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(AIJBES)**www.gaexcellence.com/aijbess**TECHNOLOGY WAQF: A NEW PARADIGM FOR
SUSTAINABLE SOCIOECONOMIC DEVELOPMENT**

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Abstract:

Technological advancements have transformed the world's socio-economic conditions by changing the way knowledge is created, used and shared. In Islamic Social Finance, technology is used to improve the governance and operational efficiency of waqf institutions through the use of digital platforms, financial technology and blockchain applications. Therefore, the objective of this paper is to conceptualize Technology Waqf as a new paradigm in Islamic Social Finance and assess its ability to achieve sustainable socioeconomic development using a qualitative conceptual research design through a comprehensive study and thematic synthesis of waqf, Islamic Social Finance, digital transformation, sustainable development and Islamic legal literature. The characteristics, dimensions, principles and possible uses of Technology Waqf are being developed using a broad conceptual framework by conducting a critical analysis of existing current theories and practices. This research develops the idea of Technology Waqf which means the waqf of technological assets, whether tangible or intangible, of a techno-economic nature for the ongoing public benefit in accordance with Sharia. Compared to previous studies, this paper proposes that technology resources including digital infrastructure,

software, artificial intelligence applications, intellectual property, technological knowledge, research facilities and digital knowledge resources can be endowed as property waqf and constitute waqf assets. The study findings contribute to the expansion of existing waqf literature by shifting the discourse from technology as a tool for waqf management to technology as a waqf asset that can be endowed. It further introduces the Technology Waqf Model (TWM) as a conceptual framework for integrating technological resources into Islamic Social Finance to promote sustainable socioeconomic development.

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Digital Transformation; Islamic Social Finance; Maqasid al-Shariah; Sustainable Socioeconomic Development; Innovation; Technology Waqf



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Introduction

The Fourth Industrial Revolution has led to unparalleled advances in technology, resulting in significant changes to economic systems, public administration, education, health care, finance, and social communication. New technologies, including artificial intelligence, blockchain, cloud computing, big data analytics, internet of things, and digital platforms, have turned into indispensable drivers of productivity, innovation, and sustainable development. The technological transformations have not only changed the nature of business models but also the nature of economic resources, with intangible resources such as software, digital platforms, intellectual property rights, algorithms, and data becoming increasingly valuable for national competitiveness and sustainable socio-economic development (Choirunnisak & Azka Amalia Jihad, 2024).

In order to address the new challenges and capitalize on the opportunities associated with the digital transformation of the economy, governments, industry sectors, and higher education establishments around the world have intensified their efforts aimed at accelerating digital transformation as a way of enhancing innovation capability and fostering inclusive economic growth. The UN Sustainable Development Goals Namely Goals 4 (Quality Education), 8 (Decent Work and Economic Growth), 9 (Industry, Innovation and Infrastructure), 10 (Reduced Inequalities), and 17 (Partnerships for the Goals), highlight the importance of technological innovation in sustainable socio-economic development. Thus, today technology is not just an operational tool but a strategic resource that is able to create long-term public value (Anwar et al., 2024).

As far as the Islamic economic system is concerned, Islamic Social Finance (ISF) has always been an effective tool of fostering social justice, equal distribution of wealth, poverty reduction,

and community development. Through such tools as zakat, waqf, sadaqah, and qard hasan, ISF contributes to sustainable economic empowerment while preserving the ethical and moral values of Shariah. Among these tools, waqf holds a special place because of its perpetual nature, thus ensuring that endowed assets bring benefit to society generation after generation (Saro & Mohd Noor, 2024). Over the centuries, waqf organizations have performed an important role in financing mosques, schools, universities, hospitals, infrastructure projects, water-supply systems, and various philanthropic activities that facilitated the rise and development of Islamic civilization (Hasan & Syahrudin, 2022).

The historical development of waqf also reflects its ability to adapt to changing socio-economic conditions. Starting from immovable assets such as land and buildings, the notion of waqf has gradually expanded to include such assets as movable assets, cash waqf, corporate waqf, educational waqf, productive waqf, and other modern forms of waqf that respond to the emerging needs of society. Today, owing to the growing importance of technology, waqf management is becoming more and more digitized thanks to online donation platforms, blockchain governance, crowdfunding, mobile apps, and fintech solutions. All these initiatives considerably increase transparency, accountability, effectiveness, and engagement of donors (W. M. B. Wan Ismail et al., 2023).

Nevertheless, in spite of all these developments, today the focus of contemporary discourse is primarily on the digitalization of waqf management, while the topic of technology itself as a potential waqf asset has received much less attention. The difference between these two topics is important because today technology is increasingly becoming a productive resource that is capable of generating sustainable social and economic benefit. Such resources as digital infrastructure, artificial intelligence systems, research technologies, intellectual property rights, cloud computing, and digital knowledge resources may have such characteristics that would enable them to serve as sustainable assets bringing benefit to society for a long time (Okine et al., 2023).

In the context of Islamic jurisprudence, the continuous development of waqf shows the flexible nature of Islamic law in responding to changes in economic reality through the mechanisms of *ijtihad*, *maslahah*, and *Maqasid al-Shariah*. The modern acceptance of cash waqf, waqf *al-manfa'ah* (usufruct waqf), and certain forms of intellectual property has widened the scope of scholarly discussion on the type of assets that could be used for waqf purposes. All these developments create an important theoretical basis for reconsidering the possibility of treating technological assets as a part of waqf in case they meet the necessary criteria established by Shariah.

Thus, this paper is devoted to introducing the notion of Technology Waqf, which is defined as the perpetual endowment of tangible and intangible technological assets for the welfare of society in line with Shariah requirements. In contrast to existing studies that consider technology as an operational tool, this paper attempts to treat technology as a waqf asset that can generate sustainable socio-economic value through innovation, education, research, entrepreneurship, health care, digital inclusion, and knowledge diffusion. In doing so, the study seeks to broaden the theoretical boundaries of waqf while contributing to the ongoing development of Islamic Social Finance in the contemporary digital economy (Maretaniandini et al., 2025).

