

Regtech and Sharia Governance : A Qualitative Exploration of Ethical Digital Auditing in Indonesia

Alip Tyas Wibowo¹, Heri Kurniawan²¹

^{1,2} Faculty of Islamic Economics and Business , UIN Salatiga , Indonesia

Abstract. This study explores how regulatory technology (regtech) is perceived and implemented within Indonesia's Islamic financial ecosystem, focusing on its role in enhancing sharia audit and compliance. Amid the digital transformation of finance, regtech offers the potential to improve efficiency, transparency, and accountability in line with *Maqashid al-Shariah* principles, yet its adoption raises ethical, institutional, and human capacity challenges. Using a qualitative descriptive-exploratory approach, data were collected through in-depth semi-structured interviews with key informants representing the Financial Services Authority (OJK), the National Sharia Council (DSN-MUI), and the Indonesian Fintech Association (AFTECH). Thematic analysis revealed four key insights: regtech as an enabler of sharia audit efficiency; institutional and human capacity barriers; the importance of ethical and *Maqashid*-oriented governance; and the need for collaborative policy synergy across stakeholders. Findings indicate that while regtech strengthens the accuracy and timeliness of compliance processes, its successful adoption requires alignment between technological capability, institutional readiness, and ethical oversight. The study contributes a *Maqashid-anchored sociotechnical framework* for understanding regtech adoption, integrating moral accountability into technological innovation. Practically, it provides actionable insights for regulators and Islamic financial institutions to design inclusive, ethical, and adaptive governance systems. This research is among the first to conceptualize regtech within a faith-based ethical framework, positioning Indonesia as a global reference for value-driven digital regulation in Islamic finance.

Keywords: Regtech, Sharia Compliance, Islamic Fintech, Maqashid al-Shariah, Indonesia

1. INTRODUCTION

The rapid digital transformation of the global financial sector has fundamentally reshaped regulatory governance, risk management, and compliance processes (Anagnostopoulos, 2018). In emerging economies, digitalization has accelerated financial inclusion while simultaneously introducing risks that require more adaptive and technology-driven regulatory responses (Demirgüç-Kunt et al., 2022). In Indonesia a nation with one of the world's largest Muslim populations the expansion of Islamic finance has intersected with this broader wave of digital transformation. According to the Financial Services Authority, the value of Indonesia's Islamic financial assets reached IDR 2,582.25 trillion in 2023, reflecting an annual growth of over 9% (OJK, 2023). This growth coincides with an increasing national commitment to innovation, as reflected in the Roadmap for the Development and Strengthening of Indonesian Islamic Banking 2023–2027, which emphasizes digitalization, governance reform, and the integration of advanced technologies into supervisory processes (Otoritas Jasa Keuangan, 2023)

Despite this momentum, Indonesia still faces persistent gaps in sharia financial inclusion. The 2024 National Survey of Financial Literacy and Inclusion reported a general inclusion rate of 75.02%, yet sharia financial inclusion remained just 12.88%, with sharia literacy at 39.11% (Otoritas Jasa Keuangan & Badan Pusat Statistik, 2024) This disparity suggests that although Islamic finance is expanding in institutional terms, its penetration among the public remains limited. Digital channels particularly Islamic fintech have been identified as critical pathways for closing this gap (Aulia et al., 2020; Widiyanto & Zuhri, 2023) However, the rapid scaling of Islamic fintech also creates new regulatory challenges, especially regarding the verification of sharia compliance in increasingly complex, data-intensive financial ecosystems.

Globally, Regulatory Technology (RegTech) has emerged as a key mechanism to strengthen regulatory oversight, enhance compliance efficiency, and reduce operational costs (Anagnostopoulos, 2018; Arner et al., 2017) RegTech tools ranging from artificial intelligence to blockchain-based audit trails enable continuous monitoring and automated compliance reporting. For Islamic finance, the stakes are higher, as institutions must comply not only with prudential regulations but also with sharia principles governing fairness, risk-sharing, transparency, and the avoidance of prohibited elements such as *riba*, *gharar*, and *maysir* (Hassan et

¹ Corresponding author: heri.kurniawan@uinsalatiga.ac.id
No Hp/WA: +6285643395298

al., 2020) In this context, technology-supported sharia governance has the potential to enhance both operational reliability and ethical accountability.

However, the integration of RegTech into Islamic finance remains theoretically and empirically underdeveloped. Existing research focuses primarily on the legal and institutional landscape (Fidhayanti et al., 2025; Saifullah et al., 2023), fintech innovation (Aulia et al., 2020) and consumer adoption (Widiyanto & Zuhri, 2023) Meanwhile, studies that examine the use of RegTech within Islamic banks or fintech firms tend to concentrate on anti-money laundering (AML) or general compliance systems and rarely explore sharia-specific regulatory challenges (Utami & Septivani, 2022) A bibliometric study by (Syamlan & Antonio, 2023) showed that Islamic RegTech research has increased since 2019 but remains conceptually fragmented, lacking grounded empirical evidence and stakeholder-centered insights.

