the Financial Services Authority (Otoritas Jasa Keuangan – OJK) and the National Sharia Council of the Indonesian Ulema Council (Dewan Syariah Nasional – Majelis Ulama Indonesia, DSN-MUI). OJK is responsible for technical and prudential regulation, while DSN-MUI issues fatwas ensuring Sharia compliance. In digital Islamic banking, their interaction often becomes complex. For instance, OJK may allow blockchain, electronic signatures, or AI-based scoring, while DSN-MUI may raise concerns about gharar, maysir, or the permissibility of smart contracts. This duality produces regulatory ambiguities and uncertainty, as industry players must comply with both legally binding OJK regulations and normatively authoritative DSN-MUI fatwas.

Most prior studies on digital Islamic banking in Indonesia address challenges in general terms, such as consumer protection, literacy, or regulatory adaptation, but few analyze the specific disharmony between OJK and DSN-MUI and its implications for legal certainty, Sharia compliance, and consumer trust. This article therefore fills an important gap by examining the interplay and potential conflicts between state law and Sharia law in regulating digital Islamic banking. It argues that unresolved inconsistencies may hinder innovation and undermine public trust, and thus proposes a harmonization framework based on *maqashid shariah*.

The significance of this research lies in its theoretical, practical, and policy contributions. Theoretically, it advances discourse on Islamic economic law by highlighting regulatory dualism in digital Islamic banking. Practically, it offers insights for regulators (OJK and DSN-MUI) to design adaptive and harmonized frameworks, helping financial institutions balance compliance and innovation while strengthening consumer trust. From a policy perspective, it recommends a participatory regulatory model involving regulators, Sharia scholars, and technology developers, supporting Indonesia's ambition to become a global hub for Islamic finance.

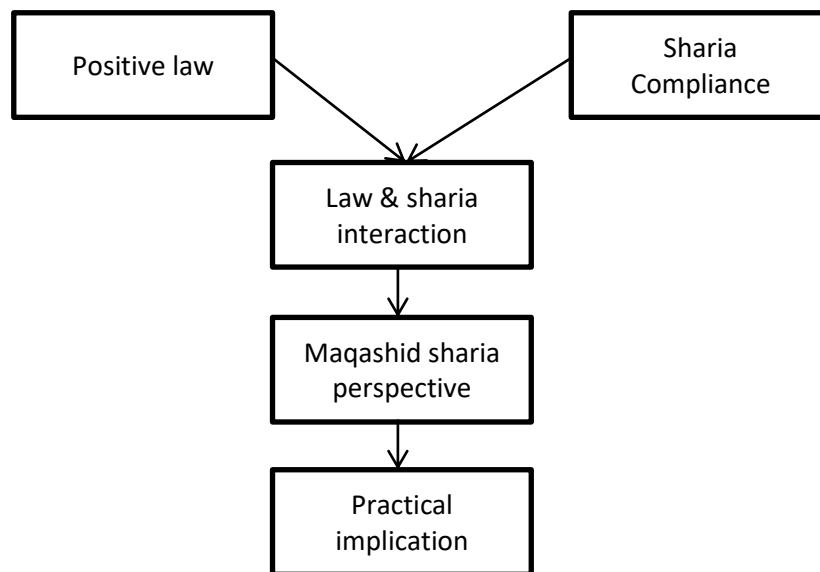
Indonesia, with more than 230 million Muslims, holds immense potential for Islamic banking. According to OJK Reports (2023), the industry continues to grow, but market share remains below expectations. Digital transformation is viewed as a catalyst for financial inclusion, particularly in rural areas. Yet challenges remain: consumer protection against fraud and data misuse, unclear Sharia compliance in blockchain-based sukuk or AI-driven financing (Amrullah et al., 2025), conflicting standards between OJK and DSN-MUI, and limited public digital literacy. These issues emphasize the urgency of building a coherent framework that fosters innovation while safeguarding Sharia values.

