UNTAG Law Review (ULREV)
Volume 10, Issue 1, MEI 2026, PP 1-17
ISSN 2549-4910 (online) & ISSN 2579-5279 (print)
http://jurnal.untagsmg.ac.id/indeks.php/ulrev/indeks
www.fakhukum.untagsmg.ac.id

Strengthening Productive Waqf Through Artificial Intelligence: Strategies in Sharia Economic Law and The Role of The State in Realizing Community Welfare

Johan Erwin Isharyanto,[1] Muawafah[2]
[1,2]Faculty of Law, University of August 17, 1945 Semarang, Indonesia
*erwinjohan07@gmail.com

Submission: 2026-01-28
Review: 2026-05-11
Accepted: 2026-05-23
Publish: 2026-05-30

ABSTRACT; *Productive waqf plays a significant role in strengthening the Islamic community's economy and promoting equitable welfare distribution in Indonesia. The rapid development of artificial intelligence (AI) necessitates adapting Sharia economic law to ensure waqf governance is more accountable, efficient, and sustainable. This study addresses two main research questions: (1) how the role of the state and patterns of inter-institutional coordination contribute to strengthening productive waqf; and (2) how Sharia economic law strategies can support the enhancement of AI-based productive waqf. The research employs a normative juridical method by examining statutory regulations, institutional policies, and Sharia legal doctrines to analyze the alignment of the existing regulatory framework with the demands of waqf digitalization. The findings indicate that the state functions as a regulator, facilitator, and coordinator by reinforcing synergy among the Indonesian Waqf Board, relevant ministries, local governments, and Islamic financial institutions. Nevertheless, institutional coordination remains constrained by fragmented data systems, the absence of standardized waqf digitalization, and the limited technological capacity of nazhir. AI-based Sharia economic law strategies should emphasize the principles of maqāṣid al-sharīʿah, trust (amānah), and accountability by leveraging AI for asset monitoring, optimizing Sharia-compliant investments, and ensuring measurable benefit distribution. The implementation of Cash Waqf Linked Sukuk (CWLS) and the National Waqf Movement (GNWU) demonstrates the potential of digitalization; however, regulatory harmonization and strengthened institutional capacity are still required to ensure that AI-based productive waqf development operates effectively and sustainably*

Key words: *Productive Waqf; Role of the State; Coordination Patterns; Sharia Economic Law.*

INTRODUCTION

Waqf plays a strategic role in the development of the Islamic community's economy and community empowerment in Indonesia. Within the framework of Islamic law, waqf is regarded as a form of ṣadaqah jāriyah. This inherently sustainable endowment continues to accrue benefits even after the donor has passed away. Waqf is not only an act of worship, but also a socio-economic instrument with substantial potential to support public welfare. Alongside technological advancements, particularly the emergence of the artificial intelligence (AI) era, the paradigm of waqf management has undergone a significant transformation. Digital transformation necessitates reforms in Sharia economic law to accommodate innovation, transparency, and efficiency in the sustainable management of productive waqf.

Conceptually, Sharia economic law positions waqf as an integral component of the Islamic economic system, grounded in the principles of justice, balance, and sustainability. From the perspective of maqāṣid al-sharīʿah, waqf management aims to protect property (ḥifẓ al-māl), preserve life (ḥifẓ al-nafs), and realize public benefit (maṣlaḥah ʿāmmah).[1] Accordingly, waqf management should not be oriented solely toward spiritual dimensions, but must also generate tangible impacts on improving the welfare of the ummah, particularly through productive waqf models. This model transforms waqf assets into business capital that generates profits and economic benefits without diminishing their fundamental devotional value.[2]

The Indonesian government has demonstrated a serious commitment to optimizing productive waqf through various regulatory instruments, including Law Number 41 of 2004 on Waqf, Government Regulation Number 42 of 2006 as amended by Government Regulation Number 25 of 2018, and Regulation of the Indonesian Waqf Board (BWI) Number 1 of 2020 concerning Guidelines for the Management and Development of Waqf Assets. These regulations serve as the foundation for modern, accountable, and adaptive waqf governance. Within this framework, the state functions as both facilitator and regulator, ensuring synergy among waqf management institutions, including BWI, the Ministry of Religious Affairs, the Ministry of Finance, and other Islamic philanthropic institutions. Nevertheless, practical implementation continues to face challenges, such as low levels of productive waqf literacy, limited digital competence among nazhir, and inadequate data integration and supervisory systems.

Despite these efforts, the implementation of productive waqf in Indonesia remains constrained by several obstacles. According to the Indonesian Waqf Board's

[1] Nanda Ega Rupita and Mawardi, "--Peran Wakaf Produktif Dalam Pemberdayaan Ekonomi Umat: Studi Pada Model Pengelolaan Berbasis Maqashid Syariah," *Al-Muzdahir : Jurnal Ekonomi Syariah* 7, no. 2 (2025): 147–64, https://doi.org/10.55352/ekis.v7i2.1442.

[2] Wildan Munawar, "Profesionalitas Nazir Wakaf: Studi Manajemen Wakaf Produktif Di Lembaga Wakaf Daarut Tauhiid," *Journal of Islamic Economics and Finance Studies* 2, no. 1 (2021): 17–33, https://doi.org/10.47700/jiefes.v2i1.2731.

2024 report, the potential of cash waqf in Indonesia is estimated to exceed IDR 180 trillion annually; however, its actual realization is approximately IDR 2.3 trillion, or about 1.28% of its potential.[3] This disparity indicates that the economic potential of waqf has yet to be optimally utilized. In this context, the role of the state and Sharia economic law is crucial to ensuring effective inter-institutional coordination, enhancing digital waqf literacy, and enforcing regulatory frameworks that adapt to technological innovation. The state is therefore not only obligated to provide a legal framework, but also to act as a public policy director and a guarantor of accountability within the national waqf system.

The era of artificial intelligence presents both challenges and opportunities for the management of productive waqf. The utilization of AI and digital technologies can enhance efficiency, strengthen transparency, and expand opportunities for broader public participation. For instance, applying blockchain technology to waqf asset registration enables a transparent, immutable system that minimizes the risk of manipulation. Meanwhile, AI-based decision-support systems can assist Nazhir in selecting investment portfolios that comply with Sharia principles while maximizing returns. The use of AI-powered chatbots can also facilitate public access to information, enable online cash waqf donations, and allow real-time monitoring of waqf utilization.

