

# Digital Governance Model for Zakat Based on MUI Fatwas in Indonesia

Erni Juliana Al Hasanah Nasution<sup>1\*</sup> 

<sup>1</sup>Faculty of Economics, Institut Teknologi dan Bisnis Ahmad Dahlan, Indonesia

<sup>1</sup>ernijuliana@itb-ad.ac.id

\*Corresponding Author

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## ABSTRACT

**The rapid advancement** of zakat digitalization in Indonesia has not received adequate support from comprehensive normative guidance. Against this backdrop, this research maps the disparities between the Council of Indonesia Ulama (MUI) fatwas and digitalization of zakat administration, while designing a governance model to bridge existing gaps. The study positions MUI as the central focus due to its status as the apex fatwa authority that confers Sharia legitimacy upon Islamic financial practices, including zakat operations. **Methodologically**, this research employs a qualitative multi-method design comprising systematic content analysis of 30 MUI zakat fatwas issued between 1982-2024, cross-jurisdictional comparative review of digital zakat governance frameworks, and thematic synthesis of primary materials (fatwas) and secondary sources (peer-reviewed articles and relevant regulations). The core **findings** demonstrate that only 6.7 percent of these fatwas directly and substantively address digitalization, indicating a material regulatory lacuna. The consequences encompass ambiguity regarding Sharia compliance, disincentives toward innovation, and fragmented standards in digital technology deployment and data governance within zakat institutions. In response, **this paper proposes** a Fatwa-Based Digital Zakat Governance Framework organized around three fundamental pillars: (1) Sharia-aligned digital innovation, (2) technology-enabled operational efficiency, and (3) digital accountability mechanisms. The framework incorporates a phased implementation roadmap and provides actionable guidance for practitioners and regulators. Overall, this model supports the sustainable digital transformation of Indonesia's zakat institutions while preserving Sharia compliance requirements.

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## 1. INTRODUCTION

Indonesia, which hosts the world's largest Muslim population, exhibits a pronounced disconnect between fatwa-grounded normative guidance and the deployment of digital technologies in zakat administration. Although digital transformation has become a strategic imperative for Islamic financial and zakat institutions, the requirement to secure robust Sharia legitimacy through fatwas poses distinctive challenges amid ongoing technological disruption [1].

In terminological context, fatwa represents an Islamic legal opinion issued by a jurisprudence expert (mufti) as a response to inquiries raised by fatwa seekers (mustafti) that carries no legally binding force [2].

Within the Indonesian framework, the Indonesian Council of Ulama (MUI) serves as the primary authority that issues fatwas concerning various aspects of Muslim life. MUI's institutional position as the country's fatwa authority receives further entrenchment through Law No. 4 of 2023 on Financial Sector Development and Strengthening (P2SK Law), which codifies that Sharia-based economic activities in Indonesia must rest upon Sharia principles for which MUI fatwas serve as the formal reference point [3].

From an economic perspective, Indonesia's zakat potential reaches an estimated IDR 327.6 trillion, yet realized national collections in 2019 amounted to only IDR 10.2 trillion [4]. Complementing this data, [5] estimate that digital channels alone could yield IDR 63.93 trillion annually (2019 baseline), signaling substantial untapped digitalization scope [6]. This shortfall can be attributed, partially, to the limited breadth of fatwa guidance specific to digital zakat modalities, which generates ambiguity regarding Sharia compliance and constrains innovation scalability [7].

Comparative evidence indicates that several jurisdictions operate more integrated digital zakat regimes [8]. Malaysia, for instance, has articulated clear national standards alongside regulatory support [9, 10]. Moreover, [11] find that mandatory zakat frameworks tend to produce higher collection outcomes than voluntary systems such as Indonesia's approach. At the micro level, prior studies examine the determinants of digital zakat payments [12], younger cohorts preferences in using digital channels [13], and intention models for adopting digital zakat platforms [14]. [15] also explore digital transformation strategies for non-governmental organizations [16]. Nevertheless, the literature still lacks a comprehensive governance architecture that explicitly links fatwa doctrine to technology implementation within the Indonesian context.

In response to this lacuna, the present study develops a fatwa-based digital zakat governance framework that explicitly connects MUI fatwas with the operational deployment of digital technologies in Indonesia's zakat management [17]. The framework aims both to secure Sharia legitimacy for digital innovation and to enable sustainable transformation of managerial practices within zakat institutions [18].

Furthermore, the development of a fatwa-based digital zakat governance model aligns with the Sustainable Development Goals (SDGs) [19, 20]. Specifically, digital zakat contributes to SDG 1 (No Poverty) by ensuring that zakat distribution becomes more targeted and effective in reaching mustahik through digital mechanisms [21, 22]. It also supports SDG 16 (Peace, Justice, and Strong Institutions) by strengthening transparency, accountability, and trust in zakat governance through blockchain-based recording and Sharia-compliant validation systems [23, 24]. Thus, bridging the regulatory gap in digital zakat governance not only addresses Sharia legitimacy but also reinforces global development objectives [25, 26].

SDG 1 reflects the role of digital zakat in poverty reduction by ensuring more targeted, transparent, and timely fund distribution to mustahik through digital mechanisms such as AI-based beneficiary identification [27, 28]. Meanwhile, SDG 16 addresses the strengthening of transparency, accountability, and governance in zakat management through blockchain integration and Sharia-compliant validation systems [29, 30]. Therefore, the proposed digital zakat governance model not only supports Sharia legitimacy but also contributes directly to global sustainable development goals [31].