The novelty and objective of this article are to specifically analyze regulatory disharmony between OJK and DSN-MUI in digital Islamic banking. Unlike previous works, it identifies overlapping and conflicting areas between technical regulations and Sharia fatwas, evaluates their implications for legal certainty and consumer protection, and proposes an integrative regulatory approach rooted in *maqashid shariah*. The study aims to map Indonesia's digital Islamic banking challenges, assess regulatory inconsistencies, and develop

adaptive solutions for harmonization, offering both theoretical enrichment and practical policy recommendations.

## Literature Review

Here is the theoretical framework diagram that illustrates the flow starting from Positive Law and Sharia Compliance, then converging at Law & Sharia Interaction, subsequently analyzed through the Maqashid Shariah Perspective, and ultimately leading to Practical Implications:



**Figure 1.** Theoretical framework diagram positive law and sharia compliance

### **Cybersecurity Theory**

Relevance, provides a foundational understanding of the importance of data protection, digital authentication, and encryption in digital financial services, including Islamic banking. Key Concepts: (1). Confidentiality, Integrity, Availability (CIA Triad); data protection; digital risk management (Von Solms & Van Niekerk, 2013).

### **Sharia Compliance Theory**

Serves as the normative foundation for the operations of Islamic banks, including within the context of digitalization. Compliance with Sharia principles such as *riba* (usury), *gharar* (uncertainty), and *maysir* (gambling) must be maintained in all aspects of digital transactions. Key Concepts: (1). *Maqashid Shariah* (objectives of Sharia): protection of wealth (*hifz al-mal*), life (*hifz al-nafs*), etc., (2). Halal-haram principles in economic transactions (*muamalah*) (DSN-MUI Fatwas).

### **Islamic Economic Law Theory**

Explains how Islamic legal systems regulate economic interactions in various contexts, including changes in transactional forms due to digitalization. Key Concepts: (1). Legal rulings (*ahkam*) on contracts in digital transactions, (2). The role of authority (*hisbah*) and fatwa institutions in maintaining economic justice (Antonio, 2001)

### **Regulatory Adaptation Theory**

Explains the need for a dynamic and adaptive legal framework in response to technological changes, including the regulation of digital Islamic banking. Key Concepts: (1).

Soft law vs. hard law in financial technology, (2). Adaptive governance in digital regulation (Baldwin et al., 2011)

### ***Sharia Digital Literacy Theory***

Highlights the importance of public understanding of both digital and Sharia aspects to support the development of a robust Islamic digital banking ecosystem. Key Concepts: (1). Digital financial literacy, (2). Dissemination of fatwas and understanding of *fiqh muamalah*/Islamic commercial jurisprudence (Bank Indonesia, 2021).

**Table 1.** Analytical dimensions of sharia compliance

Analytical Dimension	Key Aspects	Core Issues	Implications
Positive Law	Law No. 21/2008, OJK Regulations on Digital Banking, Consumer Protection, Electronic Information and Transactions (EIT Law)	- Data protection & cybersecurity - Validity of digital transactions - Regulatory disharmony among institutions	- Potential legal loopholes - Uncertainty for the industry - Risk of legal disputes
Sharia Compliance	Principles of riba (usury), gharar (uncertainty), maysir (gambling), justice, maqashid shariah	- Legitimacy of digital transactions - Compliance with DSN-MUI fatwas - Sharia ambiguity in new innovations (AI, blockchain, crypto)	- Reputational risk - Decline in consumer trust - Barriers to technology adoption
Law & Sharia Interaction	OJK (technical-prudential) vs DSN-MUI (normative)	- Regulations made separately, lack of integration - Different standards for the same product	- Regulatory disharmony - Confusion among industry players - Inhibited innovation
Maqashid Shariah Perspective	Hifz al-mal (protection of wealth), hifz al-nafs (protection of life), hifz ad-din (protection of religion), social justice	- Do digital innovations support maqashid shariah? - Are there risks of violating justice & transparency principles?	- Need for maqashid-based regulatory harmonization - Ensuring sustainability and fairness
Practical Implications	Regulators, Industry, Consumers	- Sharia-based regulatory sandbox - Investment in digital security & compliance units - Public digital-sharia literacy	- Adaptive, secure, and sharia-compliant digital Islamic banking ecosystem

Source: Data processed by the author (2025)

### ***Hypotheses/ Preliminary Assumptions***

1. Weak electronic security protection in the digital Islamic banking system can reduce public trust in the validity and reliability of the system.