One concrete example of technological application in productive waqf management is the Cash Waqf Linked Sukuk (CWLS) initiative launched by the Ministry of Finance and the Indonesian Waqf Board in 2020. Under this scheme, cash waqf funds are invested in government sukuk instruments, and the returns are allocated to social financing, such as hospital development and educational scholarships.[4] The CWLS program has successfully integrated Sharia principles with the state's fiscal policy, demonstrating that productive waqf can serve as a sustainable source of financing without imposing additional burdens on the state budget. This model can be further expanded using AI to analyze donation patterns, public preferences, and the resulting economic impact.

In addition, digital platforms such as Sahabat Wakaf, Dompet Dhuafa Digital Waqf, and Global Wakaf Corp have leveraged technology to broaden outreach and enhance efficiency in waqf management. Through the integration of AI systems, these institutions can implement data-driven management, in which investment decisions and the distribution of waqf benefits are based on accurate, measurable data analysis. This approach is consistent with the principle of efficiency in Sharia economics, which

[3] "Potensi Capai Rp180 T, Kemenag Perkuat Kualitas Nazir Dan Kebijakan Tata Kelola Wakaf Uang," Kementerian Agama Republik Indonesia, 2024, https://kemenag.go.id/nasional/potensi-capai-rp180-t-kemenag-perkuat-kualitas-nazir-dan-kebijakan-tata-kelola-wakaf-uang-nNKZD.

[4] Wina Paul and Rachmad Faudji, "Cash Waqf Linked Sukuk Dalam Optimalkan Pengelolaan Wakaf Benda Bergerak (Uang)," *JIMEA: Jurnal Ilmiah MEA (Manajemen, Ekonomi, Dan Akuntansi)* 4, no. 2 (n.d.): 1–18, https://doi.org/10.31955/mea.v4i2.423.

emphasizes optimal resource utilization while upholding values of justice, sustainability, and social welfare.[5]

From the perspective of Sharia economic law, the transformation of productive waqf in the era of artificial intelligence requires a reinterpretation of classical fiqh al-waqf to align with contemporary contexts. For example, the concept of ownership of digital waqf assets (such as e-waqf or crypto waqf) remains a subject of debate among Islamic scholars and legal academics. Digital waqf must satisfy the requirements of ta'bīd al-'ayn (perpetuity of the asset) and ta'thīr al-manfa'ah (continuity of benefits).[6] In the technological context, this means that digital assets endowed as waqf must possess sustainable economic value and be supported by precise legal protection mechanisms.

Theoretically, the framework of Sharia economic law stipulates that all economic activities, including waqf management, must adhere to three fundamental principles: (1) al-'adl (distributive justice), (2) al-mas'ūliyyah (accountability), and (3) al-amānah (moral responsibility).[7] In the context of AI-based productive waqf management, these principles must be operationalized through regulations that ensure clarity of rights and obligations among the wakif, nazhir, and beneficiaries (mauqūf 'alayh). For example, AI systems can be employed to monitor fund utilization transparently, detect irregularities, and provide early warnings of potential misuse of waqf funds.

Another concrete example is Bank Indonesia's initiative through the National Cash Waqf Movement (Gerakan Nasional Wakaf Uang—GNWU), which aims to enhance public awareness and participation in productive cash waqf. With the support of big data analytics and artificial intelligence, Bank Indonesia can map donor behavior, identify preferences for social programs, and assess the economic impact of cash waqf management. This approach enables more targeted and efficient policy interventions to achieve public welfare objectives.

Nevertheless, legal challenges remain a primary concern. One such challenge concerns the legal protection of digital waqf assets and the dispute-resolution mechanisms for technology-based waqf transactions. Sharia economic law must be capable of bridging the principles of ta'abbudī (devotional worship) and mu'āmalah (socio-economic transactions) within a technological environment characterized by rapid change. Strengthening Nazhir's capacity in digital literacy and in understanding

[5] Suud Sarim Karimullah, "Keadilan Ekonomi Islam Sebagai Solusi Alternatif Bagi Krisis Ekonomi Global," *HEI EMA : Jurnal Riset Hukum, Ekonomi Islam, Ekonomi, Manajemen Dan Akuntansi* 4, no. 1 (2025): 133–52, https://doi.org/10.61393/heiema.v4i1.273.

[6] Muhammad Abduh Tuasikal, "Aset Digital Untuk Wakaf Produktif," *Jurnal Samudra Ekonomi & Bisnis* 15, no. 3 (2024): 583–94, https://doi.org/10.33059/jseb.v15i3.10852.

[7] Anzalman et al., "Hukum Islam: Dasar, Sumber, Asas, Ruang Lingkup Dan Tujuan Hukum," *INNOVATIVE: Journal Of Social Science Research* 5, no. 1 (2025): 6438–56, https://j-innovative.org/index.php/Innovative.

Sharia economic law is therefore essential, so that they function not only as trustees of endowed assets but also as innovators in creating added value from waqf assets.

Accordingly, the transformation of productive waqf in the era of artificial intelligence is an inevitability that must be addressed systematically by all stakeholders. The role of Sharia economic law is pivotal in ensuring that technological innovation operates within the parameters of Sharia principles and social justice. The integration of fiqh norms, national regulations, and AI technology is expected to generate an efficient, accountable, and welfare-oriented model of productive waqf management.

PROBLEM

What are the challenges of legal protection for digital waqf assets and dispute resolution mechanisms in technology-based waqf transactions in the era of artificial intelligence (AI) from the perspective of Islamic economic law?

What is the role of Islamic economic law in integrating Islamic jurisprudence (fiqh) norms, national regulations, and AI technology to achieve efficient, accountable, and socially just productive waqf management?

