

HARNESSING THE POTENTIALS OF WAQF USING BLOCKCHAIN TECHNOLOGY IN NIGERIA: SOME LESSONS FROM MALAYSIA

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ABSTRACT

Islamic economic system provides veritable solutions to achieving socio-economic justice in the society. One of these instruments is waqf or Islamic endowment which historically was capable of addressing the needs of the Muslims rich and poor. The objective of this paper is to explore the role of blockchain technology in harnessing the potentials of waqf sector as a solution to the issue of transparency and accountability. With the myriad challenges in the Muslims land coupled with the dominance of conventional institutions that are prohibited by the sharia, Muslims faithful that want to follow the teachings of their religion are looking for an alternative solution to their accumulated economic problems that the existing system falls short of amending. Some of these problems in Nigeria include high level of poverty, unemployment, inequality, health and security challenges. Yet, the waqf sector, although not fully develop, faces accountability and transparency issue. The methodology adopted is qualitative in nature which includes focus group discussions, expert interview and critical review of literature. The data collected was transcribed, and analysed thematically. The

paper posits that smart contracts via blockchain technology will build public confidence which may lead to unprecedented level of mobilization of waqf resources. The paper also examines Malaysian practices of waqf and blockchain technology and draw some lessons thereon.

Keywords: *Waqf, Blockchain Technology, Nigeria, Malaysia.*

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1. INTRODUCTION

Waqf (Islamic endowment) is a major instrument for addressing the Muslims' past social, economic, and educational developments. It was used by the Ottoman Empire in Turkey as an effective policy instrument to address public interest and governance. It records colossal success in other jurisdictions as well. In the contemporary period, waqf is promoted as a panacea to socio-economic challenges bedeviling the society. Waqf has been in practice in Nigeria since the coming of Islam in the *Bilad al Sudan* and during the reign of Uthman bin Fodio. Muslim philanthropists in the past left some assets of waqf, mostly religious sites. However, waqf assets in Nigeria are often poorly documented and managed, while waqf organizations in Malaysia are coming up with initiatives to keep up with the demands of a rapidly changing society. More so, new awqaf properties and institutions are emerging in society. However, they face inadequate and ineffective regulations and management, which leaves a risk factor for sustainable implementation of the purpose of the waqf. Waqf has been used to fund education and provide healthcare services in Malaysia—for example, Albukhary International University and

Waqf An-Nur Corporate Bhd and healthcare in these countries. As part of the revival of the waqf institution, researchers call for more prominent responsibility of the waqf trustee (mutawalli) (Cajee, 2008). As the waqf evolved from only land to include cash and digital money, the mutawalli should demonstrate more transparency and accountability (Kamarubahrin, Ayedh, Khairi 2019). Although Malaysian waqf is more structured, with its management under the Islamic Religious Council, the emergence of Islamic digital finance requested for more public accountability and transparency. In Nigeria, while some organizations are performing well, some lack transparency and accountability, which causes low public confidence. The urge for boosting confidence in some quarters led to the call for adoption of blockchain technology in Islamic social finance.

The institution has played a pivotal role in the past and continue to make an impact in the life of many Muslims where a proper system is put in place. Despite the potential of waqf in social and economic development to the society as documented in the past, the institution is being relegated to the background or being practiced inefficiently with some hurdles related to accountability and transparency. In some cases, this led to the loss of waqf assets and its underutilization. Previous researches established the problems with mismanagement of waqf institutions in various jurisdictions in Nigeria, Malaysia, and other Muslim countries (Mohaiyadin et al., 2022, Muhammad, 2023, Kamarubahrin et al., 2019).

