



Transformation of Sharia Supervision in the Digital Islamic Financial Ecosystem: Challenges and National Policy Directions

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ABSTRACT

The digital transformation in the Islamic finance industry presents complex challenges to the effectiveness of the Islamic supervisory system. This study aims to analyze the strategic role of the Islamic Supervisory Board (SSB) in the digital financial ecosystem and identify key challenges and policy directions needed to strengthen its supervisory function. The research uses a qualitative approach with descriptive methods and case studies based on secondary literature, encompassing national regulations, policy reports, and recent scientific articles. Key findings indicate that the SSB faces structural, regulatory, and technological constraints that impact its supervisory effectiveness, particularly in the face of developments in financial technology such as Islamic fintech and digital banking. The lack of specific regulations, low technological literacy among SSB members, and limited institutional capacity hinder adaptive supervisory integration. The study also highlights the importance of utilizing real-time audit technology and strengthening regulations based on the principles of maqasid sharia to support the sustainability of the digital Islamic financial system. The study's conclusions emphasize that strengthening Islamic supervision in the digital era requires regulatory reform, increased human resource capacity, and technology integration based on Islamic governance principles. This study has implications for policy design and the development of an innovative and sustainable Islamic supervisory system.

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INTRODUCTION

Over the past decade, the digital Islamic finance industry in Muslim-majority countries has undergone significant transformation, driven by the rapid development of digital technology. One key development is the integration of financial technology (fintech) into Islamic banking services, which has opened new dimensions in terms of accessibility, operational efficiency, and financial inclusion. Fintech provides opportunities for Islamic financial institutions to expand their service coverage quickly and efficiently, while maintaining compliance with Sharia principles (Susanti, 2024; Muzdalifa et al., 2018). Platforms such as peer-to-peer lending and crowdfunding have enabled access to financing for individuals and MSMEs, thereby increasing the economic participation of Muslim communities previously underserved by the conventional financial system (Mansyur & Ali, 2022; Norrahman, 2023).

However, the development of Islamic fintech brings with it new challenges, particularly related to Sharia compliance, digital security, and the regulatory framework. While many industry players welcome technological innovation, there remains a legal vacuum and a lack of detailed operational guidelines governing Sharia-compliant digital financial practices

(Fatimah & Ludfi, 2024; Mulyana et al., 2024). This is exacerbated by the limited human resources with a deep understanding of both financial technology and Sharia principles. These challenges, if not systematically addressed, could threaten public trust in Islamic financial institutions and undermine the goal of financial inclusion.

To address this complexity, the role of the Sharia Supervisory Board (SSB) is highly strategic. The SSB is tasked not only with ensuring financial institutions' compliance with Sharia principles but also with guiding the development of digital financial products to ensure they remain within Islamic law. Unfortunately, most SSBs in Indonesia still employ manual and administrative supervisory approaches, which are ineffective in addressing the dynamics of real-time digital transactions. Therefore, a solution-oriented approach is needed that emphasizes the integration of digital supervisory systems, increasing the technical capacity of the SSB, and harmonizing policies across authorities to create adaptive and collaborative supervision.

Several countries have begun developing integrated sharia governance models, such as Malaysia, which has implemented a technology-based reporting and audit system that enables direct and efficient sharia supervision (Muryanto, 2022). In Indonesia, similar implementation remains hampered by institutional fragmentation between the National Sharia Supervisory Agency (DSN-MUI), the Financial Services Authority (OJK), and Islamic financial institutions themselves. Therefore, more specific solutions are needed, including new regulations that explicitly define the role of the Sharia Supervisory Board (SSB) in the Sharia fintech ecosystem, increased technological literacy among supervisors, and the provision of a digital audit system and compliance dashboard that allows real-time monitoring by the SSB.

Recent literature shows significant gaps in sharia supervisory practices in the digital sector. Research indicates that most sharia fintech entities lack a permanent Sharia Supervisory Board (SSB) or a standardized Sharia consultation mechanism, creating the risk of *gharar* or hidden usury practices (Ramadhan, 2022). Furthermore, low levels of Sharia financial literacy among the public add to the complexity of supervision, as consumers do not always understand whether the products they use comply with Sharia principles (Candera et al., 2020; Nuraini et al., 2024). While previous research has highlighted the importance of regulation and the active role of the SSB, few have proposed a comprehensive and integrated digital supervisory system design as a solution.

Given these challenges and opportunities, this study aims to evaluate the strategic role of the Sharia Supervisory Board (SSB) in the digital Islamic financial ecosystem, identify key challenges, and formulate national policy directions needed to strengthen the Sharia supervisory system in the digital era. This study hypothesizes that strengthening regulations, enhancing the technical capacity of the SSB, and integrating digital systems will enhance the effectiveness of Sharia supervision. The novelty of this study lies in its conceptual and analytical approach, with a focus on technology integration in Sharia supervision and cross-sectoral policy harmonization.

