

## Digitalization of Waqf Accounting: A Systematic Review of the Role of Technology in Waqf Governance

**Wali Saputra**

State Islamic University of Sultan Syarif Kasim Riau

Corresponding Author's Email: [saputrawali@gmail.com](mailto:saputrawali@gmail.com)

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### ABSTRACT

*The objective of this research is to systematically evaluate the influence of technological advancements on the digitization of waqf accounting and its subsequent effects on enhancing transparency, accountability, and efficiency within waqf governance frameworks. Employing the Systematic Literature Review (SLR) methodology alongside the PRISMA guidelines, a total of 31 pertinent scholarly articles were meticulously selected from a range of international databases, including Scopus, ScienceDirect, and Google Scholar. The findings indicate that the integration of information technology, particularly through digital-based accounting information systems, has significantly augmented reporting efficiency and bolstered public trust in waqf management practices. Furthermore, technological innovations such as blockchain, sharia fintech platforms, and the tokenization of waqf assets are progressively being implemented, albeit they continue to encounter challenges concerning regulatory frameworks, human resource preparedness, and digital infrastructure. The review advocates for the formulation of national standards for digital waqf accounting systems, the enhancement of regulatory frameworks and digital literacy initiatives, as well as the establishment of strategic partnerships between waqf institutions and technology providers. This research offers substantial contributions to the comprehension of the transformation occurring within waqf governance in the context of the digital era and paves the way for further scholarly inquiry into the development of a sustainable, values-driven digital waqf model grounded in Islamic principles.*

**Keywords:** Digitalization, Waqf Accounting, Waqf Governance, Information Technology

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## INTRODUCTION

The phenomenon of digital transformation within the waqf demographic represents a significant area of concern. The Indonesian Waqf Agency (BWI) has undertaken various initiatives aimed at fortifying the digital ecosystem associated with waqf, which include enhancing internal digitization, augmenting the digitization of nazhir, and innovating models for digital waqf management. Nevertheless, the deployment of existing digital technologies and platforms has yet to be executed in a manner that is both effective and efficient regarding the mobilization of waqf funds (Rahmawati et al., 2021).

The digitalization of waqf assumes a crucial role in fulfilling the Sustainable Development Goals (SDGs). Digital waqf can serve as a vehicle for the support of numerous social initiatives, encompassing education, health, and the economic empowerment of communities. However, a considerable segment of the population remains inadequately informed about the concept of digital waqf and its associated benefits, indicating a pressing need for comprehensive educational efforts and outreach (Auna Nida Ulhusna et al., 2024).

In the context of Society 5.0, the management of waqf must leverage advancements in digital technologies to enhance both effectiveness and efficiency (Pramewari et al., 2024). The digitalization of waqf has the potential to broaden the pool of prospective wakif, augment fundraising efforts, and increase the number of waqf nazhir. Nonetheless, a plethora of challenges persists in the execution of waqf digitization, including infrastructural constraints and varying levels of technological comprehension (Syahbibibi & Hisan, 2023).

The application of Sharia Accounting Standards, such as PSAK 112, in the management of waqf during the Society 5.0 era encounters numerous challenges. An in-depth understanding of Sharia principles, the intricacies of accounting standards, and the ever-evolving landscape of technology constitute significant barriers. Innovative approaches, including the adoption of blockchain technology and the establishment of digital platforms, may enhance effectiveness, transparency, and compliance within waqf management (Pramewari et al., 2024).

The implementation of PSAK 112 is anticipated to augment the transparency and accountability of waqf institutions in Indonesia. By adhering to these standards, waqf agencies can produce more precise and transparent financial disclosures, thereby bolstering public trust in waqf management. However, the realization of PSAK 112 continues to face a variety of challenges, particularly regarding the comprehension and application of these standards by waqf institutions (Dhihan Arwin et al., 2024).

Digital innovations in the administration of zakat and waqf, such as the adoption of mobile applications and blockchain technology, have instigated notable transformations in the methodologies employed for the collection, management, and distribution of Islamic social funds. However, to enhance the effectiveness of zakat and waqf management through digital innovation, managing institutions must persist in their efforts to educate and inform the public about the utilization of the digital applications and platforms that have been developed (Nurhidayah et al., 2024).

The reinforcement of accountability mechanisms within waqf institutions is also a pivotal area of focus. Challenges regarding the execution of the functions and responsibilities of waqf institutions, particularly in relation to accountability, can impede the advancement and sustainability of such institutions. Consequently, it is imperative to undertake measures aimed at fortifying appropriate accountability mechanisms, thereby enabling waqf institutions to contribute more effectively towards achieving their social objectives and reinforcing the presence of Islam within society (Salsabila et al., 2024).

The adoption of a digital-based waqf management model has the potential to further the attainment of the Sustainable Development Goals (SDGs). Stakeholders within the realm of waqf can implement a crowdfunding model on digital platforms as a strategic initiative to enhance the waqf populace, establish digital content as a recognized waqf asset, and utilize blockchain technology for the management of waqf data. Nevertheless, additional research is requisite to formulate an effective and efficient digital-based waqf management model (Maisyarah & Hadi, 2024).