2. The implementation of Sharia principles in digital form still faces legal ambiguities that require new interpretations in the context of technology.
3. Disharmony between technical regulations (such as those from OJK and Bank Indonesia) and Sharia regulations (fatwas from DSN-MUI) has the potential to create legal gaps and uncertainties in the implementation of digital Islamic banking.
4. Active involvement of authoritative institutions such as OJK and DSN-MUI in developing Sharia digital policies is crucial in directing the transformation of digital banking that is both secure and Sharia-compliant.
5. Low levels of public Sharia digital literacy become the main challenge in building a sustainable and inclusive digital Islamic banking ecosystem.

## **Research Methods**

This study adopts a literature-based approach with a focus on Islamic economic law and the regulatory framework governing digital Islamic banking. The literature was selected based on three main criteria. First, its direct relevance to issues of digital Islamic banking, Islamic economic law, and the interaction between regulations issued by the Financial Services Authority (OJK) and fatwas from the National Sharia Council of the Indonesian Ulema Council (DSN-MUI). Second, its timeliness, prioritizing sources published within the last ten years (2013–2025) while also incorporating classical works where necessary to provide foundational insights. Third, its credibility, relying on peer-reviewed academic journals, scholarly books, statutory and regulatory documents, and official reports from institutions such as OJK and Bank Indonesia.

The synthesis of literature was carried out systematically through several stages. The first stage involved the identification of core issues, including digital security, Sharia compliance, data protection, and regulatory disharmony. The second stage was categorization, which organized findings into two dimensions: positive law (e.g., state laws and OJK regulations) and normative law (e.g., DSN-MUI fatwas and Islamic jurisprudence). The final stage was synthesis, in which the two sets of findings were compared and critically analyzed to identify alignments, inconsistencies, and patterns of regulatory conflict. From this process, preliminary assumptions were derived, such as the proposition that unresolved regulatory disharmony can undermine legal certainty and public trust in digital Islamic banking.

The analytical process then proceeded in three steps. A normative analysis was conducted to examine the consistency of OJK regulations and DSN-MUI fatwas with the broader objectives of Islamic law (*maqashid syariah*). A comparative analysis was carried out by juxtaposing Indonesian regulations with international standards in digital financial governance, particularly in areas such as data protection and Sharia-compliant financial practices. Finally, an implication analysis was undertaken to evaluate the practical consequences of regulatory disharmony for legal certainty, Sharia compliance, and consumer trust within the digital Islamic banking ecosystem.

## **Results and Discussion**

### ***Principles of Sharia Economic System in Islamic Banking in the Digital Era***

#### **a. The Principle of Prohibition of Riba (Interest)**

The principle of prohibiting *riba* (interest) in Islamic banking in the digital era remains a fundamental pillar, reflecting the rejection of interest-based practices considered unethical

in Islam. *Riba* is avoided because it is deemed harmful and unjust, potentially leading to economic inequality. In the context of digital Islamic banking, the prohibition of *riba* is manifested through transactions based on profit-sharing or mutual gain principles. Technology plays a crucial role in implementing this principle by facilitating real-time transaction monitoring and accurately calculating profit distribution.

Digital Islamic banking applications and platforms provide customers with fast and easy access to financial products that do not involve interest. Furthermore, innovations such as blockchain technology can be used to create smart contracts that automatically ensure compliance with the prohibition of *riba*. The use of artificial intelligence algorithms in digital Islamic banking can also help effectively identify and manage risks, ensuring that transactions remain aligned with Sharia economic principles. Therefore, Islamic banking in the digital era upholds the prohibition of *riba* as a core foundation to offer financial solutions in accordance with Islamic values (Ulhaq & Al Fajar, 2022).