The scope of this study includes an analysis of the existing legal and regulatory framework, the institutional capacity of the Sharia Supervisory Board (SSB), and a mapping of best practices from other jurisdictions that can be adapted to the Indonesian context. This research approach is qualitative and employs a literature review method, encompassing primary sources such as fatwas issued by the National Sharia Council (DSN-MUI), Financial Services Authority (OJK) regulations, and relevant scientific articles. With this framework, this research is expected to provide a substantive contribution to the development of a more responsive, collaborative, and digitally transformation-oriented Sharia governance model.

The transformation of Sharia supervision in digital finance is inseparable from global demands for a more inclusive, transparent, and ethical financial system. Amid technological disruption and changing consumer behavior, Sharia financial institutions are required not only to be competitive but also to remain faithful to the Islamic values that underpin their foundation. Therefore, strengthening the role and capacity of the Sharia Supervisory Board (SSB) as the vanguard in maintaining the integrity of the digital Sharia financial system is a strategic and non-negotiable step.

METHOD

This research uses a qualitative approach with descriptive analytical methods and case studies to understand the dynamics of sharia supervision in the digital financial ecosystem. The descriptive approach aims to provide a comprehensive overview of the digital transformation of Islamic financial institutions and its impact on the supervisory system, while case studies are used to explore actual sharia supervision practices. The data used are exploratory qualitative, with secondary data as the primary source, obtained from scientific journals, academic books, official regulations (DSN-MUI fatwas, OJK regulations), and relevant and credible recent policy reports. Data collection techniques were conducted through literature documentation, reinforced by a phenomenological approach that examines stakeholder views from interviews conducted in previous studies. Data were analyzed thematically through a process of data reduction, issue categorization, synthesis of findings, and interpretation of the social, legal, and economic contexts that influence digital sharia supervision. Validity was maintained through source triangulation and the use of citations from reliable references, as well as analysis based on deductive and inductive approaches. The scope of the research is limited to the context of the digitalization of the Islamic financial sector in Indonesia, with a focus on the role and challenges of the Sharia Supervisory Board (DPS). The selection of this method is based on the relevance of descriptive approaches, case studies, and phenomenology in explaining systemic changes due to digitalization, as well as the importance of regulatory adaptation to maintain sharia principles.

RESULTS AND DISCUSSION

The Strategic Role of the Sharia Supervisory Board (SSB) in the Digital Era

The Sharia Supervisory Board (SSB) plays a vital role in ensuring that Islamic financial institutions operate in accordance with Sharia principles. In the digital era, this role has become increasingly complex. The SSB serves not only as a supervisor but also as a strategic actor bridging digital financial innovation with Islamic legal principles (Wildan & Shalauddin, 2024; Susanti, 2024). Digitalization requires the SSB to master technology and remain steadfast in upholding Sharia principles to maintain public trust (Trimulyana, 2024).

Comparison of Manual and Technology-Based Supervision Mechanisms

Manual supervision tends to be labor-intensive, slow to respond to issues, and prone to human error (Maulana & Supardi, 2022; Wonoseto et al., 2022). In contrast, technology-based supervision offers high efficiency and accuracy, enables real-time responses, and supports accountability (Faizah et al., 2023; Rosmiati et al., 2021). In the context of Islamic finance, technologies such as blockchain, e-monitoring, and management information systems enable the DPS to conduct digital audits effectively.

DPS Organizational Structure and Its Implications for Supervision Effectiveness

The organizational structure of the Sharia Supervisory Board (SPS) significantly determines the effectiveness of oversight. A SPS that is not independent or has a conflict of interest will struggle to carry out its oversight function (Amani & Muhammad, 2021; Maulana, 2014). A SPS that is clearly integrated into the organizational structure of Islamic banks demonstrates more accountable and professional oversight (Isnaini, 2022; Faozan, 2014; Rama & Novela, 2015). The SPS's position, which is equal to the Board of Commissioners, must be accompanied by clear duties and authorities to prevent dual authority.

Indicators of Success of the Digital Sharia Supervisory Function

The success of the supervisory function can be measured through indicators such as compliance with sharia principles (Wildan & Shalauddin, 2024), information transparency (Achmad & Nabila, 2023), and operational efficiency through the use of technology (Chandra et al., 2024; Aulia et al., 2024). Technology implementation enables improved service delivery, risk mitigation, and data-driven decision-making that support the integrity of Islamic financial institutions.