### **Digitalization of Waqf Accounting**

The digitalization of waqf accounting constitutes the amalgamation of information technology within the domains of recording, reporting, and managing waqf funds, with the objective of enhancing transparency and accountability. Salman et al. (2021) assert that one method employed is the establishment of a Waqf Information System (SIWAK), which is specifically designed to aid nazhir in the digital documentation of waqf transactions. Through the utilization of SIWAK, the reporting mechanism becomes markedly more efficient, and information can be disseminated in real-time to stakeholders and pertinent entities. This advancement has been demonstrated to bolster public confidence in the governance of waqf assets.

Dhihan Arwin et al. (2024) further elucidated that the adoption of PSAK 112 is anticipated to enhance the transparency and accountability of waqf institutions within Indonesia. By conforming to these established standards, waqf organizations are enabled to produce more precise and transparent financial disclosures, thereby augmenting public trust in the administration of waqf assets. Nonetheless, the enactment of PSAK 112 continues to encounter various obstacles, particularly concerning the comprehension and implementation of such standards by waqf institutions.

### **Prior Research**

Research by Nasywa & Lahuri (2025) aims to explore how blockchain technology offers innovative solutions to enhance accountability in waqf management. With its decentralization, transparency, and security properties, blockchain can address the challenges often encountered in traditional waqf systems, such as lack of transparency, misuse of funds, and difficulties in asset tracking. In this study, we analyze the application of blockchain technology in waqf management, including how smart contracts can be employed to automate and validate waqf transactions. Furthermore, this research examines the potential social and economic impacts of blockchain implementation in strengthening public trust in waqf institutions. The research method involves a systematic review of all existing literature, utilizing a qualitative descriptive approach. The results indicate that the adoption of this technology not only enhances accountability and transparency but can also encourage broader community participation in waqf activities. Thus, blockchain can serve as an important tool in the modernization of waqf management in the digital era as well as the potential in strengthening public trust regarding technological adaptation.

Research by Maisyarah & Hadi (2024) illustrates that as one of the endowment funds, waqf has a strong relevance to the issues raised in the Sustainable Development Goals (SDGs). In the current era, digital transformation has become one of the efforts to promote the enhancement of waqf potential in achieving community development goals. This study conducts a literature exploration concerning digital-based waqf management models that have been implemented and can support development objectives. The research method applied is a literature review with a qualitative approach. Academic articles, books, articles

from official websites, and reports related to digital waqf management and SDGs serve as the analyzed data. A descriptive qualitative analysis approach, which seeks to integrate and summarize findings within the literature, is employed in this study. The analysis results indicate that stakeholders in the waqf sector can implement crowdfunding platform models as a strategy to enhance waqf collection, establish digital content as one of the waqf objects, and utilize blockchain technology in waqf data management.

Wildana & Imamia (2022). The institution of waqf, functioning as a charitable entity within the Islamic framework, plays a significant role in fostering a sustainable economy, originating from the Muslim community for the collective benefit of society. Notwithstanding its critical functions and promising capabilities, the waqf institution is confronted with challenges that may inhibit its realization of full potential. A predominant issue encountered by waqf and analogous charitable organizations pertains to the effective administration of their assets, particularly when contributions to these institutions originate from diverse sources. In light of the paramount importance of technology in the context of the 21st century, it is posited that such technology can be harnessed to augment Islamic charitable institutions like waqf, particularly in the domains of asset supervision and utilization. This paper adopts qualitative methodologies through a comprehensive literature review to ascertain the feasibility and appropriateness of technology implementation within waqf institutions. This methodological approach is requisite to investigate the potential applicability and efficacy of Blockchain and Smart Contracts technology in enhancing the operational capacity and overall effectiveness of waqf institutions. The potential of these innovative technologies to serve as remedies for prevalent challenges faced by waqf institutions, such as asset management, transparency, accountability, and governance, is noteworthy. The deployment of such technologies that promise complete transparency is deemed efficacious in mitigating transaction costs and fostering efficiency in the charitable endeavors of waqf institutions. It is anticipated that the integration of these technologies may afford waqf institutions the opportunity to evolve into contemporary Islamic charitable organizations capable of addressing and adapting to the exigencies of the 21st century.

Iman et al. (2020). Within the Islamic community, waqf represents an asset that necessitates meticulous management. Information pertaining to waqf is presently concentrated within the confines of organizational management. The utilization and oversight of current waqf assets remain largely opaque, primarily due to the lack of accessible transparency in information within community organizations. The documentation of waqf assets is predominantly manual; although there exists some digital recording, such records are primarily maintained by the religious department at the district level. This situation manifests as a significant impediment for community organizations in conducting comprehensive inventories of waqf assets. This research aims to proffer solutions for community organizations to leverage information systems for the implementation of a digital and integrated waqf management approach. This will enable both Nazhir and Wakif to mutually ascertain the status of the assets that have been donated. The evolution of the status of donated assets can be tracked through a historical record of every change in status. The classification of existing asset types will adopt a centralized waqf management framework while incorporating local variables to facilitate the provision of comprehensive information to both wakif and nazhir.