Evolution of Waqf: From Traditional Assets to Technology Assets

Historical Evolution of Waqf

Waqf has traditionally been considered one of the key institutions of Islamic civilization as a sustainable means of wealth preservation, social welfare, and development. Derived from the Arabic word *waqafa*, which translates as "to stop," "to hold," or "to preserve," waqf stands for a permanent dedication of an asset to the public good based on Shariah values. In this case, the asset belongs to someone, but its benefits are continuously used for philanthropic, educational, religious, or any other public purpose (Priyadi et al., 2023).

Traditionally, waqf consisted of immovable assets like agricultural land, residential buildings, mosques, schools, hospitals, wells, and other public facilities. These assets played a key role in providing public goods in many spheres of life including education, health care, transportation, poverty alleviation, etc. Classical jurists preferred physical objects with a prolonged lifespan because it would ensure continuous public benefit thus meeting the purpose of waqf (Allah Pitchay et al., 2018).

Yet, in the last hundred years, the socio-economic environment underwent a substantial change due to industrialization, innovation, globalization, and digital transformation. As a result, today the list of productive assets has become much larger and Islamic scholars started extending the notion of waqf to include not only traditional immovable objects but movable property, cash waqf, investment fund, corporate shares, intellectual property, usufruct rights, and so on. This is the dynamic character of the Islamic jurisprudence aimed at responding to emerging needs of society while preserving its main values (Shahid Azim Mohd Saufi et al., 2023).

The recognition of cash waqf became one of the milestones of the modern development of waqf. Instead of land or any other object, a donor could dedicate money invested in Shariah-compliant operations whose returns were intended to provide funds for charitable programs. In addition, the appearance of corporate waqf showed that a business organization could permanently dedicate shares, dividends, or any other corporate property in order to support social development in the long term. These examples demonstrated the ability of the waqf idea to adjust to new kinds of productive assets (Pangestu et al., 2025).

Furthermore, the rapid pace of digital transformation has stimulated even greater innovative activity in the sphere of waqf. Today, waqf institutions widely use mobile applications, blockchain technology, crowdfunding services, FinTech solutions, artificial intelligence, and cloud computing in order to improve governance, transparency, accountability, and donor engagement in waqf activities (Binsaeed et al., 2023).

However, although the technologies used in waqf operations become much more sophisticated, the current literature considers technology merely as a means of improving waqf institutions' management but not as a productive waqf asset. Thus, the discourse of waqf is mainly focused on operational digitization while the possibility of dedicating technologies that generate a continuous benefit to the community stays underdeveloped. Addressing this conceptual deficiency allows laying the foundation for Technology Waqf paradigm in Islamic Social Finance (Binsaeed et al., 2023).

Evolution of Waqf Assets

The development of the waqf assets implies that the waqf concept has been constantly expanding in the light of economic development and the progress of society. Thus, the waqf did not stay restricted to some specific types of physical assets; instead, it evolved in the direction of encompassing new kinds of valuable property with an ability to provide sustainable benefit for public use. The evolution shows how flexible the Islamic legal system has been in terms of accommodating new socioeconomic reality while retaining all major aspects of waqf, namely, its perpetuity (*ta'bid*), capital preservation, and constant provision of benefit (*manfa'ah*) (Hidayat et al., 2024).

The evolution of the waqf assets may be divided into five main stages. First is the stage of traditional waqf which mainly includes immovable assets like land, mosques, madrasas, agricultural farms, hospitals, and other infrastructure objects. They dominated the classical era of waqf due to their durability and benefit provided in the long-term perspective. Second is the stage of acceptance of movable assets and cash waqf that enabled to invest money in order to generate profit while keeping the initial capital intact. In turn, this stage opened up the opportunities for wider involvement of people from different strata of society into the process of waqf contribution (Butticè & Vismara, 2022).

Third stage involves the use of corporate waqf and other productive financial assets, including stocks, investment portfolio, sukuk, businesses, etc. Such measures were taken to accommodate the increasing complexity of modern economy and the need for diversification of the sources of sustainable financing for charity work. Fourth stage refers to the digitalisation of the waqf system. At this stage, the technology has been mainly used for making the process more effective with the help of digital payment systems, crowdfunding platforms, blockchain, online fundraising, and integrated management systems (et al., 2025). Although such measures have made the waqf management system more modern, the technology was used as a supplementary instrument and not as the endowed object.

Fifth stage, as defined in this paper, refers to the concept of technology waqf. Different from all previous stages, Technology Waqf involves the technology itself being the waqf asset. Within this concept, it is possible to endow technologically valuable assets like software, artificial intelligence applications, cloud computing infrastructure, digital laboratory, research equipment, patents, learning platforms, data sets, algorithms, and technological expertise that will be providing sustainable benefit in the long run according to the rules of Shariah (Mokthar et al., 2024).

In this way, the evolutionary perspective shows that technology waqf is not a deviation from the waqf traditions but its natural continuation. As society becomes more knowledge and digital-oriented, technology can become a source of educational, economic, scientific, and social benefit comparable to that which was traditionally generated by the immovable waqf assets (Binsaeed et al., 2023).