#### b. The Principle of Justice and Equality

The principle of justice and equality in Islamic banking in the digital era emphasizes the importance of ensuring that economic and financial transactions reflect the values of social justice and equality as upheld in Islam (Maulana et al., 2022). In the context of digital Islamic banking, this principle is reflected in several key aspects.

First, Islamic banking in the digital era strives to prevent inequality in the relationships between parties involved in transactions. The profit-sharing principle serves as a foundation, wherein profits and risks are distributed fairly between the bank and the customer. This creates a more balanced partnership compared to the conventional interest-based model.

Second, digital Islamic banking platforms provide broader access to financial services, enabling communities previously underserved by conventional banking systems to participate. This fosters equal access to financial services regardless of one's economic or social background.

The principle of justice and equality is also reflected in risk assessment. Artificial intelligence technology is employed to assess risks objectively, reducing the potential for discrimination and ensuring that financing or investment decisions are based on fair and just factors (Risfandy et al., 2023). Islamic banking in the digital era is committed to creating a more just and equitable economic environment. With technology as a means, Islamic banking can bridge economic gaps and contribute to inclusive economic development in accordance with Islamic principles.

#### c. The Principle of Prohibition of Speculation (*Gharar*)

The principle of prohibiting speculation (*gharar*) in Islamic banking in the digital era refers to the avoidance of uncertainty or speculative elements that may lead to uncontrollable risks. In this context, Islamic banking seeks to ensure that financial transactions do not involve excessive *gharar* that could harm one of the parties involved.

In the digital era, technology provides effective tools to manage and reduce speculative risks. Blockchain-based smart contracts, for instance, can be programmed to execute clear rules and eliminate uncertainties in transactions. Digital Islamic banking platforms also utilize artificial

intelligence to analyze risks quickly and accurately, ensuring that each transaction complies with Sharia economic principles (Rusdiyanto, 2017).

The principle of prohibition of speculation is also reflected in Sharia-compliant investment products offered through digital platforms. Investments are made with careful risk consideration, and the products are structured to avoid speculative elements that could harm the interests of customers. By adhering to the principle of avoiding speculation, Islamic banking in the digital era strives to create a stable and fair financial environment. The application of technology in managing speculative risks helps build customer trust and ensures the sustainability of a financial system aligned with Islamic principles (Pusvisasari et al., 2023).

#### d. Principle of Legal Compliance (Sharia Compliance)

The principle of legal compliance (sharia compliance) in Islamic banking in the digital era emphasizes that all banking activities must align with Islamic law. This includes ensuring that transactions, products, and services provided by Islamic financial institutions strictly adhere to the principles of Islamic economics.

In the digital era, legal compliance is strengthened through the implementation of advanced technology. Automation systems and artificial intelligence technologies help monitor transactions in real-time, ensuring that every financial activity complies with Islamic legal provisions. Blockchain technology is also utilized to provide high transparency and accurately audit transaction trails (Apriyanti, 2018).

Digital Islamic banking platforms typically provide mechanisms to assess and ensure that every new product or service introduced complies with Islamic legal standards. The use of technology also facilitates the efficient implementation of relevant fatwas and Islamic legal guidelines, allowing financial institutions to dynamically adjust their operations in line with the evolving landscape of Islamic law.

Furthermore, technology supports Islamic banking in mitigating risks and ensuring better compliance with legal aspects. Legal compliance lies at the heart of the reputation of Islamic financial institutions, and the application of technology in the digital era is key to maintaining and enhancing that reputation-ensuring that every step taken aligns with Islamic ethical and legal principles (NESMI, 2022).

#### e. Principle of Social and Environmental Responsibility

The principle of social and environmental responsibility (CSR) in Islamic banking in the digital era reflects the commitment of financial institutions to play a positive role in society and the environment, in alignment with Islamic values. In this context, digital Islamic banking does not solely focus on economic aspects, but also considers the social and environmental impacts of its operational activities.

Firstly, Islamic financial institutions in the digital age design products and services with consideration for positive social impact. This includes financing projects that provide social benefits and support sustainable economic development in accordance with Islamic principles.

In addition, digital Islamic banking leverages technology to enhance transparency regarding the use of funds and social investments. Digital platforms enable customers to track and understand how their funds are being used for projects that contribute to social and environmental responsibility (Pratiwi et al., 2023).