Nazah (2022). In contemporary discourse, the evolution of technological advancements is occurring at an unprecedented pace. Nearly every facet of human existence has undergone digitization, as evidenced by the proliferation of technology-driven applications that enhance human endeavors. The emergence of this phenomenon has also influenced the domain of waqf, particularly with respect to cash waqf. Historically, waqf was predominantly associated with immovable properties designated for the

establishment of mosques, burial sites, or educational institutions; however, it has now expanded to encompass monetary contributions. A notable digital initiative being developed within the realm of representation is the Financial Technology (FinTech) waqf system. Such a system serves to simplify the officiation process for prospective donors and may augment the interest of individuals who previously lacked the inclination to engage in waqf. Furthermore, cash waqf resources possess the potential to invigorate the economy by fostering entrepreneurial ventures for subsequent generations.

Astina & Aprilia (2025). The assets that have been entrusted are irrevocably bound and no longer pertain to the waqf (wakif). Concurrently, the entrusted assets ought to be utilized for the collective welfare and public good. This delineation establishes the status of the nazir, who possesses no legal entitlement to the entrusted assets. Meanwhile, the stewardship of these assets is entirely the responsibility of the nazir. The challenges and impediments associated with digital waqf encompass issues of data security, instances of online fraud, and a general lack of societal comprehension. Addressing these obstacles necessitates a collaborative approach between platform providers and regulatory authorities. The social and economic advantages of digital waqf are considerable. The research methodology employed is Library Research, serving as the primary data source for this study, which is derived from direct examination of fundamental texts pertaining to the digitization of waqf. The methodology for data collection is descriptive in nature. The findings of this investigation indicate that the digitization of Waqf Law is largely recognized as permissible by most scholars. This is predicated on the understanding that in the context of waqf, the *ijab qabul* need not necessarily occur in a direct manner. Consequently, the validity of the waqf remains intact, whether the *ijab* and *qabul* are conducted through face-to-face interaction between the waqif and the *nadzhir* (the waqf manager) or through indirect means. The process of waqf is executed by the transfer of a specified sum of money to the waqf manager. Subsequent to the completion of the waqf, one receives formal documentation in the form of a waqf certificate issued by the designated waqf institution.

Sudi et al. (2024) assert that waqf, a significant philanthropic instrument within the Islamic tradition for facilitating social and economic financing, possesses a rich historical legacy. Nonetheless, the administration and allocation of waqf frequently obstruct its broader potential advantages. In the contemporary digital landscape, information technology emerges as a pivotal mechanism to surmount these diverse impediments. The principal objective of this study is to delineate the array of technologies that could be employed to enhance waqf management. More specifically, this investigation seeks to identify technologies that could augment both efficiency and transparency in waqf management, assess the implications of these technologies on the efficacy of waqf management, and proffer strategic recommendations for waqf administrators and related stakeholders. Data was amassed through comprehensive interviews with waqf administrators, experts in Islamic economics, and specialists in information technology. Furthermore, annual reports from waqf organizations, governmental policies pertinent to waqf, and scholarly works concerning the digitalization of waqf management were subjected to analysis. Thematic analysis methodologies were employed to elucidate predominant research patterns and themes. The findings of this research indicate that the incorporation of digital technology into waqf management yields numerous substantial benefits. Technologies such as smart contracts and blockchain possess the capacity to enhance the security and transparency of waqf transactions, mitigate the risk of malpractice, and facilitate more robust auditing processes. Moreover, expanded fundraising for waqf is facilitated through digital crowdfunding platforms. This study concludes that digital technology harbors significant potential to optimize waqf management as a mechanism for socio-economic financing. Such

technological advancements can effectively address many traditional challenges that beset waqf management, including deficiencies in transparency and efficiency.

Hussin et al. (2022) assert that waqf (endowment) constitutes a significant practice as delineated within Islamic doctrine. This institution yields considerable advantages for both the waqf founder (waqif) and the beneficiary (mawquf). Consequently, the assets governed by waqf must undergo ethical management to guarantee that benefits are accessible to all stakeholders involved. In Malaysia, the management of waqf properties is conducted by the state through the State Islamic Religious Councils (SIRCs). In contemporary times, the oversight and administration of waqf funds are not exclusively undertaken by SIRCs but also by private entities, including mosques and tahfiz institutions. In addition to serving religious and spiritual functions, mosques fulfill a variety of roles, such as providing educational and welfare services to the community, with the waqf collected designated for these specified purposes. This mechanism serves as a vital instrument for achieving socio-economic development, and if executed effectively, it has the potential to significantly mitigate unemployment and facilitate poverty alleviation, thereby contributing to the socio-economic advancement of Muslim communities. Therefore, given the rising volume of waqf collected by mosques, it is imperative for these establishments to maintain transparency in their transactions as a form of ibadah to God and to uphold accountability to the ummah. The practices of waqf accounting and reporting are crucial for enhancing the transparency and accountability of waqf institutions or managers to their donors. Such an approach will ensure compliance with the designated purposes and avert the mismanagement of waqf properties. The aim of this study is to investigate the prevailing accounting and reporting practices pertaining to waqf property and funds managed by mosques in Kelantan. This research is essential for fostering improved, systematic, and integrity-driven management of waqf funds by mosques within Malaysia. The methodology employed in this research is qualitative, utilizing an in-depth interview technique with mosque administrators in Kelantan who are recipients of waqf funds and properties. The findings of the study indicate that waqf property, particularly land, is under the management of the mosque, whereas the recording and reporting are the responsibilities of MAIN. Concurrently, other waqf funds acquired by mosques are not accurately, completely, and systematically recorded in accordance with the established accounting system. The outcomes of this study are anticipated to assist MAIN and mosques in ensuring that the financial accounting and reporting of the mosque adhere to the Accounting System Standards.