However, the institution has been criticized for keeping resources idle without proper utilization and development (Kuran, 2004). Some scholars attribute the inefficiency of waqf organizations to the mismanagement of the waqf resources

(Muhammad, 2023; Haneef et al., 2013). This accusation is growing in some quotas where waqf property is abused. Previous studies focus on improving efficiency through the traditional approach of building trust and public confidence (Kahf, 2008). With the recent emergence of digital technology into society and particularly its application in financial services or what is referred to as Fintech, profit-making firms are migrating to the new system to offer financial services using technology. In other words, the emergence of blockchain technology is seen as a panacea to waqf inefficient and unaccountable management. The adoption of blockchain technology, in particular, will provide a new avenue for waqf organizations to thrive and protect themselves from erosion. The confluence between waqf and technology is that of sustainability and permanence.

Blockchain at its core is a database or book records for all digital transactions or events which has been implemented and shared among participants. Every ledger transaction will be verified by agreement of the majority of participants in the system. It uses high level security data whereby the stored data is impossible to change. The result is to ensure integrity is at a high level (Nor Paizin et al., 2021). Therefore, in line with the current development in technology, zakat and waqf institutions can benefit from blockchain technology for providing a peer-to-peer transaction system which is based on a fully distributed system by the autonomous process, especially, the application of the smart contract. Hence, blockchain technology will provide an excellent platform for waqf transparency and accountability. The current study explores the potentials of harnessing waqf using blockchain technology in Malaysia and

Nigeria. It will also increase waqf literacy and financial technologies. The research will help to increase public awareness of waqf and to promote the adoption of financial technologies in the waqf sector. This could lead to an increase in the number of people interested in participating in waqf activities and developing new ways to use technology to manage waqf funds. Overall, the study is expected to significantly contribute to waqf resource mobilization for the development of the society.

2. LITERATURE REVIEW AND PROPOSED WAQF DEVELOPMENT FRAMEWORK

This section consists of reviewed literature on waqf, blockchain and practices of the duo in Malaysia and Nigeria. It also consists of the proposed conceptual framework of waqf development.

2.1 The Concept of Waqf and Its Evolution

Waqf refers to endowment that is kept intact and its usufructs spend on the identified beneficiaries for the sake of Allah. A waqif or donor once he donates an asset it is no longer belongs to him and it cannot be inherited neither it will be sold. It is permanent and irrevocable. The history of waqf started with the Masjid an-Nabawi in Madina. Allah mentioned in the Quran *"You will never attain to the piety until you spend from that which you love. And whatever thing you may spend, truly Allah is All-knowing about it (Quran 3:92).*

Originally, waqf for social and economic development was first made by Umar (r.a). As reported by Ibn Umar, "Umar bin Khattab acquired a piece of land in Khaybar, he came to the Prophet (pbuh) to consult him about it. He said, O Messenger

of Allah! I have got a piece of land in Khaybar of which I have never obtained more valuable property than this; (Although I aspire to reach out to Allah) what is your advice or suggestion about it and the best course of action to take? The Messenger of Allah (pbuh) said, "If you wish, make the property itself to remain inalienable, and give (the profit from) it to charity."

By and large, waqf is one of the major instruments used to tackle socio-economic needs of the society such as education, health, environmental sanitation, taking care of orphans and needy among others. During Ottoman empire headquartered in Turkey, more than one third of the land is waqf. Rashid (2018) stated that waqf served as a main source of financing public expenditure during economic crisis. Some recent studies reveal that waqf provides energy, medical services, scholarships, libraries and housing in various Muslim countries and communities. The multifaced waqf is seen to tackle 11 of the 17 Sustainable Development Goals that are in conformity with the objective of sharia (*maqasid*) (Muhammad, 2023).

Broadly there are two categories of waqf vis-avis waqf *al-khairiy* (general waqf for the public) and waqf *dhurri* (family waqf) for the family. Other contemporary classification can be in form of religious waqf and socio-economic waqf. In other words, the purpose is either dedicated for the worshipping such as in the case of mosques and graveyard or for socioeconomic purposes or income generation to the beneficiaries as in the case of waqf shops, health facilities, and housing (Nuruddeen, 2010).