This gap is particularly evident in Indonesia, where regulatory authority is divided among multiple institutions OJK, Bank Indonesia, DSN-MUI, and KNEKS each with distinct mandates. Previous studies have highlighted fragmented rulemaking, limited clarity in sharia governance standards, and inconsistent adoption of digital audit frameworks across institutions (Fidhayanti et al., 2025; Muryanto et al., 2021) Yet these structural issues cannot be fully understood without examining the perspectives of regulators, sharia scholars, and industry practitioners. As emphasized by socio-technical systems theory, successful technological adoption in regulatory environments depends as much on institutional culture, trust, and ethical norms as it does on infrastructure or digital capability (Baxter & Sommerville, 2011) This is especially relevant to Islamic finance, where compliance encompasses both technical and moral dimensions guided by *maqāṣid al-sharīʿah*.

The empirical findings that motivate this study reveal several systemic challenges: limited human resources with dual expertise in sharia and digital technology, regulatory ambiguity, fragmented supervisory systems, and varying degrees of technological readiness among fintech firms and oversight institutions. At the same time, there is widespread recognition that RegTech could enhance audit transparency, reduce human error, and enable continuous monitoring aligned with sharia principles. These findings underscore the need to conceptualize Islamic RegTech not merely as a technical solution but as a governance innovation embedded within Indonesia's evolving financial regulatory ecosystem.

This study is significant for both theory and practice. Conceptually, it contributes to the developing field of Islamic RegTech by grounding the discussion in Indonesia's institutional and socio-religious context. It connects insights from Islamic finance, regulatory theory, and socio-technical systems to build an empirically informed framework for understanding how RegTech can reinforce sharia governance. Practically, the study provides actionable implications for regulators, sharia supervisory boards, fintech developers, and policymakers. As Indonesia moves forward with the implementation of the Financial Sector Development and Strengthening Act (PPSK Law No. 4/2023), strengthening digital regulatory capacity becomes increasingly urgent to support innovation, consumer trust, and financial inclusion.

Therefore, the purpose of this study is to examine how RegTech can support sharia-compliant regulatory governance in Indonesia by exploring the perceptions, expectations, and experiences of key stakeholders across the regulatory and Islamic fintech ecosystem. Therefore, the purpose of this study is to examine how RegTech can support sharia-compliant regulatory governance in Indonesia by exploring the perceptions, expectations, and experiences of key stakeholders across the regulatory and Islamic fintech ecosystem.

2. LITERATURE REVIEW

This literature review is structured to underpin the conceptual foundations, theoretical framing, and empirical evidence that shape this study's focus on the application of regulatory-technology (regtech) in Islamic (sharia-compliant) audit and compliance within Indonesia's Islamic financial ecosystem. It proceeds through four interlinked subsections: (a) conceptual background, (b) theoretical framework, (c) empirical studies, and (d) a delineation of the emergent conceptual logic for this research.

2.1 CONCEPTUAL BACKGROUND

2.1.1 Islamic Finance and Sharia Governance

Islamic finance operates on principles derived from the Qur'an and Sunnah, particularly emphasizing the prohibition of *riba* (interest), *gharar* (excessive uncertainty), and *maysir* (speculation), as well as the promotion of risk-sharing, justice, and ethical conduct (Hassan et al., 2020) Sharia governance refers to institutional mechanisms that ensure compliance with these principles through oversight by Sharia Supervisory Boards (SSBs), internal audits, and regulatory structures (Grassa & Gazdar, 2014) Robust sharia governance is foundational for maintaining trust

and legitimacy in Islamic financial institutions, especially as products and services increasingly integrate digital technologies (Razak & Tahir, 2021)

2.1.2 Regulatory Technology (RegTech)

RegTech refers to the application of digital tools such as artificial intelligence (AI), machine learning (ML), big data analytics, and blockchain to improve regulatory compliance and supervisory efficiency (Arner et al., 2017). These technologies automate reporting, enhance risk detection, and enable continuous oversight rather than periodic manual audits (Anagnostopoulos, 2018). RegTech has grown rapidly in both developed and emerging financial markets due to escalating regulatory complexity, data volume, and cyber-risks (World Bank, 2023). Within Islamic finance, RegTech (often termed Islamic RegTech) has the additional purpose of ensuring sharia-compliant transactions in real time, strengthening auditability, and embedding ethical norms into algorithmic systems (Hudaefi & Sulistiawati, 2023). Such capabilities are especially relevant in fintech ecosystems where transaction speeds, product diversity, and cross-border activities challenge conventional supervisory methods.