Hasanah (2021). Waqf represents a financial reservoir entrusted by the populace for communal benefit, wherein the rewards associated with perpetual charitable contributions are allocated to the waqif. Given that it manifests as a fund managed by an agency, institution, or foundation, the imperatives of transparency and effective governance in the management of waqf resources are salient elements that stakeholders consistently expect to observe in the financial disclosures of waqf institutions. A significant challenge encountered lies in the task of presenting and standardizing the components of waqf financial statements in a manner that is comprehensible, transparent, and accountable for both internal stakeholders, including Nazhir and waqif, as well as external entities unrelated to the waqf organizations. Pursuant to the extant national standards, the enactment of Sharia Financial Accounting Standards (SAK Syariah) and the Statement of Financial Accounting Standards (PSAK) 112 concerning Waqf Accounting is essential for achieving financial reports that are transparent and accountable, featuring standardized components across financial statements. Well-structured reports that are readily understandable can serve as supplementary information for the community. This engenders public confidence in the credibility of Nazhir within these

waqf institutions, consequently influencing the efficacy of the national movement for cash waqf (GNWU) as proclaimed by the President.

Saidu (2019). The manuscript investigates and ultimately elucidates the interrelation between the two constructs through a diachronic lens, tracing the Islamic institution of cash Waqf alongside its bookkeeping practices, thereby accumulating substantial evidence to assert that Islamic Accounting constitutes an antiquated concept, having been employed in the accounting of Cash Waqf during the Ottoman era and in more contemporary contexts. From an implications standpoint, comprehending the foundational aspects of accountability relevant to Islamic institutions would significantly contribute to reinforcing these entities and ensuring their intergenerational viability.

Zahara et al. (2024). It is imperative to acknowledge that information technology, propelled by the forces of digitalization, is undergoing rapid evolution. Its application has also permeated various sectors. Conversely, the potential of cash waqf in Indonesia is notably substantial. The objective of this manuscript is to elucidate the potential of cash waqf as it is developed through digital mechanisms, leveraging computational technology. The institutionalization of a digitally-based waqf ethos is the focal point of this investigation. The methodology employed is descriptive qualitative, utilizing a literature review approach. The data considered are secondary sources derived from scholarly journals, academic papers, and texts that align with the objectives of this study. Digital artifacts pertaining to platforms for digital waqf institutions also represent a pertinent and primary source of examination in this discourse. The research reveals that the evolution and transformation of digital cash waqf commenced in 2012, coinciding with the issuance of a fatwa on cash waqf by the Indonesian Ulema Council. Furthermore, the study indicates that cash waqf began to proliferate within the community, further propelled by the introduction of digital instruments facilitating cash waqf transactions. Numerous waqf institutions have established digital platforms through various applications, websites, and additional social media channels.

Sakinah et al. (2025). The objective of this research endeavor is to critically assess the waqf recording and reporting framework within the Sibulue District of Bone Regency, alongside its implications for enhancing community welfare. The primary emphasis of the study encompasses the intricacies of the recording and reporting processes, as well as the challenges encountered throughout the management of waqf. Employing descriptive qualitative methodologies, data was accumulated through direct observation, interviews, and documentation analysis. The participants of the research comprised representatives from the Office of Religious Affairs (KUA), specifically the head of the KUA in the Sibulue subdistrict. The findings of the research indicated that out of 127 identified waqf land sites, a mere 22% possessed official certification. Identified impediments included the absence of a robust filing system, insufficient public comprehension of waqf administration, and a lack of effective collaboration among relevant agencies. This study advocates for the establishment of a digital-based recording system, enhancement of public education, certification of waqf land, and improved oversight mechanisms. It is anticipated that the implementation of refined waqf management practices will yield favorable outcomes manifested as enhanced social and economic advantages for the community.

Hasan et al. (2025). This research aims to investigate and analyze the implementation of waqf accounting within the Dompot Dhuafa Jakarta Waqf Manager's Office. This study adopts a qualitative approach characterized by a descriptive framework. The data sources utilized in this investigation consist of secondary data. Secondary data were acquired through an examination of the financial reporting of the research subject as well as other pertinent documents. The data analysis technique employed in this study

is based on a case study methodology, which encompasses four stages in analyzing the phenomena: data inventory, data categorization, data interpretation, and conclusion formulation. The results of this investigation reveal that the Dompot Dhuafa Waqf Manager has comprehensively implemented PSAK 112. The financial reports presented encompass all requisite statements mandated by PSAK 112. Furthermore, the financial statements have undergone an audit by a reputable public accounting firm.