Waqf can also be in form of property, cash or time as approved by the Maliki school of thought. Originally, waqf is synonymous to a physical and mostly non-movable assets like building.

However, nowadays and since the Ottoman empire period, cash waqf was developed and become major aspect of the contemporary waqf (Cizaka, 2009).

The revival of waqf coincides with the continuous development of Islamic financial instruments to solve socio-economic problems. The recent waqf based sukuk in Indonesia that won the Islamic Development Bank Award of Islamic Finance has triggered rapid development of waqf based sukuk where the investors invest the money in form of cash waqf and the proceeds are used to serve the needs of the identified beneficiaries. This innovative solution has sparked interest in the Islamic finance industry in general and philanthropic sector in particular to use the sukuk platforms for the fulfilment of the needs of the poor beneficiaries.

2.2 The Concept of Waqf and Accountability and Transparency

Interestingly, the obstacles in applying waqf, especially in the modern era, rally around trust, accountability, transparency, sound record systems, and management. Waqf management worldwide faces resistance when it comes to accountability and transparency as well as best practices. Ahmed (2015) in Uganda finds a trust deficit in the administration of waqf. Although the study is a public perception, it alludes to the fact that there is apprehension about donating waqf to religious scholars in the country. Similar findings were made in Malaysia by Mohaiyadin et al. (2022). In their study on accountability and transparency of waqf in public universities, they found that, with regard to transparency, there are errors in the issuance of receipts and difficulties in waqf proceeds distribution to the beneficiaries.

Regarding accountability, there were difficulties in controlling waqf activities and the distribution of waqf. The authors argued that this can be overcome by blockchain applications. However, the study is limited to waqf in Malaysian universities.

Kamarubahrin et al. (2019) investigate the accountability of states based waqf in Malaysia. Their findings show that there is a lack of accountability practices. More so, there is mismanagement of waqf in some areas. Thus, according to them, inadequate regulations were among the major factors that may lead to the problem encountered. They concluded that waqf accountability was central to the success story of waqf in the past, and its decline was attributed to the degradation of accountability by the mutawalli. Ebrahim (2003) categorizes accountability of non-profit entities to cover reports disclosure statements, performance assessments, evaluation, participation, self-regulation, and social audits.

Harun et al. (2016) investigate the role of waqf in supporting higher education in Malaysia. Their findings show that waqf can provide long-term sustainable funding for education. This is similar to Mujani, Taif, and Rifin's (2016) findings, which trace the history of funding education in Malaysia. According to them, as higher education becomes costly, Waqf has huge but unexplored potential for funding the sector. However, this can be harnessed more with accountable and transparent blockchain technology.

2.3 The Concept of Blockchain Technology

Blockchain is a decentralized, distributed directory that powers smart contracts and enables traceability, record management, and automation for the supply chain, payment applications, and

other business transactions. Blockchain provides an unchanging record of almost real-time replication between a network of users (Ali et al., 2021). The blockchain is a series of blocks linked together. Each block stores a certain amount of information and is linked into a chain based on its own time sequence. If one server can be used across the entire system, the chain created in this manner will be saved on all servers, ensuring the entire blockchain is secured. A node in the blockchain is a server that provides storage and computation for the blockchain's activity. If the data in the blockchain is to be changed, more than half of the nodes, which are frequently controlled by different subjects, must agree. As a result, changing the blockchain's data on your own is extremely difficult. The blockchain's characteristics make data modification harder than on older networks, ensuring its authenticity and reliability. As a result, when the blockchain is used in the tax system, data security is ensured, and programming can be used to find applications for nearly any value. The interaction of three elements is the foundation of blockchain. A distributed ledger is a simple book or computer file that records transactions that is an accounting innovation because of its structure, standard agreement, and new data (Yayman, 2021). Using blockchain in waqf administration can help avoid data overload and make the application process more manageable.