RESEARCH METHODS

This study employs a normative juridical approach, integrating the analysis of positive law with an examination of practices in AI-based productive waqf management. Research data are obtained through a document study of waqf-related statutory regulations, namely Law Number 41 of 2004 on Waqf, Government Regulation Number 25 of 2018, and Regulation of the Indonesian Waqf Board (BWI) Number 1 of 2020 as well as literature on Sharia economic law and official reports from waqf institutions and digital platforms, including the Cash Waqf Linked Sukuk (CWLS) program and the National Cash Waqf Movement (GNWU).

An analysis of practical implementation based on official institutional reports and documentation demonstrates the actual application of technology-based productive waqf management, thereby ensuring that the empirical dimension of the study is adequately represented. The data are analyzed qualitatively by integrating normative findings with empirical evidence to formulate strategies in Sharia economic law, define the state's role, and identify effective patterns of inter-institutional coordination. The validity of the findings is ensured through source triangulation, encompassing statutory regulations, academic literature, and institutional reports, resulting in a comprehensive depiction of the strengthening of AI-based productive waqf in Indonesia.

DISCUSSION

The Role of the State and Patterns of Inter-Institutional Coordination in Strengthening Productive Waqf in Indonesia

Productive waqf has evolved as a modern concept that positions waqf not merely as a pious religious practice, but also as an economic instrument capable of generating long-term benefits. Within the framework of Islamic economics, waqf is understood not only as the dedication of assets for social purposes but also as a form of sustainable investment managed to preserve the principal value of the endowed asset.[8] This developmental orientation places productive waqf as a key pillar in socio-economic development, particularly in Muslim-majority societies such as Indonesia. By utilizing waqf assets through productive management models, their value and benefits can be significantly enhanced, generating broad impacts on community empowerment.

Conceptually, productive waqf differs from consumptive waqf, which distributes benefits directly in the form of assistance or services. Productive waqf requires strategic asset management to generate recurring income, which is subsequently distributed to beneficiaries in accordance with the objectives of the waqf. In this context, waqf assets are viewed as capital that must be optimized through activities yielding economic returns, whether in the form of rental income, business profits, Sharia-compliant investments, or business development. This approach aligns with theories of productive asset management in Islamic economics, which emphasize continuity of benefits and social efficiency.

The management of productive waqf may be implemented through various models. One approach involves direct management by Nazhir through business units,[9] such as the operation of rental properties, agriculture, retail outlets, educational facilities, or investments in the real sector, including small and medium-sized enterprises.[10] This model is suitable for institutions with strong managerial capacity and the ability to mitigate operational risks. Another approach involves collaboration with third parties through partnership or profit-sharing schemes. Partnerships with Islamic financial institutions, cooperatives, or private enterprises can strengthen management capacity while providing access to capital, networks, and technology. In addition, innovations in cash waqf enable the mobilization of public funds in larger volumes and within shorter timeframes, which can then be invested in productive sectors. Cash waqf is considered more flexible, as it does not require physical assets as the basis of the endowment, making it easier to integrate into modern investment systems.

[8] Nur Adilah, Nasrullah, and Abdul Syatar, "OPTIMALISASI WAKAF PRODUKTIFSEBAGAI INSTRUMEN EKONOMI ISLAM:TELAAH KONSEPTUAL, REGULASI, DAN IMPLEMENTASI DI INDONESIA," *Mu'amalat : Jurnal Kajian Hukum Ekonomi Syariah* 17, no. 1 (2025): 73–84, https://doi.org/10.20414/mu.v17i1.13875.

[9] Rusny Istiqomah Sujono et al., "The Effectiveness and Efficiency of Cash Waqf Management in Tabung Wakaf Indonesia," *Jurnal Ilmiah Ekonomi Islam* 8, no. 2 (2022): 1442–47, https://doi.org/10.29040/jiei.v8i2.4986.

[10] Fadlan Khairi, Lisa Saputri, and Astra Adianto Tinambunan, "Optimalisasi Wakaf Produktif Dalam Pengembangan Ekonomi Mikro Islam," *Jurnal Ekonomi Dan Pembagunan Indonesia* 3, no. 2 (2025): 151–65, https://doi.org/10.61132/jepi.v3i2.1355.

The economic implications of developing productive waqf are extensive. Strengthening waqf assets as development capital can make tangible contributions to improving societal welfare, including financing education, healthcare services, job training programs, microenterprise support, and housing for vulnerable groups.[11] Within social development theory, productive waqf is characterized as a financing source that does not rely on state budgets or donor assistance. Accordingly, waqf can serve as a stable alternative source of funding for the public sector.[12] Moreover, productive waqf supports economic equity by distributing returns oriented toward social justice.

According to Astuti, waqf aims to give greater attention to social conditions to enhance public welfare, particularly by increasing the incomes of the poor and vulnerable. However, the largely traditional waqf management has not fully realized this objective. Consequently, new strategies for productive waqf management are required to enable waqf to function more effectively and sustainably in improving community welfare.[13]

In line with the need for such renewal, strengthening productive waqf in Indonesia requires authoritative, multi-layered state involvement. The state is not only a rule-maker but also a controlling actor, a facilitator of capacity building, and a leader in inter-institutional coordination. From the perspective of Sharia economic law, emphasis is placed on accountability (al-mas'ūliyyah) and distributive justice (al-ʻadl). Moreover, the framework of maqāṣid al-sharīʻah underscores that waqf governance must be oriented toward the protection of property (ḥifẓ al-māl), the preservation of public welfare (maṣlaḥah' āmmah), and the fulfillment of basic public needs (ḥifẓ al-nafs).

Within the framework of national law, the role of the state is grounded in Law Number 41 of 2004 on Waqf, Government Regulation Number 25 of 2018, and Regulation of the Indonesian Waqf Board (BWI) Number 1 of 2020. These three regulatory instruments establish the foundation for secure, professional, and productive waqf management, including the promotion of Sharia-compliant investment instruments and digital waqf models. Digital transformation through artificial intelligence (AI), big data, and online systems requires the state to strengthen the following three principal roles.

---

[11] Restu Amin, "TANTANGAN MAUPUN PELUANG PENGELOLAAN WAKAF PRODUKTIF DI INDONESIA," *EKSYA : Jurnal Ekonomi Syariah* 5, no. 2 (2024): 88–98, https://doi.org/10.56874/eksya.v5i2.2167.