Salman & Mukadar (2022). This research centers on the concept of waqf, with a particular focus on the waqf accounting system as defined by the PSAK recently endorsed by DSAS in early 2021. The aim of this study is to ascertain the understanding of Nazhir regarding the application of the waqf accounting system in accordance with PSAK 112 within waqf management institutions located in the Surabaya region. The sampling methodology employed in this investigation is snowball sampling, with data collection methods incorporating observation, interviews, and documentation. This research engaged four nazir informants from waqf management institutions in the Surabaya area. The methodological approach utilized in this study is descriptive qualitative. This investigation concentrates on the unit of analysis pertaining to the comprehension and application of nazir in alignment with PSAK 112. The findings of this research categorize the understanding and application of this standard among nazir into two groups. BMT Sri Sejahtera and Nurul Hayat Foundation exhibit a lack of understanding regarding PSAK 112. Conversely, BMT Amanah Ummah and Nazir Universitas Airlangga demonstrate comprehension and application of PSAK 112, as evidenced by their latest reports and the outcomes derived from interview statements.

Hijriah et al. (2024). This scholarly investigation scrutinizes the utilization of waqf accounting within waqf management institutions situated in Banten Province, emphasizing the application of PSAK 112, which represents the accounting standard for waqf in Indonesia. This inquiry was executed at the Regional Office of the Ministry of Religious Affairs of Banten Province, recognized as a pivotal center for waqf information and oversight in the region. The overarching aim of this study is to elucidate the methodologies employed by waqf institutions in the recording and reporting of waqf assets and benefits in accordance with the stipulated standard, assess the challenges encountered in its execution, and analyze the role of local government in fostering greater transparency and accountability in waqf management. Employing qualitative methodologies, this research leverages interviews and document analysis as primary and secondary sources of data. The anticipated outcomes are expected to yield a more comprehensive understanding of waqf accounting practices in Banten Province, alongside recommendations aimed at enhancing professionalism and fostering public trust in the management of waqf within this locale.

## Research Gap

There exists a notable deficiency in systematic and structured investigations that specifically examine the incorporation of technology within the waqf accounting framework. The majority of extant literature has predominantly concentrated on the digitization of waqf in a broad sense, failing to delve into the intricacies of accounting and financial governance with sufficient rigor. There is an insufficient analysis regarding the application of the waqf digital accounting system across diverse regions or institutions, as well as an exploration of its impact on the transparency, accountability, and efficiency pertaining to the management of waqf funds. Few studies have established a connection between the digitization of waqf accounting and advanced technological methodologies, such as blockchain, smart contracts, and asset tokenization, particularly in relation to sharia financial institutions or waqf entities in developing nations, including Indonesia. There are limitations associated with cross-disciplinary research that amalgamates the

perspectives of information technology, sharia accounting, and governance within Islamic social institutions. Prior investigations have largely remained within the normative or descriptive domains, lacking a comprehensive framework-based evaluative methodology.

### **Research Novelty**

This investigation delineates a comprehensive review employing Systematic Literature Review (SLR) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodologies, explicitly elucidating trends, contributions, and prospective trajectories pertaining to the digitization of waqf accounting, an area that remains underexplored within the academic corpus. This review provides an integrated literature mapping that transcends technological and methodological boundaries (technical, sharia, and institutional), thereby establishing connections between digitization practices and the principles of effective and sustainable waqf governance. This research posits a conceptual framework for waqf accounting digitization policies that can be instrumental for policymakers, regulatory bodies, and waqf organizations in the formulation of technology-driven accounting systems. The outcomes of this study further elucidate avenues for the advancement of digital technology-driven waqf accounting information system standards, particularly within nascent Islamic legal contexts such as Indonesia and Malaysia.

## **RESEARCH METHODOLOGY**

### **Types of Research**

This investigation constitutes a systematic literature review (SLR) that seeks to identify, assess, and synthesize scholarly literature pertaining to the function of technology in the digitization of waqf accounting and waqf governance in a broader context.

### **Research Approach**

This inquiry employs a qualitative-descriptive methodology through thematic analysis of published scholarly articles, concentrating on the incorporation of technologies (including blockchain, accounting software, sharia fintech, and smart contracts) within reporting systems and waqf governance.

### **Data Source**

The data utilized are secondary data represented in the form of scholarly articles indexed in international databases such as: Scopus, Web of Science (WoS), Science Direct, Springer Link, DOAJ, Google Scholar (for supplementary literature).

### **Inclusion and Exclusion Criteria**

**Inclusions:** Scholarly articles published in English or Indonesian language Publications released during the timeframe of 2013 to 2024 Research articles that engage with themes such as digitization, waqf accounting, technological advancements in waqf management, smart contracts, blockchain technology, and governance within waqf systems **Exclusions:** Non-scholarly articles including blogs, opinion pieces, news articles, and similar content Articles that are inaccessible in their entirety Redundant publications originating from the same source.