2.1.3 Islamic Fintech and Digital Transformation

Islamic fintech defined as sharia-compliant financial services delivered via digital platforms has expanded across sectors including peer-to-peer lending, digital payments, crowdfunding, and investment advisory (Mohamed & Ali, 2022). Indonesia has emerged as one of the fastest-growing Islamic fintech hubs due to its demographic profile, rising smartphone penetration, and government support (Otoritas Jasa Keuangan, 2023). However, fintech innovation also increases operational, compliance, and ethical risks, prompting calls for more integrated supervision systems and digitally enabled regulatory frameworks (Widiyanto & Zuhri, 2023). Financial Inclusion and Ethical Technology.

Financial inclusion refers to equitable access to affordable financial services for individuals and businesses (Demirgüç-Kunt et al., 2022). In developing economies, fintech has become a lever for widening inclusion, though regulatory gaps and consumer protection issues persist. Islamic finance contributes uniquely to inclusion through ethical commitments, risk-sharing products, and alignment with cultural-religious values (Abdullah et al., 2020). RegTech could strengthen inclusion if it enhances transparency, reduces compliance costs, and improves public trust in digital sharia finance.

2.2 Theoretical Framework

2.2.1 Maqāṣid al-Sharī'ah (Objectives of Islamic Law)

Maqāṣid al-Sharī'ah emphasizes the protection of faith, life, intellect, lineage, and wealth through justice, transparency, and societal welfare (Dusuki & Abozaid, 2007). This framework is central to assessing the ethical legitimacy of Islamic financial innovations. In the context of RegTech, maqāṣid principles support the use of technology when it advances public interest (maslahah), strengthens governance, and mitigates harm (mafsadah) through accurate, reliable compliance systems.

2.2.2 Socio-Technical Systems Theory

Socio-technical systems theory proposes that technological tools and organizational structures must be co-designed to achieve effective outcomes (Baxter & Sommerville, 2011). In regulatory environments, successful adoption of technologies like AI-based auditing depends not only on infrastructure but also on institutional culture, trust, and human expertise. This theory is particularly relevant for Islamic finance, where compliance involves both technical validation and normative judgments rooted in fiqh.

2.2.3 Financial Inclusion Theory

Financial inclusion theory underscores the interaction between access, usage, and quality of financial services (Demirgüç-Kunt et al., 2022). Digital innovation accelerates inclusion by reducing entry costs and increasing service availability, but it also introduces regulatory complexities. In Islamic contexts, inclusion is influenced by sharia trust, literacy, and perceptions of ethical governance (Abdullah et al., 2020). RegTech may mediate these factors by enhancing compliance credibility and ensuring product integrity.

2.2.4 Technology Adoption and Regulatory Governance

Models such as the Technology Acceptance Model (TAM) and institutional theory help explain variations in technology uptake among financial institutions. Perceived usefulness, trust in regulatory clarity, and organizational readiness are key factors influencing adoption (Lodge & Wegrich, 2021; Venkatesh & Davis, 2000). These factors are central to understanding how regulators, sharia boards, and fintech firms view Islamic RegTech.

2.3 Empirical Studies

2.3.1 Global Evidence on RegTech Adoption

Studies across Europe, Asia, and the Middle East highlight the transformative role of RegTech in enhancing regulatory oversight. (Arner et al., 2017) identified RegTech as critical for real-time monitoring, cost reduction, and risk management. (Anagnostopoulos, 2018) found that RegTech helps regulators manage data-intensive processes and improve systemic resilience. However, concerns remain regarding algorithmic opacity, cyber-risk, and the need for skilled human resources.

In the GCC, (Alshammari, 2022) showed that AI-assisted sharia auditing improved accuracy but required strong governance mechanisms. Similarly, work by (Hassan et al., 2020) emphasized that Islamic finance's ethical commitments necessitate transparent algorithmic design to avoid biases and uphold maqāṣid.

2.3.2 Empirical Studies in Islamic Finance and Fintech

Research on Islamic fintech has predominantly focused on product innovation, consumer adoption, and regulatory readiness. (Aulia et al., 2020) analyzed Indonesia's regulatory framework and noted fragmentation and uneven supervision capacity. (Hudaefi & Sulistiawati, 2023) found that Indonesian Islamic fintech firms often rely on manual sharia auditing, creating compliance bottlenecks.

In Malaysia, (Razak & Tahir, 2021) observed that sharia governance quality strongly influences fintech credibility and consumer trust. Indonesian studies similarly reveal that sharia supervisory boards (SSBs) face capacity constraints and require digital tools to improve oversight (Muryanto et al., 2021). Yet, most of these studies remain descriptive and do not deeply explore how RegTech can be operationalized within sharia governance systems.