[12] Wahyu Wibowo et al., "Manajemen Wakaf Produktif Dalam Mengatasi Masalah Kemiskinan Di Indonesia," *J-CEKI : Jurnal Cendekia Ilmiah* 4, no. 3 (2025): 274–92, https://doi.org/10.56799/jceki.v4i3.7755.

[13] Arie Rachmat Sunjoto et al., "PERAN WAKAF PRODUKTIF DALAM PEREKONOMIAN," *ISTIQRO: Jurnal Hukum Islam, Ekonomi Dan Bisnis* 11, no. 2 (2025): 167–79, https://doi.org/10.30739/istiqro.v11i2.3365.

The strengthening of productive waqf in Indonesia thus demands a strategic role of the state, not merely as a regulator but also as a facilitator, supervisor, and inter-institutional coordinator. The state functions to ensure that productive waqf is implemented in accordance with Sharia principles, trust (amānah), and social justice, while also leveraging technological innovations such as artificial intelligence (AI) to enhance efficiency, accountability, and the equitable distribution of benefits. Law Number 41 of 2004 on Waqf stipulates that waqf must be utilized for public welfare and may be managed productively, reinforced by Government Regulation Number 25 of 2018 and Regulation of the Indonesian Waqf Board Number 1 of 2020, which provide technical guidelines for the management of waqf assets. Within this legal framework, the state bears responsibility for developing a professional and sustainable ecosystem for waqf management.

1. **The Role of the State as Regulator**

   The state bears responsibility for establishing clear regulations that are adaptive to technological developments.[14] Such regulations must accommodate digital waqf, cash waqf, waqf investments based on Sharia-compliant instruments, and the use of artificial intelligence (AI) and blockchain in waqf asset management. The regulatory framework should define technical, ethical, and security standards for Sharia investment algorithms, innovative contract mechanisms, protection of mutawakkif (wakif) data, and the obligations of nazhir regarding digital reporting and auditing. Through appropriate regulation, the principles of trust (al-amānah) and accountability (al-mas'ūliyyah) can be effectively upheld, ensuring that productive waqf assets are managed professionally and transparently. The need for such regulation arises because AI-based waqf management introduces new legal issues, including algorithm certification, the legal validity of smart contracts, personal data security, and digital dispute resolution mechanisms. Without responsive regulatory reinforcement, legal uncertainty may impede the development of productive waqf at the national level.

2. **The State as a Facilitator of Capacity Building for Nazhir and the Waqf Ecosystem**

   The facilitative role of the state is realized through the provision of technical support, institutional capacity building, and the equitable dissemination of digital literacy among Nazhir. Many waqf management institutions still lack adequate digital competencies to utilize technology effectively.[15] The state, through the Ministry of Religious Affairs and the Indonesian Waqf Board (BWI),

[14] Asriani et al., "Pembangunan Hukum Di Era Digital: Tantangan Dan Peluang Bagi Negara Dalam Menghadapi Transformasi Teknologi," *Urnal Bisnis Mahasiswa* 5, no. 1 (2025): 164–74, https://doi.org/10.60036/jbm.v5i1.324.

[15] Assril, Rahmat Hidayatullah, and Asrizal Saiin, "Dinamika Hukum Wakaf Di Indonesia Tantangan Dan Solusi Dalam Pengelolaan Aset Wakaf Produktif," *Al Barakat: Jurnal Kajian Hukum Ekonomi Syariah* 5, no. 1 (2025): 11–23, https://doi.org/10.59270/jab.v5i01.274.

needs to organize digital literacy training, professional certification, and mentoring programs for technology-based productive waqf management. These measures ensure that Nazhir can leverage AI for asset management, forecast socio-economic impacts, and monitor benefit distribution in real time, thereby achieving distributive justice (al-ʻadl).

3. The State as an Inter-Institutional Coordinator in Waqf Governance

The management of productive waqf involves multiple stakeholders, including BWI at both central and provincial levels, the Ministry of Religious Affairs, local governments, Islamic financial institutions, Islamic fintech companies, and philanthropic organizations. Effective coordination is essential to prevent overlapping authorities, duplication of functions, and inefficiencies in waqf asset management.[16] The state must therefore develop a standardized national waqf database system, establish regular coordination forums, and create inter-institutional referral mechanisms to ensure smooth operational processes.[17] With strong coordination, waqf benefits can be directed toward marginalized communities and isolated regions, thereby realizing the maqāṣid al-sharīʻah, particularly public welfare (maṣlaḥah' āmmah) and the protection of property (ḥifẓ al-māl).

The practical implementation of these strategies can be observed in programs such as the Cash Waqf Linked Sukuk (CWLS) and the National Cash Waqf Movement (GNWU). The CWLS program utilizes cash waqf funds invested in state Sharia securities. It integrates digital platforms for portfolio monitoring, real-time reporting, and the distribution of waqf returns for social development and economic empowerment. The role of the state is evident in the supervision exercised by BWI and the Ministry of Religious Affairs, which ensures compliance with Sharia principles and transparency in investments. CWLS also illustrates how AI and digitalization enhance accountability, forecast investment returns, and optimize the distribution of waqf benefits to targeted beneficiaries.

Similarly, GNWU introduces innovation in the digital management of cash waqf. The GNWU online platform facilitates donations, systematically records donor and beneficiary data, and enables efficient mapping of community needs. Within this coordination framework, BWI provides technical guidelines, Nazhir acts as the implementer, and Islamic fintech institutions function as platforms for distribution and monitoring. At the same time, central and local governments ensure oversight and system integration. As a result, productive waqf is not only managed more efficiently, but also distributed more equitably, reaching

[16] Intan Ratnasari et al., "Analisis Regulasi Zakat Dan Wakaf Dalam Penguatan Lembaga Filantropi Islam Di Indonesia," *Journal of Islamic Finance and Economics* 2, no. 2 (2025): 340–47, https://onlinejournal.penacceleration.com/index.php/fet/article/view/192.