### **Systematic Procedure (referring to PRISMA)**

This study adheres to a systematic framework utilizing the PRISMA model (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which encompasses the following stages:

#### **Identification**

The formulation of keywords such as: "Digital Waqf Accounting" "Waqf Governance Technology" "Smart Contract in Waqf" "Blockchain for Islamic Philanthropy" "Digitalization of Waqf Reporting" and these terms are integrated with Boolean operators: AND, OR, NOT.

#### **Selection**

A meticulous examination of titles and abstracts was conducted to ascertain their pertinence to the research subject matter.

#### **Feasibility**

The articles that successfully meet the selection criteria are subjected to an evaluation grounded in methodological rigor and the comprehensiveness of the information provided (literature appraisal).

#### **Synthesis**

The articles deemed worthy of thematic analysis will be scrutinized to discern patterns, trends, and deficiencies within the research pertaining to the digitization of waqf accounting.

#### **Data Analysis Techniques**

The dataset was subjected to rigorous analysis employing both content analysis and thematic analysis, executed in sequential phases: Categorization of principal topics and subordinate topics as delineated by each article Recognition of emerging patterns in the application of technology within waqf accounting Systematic classification of the various forms of technologies employed (such as accounting software, blockchain technology, smart contracts, cloud-based accounting, etc.) Assessment of the role of technology in enhancing the transparency, efficiency, and accountability of waqf governance.

## **RESULTS OF RESEARCH AND DISCUSSION**

### **Research Results**

The investigation effectively discerned a total of 47 pertinent scholarly articles from an initial corpus of 324 articles retrieved via the Scopus, Web of Science, SpringerLink, and Google Scholar databases. Following the rigorous PRISMA selection methodology, 31 principal articles were identified for comprehensive analysis.

### **Publication Trends and Topic Developments**

The findings of the analysis indicated a substantial increase in the volume of publications addressing the digitization of waqf accounting commencing in 2018, culminating in a zenith in 2022. The predominance of this subject matter appears to originate from nations with robust waqf ecosystems, including Indonesia, Malaysia, the United Arab Emirates, and Turkey.

### Categories of Technologies Used in Accounting and Waqf Governance

The outcomes of the thematic analysis reveal that the technologies employed in the digitization of waqf accounting can be systematically categorized into five principal classifications:

#### 1. Waqf Accounting Software

Example Implementation: The waqf fund accounting module is predicated upon an Excel framework or an ERP (Enterprise Resource Planning) system that is meticulously tailored to align with Sharia principles. Explanation: This technological advancement is frequently referenced in scholarly literature (10 articles), indicating that the systematic documentation and reporting of waqf financial activities constitutes a significant necessity within waqf management. The integration of Excel or ERP systems in accordance with Sharia enhances the accountability and operational efficiency of the financial governance of waqf institutions.

#### 2. Blockchain

Example Implementation: Enhancement of transparency in waqf transactions and the tokenization of waqf assets. Explanation: The application of blockchain technology serves to guarantee that every waqf transaction is recorded with utmost transparency and is impervious to manipulation. Furthermore, the tokenization of waqf assets enables the division of physical asset-based waqfs into digital units, thus promoting enhanced engagement from wakifs. This technological advancement is referenced in six scholarly articles.

#### 3. Smart Contract

Example Implementation: Automation in the allocation of waqf benefits. Explanation: Smart contracts are employed to automate the execution of waqf benefits distribution in accordance with sharia agreements and stipulated conditions, thereby eliminating the necessity for human intervention. This results in heightened levels of transparency and operational efficiency. This technology is cited in five academic publications.

#### 4. Cloud-Based Accounting

Example Implementation: Real-time and integrated financial reporting for waqf. Explanation: Cloud-based accounting systems provide the capability to access financial data at any time and from any geographical location. Such systems enhance monitoring and foster collaboration among various stakeholders. This technology was identified in only three articles, indicating the potential for further development.

#### 5. Fintech Sharia Platform

Example Implementation: Digital platform for waqf crowdfunding. Explanation: Sharia-compliant fintech solutions facilitate the digital collection of waqf funds through online initiatives that adhere to Sharia principles. Consequently, this promotes broader and more inclusive community participation. This technology is discussed in seven scholarly articles.

These categories delineate trends in the technological implementation within the management of waqf finances as evidenced by academic literature. Waqf accounting software emerges as the predominant technology, while cloud accounting and smart contracts, though relatively nascent, exhibit considerable promise in enhancing transparency, efficiency, and accountability. The integration of blockchain and sharia fintech further suggests a prospective trajectory towards a more participatory and technologically driven digital waqf ecosystem.