2.3.3 Empirical Evidence on Indonesia's Regulatory Context

Studies show that Indonesia's financial authorities OJK, DSN-MUI, and KNEKS play complementary yet partially overlapping roles (Fidhayanti et al., 2025). Research by (Saifullah et al., 2023) highlights regulatory uncertainty around digital financial services and the need for clearer frameworks to mitigate illegal fintech practices. Meanwhile, the 2024 SNLIK survey demonstrates low sharia financial literacy and inclusion (Otoritas Jasa Keuangan & Badan Pusat Statistik, 2024) suggesting a significant gap that technology-driven oversight could help address.

Empirical research specifically examining Islamic RegTech in Indonesia is limited. (Utami & Septivani, 2022) explored RegTech in AML systems but did not address sharia-specific compliance. A bibliometric study by (Syamlan & Antonio, 2023) confirmed that Islamic RegTech literature is still in its infancy, lacking qualitative insights from key stakeholders.

2.4 Identified Research Gap

Across global and local studies, three major gaps emerge:

- a) Limited empirical research exploring RegTech adoption within Islamic sharia governance frameworks.
 - b) Insufficient understanding of how socio-institutional factors including SSB capacity, regulatory fragmentation, and organizational culture shape RegTech feasibility.
 - c) Lack of stakeholder-centered qualitative evidence involving regulators, sharia scholars, and fintech practitioners, despite their central role in shaping technology adoption.
- This study aims to fill these gaps by providing rich, contextualized insights on Islamic RegTech adoption in Indonesia based on primary qualitative data.

2.5 Conceptual Framework

The reviewed literature suggests that Islamic RegTech adoption is shaped by the interplay of three core domains:

- a. Technological Capability
AI/ML accuracy, data quality, infrastructure reliability, cybersecurity.
- b. Institutional and Regulatory Structures
clarity of regulations, inter-agency coordination, SSB governance mechanisms, compliance culture.
- c. Sharia Normative Frameworks
alignment with maqāṣid, ethical safeguards, transparency of algorithms, interpretive flexibility of SSBs.
- d. This triadic perspective underscores that RegTech in Islamic finance is not merely a technological intervention but a socio-technical and ethical reform embedded within Indonesia's distinctive regulatory ecosystem

2.6 Proposed Research Questions (RQ)

- a. (You may include this as a subsection titled "Research Questions" in the Literature Review.)
- b. The study is guided by the following research questions:
- c. RQ1: How do Islamic fintech institutions in Indonesia perceive the role of Regulatory Technology (RegTech) in strengthening Sharia governance and compliance processes?
- d. RQ2: What operational, regulatory, and technological challenges do Islamic fintech firms encounter when adopting RegTech-based compliance mechanisms?
- e. RQ3: In what ways does the integration of RegTech influence the effectiveness, transparency, and accountability of Sharia governance structures in Indonesian Islamic fintech?
- f. RQ4: How do regulators, Sharia supervisory bodies, and fintech practitioners conceptualize the future direction of RegTech adoption to enhance Sharia-compliant digital financial services in Indonesia?

3. METHODOLOGY

3.1 Research Design

This study employed a qualitative research approach to explore how key institutional actors perceive and experience the integration of Regulatory Technology (RegTech) within Indonesia's Islamic finance regulatory ecosystem. A qualitative design was selected because it enables an in-depth examination of stakeholder perspectives, contextual nuances, and institutional dynamics that cannot be adequately captured through quantitative methods (Creswell & Poth, 2018). Given the emerging nature of Islamic RegTech and the lack of prior grounded empirical evidence, a *descriptive-exploratory* design was adopted. This design is appropriate for studies seeking to describe complex, underexplored social phenomena while allowing patterns and meanings to emerge inductively from the data (Percy et al., 2015). In-depth, semi-structured interviews constituted the primary method of data collection. This approach facilitated open, flexible conversations that allowed participants to articulate their experiences, interpret emerging changes in the regulatory environment, and reflect on organizational and technological constraints. Semi-structured interviews are particularly suitable for studies examining institutional logics, governance practices, and socio-technical change, as they balance structure with openness (Kallio et al., 2016).

3.2 Research Setting and Context

The study was conducted within Indonesia's Islamic finance regulatory and industry ecosystem, which encompasses multiple institutions with intersecting mandates. These include the Financial Services Authority (Otoritas Jasa Keuangan, OJK), the National Sharia Council of the Indonesian Ulema Council (DSN-MUI), the National Committee for Islamic Economy and Finance (KNEKS), and industry associations such as the Indonesian Fintech Association (AFTECH). The empirical inquiry focused on regulatory and governance practices related to Islamic fintech, which has expanded rapidly due to national digitalization efforts and rising demand for sharia-compliant financial services.