The principle of social and environmental responsibility is also reflected in the policies of digital Islamic banking concerning environmental matters. The implementation of sustainable financial practices, green investments, and environmental risk management are among the measures taken to ensure that their operations do not harm the ecosystem.

By integrating digital technology with the principles of social and environmental responsibility, Islamic banking can create a greater positive impact on both society and nature. This approach helps build a positive image, earn customer trust, and make a meaningful contribution to sustainable development in accordance with Islamic principles (Tangkere, 2021).

#### f. Principle of Compliance with Business Ethics

The principle of compliance with business ethics in Islamic banking in the digital era emphasizes the need to uphold high standards of ethics and integrity in all aspects of operations. In this context, Islamic banking not only adheres to laws and regulations but also follows Islamic ethical values in every transaction and business policy it undertakes.

Firstly, this principle demands transparency and honesty in providing information to customers. Digital Islamic banking platforms are designed to offer easy and transparent access to information regarding products, services, and financial matters. Compliance with business ethics also includes clearly communicating information to customers, enabling them to make well-informed decisions (Ruslang et al., 2020).

Digital Islamic banking ensures that every product or service offered meets Islamic ethical standards. This involves the development of financial products that align with the principles of justice, the prohibition of *riba* (usury), and the avoidance of *gharar* (excessive uncertainty or speculation) as outlined in Islamic teachings.

The principle of compliance with business ethics also includes the protection of consumer rights. Digital Islamic financial institutions ensure that customers are treated fairly and that every product or service provided does not involve practices that could harm or disadvantage consumers (A'yun et al., 2021). By adhering to the principle of compliance with business ethics in the digital era, Islamic banking creates a business environment rooted in integrity and trustworthiness. The application of technology and digital innovation within the framework of Islamic ethical values supports the achievement of this goal efficiently, while also fostering trust among customers and stakeholders.

### ***Legal Challenges in Electronic Transaction Security in Indonesia***

Critical legal challenges in ensuring the security of electronic transactions within the context of Islamic banking involve several key aspects that require thorough attention. These challenges include the protection of customer data, maintaining the integrity of transactions, ensuring compliance with sharia economic principles, and developing responsive regulations. Addressing these challenges will require collaboration among industry stakeholders, regulators, and legal experts to create a secure digital environment that aligns with sharia values (Gajah et al., 2023).

In Indonesia, Islamic banking is governed by a combination of laws and regulations issued by the Financial Services Authority (Otoritas Jasa Keuangan – OJK) alongside fatwas and decisions from the National Sharia Council (DSN-MUI). The primary legal foundation is Law Number 21 of 2008 on Islamic Banking, which regulates the establishment, operation, and supervision of Islamic banking institutions. Despite the rapid shift toward digitalization, this law remains highly relevant as it provides the fundamental legal basis for the transformation of Islamic banking into the digital domain. Complementing this framework,



OJK Regulation (POJK) Number 12/POJK.03/2018 on the Implementation of Digital Banking sets guidelines for digital banking operations, including those of Islamic banks, with a strong focus on technology, security, consumer protection, and governance.

OJK Regulation Number 19/POJK.03/2017 on the Implementation of Sharia Financial Principles by Commercial Banks ensures that sharia principles remain embedded in banking practices, even as institutions adopt new technologies and innovate in the digital era. In line with this, OJK Regulation Number 13/POJK.03/2017 on Digital Financial Innovation provides a regulatory framework for innovation, enabling Islamic banks to engage in technological experimentation while remaining under OJK's supervision. To safeguard consumers, OJK Regulation Number 18/POJK.03/2018 on Consumer Protection in the Financial Services Sector outlines mechanisms for ensuring fairness, transparency, and dispute resolution in interactions between financial institutions and their customers, including those of Islamic banks.