Figure 1. Sustainable Development Goals (SDGs)

Figure 1 illustrates the 17 Sustainable Development Goals (SDGs) established by the United Nations, with this study specifically emphasizing SDGs 1 (No Poverty) and SDGs 16 (Peace, Justice, and Strong Institutions) [32]. SDGs 1 is reflected in the role of digital zakat in reducing poverty by ensuring more targeted,

transparent, and timely distribution of funds to mustahik through digital mechanisms such as AI-based beneficiary identification [33, 34]. Meanwhile, SDGs 16 is addressed by strengthening transparency, accountability, and governance in zakat management through blockchain integration and sharia-compliant validation systems [35, 36]. Thus, the proposed digital zakat governance model not only supports sharia legitimacy but also contributes directly to global sustainable development goals.

2. METHOD

This study adopts a qualitative design grounded in structured literature review. Two analytical strategies are employed content analysis and comparative analysis applied to MUI fatwas and regulatory materials on digital zakat from diverse jurisdictions. The objective involves tracing how MUI fatwas have evolved in accommodating zakat digitalization and surfacing gaps in the prevailing regulatory landscape.

The dataset comprises primary and secondary sources. The primary corpus consists of MUI zakat fatwas issued between 1982 and 2024 [37? ], which undergo examination to assess the extent to which regulatory guidance incorporates digital transformation [38]. Secondary materials include peer-reviewed journal articles, relevant statutory and regulatory instruments, and comparative studies of digital zakat regimes in other countries [39].

In data analysis, content analysis was applied by categorizing 30 MUI zakat fatwas (1982-2024) into three relevance levels: high, moderate, and low. The categorization was based on whether the fatwas explicitly mentioned digital mechanisms (high), indirectly supported digital practices (moderate), or contained no digital aspects (low) [40]. The 30 fatwas were systematically selected from the official MUI compilation by applying inclusion criteria: relevance to zakat, national-level issuance, and accessibility for verification. Comparative analysis was then conducted using Malaysia and Saudi Arabia as primary benchmarks due to their documented success in zakat digitalization.

3. RESULT AND DISCUSSION

3.1. Gap Analysis between MUI Fatwas and Digital Zakat Management Implementation

The analysis reveals a pronounced gap between MUI fatwas and digital implementation of zakat governance in Indonesia. Across the corpus of 30 MUI zakat fatwas issued from 1982-2024, only 2 (6.7%) display high, direct salience to digitalization, while 15 (50.0%) show moderate salience and 13 (43.3%) exhibit low salience Table 1.

Table 1. Categorization of MUI Fatwas on Zakat and Their Relevance to Digitalization

Relevance	Number of Fatwas	%	Examples of Fatwa
High	2	6.7	2021 Ulema Ijtima Decision on Zakat on Shares and 2024 Ulema Ijtima Decision on Zakat for Youtubers, Instagrammers & other creative economy actors
Moderate	15	50	Fatwa No. 3/2003 on Income Zakat; Fatwa No. 23/2020 on Utilization of ZIS Assets for COVID-19 Outbreak Prevention and its impacts
Low	13	43.3	1982 Fatwa on Intensification of Zakat Implementation and Distributing Zakat Funds for Productive Activities and General Welfare; Fatwa No. 1 Munas 2015 on Utilization of ZIS & Waqf Assets for Construction of Clean Water and Sanitation Facilities for Communities
Total	30	100	

Source: authors compilation from MUI zakat fatwas (Indonesian Council of Ulama, 2024)

Only a small proportion of MUI zakat fatwas (6.7%) are highly relevant to digitalization, for example those addressing zakat on shares or digital content creators. Half of the fatwas (50%) are in the moderate category, which shows partial adaptation to contemporary issues such as income zakat and the utilization of zakat assets during the COVID-19 pandemic, though without explicit digital orientation. Meanwhile, 43.3% are categorized as low relevance, as they still focus on general implementation and traditional practices of zakat without reference to technological aspects. This condition illustrates that although MUI has begun to respond

to emerging issues, the regulatory foundation for digital zakat is still limited, creating an urgent need for a comprehensive fatwa-based governance framework.

### 3.2. Historical Development of MUI Fatwas on Zakat

MUI fatwas on zakat have evolved since 1982, but their development in accommodating digital aspects remains limited. Historically, these fatwas can be grouped into three periods:

- Early Phase (1982-2000): Fatwas in this era concentrated on foundational issues strengthening compliance and optimizing collection and distribution and explored the use of zakat for productive purposes. The 1982 fatwa on Intensification of Zakat Implementation, for example, sought to raise payment adherence and improve mobilization, but did not address technological mechanisms.
- Transition Phase (2001-2018): During this period, MUI began to account for modern economic realities. Fatwa No. 3/2003 on income zakat extended obligations to salary and professional earnings; however, operationalization largely presumed conventional channels and offered no specific parameters for digital payment flows. Likewise, Fatwa No. 4/2003 on the use of zakat for *istismar* (investment) did not engage with digital investment vehicles.
- Early Digitalization Phase (2019-2023): More recent pronouncements reflect growing awareness of digital transformation illustrated by the 2021 Ulema Ijtima decision on zakat on shares and the 2024 Ulema Ijtima decision addressing digital-economy professions (such as content creators). Even so, these texts focus primarily on sources of digital-era income rather than prescribing comprehensive end-to-end digital management mechanisms.