[17] A'ang Yusril Musyafa', "Strategi Pengelolaan Wakaf Produktif Potensi Dan Tantangan Di Indonesia," *PRO JUSTICIA: Jurnal Hukum Dan Sosial* 5, no. 1 (2025): 43–52, https://doi.org/10.55380/projus.v5i01.1104.

communities that were previously difficult to access, including isolated regions and marginalized populations.

Despite the establishment of state involvement and inter-institutional coordination, practical implementation reveals several shortcomings. First, the existing regulatory framework remains largely conventional and has not fully accommodated AI, smart contracts, or digital waqf transactions, resulting in legal uncertainty. Second, Nazhir's institutional capacity remains limited, particularly in digital literacy, managerial skills, and understanding of Sharia economic law, which may undermine the effectiveness of productive waqf management. Third, inter-institutional coordination is still suboptimal, as reflected in data reported by the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency (ATR/BPN). Currently, 265,050 waqf land parcels have been certified. In comparison, approximately 297,211 waqf land parcels remain unregistered and require verification, indicating that uncertified waqf land parcels significantly outnumber those that have been formally registered.[18]

Strategies of Sharia Economic Law in Strengthening Artificial Intelligence–Based Productive Waqf

The management of productive Waqf in Indonesia is positioned at the intersection between the tradition of Islamic philanthropy and the need for technological innovation in the modern era. From the perspective of Sharia economic law, Waqf is not merely a charitable instrument but a concrete means to achieve maqāṣid al-syarīʿah: protecting property (ḥifẓ al-māl), safeguarding human life (ḥifẓ al-nafs), and realizing public welfare (maṣlaḥah 'ammah). As digital transformation and artificial intelligence (AI) are applied to productive waqf governance, an appropriate legal strategy becomes crucial to ensure that technology does not create dysfunctions but instead strengthens Sharia values while increasing efficiency and accountability.

From a normative standpoint, Indonesia's national legal framework stipulates that Waqf is governed by Law Number 41 of 2004 on Waqf, reinforced by Government Regulation Number 25 of 2018 and the Regulation of the Indonesian Waqf Board (BWI) Number 1 of 2020, which serve as technical guidelines for waqf asset management. This framework provides a legal basis for the development of productive Waqf, namely, utilizing waqf assets as business capital that generates economic benefits without eliminating their devotional meaning. However, when artificial intelligence is applied—such as donor data analytics, automated Sharia-compliant investment portfolio selection systems, or blockchain-based recordkeeping—questions arise about whether these conventional regulations are sufficiently adaptable to rapidly changing digital dynamics.

[18] Ihfa Firdausya, "Lebih Dari 297 Ribu Tanah Wakaf Belum Terdaftar, Pemerintah Targetkan 73 Ribu Dapat Sertifikat 2025," *Media Indonesia*, 2025, https://mediaindonesia.com/humaniora/750316/lebih-dari-297-ribu-tanah-wakaf-belum-terdaftar-pemerintah-targetkan-73-ribu-dapat-sertifikat-2025.

The primary objective of Waqf is the utilization of assets in accordance with their proper function. In line with this, Article 43 paragraph (2) emphasizes that the management and development of waqf assets must be carried out productively. The concept of productive Waqf encompasses various forms, including cash Waqf, cash Waqf based on sukuk or Sharia-compliant securities, land Waqf for productive activities, and Waqf that generates income from agriculture, trade, industry, or services.

Productive Waqf refers to waqf assets or principal properties that are endowed for use in production activities, with the yields distributed in accordance with the objectives of the Waqf. Examples include land waqf used for farming, springs whose water is sold, and similar forms. Productive Waqf can also be defined as assets utilized for production purposes in agriculture, industry, trade, and services, where the benefits do not stem directly from the Waqf object itself, but from the net profits generated through its development, which are then distributed to eligible beneficiaries in accordance with the Waqf's objectives.[19]

From the perspective of Sharia economic law, strategies for strengthening AI-based productive Waqf must prioritize justice (al-ʻadl). Technology should not only be used to improve internal efficiency in waqf management but also to ensure equitable distribution of benefits to all segments of society, including underserved groups. For example, AI systems can assist in determining Sharia-compliant waqf investment schemes and systematically targeting economic empowerment programs for small communities, such as MSMEs, education, and e-health initiatives.

The principles of trust (al-amānah) and accountability (al-mas'ūliyyah) become highly relevant in the context of the use of artificial intelligence. In this regard, nāẓir (waqf managers) bear both moral and legal responsibility to uphold the trust of Waqf by ensuring that assets are managed professionally and transparently. AI and digital technologies enable real-time monitoring, public reporting, and data-driven audits, thereby strengthening accountability.

The implementation of these strategies can be seen through the Cash Waqf Linked Sukuk (CWLS) program and the National Cash Waqf Movement (Gerakan Nasional Wakaf Uang/GNWU). CWLS utilizes cash waqf funds by investing them in state-issued Sharia-compliant securities, thereby generating productive returns that are legally and Sharia-compliant, while simultaneously enhancing accountability through electronic reporting systems that donors can monitor. This program demonstrates the integration of AI and digital platforms in investment portfolio selection, fund management, and the distribution of waqf proceeds to the community, particularly for the development of social infrastructure and economic empowerment. GNWU, as a national initiative, emphasizes the digitalization of cash

[19] "Makna Wakaf Produktif," Badan Wakaf Indonesia, 2020, https://www.bwi.go.id/4508/2020/02/24/makna-wakaf-produktif/.

waqf through online platforms that facilitate donations, map community needs, and systematically distribute waqf benefits. The implementation of GNWU illustrates how inter-agency coordination among BWI, the Ministry of Religious Affairs, philanthropic institutions, and Sharia fintech can be realized through integrated digital systems that optimize supervision, data security, and transparency.

Normatively, the regulatory framework for waqf in Indonesia has provided a foundation for the development of productive waqf, but it has not yet fully responded to technological advancements.[20] Law Number 41 of 2004 on Waqf serves as the primary legal umbrella governing the principles, institutions, and management of waqf. Article 43 of the Waqf Law stipulates that the management and development of waqf assets must be carried out productively and professionally in accordance with Sharia principles. This provision reflects state recognition of the importance of waqf productivity; however, it remains abstract and does not explicitly accommodate digital technology tools, particularly artificial intelligence, as management tools.