DPS Competence in Financial Technology Supervision

A major challenge for the DPS is the lack of technological literacy and capacity (Rosidi & Afriyudi, 2023). Technology-based training programs have been shown to improve DPS operational efficiency (Anan et al., 2024; Angriawan et al., 2024). In the context of BMT and

BUMDes, digital financial system management training such as SIMAKU and Money Manager has shown a positive impact in strengthening the role of the DPS (Kurnia et al., 2023; Susanti, 2024).

Standardization and Certification of Technology-Based Supervision

Effective supervision requires clear standard operating procedures (SOPs) and a technology-based certification system (Sari et al., 2023; Wonoseto et al., 2022). The use of technologies such as blockchain improves accuracy and integrity in the certification process (Aini et al., 2021). Strengthening DPS human resources through digital training and certification is crucial to ensure optimal supervision (Subhi & Yuhertiana, 2021; Iskandar & Anriani, 2023).

The Absence of Specific Regulations and Their Impact on the Effectiveness of the DPS

The absence of specific regulations is a major obstacle to the effectiveness of Sharia Supervisory Board (SSB) supervision (Maulana, 2021; Nurwakhidah, 2020). Without clear regulations, the SSB lacks a strong legal basis to carry out its duties independently and professionally. This weakness has the potential to result in inconsistent supervision and undermine the credibility of Islamic financial institutions.

Implications of Weak Regulation on Operational Risk

Weak regulation leads to increased legal and operational risks. Fatimah and Ludfi (2024) emphasized that unresponsive supervision of fintech developments can lead to compliance risks. Legal ambiguity also undermines consumer protection, as highlighted by Karimah et al. (2024) and Rahmawati et al. (2024). Without a robust GRC (Governance, Risk, and Compliance) system, the Islamic fintech industry struggles to grow healthily.

Coordination between Supervisory Authorities

Coordination between the DSN-MUI, the OJK, and BI is crucial for creating comprehensive and synergistic oversight (Mufrih & Hadiroh, 2022; Darsono, 2022). As the issuer of sharia fatwas, the DSN-MUI must synergize with the OJK and BI in implementing and enforcing these principles. Kristianti (2020) emphasized the importance of regulatory alignment to avoid imbalances between sharia norms and operational implementation.

Cross-Sector Policy Integration

Cross-sectoral policy integration supports robust sharia supervision. Studies in Malaysia demonstrate the successful implementation of sharia supervision through integrated regulations (Muryanto, 2022). In Indonesia, integration between regulatory agencies such as the Financial Services Authority (OJK), Bank Indonesia (BI), and the Sharia Supervisory Board (SPS) promotes supervisory efficiency and strengthens the position of sharia financial institutions (Utama et al., 2024; Kalsum, 2018).

International Collaboration Models and Best Practices

Collaborations with countries such as Malaysia and Bahrain have demonstrated that integration between the Sharia Supervisory Board (SSB) and national supervisory authorities yields significant results in strengthening sharia oversight (Supriadi et al., 2023; Khan & Shah, 2015). This model needs to be adapted to take into account local contexts, as suggested by Taufiq & Rofiqo (2022) and Yunus et al. (2024).

The Challenge of Harmonizing Fatwas and Technical Regulations

One of the biggest obstacles is the disconnect between the DSN-MUI fatwas and the technical implementation by the Financial Services Authority (OJK). Faozan (2017) and Tarmidzi et al. (2024) show that many fatwas lack legal force, making them difficult to implement. Furthermore, differing interpretations of Islamic law create variations in supervisory practices (Mudzhar, 2013). Therefore, harmonization of fatwas and regulations is a crucial issue to address.

By mapping the above results, this study emphasizes the importance of regulatory reform, strengthening the capacity of the DPS, and technology integration as three main pillars in comprehensively reforming digital sharia supervision.

DISCUSSION

The transformation of sharia supervision in the digital financial ecosystem requires a structural and functional redefinition of the Sharia Supervisory Board (SSB). This change involves not only adapting to technology but also adapting to regulations and the values of the maqasid sharia as normative pillars. Research shows that the SSB holds a strategic position in bridging sharia principles with digital innovation, but this role remains hampered by regulatory limitations, technical competency, and suboptimal institutional synergy. In this context, this discussion will outline approaches that could strengthen sharia supervision systematically.

First, the importance of regulation as the foundation of sharia supervision cannot be overemphasized. Studies show that without clear and adaptive regulations, DPS supervision struggles to address the dynamics of sharia fintech and other digital services (Maulana, 2021; Nurwakhidah, 2020). In practice, weak regulations lead to increased operational risk, legal uncertainty, and decreased accountability (Fatimah & Ludfi, 2024; Rahmawati et al., 2024). Consequently, an effective policy model for strengthening digital financial services (DFS) regulation requires a multifaceted approach, including education, increasing user trust, and cross-stakeholder collaboration (Siagian et al., 2025; Tsakila et al., 2024). The need for adaptive regulatory design is not only to maintain system stability but also to serve as a consumer protection mechanism in the increasingly complex digital era.