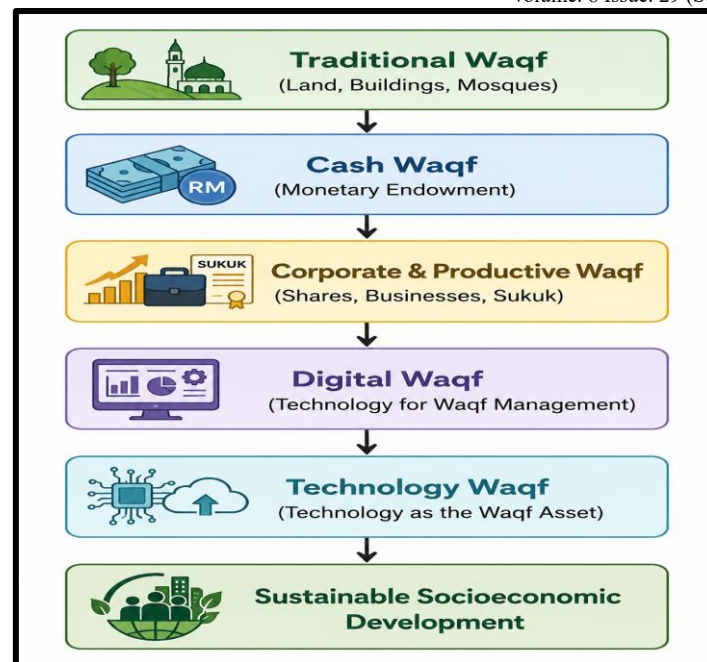


Figure 1: Conceptualising Technology Waqf

Source: Generated by researcher

Understanding the Concept of Technology Waqf

The fast adoption of digital technology has led to significant changes in the definition of economic assets and wealth generation. Currently, in knowledge-based economies, technological assets like software, artificial intelligence (AI), digital technology, cloud computing, intellectual property rights, research data bases, algorithms, and digital platforms have become productive assets that can generate sustained socio-economic value. Therefore, technological assets should be viewed as both operational and productive tools which can provide socio-economic benefits (Ismail et al., 2023).

So far, in waqf literature, technological innovations have mostly been considered as tools which can enhance the efficiency of institutions. Researchers have extensively analyzed how blockchain can be used for improving transparency, fintech for making online donations, artificial intelligence for decision making by waqf institutions, and digital platforms for engaging donors. These innovations have helped modernizing the waqf institution. However, technology continues to be seen as an enabler rather than waqf in itself (Hidayat et al., 2024). According to this paper, the above interpretation is just one side of the relationship between waqf and technology. With the growing significance of technology as a form of asset which can yield sustained benefits, it becomes important from a conceptual point of view to see whether technology can be made waqf itself if its usage meets the requirements of Shariah and maslahah (W. M. B. Wan Ismail et al., 2023).

Therefore, this study attempts to propose Technology Waqf as a new conceptual framework in Islamic Social Finance. The concept widens the conventional understanding of waqf by considering not only tangible but also intangible technological assets as waqf properties capable of generating perpetual socioeconomic benefits. Unlike traditional waqf in which physical assets are waqf for charitable purposes, Technology Waqf deals with technological

assets which keep facilitating education, research, innovation, entrepreneurship, healthcare, digital inclusivity, environmental sustainability, and community development (Husein et al., 2025).

Definition of Technology Waqf

Technology Waqf is defined as the perpetual dedication of tangible and intangible technological assets, including technological infrastructure, software, artificial intelligence applications, intellectual property, technology expertise, laboratories, digital knowledge resources, and other innovation assets for the welfare of the community as per the tenets of Shariah for the sustainable socioeconomic development of people (Husein et al., 2025).

These defining features include the following four aspects. Firstly, Technology Waqf involves tangible as well as intangible technological assets. Secondly, these assets are dedicated permanently for the welfare of the community. Thirdly, management and use of the assets must be done according to the Shariah. And lastly, the overall objective of this concept is not restricted to charitable services; rather, it is intended to achieve sustainable socioeconomic development, innovation, and human capital development. This wider definition can be attributed to the evolution of economic assets in the digital age when more value is created by intangible technological assets than physical assets (Shahid et al., 2024).

Table 1: Proposed Definition of Technology Waqf

Component	Description
Asset	Tangible and intangible technological resources
Ownership	Permanently dedicated as waqf
Beneficiaries	Society, educational institutions, researchers, entrepreneurs, public organisations
Objective	Sustainable socioeconomic development
Governance	Shariah-compliant management
Expected Outcome	Continuous public benefit through technological innovation
Component	Description
Asset	Tangible and intangible technological resources

Source: Generated by researcher

Core Attributes of Technology Waqf

On the basis of the conceptual analysis in this research, Technology Waqf can be explained by means of six key characteristics that differentiate it from the traditional practices of waqf. Firstly, the concept involves perpetuity when technology assets are maintained in such a way that their benefits may be everlasting through appropriate maintenance, upgrade, licensing or consistent transfer of knowledge. Secondly, Technology Waqf implies public interest and focuses on the creation of tangible social value through better education, health care, research, entrepreneurship, financial inclusion, and well-being of communities. Thirdly, the concept promotes innovation as it stimulates constant advancement and application of technological solutions and not the preservation of resources. Fourthly, accessibility is the key characteristic that ensures the equitable access of eligible beneficiaries to all benefits created through

Technology Waqf thus promoting digital inclusion and reducing technology gap. Fifthly, Technology Waqf stresses the importance of knowledge dissemination through education, research collaborations, open innovation and capacity building activities. Finally, Technology Waqf is focused on sustainability when endowed technology assets create economic resilience, environment sustainability and social well-being creating benefits continuously for the current and future generations (Megat et al., 2024).

Dimensions of Technology Waqf

Technology Waqf can be identified with respect to two main dimensions, namely tangible technology waqf and intangible technology waqf due to the diversity of technological properties that could be endowed for the purpose of public welfare. The tangible technology waqf involves physical technological properties with material form that constantly serve educational, research, health and innovation purposes. Some examples of tangible technology waqf include AI labs, smart classrooms, computer labs, research tools, robotics lab, Internet of Things, digital fabrication lab, and data center. Tangible technology waqf offers technological properties needed for knowledge creation, scientific research, digital education, and community development by offering sustained socioeconomic benefits (Usman & Ab Rahman, 2023).