Indonesia's socio-economic and regulatory context played an important role in shaping the study. The country is characterized by significant digital adoption, yet it faces persistent challenges in sharia financial inclusion, fragmented regulatory mandates, and uneven institutional capacity. These factors create a dynamic environment in which regulators, sharia scholars, and industry actors continuously negotiate the boundaries of innovation, compliance, and ethical governance. The study setting—spanning Jakarta-based regulators and national-level industry representatives offered rich insights into how these actors understand and approach the development of Islamic RegTech.

Participants / Informants

Participants were selected using purposive sampling, which is appropriate for qualitative research that requires the inclusion of individuals with specialized knowledge and direct involvement in the phenomenon under study (Palinkas et al., 2015). Three key informants participated in the study:

- a. R1: A senior representative of OJK with direct involvement in Islamic finance supervision and regulatory innovation.
- b. R2: A national-level sharia governance authority affiliated with DSN-MUI and KNEKS.
- c. R3: An industry practitioner from AFTECH with expertise in Islamic fintech development and regulatory coordination.

These three participants were intentionally selected because they represented the primary institutional domains shaping Islamic RegTech adoption regulation, sharia governance, and industry innovation. Although the number of informants is limited, such focused sampling is appropriate for exploratory research requiring deep, expert-level insights. In qualitative inquiry, saturation depends on information richness rather than sample size; expert interviews often reach thematic saturation with a small number of participants when the domain is highly specialized and the participants hold authoritative knowledge (Guest et al., 2020)

3.3 Data Collection Procedure

Data collection took place over a series of scheduled interview sessions. Participants were contacted through institutional networks and invited to participate voluntarily. Prior to participation, each informant received an explanation of the study objectives, confidentiality procedures, and their rights as participants. All participants provided verbal informed consent.

Semi-structured interview protocols were used to guide the conversations. The interview guide consisted of open-ended questions organized around key domains such as regulatory readiness, sharia governance practices, technological challenges, and perceived opportunities for RegTech adoption. This format enabled the researcher to probe deeply into emerging themes while allowing participants to elaborate freely on issues they considered important.

Interviews were conducted online through secure video conferencing platforms, each lasting approximately 60–90 minutes. All interviews were recorded with participant permission and subsequently transcribed verbatim. Field notes were taken to capture contextual observations, reflective insights, and non-verbal cues observed during the interviews. No personally identifiable information was recorded in the transcripts.

To complement the primary data, relevant institutional documents such as OJK regulations, DSN-MUI fatwas, and national Islamic finance development roadmaps were reviewed to better understand the policy environment. Ethical clearance for the study was obtained from an academic ethics committee prior to data collection.

3.4 Data Analysis

The data were analyzed using thematic analysis, following the six-step framework of (Braun & Clarke, 2019) This method is well suited for identifying patterned meanings within qualitative datasets and for examining how participants interpret institutional and technological changes. The analysis proceeded through the following steps:

- a. Familiarization:
The researcher read and re-read the transcripts, listening to audio recordings and reviewing field notes to immerse deeply in the data.
 - b. Initial Coding:
Transcripts were coded line-by-line to identify meaningful units related to regulatory coordination, sharia governance processes, technological constraints, institutional readiness, and perceptions of RegTech. Coding was conducted manually using a structured spreadsheet to organize emerging categories.
 - c. Theme Development:
Codes were clustered into preliminary themes and sub-themes. Early categories were refined through constant comparison, linking participant insights with the broader conceptual framing of socio-technical systems and maqāṣid-based governance.
 - d. Theme Review:
Themes were assessed for internal coherence and distinctiveness. Redundant or overlapping categories were merged, while insufficiently supported themes were discarded.
 - e. Defining and Naming Themes:
Final themes were conceptualized and defined to reflect the deeper meaning patterns present across the dataset. These included themes related to institutional fragmentation, technological capability gaps, ethical considerations, and expectations of RegTech.
 - f. Interpretation and Synthesis:
Themes were interpreted in relation to the theoretical frameworks and empirical context, generating an integrated narrative that links micro-level perceptions with macro-level institutional dynamics.
- To ensure the trustworthiness of the analysis, the study employed several validation strategies. Credibility was strengthened through triangulation of interview data with institutional documents and continuous engagement with the transcripts. Dependability was ensured by maintaining detailed documentation of coding procedures and analytic decisions. Confirmability was supported by reflexive memo-writing to monitor researcher bias and maintain analytic transparency. Transferability was addressed by providing thick descriptions of the context and participants, enabling readers to assess the applicability of findings to similar settings (Lincoln & Guba, 1985) Research Ethics
- The study followed internationally recognized ethical standards for qualitative research. Informed consent was obtained from all participants, and their involvement was entirely voluntary. Participants were informed of their right to withdraw at any time without consequence. To ensure privacy and confidentiality, pseudonyms (R1, R2, R3) were used, and all identifying details were removed from transcripts and research notes. Interview recordings and transcripts were stored securely using password-protected digital folders accessible only to the researcher. Ethical approval was granted by an institutional research ethics committee prior to data collection.