### 3.3. In-Depth Analysis of MUI Fatwas with High Digital Relevance

First, 2021 Ulema Ijtima Decision on Zakat on Shares, this decision formulates obligations for shareholders holding Sharia-compliant equities, specifying criteria such as ordinary (non-preferred) shares, issuers not active in sectors contrary to Sharia, an interest-based debt ratio not exceeding 45% of total assets, and non-halal revenue not exceeding 10%. It also requires purification (cleansing) of non-Sharia elements associated with ownership. The zakat basis depends on intent, shares held for trading follow trading-goods rules with valuation at market price at haul, long-term investment holdings depend on the issuer's line of business industrial, services, and extractive firms align with *al-mustaghallat* (net-profit basis), agricultural companies follow agricultural zakat, and trading companies follow *urudh al-tijarah*. While the decision addresses modern financial instruments, it remains silent on digital modalities, there are no provisions for digital payment channels, blockchain-based verification of share ownership, or governance of platform-mediated/fractional shareholding now prevalent in fintech.

Second, 2024 Ulema Ijtima Decision on Zakat for YouTubers, Instagrammers, and Other Creative-Economy Actors, this decision explicitly covers digital professions, establishing that income generated by content creators is *zakatable* when Sharia conditions are met content must not contravene Sharia, income must reach the *nisab* (equivalent to 85 grams of gold), and haul must be satisfied. Payment may be made upon receipt once *nisab* is reached, or aggregated over a year if not. The applicable rates are 2.5% for the *qamariyah* year and 2.57% for the *syamsiyah* year. Nonetheless, the decision does not set out how digital payment mechanisms should operate, how income verification should be conducted within platform ecosystems, or how to treat digital assets (e.g., NFTs, cryptocurrencies) that digital professionals may hold, leaving key aspects of digital-era implementation unspecified.

### 3.4. Analysis of MUI Fatwas with Moderate Relevance to Digitalization

Among the 30 (thirty) MUI zakat fatwas reviewed, 15 (fifteen) (50%) display moderate salience to digitalization. These rulings do not expressly regulate digital mechanisms, yet their underlying principles are readily transferable to digital zakat administration.

Illustratively, Fatwa No. 3/2003 (Income Zakat) supplies the doctrinal basis for calculating professional-income zakat on platform-mediated earnings; Fatwa No. 23/2020 (Utilization of ZIS for COVID-19) indirectly legitimates remote or platform-based distribution modalities; Fatwa No. 4/2003 (Use of Zakat Funds for Investment) can be extended to digital investment vehicles; and Fatwa No. 67/2021 (Sharia Supervision) articulates oversight principles that are adaptable to digital systems. Additional decisions on distribution through managed assets, corporate zakat, *al-qardh*, and trading inventory (*urudh al-tijarah*) also lend themselves to digital operationalization, even though they stop short of prescribing specific modes of implementation.

Taken together, these fatwas provide a partial doctrinal foundation for digital adaptations is however, none offers a comprehensive regulatory treatment of blockchain, artificial intelligence, or broader fintech applications in zakat governance.

Table 2. Gap Analysis in Digital Zakat Management Aspects

Digital Management Aspect	Field Implementation	MUI Fatwa Status	Regulatory Gap	Managerial Implications
Digital Payment & Collection	Mobile payment (GoPay, OVO, DANA), QRIS, E-wallet, Payment gateway, Automatic deduction from accounts	Fatwa No. 3/2003 (Income Zakat) mentions zakat obligation from income but does not mention digital mechanisms	No specific fatwa on the validity of zakat payments through e-wallets; Uncertainty about amil status on digital platforms; No sharia validation standards for digital zakat receipts	Uncertainties in developing new payment channels and risks of implementing systems that may not comply with sharia principles; Fragmentation of standards between zakat institutions
AI-based Mustahik Targeting	Big data analytics for potential mustahik identification, Predictive modelling to determine distribution priorities, Automated mustahik verification using machine learning	No related fatwa	Regulatory void on AI use in mustahik identification; No guidelines on mustahik data privacy; Absence of ethical standards for AI use in zakat management	Risk of algorithm bias without Sharia guidelines; Data privacy challenges without Sharia standards; Potential errors in mustahik identification without clear validation mechanisms
Blockchain for Transparency	Blockchain ledger for recording zakat transactions, Smart contracts for distribution automation, Audit trail for fund flow verification	No related fatwa	No specific guidelines for blockchain-based data management; Unclear legal status of smart contracts from a Sharia contract perspective; Absence of validation standards for blockchain-based transactions	Limitations in fund management innovation; Data security risks without sharia standards; Potential conflicts with ownership principles in zakat fiqh
Digital Zakat Asset	Cryptocurrency zakat (Bitcoin, Ethereum), NFT zakat, Digital asset valuation for zakat calculation	2021 Ulema Ijtima Decision (Zakat on Shares) mentions financial assets but does not cover digital assets	No specific fatwa on cryptocurrency and NFT zakat status; Unclear digital asset valuation methods for zakat calculation; Absence of nishab and haul standards for digital assets	Barriers in accommodating new digital assets; Risk of errors in digital zakat calculation; Uncertainty in sharia legitimacy of digital asset zakat

Source: Author's data compilation and analysis

Only a small proportion of MUI zakat fatwas (6.7%) are highly relevant to digitalization, such as those addressing zakat on shares or digital content creators. Half of the fatwas (50%) fall into the moderate category, which shows partial adaptation to contemporary issues such as income zakat and the utilization of zakat assets during the COVID-19 pandemic, though without explicit digital orientation. Meanwhile, 43.3% are categorized as low relevance, as they still focus on general implementation and traditional practices of

zakat without reference to technological aspects. This distribution, as detailed in Table 2, further highlights the limited regulatory foundation for digital zakat, underscoring the urgent need for a comprehensive fatwa-based governance framework.