On the other hand, intangible technology waqf entails non-physical technological properties that depend on their intellectual, digital, and knowledge-based attributes. For instance, software, mobile application, AI models, cloud computing, digital libraries, patents, copyrights, educational materials, algorithms, research database, and digital learning platforms belong to intangible technology waqf. In spite of being intangible properties, technological properties of such kind have the potential to produce perpetual public welfare by way of licensing, knowledge diffusion, education, technology transfer, innovation, and public use. In the modern knowledge-based economy, intangible technological properties become a key resource for creating sustainable social and economic value (Agaileh, 2024).

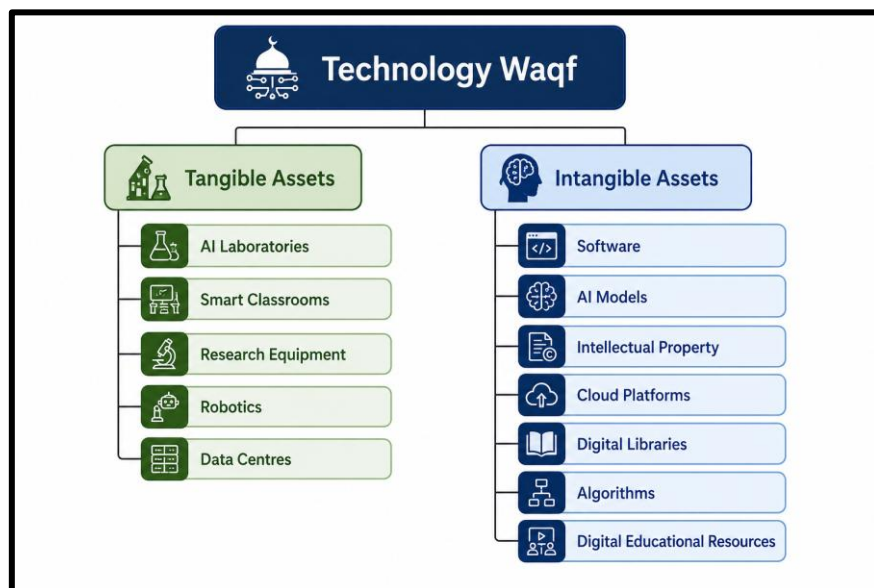


Figure 2: Taxonomy of Technology Waqf

Source: Generated by researcher

Technology Waqf versus Digital Waqf

Another crucial point of this study is the distinction made between Digital Waqf and Technology Waqf. While both these concepts deal with technology, there is a conceptual difference between them. The main thing about Digital Waqf is the use of digital technologies in waqf management, which implies online donations, blockchain governance, digital payments, crowdfunding, and digital documentation. In this context, technology is viewed as an enabler that facilitates the efficiency of waqf management (W. M. Wan Ismail & Abdul Rasool, 2021).

As opposed to Digital Waqf, Technology Waqf sees technology as an endowed resource that becomes an integral part of waqf and cannot be taken away. Thus, while Digital Waqf uses technology just as a management tool, Technology Waqf uses it as the resource that is devoted to people's welfare and development through education, innovations, research, entrepreneurship, and so forth. The main idea of Technology Waqf is that technological resources are capable of providing continuous social benefits just like any physical property endowed by the waqf (Saro & Mohd Noor, 2024).

Table 2: Comparison between Digital Waqf and Technology Waqf

Aspect	Digital Waqf	Technology Waqf
Primary focus	Digitalising waqf administration	Technology as the endowed asset
Role of technology	Management tool	Waqf property
Main objective	Operational efficiency	Sustainable socioeconomic development
Examples	Online donation, blockchain records, crowdfunding	AI systems, software, patents, cloud infrastructure, digital laboratories
Long-term contribution	Improved governance	Innovation, research, education, entrepreneurship and continuous public benefit

Source: Generated by researcher

Shariah Foundation of Technology Waqf

Shariah Perspective on the Evolution of Waqf Assets

The waqf system continues to be in line with the objectives of the Shariah (Maqasid al-Shariah), particularly the welfare of people (maslahah) and safeguarding of wealth (hifz al-mal). Throughout history, waqf systems have evolved according to socioeconomic situations while adhering to key waqf principles. The historical evolution is an indication of the dynamism of Islamic jurisprudence in integrating novel forms of property that generate continuous benefits for the public (Jamil et al., 2024). Traditionally, waqfs were viewed as being related to immovable properties such as land, building, and estates because of their durability and sustainability. However, Islamic law has never limited the waqf to immovables only. The evolution to cover movable properties, money waqf, stocks in companies, and usufructs shows

that the determination of the permissibility of waqf does not depend on the nature of the property only but also its durability and sustainable benefits.

In today's society, technological assets continue to play roles similar to those played by physical assets. Examples of such assets are software, digital platforms, cloud computing technologies, research databases, artificial intelligence (AI) technology, and technological knowledge used in education, healthcare, scientific research, entrepreneurship, and government affairs. Therefore, the continuous evolution of waqf offers a valid theoretical basis for treating technological assets as possible waqf properties as long as they satisfy the requirements of Shariah (Usman & Rahman, 2021).

Maqasid al-Shariah as the Foundation of Technology Waqf

Technology Waqf fits very well into the concept of Maqasid al-Shariah, which protect and enhance the basic human necessities. It does not introduce a new concept or type of waqf; rather it is an application of existing principles to technological resources available in the modern world. Technology Waqf helps in protecting and enhancing religion (hifz al-din) through creating digital platforms for Islamic education, digital QURAN learning tools, virtual fatwa service and dissemination of authentic Islamic knowledge (Hija, 2024).