## The Role of Technology in Waqf Governance

Through a comprehensive analysis of the existing literature, it has been ascertained that there are three principal functions of technology in enhancing effective waqf governance:

a. Transparency and Accountability

The implementation of blockchain and cloud accounting facilitates the real-time monitoring of financial resources by wakifs, nazhirs, and regulatory bodies. The advent of digital waqf fintech significantly bolsters public trust in waqf institutions owing to the integration of automated reporting mechanisms.

b. Administrative Efficiency

The utilization of smart contracts minimizes the necessity for manual intervention in the allocation of waqf benefits. The deployment of accounting applications streamlines the procedures involved in the documentation and reporting of waqf financial activities.

c. Innovations in Fundraising

Crowdfunding initiatives and asset tokenization platforms create novel avenues for securing waqf funding from the younger demographic and the Muslim diaspora.

The investigation identified several deficiencies within the existing literature: There exists a paucity of empirical research examining the efficacy of technological applications in the administration of waqf management at the institutional level. There has been a limited number of scholarly inquiries that establish a correlation between the sharia waqf accounting standard (PSAK 112) and digital systems utilizing blockchain technology. There is a notable absence of regulatory frameworks and technical guidelines provided by national waqf authorities to comprehensively facilitate the implementation of digital systems.

**Table 1**  
**PRISMA Flow Diagram (descriptive)**

PRISMA stages	Number Of Articles	Description
<b>Identification</b>		
Articles found through the main database	324	Scopus (110), WoS (73), Google Scholar (86), SpringerLink (55)
Removed duplicates	47	Duplication between databases
<b>After deduplication</b>	277	Unique articles that enter the screening stage
<b>Screening</b>		
Articles filtered through Title and abstract	277	
Irrelevant articles set aside	173	Not in accordance with the topic of digitization of Waqf accounting
Remaining articles	104	Enter the Eligibility Test
<b>Eligibility</b>		
Full-text reviewed articles	104	
Eliminated articles (non-scientific/irrelevant/limited access)	73	Does not meet inclusion criteria
Qualified Articles	31	Articles used in thematic analysis
<b>Inclusion</b>	31	Final articles used in systematic synthesis

## Discussion

The digital transformation of waqf accounting represents an emergent trend, propelled by advancements in information technology and the escalating demand for transparency in the stewardship of Islamic social funds. This systematic review endeavors to elucidate the role of technology in enhancing waqf governance, with a particular focus on accounting methodologies. The findings of the study indicate that the propensity to utilize technology for the digitization of waqf has markedly increased, particularly since the year 2018.

A pivotal discovery posits that the incorporation of digital-based accounting information systems within waqf institutions may significantly augment reporting efficiency and accountability. Institutions (nazhir) that administer waqf and implement digital systems exhibit a superior capacity for presenting financial statements in real time, thereby enhancing public accessibility. Empirical research has also indicated that the application of blockchain technology is garnering attention within the realm of waqf management. Blockchain is perceived as a mechanism capable of fostering heightened transparency and data security, which are critically important in the context of social funds such as waqf. Nevertheless, the adoption of this technology remains confined to pilot projects and has not achieved widespread implementation.

The review further ascertained that the efficacy of digitization is profoundly contingent upon the preparedness of human resources within waqf management agencies. A deficit in digital literacy and accounting competencies presents a formidable challenge. Numerous scholarly works underscore the necessity for ongoing training for nazhirs to ensure the optimal utilization of technology. Additionally, the existence of a regulatory framework that endorses digitalization constitutes a crucial factor. Countries that possess waqf regulations conducive to technological adaptation tend to exhibit a more rapid adoption of digital systems, particularly in accounting reporting. For instance, Indonesia has initiated the development of digital waqf platforms through official entities such as BWI and Dompot Dhuafa.

The digitalization process also fosters greater transparency of information to the public. This phenomenon has engendered an increase in the confidence of wakif and the broader public in the management of waqf. Several studies reveal a positive correlation between the degree of financial transparency and the proliferation of wakifs. However, it is crucial to note that digitization does not inherently resolve traditional challenges associated with waqf management, such as inadequate oversight, insufficient interagency coordination, and constrained operational funding. Consequently, the integration of technology must be complemented by institutional reforms to maximize its benefits.

Furthermore, it has been observed that the digital application of waqf accounting lacks significant standardization. Each institution tends to devise its own system, complicating the execution of benchmarking or comparative audits. This scenario highlights the necessity for the establishment of national or international standards concerning digital accounting systems for waqfs. Conversely, digitization facilitates the innovation of waqf products such as waqf crowdfunding, waqf tokenization, and waqf smart contracts. This innovation presents novel opportunities for the productive and efficient management of waqf assets. Nonetheless, the legal and sharia dimensions of these innovations necessitate comprehensive discourse.

Several scholarly articles within this investigation have underscored the critical role that sharia-compliant fintech plays in the digitization of waqf assets. The collaborative efforts between waqf institutions and fintech platforms create significant strategic synergies, particularly regarding financial

reporting, fund collection, and the monitoring of fund utilization. The research indicates that nations such as Malaysia, Indonesia, and Saudi Arabia have emerged as frontrunners in the digitization of waqf, propelled by both governmental policies and initiatives led by non-governmental organizations. For instance, in Malaysia, the concept of digital waqf has been embraced by various Islamic financial institutions that aim to enhance cash waqf and share waqf initiatives.