From the perspective of law as a means of development, overly general norms risk failing to provide concrete guidance for practice. Therefore, Article 43 of the Waqf Law is highly strategic for recommending the addition of a paragraph that recognizes the utilization of digital technology and artificial intelligence in the management of productive waqf. Such an additional clause would provide explicit legal grounds for nāẓir to employ AI in investment planning, risk analysis, beneficiary mapping, and the performance monitoring and evaluation of the waqf. With this normative legitimacy, digital innovation would no longer rely on narrow interpretations of professionalism but would become an integral part of a legally sanctioned mandate.

Beyond the statutory level, waqf regulation is also strongly influenced by Government Regulation Number 42 of 2006 on the Implementation of Law Number 41 of 2004 on Waqf. This regulation functions as an operational instrument detailing the technical implementation of waqf, including the management and development of waqf assets. Article 48 of GR 42/2006 specifically provides that the development of waqf assets should create added value and greater economic benefits. However, like the Waqf Law, this provision does not guide the methods or instruments that may be used for such development.

The absence of provisions concerning the utilization of digital technology in GR 42/2006 reflects a regulatory approach that remains conventional. In fact, as an implementing regulation, a Government Regulation holds the most strategic position to regulate technical aspects, including the use of advanced technologies. In this context, Article 48 of GR 42/2006 is particularly relevant for recommending the addition of a paragraph that explicitly opens the door to the use of digital technology

[20] Wahidah z, "Digital Productive Waqf: Contextualization of Sharia Economic Law in Indonesia," *Abdurrauf Journal of Islamic Studies* 4, no. 3 (2025): 210–23, https://doi.org/10.58824/arjis.v4i3.445.

and AI-based systems. Such a clause could affirm that the development of waqf assets may be conducted through the use of artificial intelligence for business planning, feasibility and risk analysis, asset optimization, and performance monitoring of productive waqf assets. This addition would not only provide legal certainty but also align the regulation's operational character with the dynamics of the digital economy.

Furthermore, GR 42/2006 does not yet regulate digital supervision mechanisms, electronic system based reporting, or data integration across institutions. In the context of AI-based productive waqf, supervision cannot rely solely on manual mechanisms; it requires data-driven, technology-based systems. Accordingly, recommendations for amending GR 42/2006 should not be limited to recognizing AI use. However, they should also include obligations to implement digital reporting systems, technology-based audits, and waqf data security standards. In this way, the Government Regulation would serve as a bridge between the general norms in the Waqf Law and the more detailed technical arrangements set out in the BWI regulations.

At the technical level, Regulation of the Indonesian Waqf Board (BWI) Number 1 of 2020 on Guidelines for the Management and Development of Waqf Assets through Investment is a crucial instrument in productive waqf practice. This regulation already addresses prudential investment principles, risk management, and cooperation with Sharia financial institutions. However, it is still framed within a conventional investment paradigm and does not explicitly accommodate artificial intelligence, blockchain technology, smart contracts, or algorithm-based audit mechanisms. This normative gap has the potential to create legal uncertainty for nāẓir who seek to use advanced digital technologies more effectively.

Within the framework of state administrative law, this condition indicates the need to strengthen technical regulations through more adaptive BWI regulations. BWI regulations may be expanded by incorporating a specific chapter on digital waqf and AI-based productive waqf. Such regulation should encompass technical guidelines on the utilization of artificial intelligence, data security standards, governance of Sharia-compliant investment algorithms, and technology-based supervision mechanisms. Through such arrangements, BWI's role as an independent waqf supervisory institution would not remain merely administrative but would also become strategic in directing the digital transformation of national waqf governance.[21]

The legal strategy for strengthening AI-based productive waqf must be built on a layered, integrated foundation. The first layer concerns regulatory reform that is

[21] Rahmawati et al., "Transformasi Digital Wakaf BWI Dalam Menghimpun Wakaf Di Era Digitalisasi," *Tabarru': Islamic Banking and Finance* 4, no. 2 (2021): 532–40, https://doi.org/10.25299/jtb.2021.vol4(2).8375.

adaptive to technological development,[22] including the addition of clauses to the Waqf Law, revisions to Government Regulation No. 42 of 2006, and refinements to BWI regulations. These regulations must accommodate digital waqf, waqf assets in the form of cash or Sharia-compliant shares, and the use of artificial intelligence and blockchain technology. Key aspects requiring regulation include digital audit mechanisms, protection of wakif and mauqūf' alaih data, transparency in Sharia-compliant investment, and electronic-based dispute resolution. Such regulation ensures that the principles of trust (amanah) and accountability remain the primary foundation of waqf management.

The second layer involves strengthening nāẓir's institutional capacity. Adaptive regulation necessitates competent human resources. Therefore, legal strategies must be accompanied by capacity-building policies through digital training, professional certification, and operational assistance.[23] Nāẓir, equipped with digital literacy and technological understanding, will be able to utilize AI for beneficiary mapping, investment return forecasting, and real-time monitoring of fund distribution.[24] From a good governance perspective, this capacity enhancement represents the state's responsibility to ensure the effectiveness of waqf management as part of public service delivery.

The third layer focuses on strengthening coordination and integration among institutions. AI-based productive waqf management requires synergy among BWI, the Ministry of Religious Affairs, local governments, Islamic financial institutions, Sharia fintech entities, and philanthropic organizations. Integration of a national information system enables accurate data exchange, more effective supervision, and more equitable distribution of benefits. Government Regulation No. 42 of 2006 may serve as the legal basis for developing this coordination system by adding provisions regarding data integration and inter-agency cooperation in productive waqf management.

The fourth layer pertains to data- and outcome-based evaluation. The state must establish clear socioeconomic indicators to assess the impact of AI-based productive waqf, including MSME empowerment, job creation, reduced economic inequality, and improved access to education and healthcare. Digital audits and public reporting obligations should be mandatory components of productive waqf management. Through an outcome-based evaluation approach, the principles of

[22] Ade Nur Rohim, Prima Dwi Priyatno, and Lili Puspita Sari, "Transformation of Waqf Management in The Digital Era: A Meta Synthesis Study," *AL-FALAH : Journal of Islamic Economics* 7, no. 2 (2022): 209–26, https://doi.org/10.29240/alfalah.v7i2.5421.