Life (hifz al-nafs) is protected through technological innovations in healthcare, telemedicine, medical artificial intelligence, emergency response technology and digital public health. Preserving of intellect (hifz al- 'aql) is facilitated by using technologies in education sector such as digital libraries, research databases, artificial intelligence assisted learning and open knowledge platforms (Bhar i & Abdullah, 2016).

Preservation of wealth (hifz al-mal) is helped by encouraging innovations, entrepreneurship, financial inclusion, digital productivity, cybersecurity and efficient use of resources. Technological resources can be used productively and efficiently generating sustainable economic value and at the same time preventing wastage of public resources. Finally, Technology Waqf also helps in preserving lineage (hifz al-nasl) through providing education, healthcare, social services and economic opportunities to present and future generations (Anwar et al., 2024).

Maslahah and Public Interest

One of the key juristic foundations of Technology Waqf is that of maslahah (public interest). According to Islamic jurisprudence, decisions must serve the purposes of benefit and prevention of harm where such benefits are in accordance with the objectives of the Shariah. Technology has proven to be an essential factor in today's socio-economic development. Digital learning tools, medical technology, artificial intelligence, infrastructure for research, and digital communication affect people's success in studying and working, thus shaping their lives and societies. Endowing such technologies will make it possible for society to derive common advantages while minimizing inequities in gaining access to technological opportunities (Saputra, 2025). Thus, from this perspective, Technology Waqf may be considered an actual method for serving the public interest by providing technological resources in an environmentally friendly way.

Waqf al-Manfa'ah and Intangible Assets

The growing understanding of waqf al-manfa'ah (waqf of usufruct or beneficial rights) provides a necessary jurisprudential basis for widening waqf into intangible properties. Modern scholars argue more often that the benefit of a property can become the subject of waqf if the ownership and usage of such property comply with Shariah principles (Laili et al., 2023).

A vast majority of technological assets are inherently intangible. Software products, inventions, artificial intelligence algorithms, digital libraries, cloud services, educational materials, and research platforms are mostly valued for their function and the intellectual input rather than the material form of the products. Their ability to provide permanent benefit is similar to the manfa'ah principle according to which the usage but not the possession is what generates value (Owais & Ali, 2024). Therefore, Technology Waqf can be regarded as a further development of the waqf al-manfa'ah notion wherein the perpetual benefit provided by technology assets is dedicated to the public good.

Technology Waqf within Islamic Social Finance

Technology Waqf should not be viewed as an independent institution separate from Islamic Social Finance but rather as an innovative component that complements existing instruments such as zakat, sadaqah, and qard hasan. While zakat primarily addresses immediate socioeconomic needs and sadaqah encourages voluntary charitable giving, Technology Waqf focuses on creating sustainable technological infrastructure that continuously empowers communities through education, research, innovation, and entrepreneurship (Mohd Saufi et al., 2024).

By integrating technological assets into the broader Islamic Social Finance ecosystem, Technology Waqf has the potential to enhance institutional collaboration among governments, universities, waqf institutions, technology companies, and civil society organisations. Such collaboration may accelerate digital inclusion, strengthen innovation ecosystems, and support sustainable development while remaining consistent with the ethical principles of Islam.

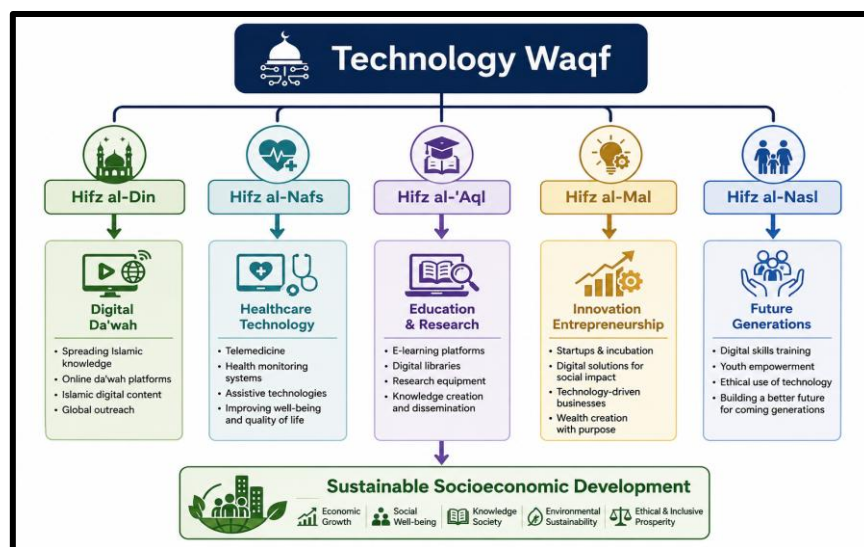


Figure 3: Technology Waqf and Maqasid al-Shariah

Source: Generated by researcher

Technology Waqf Model (TWM)

Overview of the Technology Waqf Model

The Technology Waqf Model (TWM) is proposed as a conceptual framework illustrating how technological assets endowed as waqf can generate sustainable socioeconomic benefits through a systematic process involving institutional governance, technological deployment, innovation, and community empowerment. The model extends the traditional understanding of waqf by positioning technology not merely as an operational instrument but as a productive asset capable of continuously creating public value (Husein et al., 2025).

Unlike previous frameworks that primarily emphasise fundraising mechanisms or digital governance, the proposed model integrates technological resources, Shariah principles, stakeholder collaboration, and sustainable development into a unified conceptual structure. The model demonstrates that the effectiveness of Technology Waqf depends not only on the availability of technological assets but also on the institutional ecosystem responsible for managing, maintaining, and disseminating these resources.