Second, the effectiveness of supervision depends heavily on the capacity and technological literacy of DPS members. Findings indicate that many DPS members still use conventional approaches and are not yet ready to embrace comprehensive digital transformation (Rosidi & Afriyudi, 2023; Anan et al., 2024). In this context, internationally successful capacity-building strategies emphasize the importance of ongoing, contextualized training based on local needs (Margaretha, 2024; Kulasegaram et al., 2013). In the Islamic finance sector, this means that the DPS must be equipped with both knowledge of Islamic jurisprudence (fiqh) and technological competency. A structured training program, integrated with a digital audit system and data-driven supervision, is a prerequisite for strengthening the DPS's professionalism and competitiveness in modern financial supervision.

Third, the integration of sharia audit technology is a critical instrument in realizing real-time monitoring. Technology enables a more transparent, accurate, and efficient oversight system through the implementation of blockchain, event-based monitoring, and digital audit trails (Gulyamov, 2024; Tuzzahroh & Laela, 2022). Studies show that rapid violation detection and transparent reporting can increase accountability and foster public trust in Islamic financial institutions (Baehaqi & Suyanto, 2019; Urefe et al., 2024). With a more proactive oversight system, the Sharia Supervisory Board (SSB) acts not only as an administrative supervisor but also as a facilitator of technology-based governance change.

Furthermore, the application of the maqasid sharia principle can serve as a strategic foundation in designing digital financial supervision policies. This principle prioritizes not only legal compliance but also the protection of assets, social welfare, and economic sustainability (Karimullah, 2023; Wardiwiyo, 2020). In practice, maqasid encourages the development of financial products that are not only halal (permissible according to Islamic jurisprudence) but also have positive social impacts, such as social financing, the circular economy, and financial inclusion (Kılıç, 2023; Dawood et al., 2022). This means that supervision must assess the socio-economic impact of digital products and ensure financial sustainability and ethics within a sharia framework.

Furthermore, collaboration between institutions is crucial for building a harmonious and integrated supervisory ecosystem. Coordination between the National Sharia Supervisory Agency (DSN-MUI), the Financial Services Authority (OJK), and Bank Indonesia (BI) is still suboptimal due to its sectoral nature and the lack of an integrated data system. Research shows that strengthening the synergistic system between fatwas and technical regulations is essential for the DPS to have legal and administrative power in carrying out its supervisory function (Darsono, 2022; Mufrih & Hadiroh, 2022). This also includes harmonizing national regulations with global standards such as AAOIFI and IFSB, which can promote interoperability and international recognition of Indonesia's Islamic financial

system.

International experience demonstrates that cross-sector and cross-country collaboration yields positive results in strengthening sharia governance (Supriadi et al., 2023; Khan & Shah, 2015). For example, Malaysia adopted an integrated sharia governance system through a collaboration between Bank Negara Malaysia and the National Sharia Council. This demonstrates that a coordinated, digital-based supervisory structure can create efficiency, accountability, and competitiveness in the Islamic finance industry.

The importance of redefining the role of the Sharia Supervisory Board (SPS) from merely a normative supervisor to a driver of digital Sharia governance. The SPS must be empowered structurally, competently, and technologically. The digital supervisory system developed must embody the values of maqasid (obligatory duties), accountability, and efficiency. Without concrete steps to strengthen regulations, human resource capacity, and technology integration, Sharia supervision will remain administrative in nature and less responsive to the challenges of digital finance. With a comprehensive, principles-based and data-driven strategy, Sharia supervision can transform into a key force in shaping the future of ethical, transparent, and sustainable Islamic finance.

CONCLUSION

This study confirms that digital transformation in the Islamic finance industry poses significant challenges to the effectiveness of sharia supervision. The Sharia Supervisory Board (SSB) plays a key role in ensuring compliance with sharia principles amidst the development of financial technology. Key findings indicate that regulatory limitations, low digital literacy within the SSB, and suboptimal integration of technology into the supervisory system are key obstacles that must be addressed immediately. The study's primary contribution lies in comprehensively mapping structural, regulatory, and competency weaknesses in digital sharia supervision, as well as developing strategic recommendations based on the principles of maqasid sharia. This study broadens the scientific discourse on sharia governance in the digital era and offers a conceptual basis for developing a technology-based supervisory model. Further research is recommended to evaluate the effectiveness of implementing a digital sharia audit system and empirically explore models for harmonizing fatwas and technical regulations across institutions.

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