In addition to these OJK-issued regulations, the role of DSN-MUI is also critical. For example, the Decision of the National Sharia Council (DSN-MUI) Number 108/DSN-MUI/X/2018 establishes financial accounting standards that must be followed by Islamic financial institutions, ensuring Sharia compliance even in digital financial reporting. Together, these laws, regulations, and decisions form an integrated though sometimes overlapping framework for regulating Islamic banking in Indonesia's digital era, balancing the demands of technological innovation with the imperatives of Sharia compliance and consumer protection.

### ***Challenges of Islamic Banking in the Digital Era***

The challenges faced by Islamic banking in the digital era, based on the existing regulations, involve several aspects that need to be addressed. The following are some of the main challenges:

1. **Security of Electronic Transactions.** Although regulations provide a framework for the security of electronic transactions, Islamic banking faces ongoing challenges in protecting customers and their data from cyberattacks, data breaches, or other cybercrime activities.
2. **Compliance with Digital Security Standards.** Ensuring that Islamic banks comply with ever-evolving digital security standards is a challenge, especially as technology continues to advance. This requires investment in security technologies that can keep pace with the development of cyber threats. (Arfaizar et al., 2023)
3. **Meeting the Requirements of Digital Financial Innovation.** Regulations governing digital financial innovation pose challenges for Islamic banking to continuously innovate in delivering digital services that meet customer needs. This includes the adoption of technologies such as artificial intelligence, blockchain, and application-based financial services (fintech).
4. **Implementation of Sharia Financial Principles.** In a digital context, ensuring that every transaction and product remains compliant with Sharia financial principles can be a challenge. Islamic banks must ensure that the technologies they adopt support these principles without sacrificing efficiency and convenience. (Maulana et al., 2022)
5. **Handling of Personal Data and Privacy.** The security and protection of personal data is a top priority, and Islamic banks must commit to complying with privacy regulations and addressing challenges related to the secure management and storage of customer data.

6. Training and Capacity Building of Human Resources. Facing the digital era requires human resources who understand both technological aspects and Sharia financial principles. Training and capacity building for employees are crucial so they can effectively manage digital Islamic banking operations.
7. Integration with a Complex Legal and Regulatory Environment. Islamic banks must continually adapt to changes in the complex legal and regulatory environment. Integrating digital innovations while complying with regulatory requirements is a key challenge that needs to be addressed. (Tahliani, 2020)

### ***Critical Contextualization and Comparative Other Country***

In practice, the legal disharmony between OJK regulations and DSN-MUI fatwas can be clearly observed in several recent cases. For example, the 2023 cyberattack on BSI Mobile, which disrupted services and triggered public concern, revealed a regulatory gap. While OJK mandates strict compliance with digital security standards under POJK No. 12/2018, DSN-MUI has yet to issue a specific fatwa addressing cybersecurity risks in Islamic banking. This absence creates a vacuum in Sharia-based guidance for consumer protection in digital contexts. Similarly, the rise of Sharia peer-to-peer lending platforms illustrates the same challenge. Many of these platforms adopt contracts such as *qardh* or *mudharabah*, but their reliance on AI-driven credit scoring has raised debates about potential *gharar* and fairness. Industry players often find themselves navigating between OJK's digital innovation regulations and DSN-MUI's fatwas, which are either broad or lag behind technological developments, thereby creating uncertainty.

A comparative perspective further demonstrates how other jurisdictions address this issue more effectively. In Malaysia, for instance, the Shariah Advisory Council (SAC) of Bank Negara Malaysia (BNM) holds binding authority, ensuring that Sharia rulings are directly incorporated into regulatory frameworks. This integration reduces the risk of conflicting standards between regulators and Sharia scholars.

In Pakistan, the State Bank of Pakistan requires ex-ante approval from Sharia Boards for all digital Islamic banking products before they are introduced to the market, thereby guaranteeing compliance at the design stage rather than relying on ex-post corrections.

Meanwhile, in the United Kingdom, the Financial Conduct Authority (FCA) applies a regulatory sandbox model that allows Islamic fintech firms to test innovative products under a controlled legal environment. Although the UK is not a Muslim-majority country, this model minimizes legal risk and fosters Sharia-compliant innovation. These comparative insights highlight that Indonesia's primary challenge lies not only in technical adaptation but also in the fragmented authority between OJK and DSN-MUI, which hampers legal certainty and slows innovation in digital Islamic banking.