[23] Siska Lis Sulistiani and Agi Sukma Gumilar, "Corporate Waqf in Indonesia: Development, Governance Challenges, and Sustainable Prospects," *JEKSYAH: Islamic Economics Journal* 5, no. 2 (2025): 142–51, https://doi.org/10.54045/jeksyah.v5i02.2994.

[24] Muh Nashirudin, Ramadhan Razali, and Almira Keumala Ulfah, "Modernizing Zakat and Waqf Management in Indonesia: A Legal And Governance Perspective," *MAZAHIB: Jurnal Pemikiran Hukum Islam* 24, no. 1 (2025): 198–220, https://doi.org/10.21093/mj.v24i1.9419.

justice (al-ʻadl) and public benefit (al-maṣlaḥah) transcend normative rhetoric and become empirically measurable.

Accordingly, the discussion of Government Regulation No. 42 of 2006 constitutes a key element in the strategy for strengthening AI-based productive waqf. This regulation must be updated to keep pace with technological developments and align with the general norms outlined in the Waqf Law and the technical provisions of the BWI regulations. The addition of clauses on the utilization of artificial intelligence in Article 45 of GR 42/2006, accompanied by strengthened digital supervision mechanisms and data integration, would reinforce the architecture of the national waqf legal system. Through a comprehensive legal strategy, AI-based productive waqf can be managed professionally, efficiently, equitably, and sustainably, while simultaneously maximizing the state's role as regulator, facilitator, and integrator within the modern waqf management system.

CONCLUSION

The role of the state in strengthening productive waqf is strategic, multi-layered, and not limited to regulatory functions. The state assumes the positions of regulator, facilitator, supervisor, and coordinator to ensure that all waqf governance operates in accordance with Sharia principles, the principle of trust (amanah), and the objective of public benefit. The national legal framework Law No. 41 of 2004, Government Regulation No. 25 of 2018, and BWI Regulation No. 1 of 2020 provides the foundation for secure and professional waqf management; however, it still needs to be updated to remain responsive to digitalization and the use of artificial intelligence. This study emphasizes that the effectiveness of productive waqf management is primarily determined by the quality of inter-institutional coordination, particularly among BWI, the Ministry of Religious Affairs, local governments, Islamic financial institutions, and Sharia fintech actors. Empirical findings on the significant number of uncertified waqf land parcels underscore the urgent need for national data system integration, enhanced nāẓir capacity, and more consistent coordination mechanisms to close administrative gaps and ensure equitable distribution of waqf benefits.

The Sharia economic law strategy for strengthening AI-based productive waqf must be grounded in the principles of justice, accountability, and trust (amanah) as emphasized in maqāṣid al-syarīʻah. The digitalization of waqf through AI analytics, blockchain technology, and online platforms can enhance management accuracy, reporting transparency, and targeted benefit distribution, as demonstrated by the implementation of CWLS and GNWU. Nevertheless, the existing regulatory framework has not entirely governed the technical aspects of AI utilization, smart contracts, algorithmic audits, and data protection. Therefore, an effective strengthening strategy requires adaptive regulatory reform, enhanced digital capacity-building for nāẓir, integrated inter-agency information systems, and data- and outcome-based socio-economic evaluation. Through this approach, AI-based productive waqf can evolve into a more modern, secure, inclusive, and sustainable Sharia economic instrument.

REFERENCES

Adilah, Nur, Nasrullah, and Abdul Syatar. "OPTIMALISASI WAKAF PRODUKTIFSEBAGAI INSTRUMEN EKONOMI ISLAM:TELAAH KONSEPTUAL, REGULASI, DAN IMPLEMENTASI DI INDONESIA." *Mu'amalat : Jurnal Kajian Hukum Ekonomi Syariah* 17, no. 1 (2025): 73–84. https://doi.org/10.20414/mu.v17i1.13875.

Amin, Restu. "TANTANGAN MAUPUN PELUANG PENGELOLAAN WAKAF PRODUKTIF DI INDONESIA." *EKSYA : Jurnal Ekonomi Syariah* 5, no. 2 (2024): 88–98. https://doi.org/10.56874/eksya.v5i2.2167.

Anzalman, Thaheransyah, Tamrin Kamal, Saifullah SA, Desi Asmaret, and Julhadil. "Hukum Islam: Dasar, Sumber, Asas, Ruang Lingkup Dan Tujuan Hukum." *INNOVATIVE: Journal Of Social Science Research* 5, no. 1 (2025): 6438–56. https://j-innovative.org/index.php/Innovative.

Asriani, Misnah Irvita, Robi Rendra Tribuana, and Rahmiati Ranti Pawari. "Pembangunan Hukum Di Era Digital: Tantangan Dan Peluang Bagi Negara Dalam Menghadapi Transformasi Teknologi." *Urnal Bisnis Mahasiswa* 5, no. 1 (2025): 164–74. https://doi.org/10.60036/jbm.v5i1.324.

Assril, Rahmat Hidayatullah, and Asrizal Saiin. "Dinamika Hukum Wakaf Di Indonesia Tantangan Dan Solusi Dalam Pengelolaan Aset Wakaf Produktif." *Al Barakat: Jurnal Kajian Hukum Ekonomi Syariah* 5, no. 1 (2025): 11–23. https://doi.org/10.59270/jab.v5i01.274.

Badan Wakaf Indonesia. "Makna Wakaf Produktif," 2020. https://www.bwi.go.id/4508/2020/02/24/makna-wakaf-produktif/.

Firdausya, Ihfa. "Lebih Dari 297 Ribu Tanah Wakaf Belum Terdaftar, Pemerintah Targetkan 73 Ribu Dapat Sertifikat 2025." *Media Indonesia*, 2025. https://mediaindonesia.com/humaniora/750316/lebih-dari-297-ribu-tanah-wakaf-belum-terdaftar-pemerintah-targetkan-73-ribu-dapat-sertifikat-2025.