Conversely, the literature identifies several primary obstacles, including the inadequacies of digital infrastructure in rural regions, resistance to transformation from traditional management practices, and the insufficient integration of waqf accounting systems with national reporting frameworks. Furthermore, the significance of data security emerges as a pressing concern. The process of digitization introduces novel risks such as data breaches, hacking incidents, and the potential misuse of sensitive information. Consequently, the fortification of information security systems and the establishment of robust data protection regulations must be prioritized within the digitization framework.

Beyond the technical dimensions, the study accentuates the necessity for the incorporation of spiritual methodologies and Islamic values in the digital transformation of waqf. Digitalization transcends mere technological advancements; it encompasses the imperative to manifest values such as trust, transparency, and accountability within accounting information systems. Successful governance models of digital waqf typically engage community members and beneficiaries actively in both reporting and oversight mechanisms. This paradigm exemplifies the participatory approach and social accountability that contemporary waqf institutions are progressively adopting. There exists a distinct need to expand the academic discourse surrounding the assessment of the efficacy of digital accounting systems within the context of waqf. To date, limited empirical research has evaluated the direct impact of digitization on enhancing the societal benefits derived from waqf.

The study further advocates for the establishment of a national unified platform that amalgamates waqf data, financial statements, project statuses, and monitoring systems. Such a platform would facilitate easier access to information for both governmental bodies and the public, thereby enhancing the management oversight of waqf institutions. A substantial consensus within the literature posits that digitization presents substantial opportunities for the enhancement of waqf governance; however, it is imperative that such initiatives be executed in a gradual and inclusive manner. The collaboration among regulators, academics, practitioners, and technology developers is pivotal to achieving success in this domain.

As a subsequent measure, Islamic educational institutions should incorporate a digital accounting curriculum focused on waqf within their academic programs. This initiative is essential for cultivating a generation of professionals who are equipped to address the challenges and leverage the opportunities presented by the digitization of waqf. Thus, the study reaffirms that the digitization of waqf accounting is an inevitability in the contemporary digital landscape, yet its success hinges on the harmonious integration of technology, regulatory frameworks, human resource capabilities, and Islamic principles. This transformational journey should be geared towards enhancing societal welfare through improved governance of waqf assets.

## CONCLUSION

This systematic review elucidates that the digitization of waqf accounting is integral to enhancing the transparency, accountability, and efficiency of waqf governance. Insights derived from 31 scrutinized articles indicate that the integration of digital technologies, including accounting information systems, blockchain, and sharia fintech platforms, has favorably influenced the formulation of waqf financial statements and bolstered public trust in the institutions managing waqf. However, the implementation of this technology encounters various impediments, such as the preparedness of human resources, constraints in digital infrastructure, and the absence of regulatory frameworks and standards for a cohesive waqf accounting system. Moreover, the digitization of waqf introduces novel prospects, including the tokenization of waqf assets, crowdfunded waqf initiatives, and real-time reporting; nevertheless, it necessitates fortification from legal, sharia, and technical perspectives to genuinely enhance the sustainability of waqf and the welfare of the populace.

The study offers policy recommendations which include: firstly, the Government and regulatory bodies (such as the Ministry of Religious Affairs, BWI, and OJK Sharia) must formulate a national standard for a digital-based waqf accounting information system that is universally applicable to all waqf management entities. Secondly, the enhancement of digital infrastructure, particularly in rural locales, should be incorporated into the digital inclusion policy to ensure that the digital transformation of waqf reaches the entire community. Thirdly, the formulation of specific regulations concerning waqf digitization, encompassing data protection, blockchain legality, and the acknowledgment of the tokenization of waqf assets as components of sharia schemes, is essential. Fourthly, there is a need to augment the capacity of human resources through targeted training and certification for nazhir in digital accounting, sharia financial literacy, and information technology. Fifthly, fostering collaboration between waqf institutions and sharia fintech organizations, including the provision of policy incentives to promote the integration of digital financial services that bolster waqf, is crucial. Lastly, it is imperative to strengthen digital auditing and oversight mechanisms via an integrated platform based on a public dashboard to ensure transparency and community engagement.

The study also presents subsequent research recommendations which include: firstly, future investigations are encouraged to devise a model for assessing the effectiveness of digital waqf accounting information systems, including performance indicators that gauge efficiency, transparency, and social impact. Secondly, further exploration of blockchain application in waqf management and reporting is warranted, particularly concerning legal, sharia, and cybersecurity dimensions. Thirdly, empirical research grounded in case studies from waqf institutions that have embraced digital systems can yield valuable insights into exemplary practices and the actual challenges encountered in the field. Fourthly, experimental studies may be conducted to evaluate the impact of waqf accounting digitization on waqf trust, sharia compliance, and community engagement in waqf contributions. Lastly, cross-country research is also recommended to compare waqf digitization strategies across various Islamic legal frameworks and regulatory landscapes, with the aim of identifying models that can be replicated or adapted.

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