4. FINDINGS AND DISCUSSION

4.1 Overview of the Findings

Thematic analysis of the qualitative interviews revealed four interrelated themes that explain how key institutional actors understand the opportunities and constraints of integrating Regulatory Technology (RegTech) into Indonesia's Islamic finance ecosystem. These themes represent convergent and divergent viewpoints among regulatory authorities, sharia governance bodies, and industry practitioners. Collectively, they demonstrate that Islamic RegTech is not merely a technological innovation but a socio-technical reform shaped by regulatory structures, institutional capacities, and ethical frameworks. The themes include:

- a. Fragmented regulatory architectures and the need for systemic integration;
- b. Capacity constraints in sharia governance and digital readiness;
- c. Emerging expectations for RegTech as an enabler of transparency, efficiency, and sharia assurance; and
- d. Ethical legitimacy and the imperative of aligning technological design with maqāṣid al-sharī'ah principles.

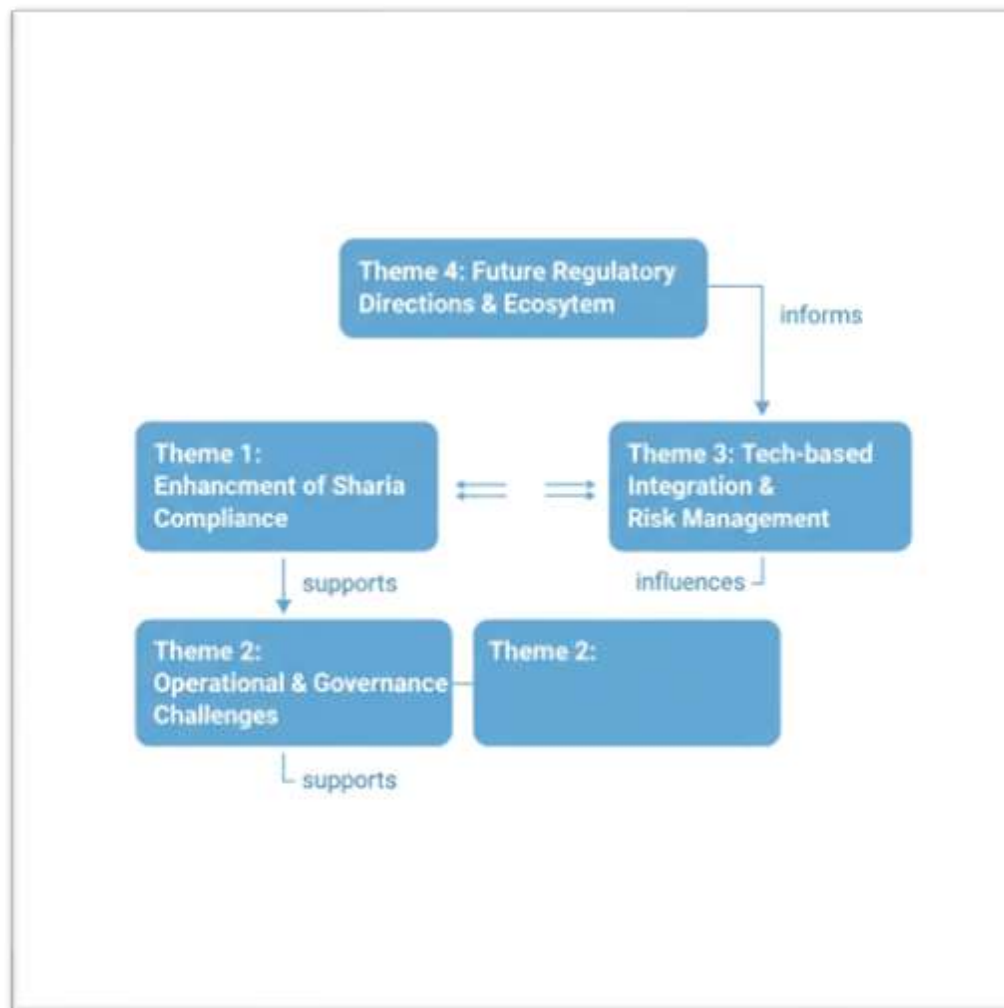


Figure 1. Thematic Map of Key Findings

These themes illustrate both the potential for RegTech to enhance governance and the structural limitations that impede its effective adoption in Indonesia's Islamic fintech landscape.