The Technology Waqf Model consists of six interconnected components: Technology Waqf Assets, Institutional Enablers, Technology Deployment, Socioeconomic Outputs, Sustainable Outcomes, and Maqasid al-Shariah. Together, these components explain the pathway through which endowed technological resources generate continuous public benefits (Yu & Fleming, 2022).

Component 1: Technology Waqf Assets

Technology Waqf begins with the endowment of technological assets that possess the capacity to generate continuous benefits for society. These assets may be categorised into tangible and intangible resources. Tangible assets include computer laboratories, artificial intelligence laboratories, robotics facilities, smart classrooms, digital libraries, servers, Internet of Things (IoT) infrastructure, research equipment, and innovation centres. These physical resources provide the technological foundation necessary for education, research, healthcare, and entrepreneurship (Yu & Fleming, 2022).

Intangible assets comprise software applications, artificial intelligence models, cloud-based platforms, patents, copyrights, research databases, digital educational resources, algorithms, and technological expertise. Although these resources lack physical form, they possess substantial productive value through continuous utilisation, licensing, and knowledge dissemination. The sustainability of Technology Waqf depends on the strategic selection of technological assets capable of remaining relevant through continuous upgrading, maintenance, and adaptation to technological change.

Component 2: Institutional Enablers

The second component of the Technology Waqf Model consists of the institutional mechanisms that facilitate the effective implementation and sustainability of Technology Waqf initiatives. These institutional enablers include Shariah governance, waqf institutions, universities, government agencies, technology companies, research institutions, community organisations, and sustainable financing mechanisms. Collectively, these stakeholders form a

collaborative ecosystem that supports the mobilisation, management, and utilisation of technological assets for public benefit. Their active participation ensures that endowed technological resources are strategically deployed to maximise their socioeconomic impact while remaining aligned with the objectives of Islamic Social Finance.

Effective collaboration among these institutional actors is essential to ensure that technological assets are properly maintained, continuously upgraded, and equitably distributed among beneficiaries. In addition, institutional governance plays a critical role in safeguarding accountability, transparency, cybersecurity, intellectual property rights, and compliance with Shariah principles throughout the lifecycle of Technology Waqf assets. Robust governance frameworks not only enhance public trust and institutional credibility but also ensure the long-term sustainability and effectiveness of Technology Waqf in promoting innovation, knowledge creation, and sustainable socioeconomic development (Usman & Rahman, 2021).

Component 3: Technology Deployment

Following effective institutional coordination, the endowed technological assets are deployed to support a wide range of socioeconomic activities that enhance public welfare and promote sustainable development. The deployment of Technology Waqf may encompass various sectors, including digital education, research collaboration, healthcare innovation, entrepreneurship development, agricultural technology, financial inclusion, digital literacy programmes, community innovation centres, artificial intelligence applications, and digital public services. Through these diverse applications, Technology Waqf enables technological resources to be utilised strategically in addressing contemporary societal challenges while fostering innovation, productivity, and inclusive growth.

Rather than remaining dormant assets, Technology Waqf continuously creates value through their practical utilisation by individuals, institutions, and communities. The effectiveness of this deployment stage depends not only on the availability of technological resources but also on the successful transfer of knowledge and skills to end-users. Consequently, education, professional training, mentoring, capacity-building initiatives, and continuous technical support are essential to maximise the impact of endowed technological assets. These complementary activities ensure that Technology Waqf contributes meaningfully to human capital development, technological empowerment, and long-term socioeconomic sustainability.

Component 4: Socioeconomic Outputs

The effective utilisation of Technology Waqf generates a range of immediate outputs that strengthen the socioeconomic capacity of individuals, institutions, and communities. These outputs include improved digital literacy, increased research productivity, enhanced innovation capability, entrepreneurship development, improved educational quality, greater healthcare accessibility, broader technological inclusion, expanded employment opportunities, and strengthened community empowerment (Saputra, 2025). Collectively, these outcomes demonstrate the immediate value created through the strategic deployment of endowed technological assets across multiple sectors.

These immediate outputs not only enhance individual knowledge, skills, and competencies but also improve institutional performance by fostering innovation, collaboration, and operational

efficiency. As educational institutions, research organisations, waqf institutions, government agencies, and technology providers increasingly benefit from shared technological resources, the collective impact contributes to the strengthening of national innovation ecosystems and the development of a more inclusive knowledge-based society. Consequently, Technology Waqf serves as a catalyst for enhancing technological capability and socioeconomic resilience, thereby laying the foundation for long-term sustainable development.

Component 5: Sustainable Outcomes

The cumulative outputs generated through the effective implementation of Technology Waqf contribute to broader and long-term socioeconomic outcomes that extend beyond the immediate benefits of technological deployment. These outcomes include sustainable economic growth, inclusive digital development, poverty reduction, enhanced social resilience, improved quality of life, the advancement of a knowledge-based economy, innovation-driven development, and sustainable human capital development. Collectively, these outcomes reflect the transformative potential of Technology Waqf in addressing contemporary socioeconomic challenges while fostering inclusive and sustainable development (Ab Rahman et al., 2024). Unlike one-off charitable assistance, which primarily provides short-term relief, Technology Waqf creates enduring productive capacity by enabling individuals, institutions, and communities to continuously utilise technological resources for education, research, innovation, entrepreneurship, and economic empowerment (Shahrullah et al., 2024). Through the sustained availability and utilisation of these endowed technological assets, beneficiaries are empowered to generate further social and economic value, thereby creating a multiplier effect that reinforces long-term community resilience and sustainable socioeconomic development. This continuous cycle of value creation highlights the distinctive role of Technology Waqf as a strategic instrument within Islamic Social Finance that promotes both immediate public benefit and lasting developmental impact.