### 3.5. In-Depth Implications of the Fatwa-Digital Implementation Gap

The managerial ramifications of this regulatory void present considerable challenges for Indonesian zakat institutions across four critical dimensions:

- Technological adoption encounters legal ambiguity: Zakat Management Institutions, including BAZNAS and LAZ, confront substantial decision-making challenges when implementing innovative technological solutions due to the absence of definitive fatwas. Blockchain technology adoption, which could enhance transparency in zakat administration, experiences significant impediments stemming from inadequate Sharia guidance, consequently leading institutions to maintain risk-averse positions by perpetuating conventional, less efficient operational systems. BAZNAS exemplifies this phenomenon, as the organization has conceptualized comprehensive digitalization strategies from inception, yet implementation progress remains constrained by Sharia legitimacy uncertainties [4].
- Institutional standardization experiences systematic fragmentation: The deficiency of comprehensive fatwa frameworks compels individual zakat institutions to formulate independent digital standards and operational practices, thereby generating a fragmented institutional ecosystem [41]. This fragmentation manifests through diverse technological implementations: certain institutions utilize QRIS payment systems, others develop proprietary mobile applications, while some organizations maintain traditional manual processing methods. Such fragmentation creates substantial interoperability barriers and imposes adaptation burdens on muzakki who must navigate multiple disparate platforms [42].
- Digital platform utilization encounters muzakki reluctance: The absence of explicit Sharia legitimacy generates hesitation among muzakki regarding digital zakat payment platforms. [43] demonstrates that online trust functions as a moderating variable in the relationship between e-zakat adoption determinants. This hesitation directly constrains digital zakat collection optimization, despite potential annual collection capacity reaching IDR 63.93 trillion [5], which remains substantially unrealized [5].
- Zakat distribution innovation encounters regulatory impediments: Technological distribution methodologies face innovation constraints due to unclear Sharia legitimacy frameworks. Artificial intelligence implementation for enhanced mustahik identification accuracy encounters obstacles stemming from absent Sharia guidelines, while smart contract utilization for automated zakat distribution experiences uncertainty regarding Sharia contractual.

### 3.6. Digital Zakat Governance Framework to Bridge the Gap

To address the regulatory deficiencies in zakat administration, this study constructs a comprehensive digital zakat governance framework predicated upon fatwa principles, incorporating three fundamental pillars and establishing MUI fatwas as the foundational source of Sharia legitimacy:

- Sharia-Aligned Digital Innovation: This pillar calls for issuing fatwas that explicitly govern digital workflows in zakat operations while leveraging the methodological elasticity of *iftāʾs* shown by [44] for MUI North Sumatra, which employs *bayānī*, *talīlī*, and *istiṣlāḥī* reasoning. Sharia compliance further requires data-governance practices grounded in *maqāṣid* principles such as *amanah* (fiduciary trust) and *ḥif al-ird* (protection of honor) [45]. In operational terms, institutions should implement digital Sharia validation, i.e., algorithmic checks that test each transaction against Sharia parameters, alongside minimum cybersecurity standards to safeguard zakat assets and sensitive information.
- Technology-Enabled Operational Efficiency: This pillar promotes deploying technologies that enhance transparency, integrity, and throughput most notably blockchain solutions operated under explicit Sharia guardrails, which create more trustworthy and auditable environments [46].

The implementation of artificial intelligence and big data analytics integrated with Sharia-compliant parameters constitutes a critical component for mustahik identification and verification processes, as demonstrated by [43], whose research establishes that e-Zakat system deployment significantly enhances both effectiveness and operational efficiency in ensuring accurate zakat distribution to legitimate beneficiaries [47].



This pillar further entails linking digital payment platforms to real-time Sharia validation so that each transaction is screened against applicable parameters at the point of execution through platform integration and smart-contract enablement [48]. Evidence indicates that performance expectancy, effort expectancy, facilitating conditions, and zakat literacy shape users intentions to adopt online platforms [12]. In parallel, Sharia-based smart contracts should be deployed to operationalize core principles in distribution most notably tamlik (transfer of ownership) and fauriyah (immediacy) thereby embedding doctrinal requirements directly into executable code [49].

- **Digital Accountability and Transparency:** Implementing real-time reporting allows muzakki to monitor the trajectory of their contributions from receipt to disbursement, and greater transparency in such reporting is associated with improved accountability in zakat management [50]. Equally important is the development of Sharia-grounded digital audit mechanisms; the Sharia Supervisory Board plays a pivotal role in assuring financial reporting quality, reflecting muzakki's expectations for transparency and accountability in the use of funds [51]. The pillar is completed by integrated public dashboards that disclose standardized indicators on collection, allocation, and program outcomes.

Implementation of this framework requires a phased roadmap Table 3 to ensure sustainability and effectiveness in bridging the gap:

Table 3. Digital Zakat Governance Implementation Roadmap

Stage	Activity Focus	Fatwa Regulation	Technology	Change Management
Foundation (0-12 months)	Building basic infrastructure; Early regulatory development, Vision socialization	Development of fatwas on digital zakat payments; Sharia compliance guidelines for zakat fintech	Implementation of integrated data management systems; Development of basic payment platforms; Data security systems	Digital awareness training for amil; Formation of digital transformation teams; Analysis of resistance to change
Transformation (12-24 months)	Advanced technology integration, Audit system development, Operational standardization	Fatwas on blockchain-based transparency; Regulations related to smart contracts, Digital audit guidelines	Blockchain implementation for transaction recording; Development of transparency dashboards, Integration with national payment systems	Intensive training programs for amil; Organizational structure changes; Digital capacity building
Innovation (24-36 months)	Ecosystem optimization, Predictive model development, Platform expansion	Regulations related to AI for mustahik targeting; Fatwa on using zakat funds for digital innovation; Global standards for digital zakat governance	AI implementation for distribution optimization; Development of integrated digital ecosystems; International collaboration platform	Sustainable innovation culture, Digital performance evaluation systems, Collaboration with fintech ecosystem

Source: Author's data compilation and analysis

This graduated implementation methodology facilitates pragmatic and enduring execution by incorporating institutional capacity assessments and resource availability considerations within Indonesian zakat organizations.