Theme 1: Fragmented Regulatory Architectures and Systemic Coordination Challenges

Participants consistently emphasized that Indonesia's regulatory landscape for Islamic finance is characterized by institutional fragmentation. Responsibilities are divided among OJK, Bank Indonesia, DSN-MUI, and KNEKS, each with distinct mandates but overlapping areas of oversight. This fragmentation creates gaps in rulemaking, inconsistencies in supervisory processes, and complications in technology standardization. Participants noted that coordination among these institutions is often reactive rather than proactive, particularly in response to rapidly evolving fintech models and digital service delivery. This finding mirrors previous studies identifying regulatory pluralism as a core challenge in Indonesia's Islamic financial system. (Fidhayanti et al., 2025) highlight how fragmented mandates complicate the implementation of cohesive policy frameworks, while (Muryanto et al., 2021) observe that regulatory overlaps slow the adoption of innovative fintech products. In broader comparative contexts, (Arner et al., 2017) argue that effective RegTech implementation requires regulatory harmonization and streamlined data governance structures.

From a socio-technical systems perspective, fragmentation reflects a misalignment between technological possibilities and institutional arrangements. According to (Baxter & Sommerville, 2011) systems function optimally when social and technical elements are co-designed; however, in Indonesia, the regulatory "system" and emerging technological tools evolve in parallel without sufficient integration. This results in informational bottlenecks, duplicated oversight tasks, and ambiguity concerning sharia governance authority in digital contexts.

Participants expressed that without a unified supervisory framework or at least a coordinated protocol RegTech adoption will remain piecemeal, with each institution experimenting independently. Such fragmentation reduces regulatory predictability, a factor (Venkatesh & Davis, 2000) identify as central to technology acceptance at the institutional level. Consequently, the findings suggest that RegTech adoption requires not only technical solutions but also governance reforms that enable interoperability, shared data systems, and harmonized compliance standards.

Theme 2: Human Resource and Technological Capacity Constraints in Sharia Governance

A core theme that emerged from all participants was the limited human resource capacity in sharia governance, particularly the shortage of experts who possess both religious authority and digital literacy. Sharia Supervisory Boards (SSBs), especially within fintech organizations, often rely on manual auditing processes, paper-based documentation, and periodic compliance reviews. Participants noted that these methods are increasingly inadequate for supervising digital platforms that process high volumes of transactions in real time.

The literature substantiates this challenge. (Razak & Tahir, 2021) argue that sharia governance quality in fintech firms is highly dependent on the competency of SSB members, while (Hudaefi & Sulistiawati, 2023) found that digital sharia governance in Indonesia faces significant capability gaps among auditors and compliance officers. Similar observations are present in research from other Muslim-majority markets; (Alshammari, 2022) emphasizes that AI-assisted sharia auditing requires new professional competencies to avoid errors and maintain ethical standards.

The findings indicate that these capacity constraints limit the feasibility of automated sharia compliance tools and create a reliance on human judgment that may introduce subjectivity and inconsistencies. In line with (Abu-Zahra & Zulkehlbi, 2022) observations, manual auditing methods struggle to keep pace with fintech innovation and may inadvertently contribute to compliance vulnerabilities or delays in product approval.

This theme connects directly with the theoretical framework of socio-technical systems, which posits that technology adoption depends on the alignment of human skills with technological complexity (Baxter & Sommerville, 2011). Inadequate technological capacity and limited exposure to RegTech innovations reduces institutional readiness, a factor consistently identified in technology adoption studies (Kallio et al., 2016; Lodge & Wegrich, 2021) Participants highlighted the need for upskilling programs, standardized digital auditing tools, and cross-institutional training to improve sharia governance capacity.

Theme 3: Expectations for RegTech as a Driver of Transparency, Efficiency, and Sharia Assurance

Despite structural constraints, participants expressed strong optimism toward the potential of RegTech to enhance governance quality. They viewed RegTech as a tool that could reduce human error, automate compliance checks, support real-time transaction monitoring, and improve audit trail transparency. Several participants described RegTech as an opportunity to shift from periodic, manual compliance assessments to continuous, algorithm-driven supervision.

This aligns with global RegTech literature emphasizing automation of compliance, improved risk detection, and enhanced supervisory efficiency (Anagnostopoulos, 2018; World Bank, 2023) Within Islamic finance, scholars such as (Hassan et al., 2020) argue that digital tools can deepen ethical accountability by ensuring greater transparency and minimizing information asymmetry. Similarly, (Syamlan & Antonio, 2023) suggest that Islamic RegTech could bridge gaps between regulators and fintech industry players by facilitating standardization and data accuracy.