Component 6: Achievement of Maqasid al-Shariah

The final component of the Technology Waqf Model demonstrates that the implementation of Technology Waqf ultimately contributes to achieving the higher objectives of Islamic law (Maqasid al-Shariah). By mobilising technological assets for public benefit, Technology Waqf supports the preservation of religion (Hifz al-Din) through digital Islamic education, online religious learning, and the dissemination of authentic Islamic knowledge. It also contributes to the preservation of life (Hifz al-Nafs) by facilitating healthcare technologies, telemedicine, medical innovation, and public safety initiatives. Furthermore, Technology Waqf strengthens the preservation of intellect (Hifz al-'Aql) by promoting education, scientific research, technological innovation, and lifelong learning opportunities that enhance human capital and knowledge development.

In addition, Technology Waqf supports the preservation of wealth (Hifz al-Mal) by fostering entrepreneurship, enhancing productivity, encouraging technological innovation, and creating sustainable economic opportunities. It also contributes to the preservation of future generations (Hifz al-Nasl) through improved access to quality education, healthcare services, and technological opportunities that enhance long-term social wellbeing and intergenerational development. Consequently, Technology Waqf functions as an integrated mechanism that simultaneously advances the objectives of Maqasid al-Shariah and promotes sustainable

socioeconomic development, demonstrating that technological innovation can be harmoniously integrated with Islamic ethical values to generate continuous public benefit.

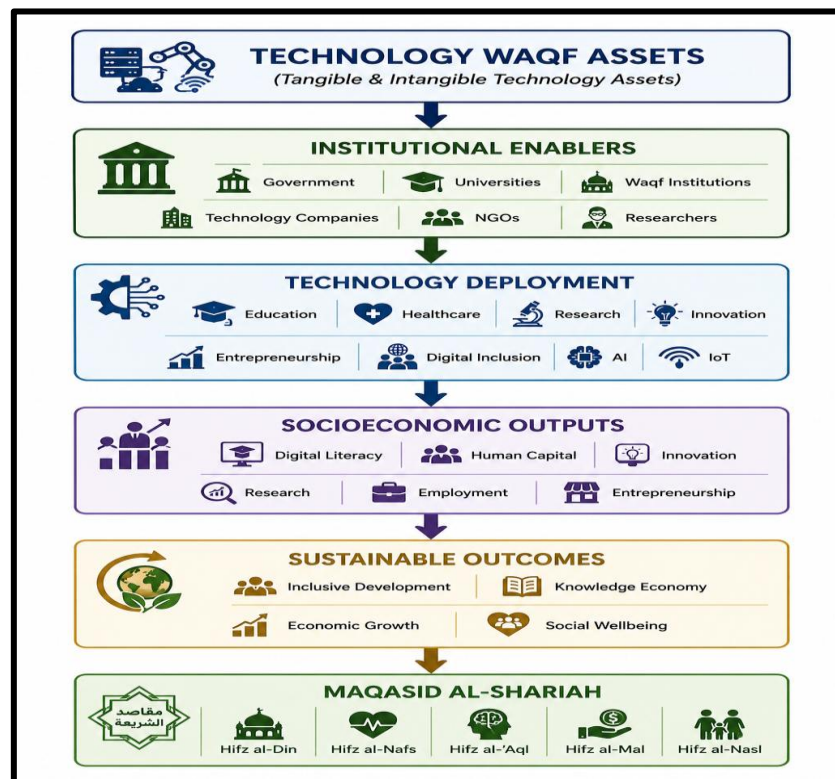


Figure 4: Technology Waqf Model (TWM)

Source: Generated by researcher

Theoretical Contributions of the Technology Waqf Model

The proposed Technology Waqf Model contributes to the existing literature in several important ways.

First, it broadens the conceptual boundaries of waqf by recognising technological resources as productive waqf assets rather than merely operational tools. Second, it integrates Islamic Social Finance with digital transformation and innovation management, thereby establishing an interdisciplinary framework that reflects contemporary socioeconomic realities. Third, it demonstrates that Technology Waqf can function as a sustainable mechanism for promoting innovation, education, entrepreneurship, healthcare, and digital inclusion while remaining firmly grounded in the objectives of Shariah.

Finally, the model provides a theoretical foundation for future empirical studies examining the implementation, governance, effectiveness, and socioeconomic impact of Technology Waqf across different institutional contexts.

Discussion

Technology Waqf as a New Paradigm in Islamic Social Finance

The emergence of Technology Waqf represents an important conceptual change in the development process of Islamic Social Finance. Until now, the concept of waqf has mostly referred to the waqf of physical and financial assets with which their benefits cannot be changed to serve any purpose other than charity. With recent innovations in waqf practices, cash waqf, corporate waqf, and digital waqf have emerged; however, the underlying assets have not gone beyond being conventional ones. This study introduces a different viewpoint where technological resources are viewed as waqf assets for producing public benefits on a continuing basis.

Such conceptual change is due to the fact that modern economies are characterized by the knowledge-driven approach to development where the main values of the economy are based on innovation and digital technologies. In modern society, software, AI-based systems, cloud technologies, technological platforms, patents, and technological competences often create more value for the long run than many conventional physical assets. The limitation of the types of waqf assets to conventional property can prevent waqf from meeting the needs of society today and in the future (Shahid Azim Mohd Saufi et al., 2024).

Therefore, the concept of Technology Waqf expands the boundaries of the concept of waqf without changing its fundamental Shariah principles and shows how the core objectives of waqf continue to operate notwithstanding changes in the type of production assets.

Contributions to Islamic Social Finance Literature

The present study contributes to the Islamic Social Finance literature in several important respects.

First, it extends existing discussions by shifting attention from technology-enabled waqf management towards technology as an endowable waqf asset. Previous research has primarily examined digital payment systems, blockchain applications, crowdfunding platforms, and financial technology as instruments for improving governance and operational efficiency. Comparatively little attention has been devoted to exploring whether technological assets themselves may become productive waqf resources.