Moreover, as outlined in Table 3, this roadmap ensures that each stage aligns technological adoption with regulatory development and organizational readiness. By progressively integrating digital payment systems, blockchain transparency tools, and AI-driven optimization, Indonesian zakat organizations can strengthen governance structures while minimizing operational risks. This stepwise strategy not only enhances accountability and efficiency but also fosters collaboration across stakeholders, paving the way for a resilient and future-oriented digital zakat ecosystem.

### 3.7. International Practice Comparison

Comparative analysis of international practices Table 4 demonstrates that Indonesia possesses significant learning opportunities from Malaysian experiences and other Muslim-majority nations in formulating comprehensive digital zakat governance frameworks.

Table 4. International Digital Zakat Governance Comparison

Aspect	Indonesia	Malaysia	Other Muslim Countries	Implications for Indonesia
Regulatory Approach	Voluntary approach, Reactive fatwas that are slow to respond to technological developments	National standardization with banking integration, Fatwas that are more adaptive to technology [9]	Mandatory approaches in Sudan, Brunei Darussalam, and Pakistan with stricter regulations [11]	Adoption of national standardization while maintaining flexibility, Development of more proactive and forward-looking fatwas
Dominant Technology	Platform fragmentation without common standards, Uneven technology adoption across institutions	Nationally integrated system with common standards and standardised e-wallets for zakat payments [52]	Use of blockchain technology in some countries and the ZAKATY model in Saudi Arabia [43]	Development of national standards for interoperability between platforms, Exploring blockchain as a foundation for transactional infrastructure [46]
Governance Model	Decentralization without common standards; Unstandardized sharia supervision for digital aspects	Decentralization with national standards; Coordinated sharia supervision for digital technology [52]	Centralization with strong regulatory support in countries with mandatory approaches [11]	Adopting decentralization with clear national standards; Developing data-based governance models with strong Sharia supervision
Digitalization Level	<10% of total zakat collection through digital channels; Slow adoption due to regulatory and infrastructure barriers	>40% of total zakat collection through digital channels; Faster adoption thanks to standardization and regulatory support [9]	>60% of total zakat collection in countries with mandatory approaches [11]	Increasing digital adoption through standardization, education, and incentives; Developing an ecosystem that supports innovation in digital zakat management

Source: data processed by the author

This comparative analysis emphasizes the imperative for comprehensive national standardization and forward-looking regulatory frameworks to facilitate zakat digitalization advancement. [46] demonstrate that blockchain technology enhances both transparency mechanisms and systemic resilience within zakat operations, potentially functioning as the fundamental infrastructure layer for Indonesia's transactional ecosystem [53].

As highlighted in Table 4, addressing Indonesia's lag in standardization and digital adoption requires a strategic and phased approach. Strengthening regulatory frameworks, enhancing technological integration, and improving organizational capacity will enable Indonesia to close the gap with countries that have more advanced digital zakat systems, ensuring both flexibility and long-term sustainability in digital zakat governance.

## 4. MANAGERIAL IMPLICATION

The recommended framework generates substantial implications across three primary dimensions: administrative, governance, and socio-economic spheres.

From a managerial standpoint, it improves the efficiency and effectiveness of zakat administration and prioritizes the continuous upgrading of amil's digital competencies to ensure the workforce can operate and



govern emerging technologies. Process harmonization across zakat institutions establishes enhanced ecosystem coherence while simultaneously mitigating institutional fragmentation. Evidence-based decision-making methodologies, facilitated through artificial intelligence deployment and big data analytical frameworks, enable more precise and strategically-oriented zakat distribution mechanisms.

In regulatory terms, fatwas should evolve toward a more technology-responsive, principles-based posture. Greater coherence also requires harmonization among MUI fatwas, state instruments [31], regulations issued by the Financial Services Authority and Bank Indonesia, and applicable fintech industry standards. The development of targeted Sharia benchmarks for blockchain, AI, and cryptocurrencies would close existing gaps in Sharia fintech governance. More broadly, this principles-based architecture can serve as a model for Sharia regulation in other domains shaped by digitalization.

From a socio-economic perspective, zakat digitalization demonstrates substantial potential for amplifying fund mobilization capacity, with collection volumes potentially reaching the annual threshold of IDR 63.93 trillion as documented by [5]. Enhanced precision in zakat allocation, facilitated through artificial intelligence and advanced data analytics, generates increased socio-economic benefits for mustahik populations. The integration of digitalized zakat systems within comprehensive financial ecosystems strengthens financial inclusion mechanisms for previously marginalized societal segments excluded from formal financial services. Optimized zakat management practices contribute substantively to sustainable economic development objectives, as demonstrated by [54] regarding digital zakat's developmental impact within urban slum communities.

## 5. CONCLUSION

Research findings reveal a significant institutional disconnect between MUI fatwa provisions and digital zakat implementation practices in Indonesia is comprehensive analysis of 30 zakat-related fatwas demonstrates that merely 6.7% possess substantial relevance to digitalization processes. This regulatory gap creates uncertainty concerning Sharia compliance legitimacy, promotes institutional standard fragmentation, and inhibits technological optimization capabilities, consequently suppressing potential annual collection volumes estimated at IDR 63.93 trillion.