Participants highlighted specific benefits, including more reliable sharia auditing, cost-efficient regulatory reporting, and improved traceability of financial flows. These expectations align with maqāṣid al-sharī'ah principles, particularly the preservation of wealth (hifz al-māl) and the promotion of justice ('adl). By reducing potential fraud, enhancing clarity, and maintaining transaction integrity, RegTech supports the ethical foundations of Islamic finance (Dusuki & Abozaid, 2007)

However, participants also expressed concern that excessive reliance on automated systems without sufficient human oversight could lead to new forms of risk such as algorithmic bias or the misinterpretation of fiqh rules in digital contexts. This echoes the cautionary stance in global literature, which warns that RegTech must be accompanied by robust governance frameworks to prevent technological opacity and maintain trust (Lodge & Wegrich, 2021)

These findings suggest that while participants anticipate significant benefits from RegTech, they also recognize the need for hybrid models that combine automated tools with expert sharia judgment to ensure ethical fidelity and interpretive flexibility.

Theme 4: Ethical Legitimacy and the Maqāṣid Orientation of Islamic RegTech

The final theme emphasizes that technological innovations in Islamic finance must maintain ethical legitimacy rooted in Islamic legal principles. Participants stressed that algorithmic systems must be transparent, auditable, and adaptable to nuanced interpretations of sharia rules. They also emphasized that RegTech should enhance not replace the moral reasoning embedded in sharia governance.

This aligns with a growing body of scholarship on ethical AI and Islamic finance. (Hassan et al., 2020) argue that Islamic financial innovations must be evaluated through maqāṣid criteria to ensure that technological tools advance societal welfare rather than merely operational efficiency. (Abdullah et al., 2020) note that ethical assurances are central to consumer trust in Islamic digital finance.

Participants viewed RegTech as a mechanism that could embody ethical governance principles if designed appropriately. For instance, automated sharia screening tools could enforce consistency across institutions, while blockchain-based audit systems could improve transparency and reduce the risk of data manipulation. These possibilities support the position of (Mohamed & Ali, 2022) who argue that Islamic fintech requires an ethical foundation that is consistent with maqāṣid to maintain legitimacy in Muslim-majority markets.

This theme highlights a key theoretical insight: technological adoption in Islamic finance must be evaluated through a dual lens technical functionality and ethical coherence. This dual orientation distinguishes Islamic RegTech from conventional RegTech and suggests that ethical design principles should be embedded from the outset, not added as regulatory afterthoughts.

4.2 Cross-Theme Synthesis

Taken together, the four themes illuminate a complex but promising landscape for Islamic RegTech development in Indonesia. Fragmented regulatory structures constrain coordination, while limited human and technological capacities slow digital transformation. Nonetheless, there is strong institutional enthusiasm for RegTech's potential to strengthen sharia compliance, increase transparency, and enhance governance. The findings collectively underscore a critical insight: RegTech adoption is not a purely technical shift but a socio-institutional and ethical process requiring regulatory harmonization, capacity building, and ethical design frameworks aligned with maqāṣid al-sharī'ah.

These insights align with global observations that RegTech success hinges on institutional readiness and governance clarity (Arner et al., 2017; World Bank, 2023). However, this study extends existing literature by offering stakeholder-centered perspectives specifically within Indonesia's Islamic finance ecosystem an empirical contribution largely absent from prior research (Syamlan & Antonio, 2023).



Figure 2. Conceptual Model Derived from Thematic Analysis.

4.3 Theoretical and Practical Implications

4.3.1 Theoretical Contributions

This study contributes to several bodies of scholarship. First, it enriches the literature on Islamic RegTech by providing empirically grounded insights from key regulatory and industry stakeholders, addressing previously noted knowledge gaps. Second, it advances socio-technical systems theory by illustrating how fragmented institutional architectures shape technological feasibility and adoption. Third, the findings integrate maqāṣid al-sharī'ah with digital governance theory, proposing an ethical-technical framework for evaluating RegTech in Islamic finance.

4.3.2 Practical Implications

The findings also offer actionable guidance for policymakers, regulators, and industry practitioners:

- a. Regulatory harmonization is essential.
OJK, DSN-MUI, Bank Indonesia, and KNEKS need coordinated protocols and interoperable data systems.
- b. Capacity building is urgent.
Regulators and SSBs require training in digital auditing, AI ethics, and data governance to support RegTech readiness.
- c. Hybrid governance models are recommended.
RegTech systems should complement rather than replace human sharia oversight.
- d. Ethical design must be embedded.
Algorithmic transparency, auditability, and maqāṣid alignment should guide system development.

- e. Industry collaboration is needed.

Stronger partnerships between fintech firms, regulators, and Islamic scholars can accelerate innovation while safeguarding ethical compliance.

These implications highlight that Islamic RegTech has significant potential to enhance governance, but its success depends on thoughtful integration of institutional, human, technological, and ethical factors.

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