Second, the study develops a comprehensive conceptual definition of Technology Waqf that incorporates both tangible and intangible technological assets. This broader conceptualisation reflects the changing nature of wealth in knowledge-based economies and provides a theoretical foundation for future scholarly discussion. Third, the proposed Technology Waqf Model (TWM) integrates Islamic Social Finance, digital transformation, innovation management, and sustainable development into a unified conceptual framework. By combining these interdisciplinary perspectives, the model demonstrates how technological resources may contribute simultaneously to economic development and the objectives of Maqasid al-Shariah (Ascarya et al., 2023).

Finally, this study opens new avenues for empirical research concerning governance mechanisms, institutional readiness, legal frameworks, stakeholder collaboration, and the socioeconomic impact of Technology Waqf across different jurisdictions.

Practical Implications

In addition to the theoretical importance of Technology Waqf, there is great practical importance in terms of policy makers, waqf institutions, universities, technology firms, and civil society organizations. In regard to waqf institutions, the concept provides an incentive to diversify the portfolio of waqf assets from the traditional forms of land and money towards more diversified technology-based assets that are able to provide continuous income flows. Universities have great potential to engage in establishing digital endowed laboratories, databases of open-source research results, artificial intelligence learning platforms, technology incubators, etc. As for technology firms, these can become involved in donating software licenses, cloud infrastructure, research grants, patents, cybersecurity services, technical skills, etc. as part of their corporate social responsibility or Islamic social finance activities (Yusgiantoro et al., 2024). Governmental authorities and policy makers may use Technology Waqf as part of their national strategy of digital transformation to promote collaboration between universities, industries, waqf institutions, and technology providers which may contribute to accelerating digital inclusion, development of innovation ecosystem, and sustainable human capital development without using public funding.

Policy Implications

According to the findings of the current research, Technology Waqf can be considered as a tool that can strategically be used in national Islamic Social Finance frameworks. Thus, policymakers need to look at the expansion of waqf regulations and add certain technological assets (software, digital platforms, research infrastructure, patents, and cloud services) into the waqf asset list, making sure they are properly protected from a Shariah and legal perspective. The national waqf authorities can introduce guidelines for the assessment, management, maintenance, and monitoring of Technology Waqf in order to provide transparency and sustainability. Among other things, the guidelines are expected to cover such aspects as lifecycle management, cybersecurity, intellectual property, risk management, and beneficiary access (Okine et al., 2023).

Furthermore, universities can serve as the pioneers of Technology Waqf and establish such entities as endowed digital research laboratories, repositories of open educational resources, centers of AI-assisted learning, and innovation centers that will be financed via waqf. It is possible to cooperate with technology firms and philanthropists in order to achieve greater efficiency of such initiatives.

Finally, governments have to foster multi-stakeholder cooperation between waqf organizations, universities, industries, and civil societies as a way to facilitate the process of technology transfer, capacity development, and innovation dissemination. As a result, it will be possible to get the maximum socioeconomic effect of Technology Waqf (Rusydiana et al., 2024).

Conclusion

Development in digital technologies has changed the nature of productive assets and provided innovation opportunities, creation of new knowledge, and sustainable socioeconomic development. Previous research focused on utilizing the digital technology to improve the waqf administration and governance. However, not much attention was paid to technology itself as the endowable waqf asset. The issue becomes more urgent due to the fact that technological assets can be considered strategic assets providing the continuous production of economic and social value.

Technology Waqf is proposed as a novel paradigm of waqf within the framework of Islamic Social Finance. Based on the evolution of the waqf institution, it can be assumed that technological assets including digital infrastructure, software, artificial intelligence, intellectual property, technological expertise, research laboratories, and digital knowledge resources can serve as waqf assets when being permanently dedicated to the public good according to the principles of Shariah. Unlike the historical replacement of waqf assets, Technology Waqf provides the possibility to adapt the institution to the reality of knowledge-based economy.

In order to emphasize this conceptualization, Technology Waqf Model (TWM) is proposed that illustrates how the endowed technological assets supported by proper governance and collaboration of institutions contribute to innovation, digital inclusion, human capital, entrepreneurship, and socioeconomic sustainability. Moreover, it is shown that Technology Waqf helps in achieving Maqasid al-Shariah through the protection of religion, life, intellect, wealth, future generation, as well as several Sustainable Development Goals.

There are four main contributions to the existing literature. First, Technology Waqf is presented as the broadening of the concept of waqf by considering technology as the endowed asset. Second, Technology Waqf is defined and characterized, its features and dimensions are identified. Third, Technology Waqf Model (TWM) as a conceptual framework is introduced connecting Islamic Social Finance, technological innovation, and sustainable socioeconomic development. And finally, the recommendations for the development of innovative waqf initiatives following the principles of Shariah are provided for the policymakers, waqf institutions, universities, and technology organizations.

Being a conceptual study, it is necessary to note the limitations. The proposed conceptual framework requires empirical validation and can differ in different jurisdictions. Future research will investigate such issues as stakeholder acceptance, governance practices, legal readiness, valuation of the technological assets, and socioeconomic impact of Technology Waqf with the help of qualitative, quantitative, and mixed-method approaches. Comparative research among different jurisdictions can be useful to reveal the efficiency and scalability of Technology Waqf initiatives.

In conclusion, Technology Waqf represents a promising extension of the waqf institution that aligns Islamic philanthropic traditions with the demands of the digital economy. By recognising technological resources as productive waqf assets, this conceptual framework offers new opportunities to strengthen innovation, expand digital inclusion, empower communities, and promote sustainable socioeconomic development while preserving the enduring objectives and ethical values of Islamic law.

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