To mitigate this institutional deficiency, this study advances a Fatwa-Based Digital Zakat Governance Framework constructed upon three fundamental pillars, Sharia-Aligned Digital Innovation, Technology Enabled Efficiency, and Digital Accountability mechanisms. Framework operationalization adheres to a systematic phased implementation roadmap encompassing Foundation phases (0-12 months), Transformation periods (12-24 months), and Innovation stages (24-36 months), thereby facilitating methodical and sustainable institutional transformation processes.

Successful framework implementation necessitates collaborative synergy among multiple stakeholder categories. MUI requires proactive engagement in specialized digital technology research, development of principles-based Sharia approaches for zakat technology fatwas, alignment of existing Indonesian zakat fatwa provisions, and incorporation of technology expertise. BAZNAS and LAZ institutions must implement gradual governance framework adoption, invest in amil capacity development, establish interoperability standards, and deploy public transparency dashboards. Government entities should formulate supportive regulatory frameworks, national standardization protocols, data protection guidelines, and regulatory sandbox environments for innovation facilitation. Technology providers must develop Sharia-compliant solutions, establish collaborative partnerships with zakat institutions, provide comprehensive educational programs, and implement open standards for interoperability enhancement.

## 6. DECLARATIONS

### 6.1. About Authors

Erni Juliana Al Hasanah Nasution (EJ)  <https://orcid.org/0000-0002-2610-0320>

### 6.2. Author Contributions

Conceptualization: EJ; Methodology: EJ; Software: EJ; Validation: EJ and EJ; Formal Analysis: EJ and EJ; Investigation: EJ; Resources: EJ; Data Curation: EJ; Writing Original Draft Preparation: EJ and EJ; Writing Review and Editing: EJ and EJ; Visualization: EJ; All authors, EJ, have read and agreed to the published version of the manuscript.

### 6.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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### 6.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

## REFERENCES

- [1] R. Hadi, A. Basit *et al.*, “Sharia strategic economic model on digital zakat technology in indonesia.” *Economic Annals-XXI/Ekonomičnij Časopis-XXI*, vol. 187, 2021.
- [2] S. Suaidi, “Bridging institutional and regulatory gaps: Enhancing sharia compliance in islamic financial institutions in indonesia,” *El-Uqud: Jurnal Kajian Hukum Ekonomi Syariah*, vol. 3, no. 1, pp. 23–39, 2025.
- [3] Republik Indonesia, “Undang-undang republik indonesia nomor 4 tahun 2023 tentang pengembangan dan penguatan sektor keuangan,” 2023.
- [4] H. Santo Hartono, “Indonesia’s national zakat agency (baznas): digital transformation in managing zakat, infaq and shadaqah (zis),” *Muslim Business and Economics Review*, vol. 1, no. 2, pp. 183–204, 2022.
- [5] A. S. Fauzia, S. Mulatsih, and F. Alexandi, “Mapping the potential of zakat collection digitally in indonesia,” *International Journal of Zakat*, vol. 6, no. 3, pp. 1–22, 2021.
- [6] M. Budiarto, A. Asmawati, and M. Kurniawan, “Digital transformation of local government: Design and development of the paku haji district community service information system website,” *International Journal of Cyber and IT Service Management*, vol. 4, no. 1, pp. 11–18, 2024.
- [7] D. Fidhayanti, M. S. M. Noh, H. Hanafi, and M. H. Satria, “Regulatory frameworks in islamic fintech: Comparative insights from indonesia and malaysia,” *Jambura Law Review*, vol. 7, no. 2, 2025.
- [8] R. Supriati, S. A. Anjani, R. W. Anugrah, R. McCarthy *et al.*, “Enhancing network security with quantum cryptography: A study on future-proofing computer networks against quantum attacks,” *Journal of Computer Science and Technology Application*, vol. 2, no. 1, pp. 24–35, 2025.
- [9] M. I. Rosele, A. Muneem, N. N. B. A. Rahman, and A. K. Ali, “The digitalized zakat management system in malaysia and the way forward,” *AL-IHKAM: Jurnal Hukum & Pranata Sosial*, vol. 17, no. 1, pp. 242–272, 2022.
- [10] A. I. Zulkarnain, N. A. Achsani, M. Siregar, and I. S. Beik, “Enhancing accountability in hajj fund governance through regulatory impact analysis and value chain model,” *International Journal of Cyber and IT Service Management (IJCITSM)*, vol. 5, no. 2, pp. 198–213, 2025.
- [11] F. H. N. Athief, M. A. Rachman, D. Rizki, L. Hakim, and M. S. B. M. Noh, “Taxation policy and regulation efficiency on increasing zakat collection: Countries comparasion analysis,” *Journal of Islamic Accounting and Finance Research*, vol. 4, no. 2, 2022.
- [12] R. A. Kasri and A. M. Yuniar, “Determinants of digital zakat payments: lessons from indonesian experience,” *Journal of Islamic Accounting and Business Research*, vol. 12, no. 3, pp. 362–379, 2021.
- [13] M. N. R. Al Arif, N. Nofrianto, and M. I. Fasa, “The preference of muslim young generation in using digital zakat payment: Evidence in indonesia,” *Al-Uqud: Journal of Islamic Economics*, vol. 7, no. 1, pp. 1–16, 2023.
- [14] U. E. Cahyani, D. P. Sari, and A. Afandi, “Determinant of behavioral intention to use digital zakat payment: The moderating role of knowledge of zakat,” *ZISWAF: Jurnal Zakat Dan Wakaf*, vol. 9, no. 1, p. 1, 2022.
- [15] H. Latief, “Fatwa pluralism on zakat in indonesia,” *Journal of Muslim Philanthropy & Civil Society*, vol. 6, no. 2, 2022.
- [16] A. Musa, T. Zulfikar, B. Khalidin *et al.*, “Digital-based information system of zakat management in indonesia: Strategies for increasing revenue in fiqh muamalah perspectives,” *Samarah: Jurnal Hukum Keluarga dan Hukum Islam*, vol. 6, no. 2, pp. 614–633, 2022.