Karimullah, Suud Sarim. "Keadilan Ekonomi Islam Sebagai Solusi Alternatif Bagi Krisis Ekonomi Global." *HEI EMA : Jurnal Riset Hukum, Ekonomi Islam, Ekonomi, Manajemen Dan Akuntansi* 4, no. 1 (2025): 133–52. https://doi.org/10.61393/heiema.v4i1.273.

Kementerian Agama Republik Indonesia. "Potensi Capai Rp180 T, Kemenag Perkuat Kualitas Nazir Dan Kebijakan Tata Kelola Wakaf Uang," 2024. https://kemenag.go.id/nasional/potensi-capai-rp180-t-kemenag-perkuat-kualitas-nazir-dan-kebijakan-tata-kelola-wakaf-uang-nNKZD.

Khairi, Fadlan, Lisa Saputri, and Astra Adianto Tinambunan. "Optimalisasi Wakaf Produktif Dalam Pengembangan Ekonomi Mikro Islam." *Jurnal Ekonomi Dan Pembagunan Indonesia* 3, no. 2 (2025): 151–65. https://doi.org/10.61132/jepi.v3i2.1355.

Munawar, Wildan. "Profesionalitas Nazir Wakaf: Studi Manajemen Wakaf Produktif Di Lembaga Wakaf Daarut Tauhiid." *Journal of Islamic Economics and Finance Studies* 2, no. 1 (2021): 17–33. https://doi.org/10.47700/jiefes.v2i1.2731.

Musyafa', A'ang Yusril. "Strategi Pengelolaan Wakaf Produktif Potensi Dan Tantangan Di Indonesia." *PRO JUSTICIA: Jurnal Hukum Dan Sosial* 5, no. 1 (2025): 43–52. https://doi.org/10.55380/projus.v5i01.1104.

Nashirudin, Muh, Ramadhan Razali, and Almira Keumala Ulfah. “Modernizing Zakat and Waqf Management in Indonesia: A Legal And Governance Perspective.” *MAZAHIB: Jurnal Pemikiran Hukum Islam* 24, no. 1 (2025): 198–220. https://doi.org/10.21093/mj.v24i1.9419.

Paul, Wina, and Rachmad Faudji. “Cash Waqf Linked Sukuk Dalam Optimalkan Pengelolaan Wakaf Benda Bergerak (Uang).” *JIMEA: Jurnal Ilmiah MEA (Manajemen, Ekonomi, Dan Akuntansi)* 4, no. 2 (n.d.): 1–18. https://doi.org/10.31955/mea.v4i2.423.

Rahmawati, Husni Thamrin, Satriak Guntoro, and Sri Kurnialis. “Transformasi Digital Wakaf BWI Dalam Menghimpun Wakaf Di Era Digitalisasi.” *Tabarru’: Islamic Banking and Finance* 4, no. 2 (2021): 532–40. https://doi.org/10.25299/jtb.2021.vol4(2).8375.

Ratnasari, Intan, Muhtar Ulum, Ado Kusdiana Putra, and Mohammad Ridwan. “Analisis Regulasi Zakat Dan Wakaf Dalam Penguatan Lembaga Filantropi Islam Di Indonesia.” *Journal of Islamic Finance and Economics* 2, no. 2 (2025): 340–47. https://onlinejournal.penacceleration.com/index.php/fet/article/view/192.

Rohim, Ade Nur, Prima Dwi Priyatno, and Lili Puspita Sari. “Transformation of Waqf Management in The Digital Era: A Meta Synthesis Study.” *AL-FALAH : Journal of Islamic Economics* 7, no. 2 (2022): 209–26. https://doi.org/10.29240/alfalah.v7i2.5421.

Rupita, Nanda Ega, and Mawardi. “--Peran Wakaf Produktif Dalam Pemberdayaan Ekonomi Umat: Studi Pada Model Pengelolaan Berbasis Maqashid Syariah.” *Al-Muzdahir : Jurnal Ekonomi Syariah* 7, no. 2 (2025): 147–64. https://doi.org/10.55352/ekis.v7i2.1442.

Sujono, Rusny Istiqomah, Febrian Wahyu Wibowo, Mu’inan Rafi’, and Ambar Musoffi. “The Effectiveness and Efficiency of Cash Waqf Management in Tabung Wakaf Indonesia.” *Jurnal Ilmiah Ekonomi Islam* 8, no. 2 (2022): 1442–47. https://doi.org/10.29040/jiei.v8i2.4986.

Sulistiani, Siska Lis, and Agi Sukma Gumilar. “Corporate Waqf in Indonesia: Development, Governance Challenges, and Sustainable Prospects.” *JEKSYAH: Islamic Economics Journal* 5, no. 2 (2025): 142–51. https://doi.org/10.54045/jeksyah.v5i02.2994.

Sunjoto, Arie Rachmat, Nurus Shefrilianti Hidayatullah, Galih Aisia, Najwa Zikra Maharani, and Abdul Latif Rizqon. “PERAN WAKAF PRODUKTIF DALAM PEREKONOMIAN.” *ISTIQRO: Jurnal Hukum Islam, Ekonomi Dan Bisnis* 11, no. 2 (2025): 167–79. https://doi.org/10.30739/istiqro.v11i2.3365.

Tuasikal, Muhammad Abduh. “Aset Digital Untuk Wakaf Produktif.” *Jurnal Samudra Ekonomi & Bisnis* 15, no. 3 (2024): 583–94. https://doi.org/10.33059/jseb.v15i3.10852.

Wibowo, Wahyu, Ahmad Choiri, Aminuddin, and Adi Ariga. “Manajemen Wakaf Produktif Dalam Mengatasi Masalah Kemiskinan Di Indonesia.” *J-CEKI : Jurnal Cendekia Ilmiah* 4, no. 3 (2025): 274–92. https://doi.org/10.56799/jceki.v4i3.7755.

z, Wahidah. “Digital Productive Waqf: Contextualization of Sharia Economic Law in Indonesia.” *Abdurrauf Journal of Islamic Studies* 4, no. 3 (2025): 210–23. https://doi.org/10.58824/arjis.v4i3.445.