### ***Implementation of Islamic Banking in the Digital Era***

Islamic banking in the digital era has undergone significant transformation to meet the needs of communities seeking financial services aligned with Islamic principles (Maulana et al., 2022). One of the main implementations is the development of online banking platforms and mobile applications that allow customers to conduct transactions easily and efficiently. Through this technology, customers can access their accounts, transfer funds, and monitor their financial activities without having to visit a physical branch. (Anastasia & Paputungan, 2022).

In addition, the adoption of Islamic fintech has become an integral part of digital Islamic banking. These platforms offer various services, including Sharia-compliant

microfinance, investments in halal financial instruments, and asset management in accordance with Islamic principles. (Norrahrman, 2023) The utilization of artificial intelligence (AI) and data analytics also supports Islamic banks in enhancing customer experience and providing more personalized financial solutions (Mawardi et al., 2023).

Blockchain technology has also emerged as an important element in ensuring transparency and security in Islamic banking transactions. (Hidayat et al., 2023) By using this technology, transaction records can be easily verified, and the integrity of the Islamic financial system can be maintained in accordance with Islamic principles (Fitri, 2023).

Based on the points above, the author concludes that the implementation of Islamic banking in the digital era not only provides easier access for customers but also ensures that the financial services offered are in line with the values and principles of Islamic finance, creating a more inclusive and modern banking ecosystem.

## **Conclusion**

Based on the findings presented in this article, it can be concluded that the main challenges faced by Islamic banking in the digital era involve electronic transaction security, compliance with continuously evolving digital security standards, fulfillment of digital financial innovation requirements, and the implementation of Sharia financial principles without compromising efficiency. Addressing personal data protection, training of human resources, and integration with a complex legal environment are also essential components in responding to these changes.

Nonetheless, the implementation of Islamic banking in the digital era has also shown positive impacts, including the development of online platforms, the adoption of Sharia-compliant fintech, and the application of technologies such as artificial intelligence, blockchain, and data analytics. Core principles of Islamic economics such as the prohibition of *riba* (usury), promotion of justice, prohibition of speculation, legal compliance, social responsibility, and ethical business practices are reflected in the efforts to create a banking environment aligned with Islamic values.

Thus, this research affirms that Islamic banking in the digital age not only faces significant challenges but also plays a vital role in shaping an inclusive, modern, and Sharia-compliant banking ecosystem in Indonesia. Technological implementation is key to bridging gaps, enhancing compliance, and delivering financial solutions grounded in Islamic values.

The comparative analysis suggests several important policy implications for Indonesia. First, Indonesia could adopt a more integrated regulatory model similar to Malaysia, where Sharia rulings issued by DSN-MUI would have direct and binding authority within OJK's regulatory framework. This would minimize legal uncertainty and prevent contradictions between technical regulations and fatwas. Second, following the Pakistani approach, Indonesia should require ex-ante Sharia approval for digital banking and fintech products before they are marketed. Such a mechanism would ensure Sharia compliance at the innovation stage, avoiding reputational risks and costly regulatory revisions after products are launched. Third, Indonesia may benefit from experimenting with a regulatory sandbox, as practiced in the United Kingdom, where Islamic financial innovations can be tested in a controlled legal environment. This would allow regulators, Sharia scholars, and fintech developers to collaborate in real-time, fostering adaptive governance while maintaining consumer trust.

In the long term, these reforms would not only enhance legal certainty and Sharia compliance but also strengthen Indonesia's position as a global leader in Islamic digital

finance. By institutionalizing collaboration between OJK and DSN-MUI, embedding Sharia compliance into the design of financial innovations, and providing space for safe experimentation, Indonesia can build a more coherent and resilient digital Islamic banking ecosystem. Such an approach aligns with the maqashid syariah framework, ensuring that digital transformation in Islamic banking fulfills its objectives of protecting wealth (*hifz al-mal*), safeguarding justice, and promoting financial inclusion in a sustainable and ethical manner.

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