- [17] R. Aprianto, S. Surajiyo, S. Suwarno, and Y. Santia, "The power of celebrity endorsements: Examining the barenbliss brand image among tiktok users," *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, vol. 6, no. 1, pp. 21–33, 2024.
- [18] F. M. Syam, D. Anggrayni *et al.*, "E-training system to improve hr capability at indofood factory using codeigniter framework," *ADI Journal on Recent Innovation*, vol. 3, no. 2, pp. 217–225, 2022.
- [19] R. Ahli, M. F. Hilmi, and A. Abudaqa, "Moderating effect of perceived organizational support on the relationship between employee performance and its determinants: A case of entrepreneurial firms in uae," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 6, no. 2, pp. 199–212, 2024.
- [20] T. Rochefort and Z. Ndlovu, "Digital marketing strategies in building brand awareness and loyalty in the online era," *Startuppreneur Business Digital (SABDA Journal)*, vol. 3, no. 2, pp. 107–114, 2024.
- [21] I. Shantilawati, O. I. Suri, R. A. Sunarjo, S. A. Anjani, and D. Robert, "Unveiling new horizons: Ai-driven decision support systems in hrm-a novel bibliometric perspective," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 7, no. 1, pp. 252–263, 2025.
- [22] A. Syahrudin, H. Mubarak, and K. Ahmad, "Islamic guidelines for digital commerce: Fatwa mui no. 146 and its impact on indonesia's e-commerce ecosystem," *Parewa Saraq: Journal of Islamic Law and Fatwa Review*, vol. 3, no. 1, pp. 35–45, 2024.
- [23] F. N. Isjayanto, A. L. Vebrianti, and M. Munir, "Blockchain implementation in zakat management: Potentials and challenges in the digital era," *International Journal of Islamic Economic and Managerial Studies*, vol. 1, no. 1, pp. 20–34, 2025.
- [24] R. Nisa, C. Fahmi, and R. Sholihin, "The validity of cryptocurrency's zakat: A study of the mui fatwa number 13 of 2011 on the law of zakat on unlawful wealth," *JURISTA: Jurnal Hukum dan Keadilan*, vol. 9, no. 2, pp. 559–585, 2025.
- [25] M. Mutamimah, S. Alifah, G. Gunawan, and M. D. Adnjani, "Ict-based collaborative framework for improving the performance of zakat management organisations in indonesia," *Journal of Islamic Accounting and Business Research*, vol. 12, no. 6, pp. 887–903, 2021.
- [26] M. F. R. Alqodr, A. Awaluddin, A. F. Rohmani, and M. S. Al Farisi, "Bridging legal pluralism through community-based islamic education: Enhancing sharia literacy on cryptocurrency and nfts in indonesia," *Multicultural Islamic Education Review*, vol. 3, no. 1, pp. 15–24, 2025.
- [27] M. Mufid and A. A. Muhammad, "Islamic philanthropy and public policy: A study of zakat fatwas from the new order era to the post-reform era," *Jurnal Hukum Islam*, vol. 21, no. 2, pp. 201–230, 2023.
- [28] A. S. Farid and V. K. Manda, "Public communication and policy implementation: a case study on mui's zakat policy for youtubers and instagram influencers," *El-Hekam*, vol. 9, no. 2, pp. 193–203, 2024.
- [29] Y. Febrianty, F. Vitalia, P. Arzuna, and H. Ode, "Legal opportunities and challenges in indonesia's sharia economy post covid-19: A focus on digitalisation and regulation," *istinbath*, vol. 24, no. 1, pp. 110–118, 2025.
- [30] D. Novitasari, F. S. Goestjahjanti, U. Rahardja, S. Santoso, S. V. Sihotang, N. A. Santoso, and G. P. Cesna, "Optimizing msme performance through marketing capabilities and digital marketing adoption," in *2025 4th International Conference on Creative Communication and Innovative Technology (ICCIT)*. IEEE, 2025, pp. 1–7.
- [31] B. N. Miftahul and T. Widiastuti, "The legacy of umar bin abdul aziz in indonesia's zakat law," in *Indonesian Conference of Zakat-Proceedings*, 2024, pp. 211–221.
- [32] F. Syafariani, M. S. Lola, S. S. S. Abd Mutalib, W. N. F. W. Nasir, A. A. K. A. Hamid, and N. H. Zainuddin, "Leveraging a hybrid machine learning model for enhanced cyberbullying detection," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 7, no. 2, pp. 371–386, 2025.
- [33] S. Suhairi, A. A. Saputra, A. Alimuddin, and M. Khareng, "Regulatory and economic challenges in contemporary crowdfunding-based cash waqf," *MILRev: Metro Islamic Law Review*, vol. 4, no. 2, pp. 822–867, 2025.
- [34] M. M. Siahaan, A. Sijabat, H. Samosir, R. Purba, and R. F. Terizla, "Enhancing hots and entrepreneurial competencies through avnet academic applications in english learning," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 7, no. 1, pp. 206–216, 2025.
- [35] A. Musadad, K. Nasik, A. M. Khazin, M. Syaifudin *et al.*, "The role of the taysir manhaji method in the development of islamic economic law in indonesia through dsn-mui fatwas," *Journal of Islamic Economic Laws*, vol. 8, no. 01, pp. 130–154, 2025.
- [36] T. Pujiati, H. Setiyowati, B. Rawat, N. P. L. Santoso, and M. G. Ilham, "Exploring the role of artificial in-

- telligence in enhancing environmental health: Utaut2 analysis,” *Sundara Advanced Research on Artificial Intelligence*, vol. 1, no. 1, pp. 37–46, 2025.
- [37] M. H. Siregar, Z. Abdurrahman, M. Kamal, Z. Zainal *et al.*, “Digital fiqh and ethical governance: Negotiating islamic normativity and online narcissism in contemporary indonesia,” *JURIS (Jurnal Ilmiah Syariah)*, vol. 24, no. 1, pp. 181–191, 2025.
- [38] M. A. Syari, U. Rahardja, T. Wellem, H. D. Purnomo, and R. Buaton, “IoT enabled smart farming system for optimizing crop management using sensors and machine learning,” in *2025 4th International Conference on Creative Communication and Innovative Technology (ICCIT)*. IEEE, 2025, pp. 1–7.
- [39] A. N. Rohman, D. Fitriana, W. R. Aidy *et al.*, “Enhancing economic security through sharia fintech regulation in indonesia: Strengthening the sharia business ecosystem,” *Fiat Justisia: Jurnal Ilmu Hukum*, vol. 17, no. 3, pp. 237–260, 2023.
- [40] O. Bianchi and H. P. Putro, “Artificial intelligence in environmental monitoring: Predicting and managing climate change impacts,” *International Transactions on Artificial Intelligence*, vol. 3, no. 1, pp. 85–96, 2024.
- [41] S. Setiawan, U. Rusilowati, A. Jaya, R. Wang *et al.*, “Transforming human resource practices in the digital age: A study on workforce resilience and innovation,” *Journal of Computer Science and Technology Application*, vol. 2, no. 1, pp. 84–92, 2025.
- [42] M. H. R. Chakim, A. Kho, N. P. L. Santoso, and H. Agustian, “Quality factors of intention to use in artificial intelligence-based aiku applications,” *ADI Journal on Recent Innovation*, vol. 5, no. 1, pp. 72–85, 2023.
- [43] S. A. Bin-Nashwan, “Toward diffusion of e-zakat initiatives amid the covid-19 crisis and beyond,” *foresight*, vol. 24, no. 2, pp. 141–158, 2022.
- [44] H. Firmansyah, P. Pagar, and M. A. Adly, “The north sumatra mufti’s fatwas on zakat: Analysis of fatwa methods and the influence of school thought,” *Al-Istinbath: Jurnal Hukum Islam*, vol. 7, no. 2 November, pp. 421–440, 2022.
- [45] N. P. L. Santoso, R. Nurmala, and U. Rahardja, “Corporate leadership in the digital business era and its impact on economic development across global markets,” *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, vol. 6, no. 2, pp. 188–195, 2025.
- [46] K. F. Khairi, N. H. Laili, H. Sabri, A. Ahmad, V. Pham, and M. Tran, “The development and application of the zakat collection blockchain system,” *J. Gov. Regul*, 2023.
- [47] C. Lukita, N. Lutfiani, A. R. S. Panjaitan, U. Rahardja, M. L. Huzaifah *et al.*, “Harnessing the power of random forest in predicting startup partnership success,” in *2023 Eighth International Conference on Informatics and Computing (ICIC)*. IEEE, 2023, pp. 1–6.
- [48] A. S. Bist, “The importance of building a digital business startup in college,” *Startupreneur Business Digital (SABDA Journal)*, vol. 2, no. 1, pp. 31–42, 2023.
- [49] C. K. Awerika, Z. M. A. Amerila, S. Ameria, T. Ameriya, and M. Atsumi, “Exploring integration in education through blockchain technology,” *Blockchain Frontier Technology*, vol. 3, no. 1, pp. 39–47, 2023.
- [50] R. Hadi, Y. S. Shafrani, D. L. Hilyatin, S. Riyadi *et al.*, “Digital zakat management, transparency in zakat reporting, and the zakat payroll system toward zakat management accountability and its implications on zakat growth acceleration,” *International Journal of Data & Network Science*, vol. 8, no. 1, 2024.
- [51] M. Adnan and B. Uyuni, “Optimizing the role of the sharia supervisory council (dps) at the ziswaf institution,” *Al-Risalah: Jurnal Studi Agama Dan Pemikiran Islam*, vol. 14, no. 1, pp. 134–153, 2023.
- [52] M. N. Paizin, “Decentralization in malaysia’s zakat management organizations: A comparison of some states’ zakat collection achievements,” *International Journal of Zakat*, vol. 7, no. 1, pp. 33–46, 2022.
- [53] R. Sivaraman, M.-H. Lin, M. I. C. Vargas, S. I. S. Al-Hawary, U. Rahardja, F. A. H. Al-Khafaji, E. V. Golubtsova, and L. Li, “Multi-objective hybrid system development: To increase the performance of diesel/photovoltaic/wind/battery system,” *Mathematical Modelling of Engineering Problems*, vol. 11, no. 3, 2024.
- [54] P. Utami, M. Nasor *et al.*, “The role of digital zakat towards economic development at slums in indonesia,” *The Asian Journal of Business Environment (AJBE)*, vol. 11, no. 3, pp. 45–51, 2021.