In a study by PwC published in 2018 showed 84% of 600 executives agreed that Blockchain technology is more reliable because offers data security, transparency and traceability to their business processes. It is expected that more than US\$3 trillion Dollars representing 10%-20% of infrastructure in global

economy and business in 2030 will be based on the Blockchain technology system. (Nor Paizin, 2021).

In another estimate. The Decentralized Finance (DEFI), which is an umbrella of global financial system operating under a public blockchain. The Decentralized Value Locked (DVL) increased sharply from USD601 million in 2020 to USD239 billion in 2022. The global financial services market is estimated to be at USD23.3 trillion in 2021. The DVL accounts for almost of half of the global financial services market and small increase in it would translate into trillions of dollars.

Abdulhali and Salleh (2016) identified four online transparency factors as organizational profile, organizational performance, its governance and financial management. The incorporation of technology in investigated to enhance efficiency and effectiveness of waqf (Fauzi et al. 2019, Hasanah & Pranata 2019, (Wan Ismail, Abdul Rasool, 2023, p. 169). Thomason et al. (2019) posit that blockchain technology is a power that empowers the poor in developing countries.

However, for a successful transaction, a smart contract must be developed and linked to the blockchain. Smart contracts are pieces of code that implement agreements between participants and execute only when predefined conditions are fulfilled. All the agreements are reduced and embedded in the contract so that as the requirements are fulfilled, the contract is executed automatically. The system decentralized exchange removes middle men and agents, thus peer to peer (p2p) transactions takes place at cheaper rate with high level of data security.

In Malaysia, the development of Fintech continues to be recognized b=when the Bank Negara Malaysia (BNM) has provided guidelines to regulate and monitor the activities of Fintech companies. In addition, BNM has also established a team of experts (Financial Technology Enabler Group) which will make policy formation related to Fintech. This should be development should be utilized by not only Islamic Financial industry but also Islamic social financial institutions to digitalize their services (Nor Paizin, et al, 2021).

Islamic social finance (waqf, zakat, baitulmal and infaq) and its digital economy offers opportunities for Muslims and non-Muslims alike build transparency, trust and confidence to the financial system. The world of technology covers IR 4.0 envisions a world without intermediaries, while others just want a method transact faster and more efficiently. Institution zakat as an important institution that manages collection and distribution of zakat money in Malaysia should take the opportunity to explore and adapting Fintech in zakat management existing. (Nor Paizin et al., 2021).

In a nutshell, technology as a key factor leads to a paradigm shift in production possibilities in an economy compared to traditional method. It improves method and enhances total production. The application of blockchain technology range from millitary, banking, taxation, supply chain and logistics, aerospace, airline, waqf and zakat among others. When applied correctly in the waqf sector, it overcomes the problem of transparency and accountability, increases waqf potentials in form of cash and ultimately efficiency. Studies have shown that collection of zakat through digital channels in more effective (Jamaludin et al 2021).

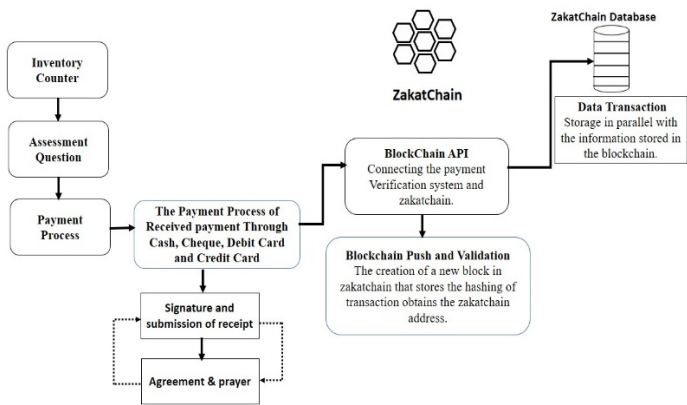


Figure 1. PPZ ZakatChain Framework
Source: Nor Paizin (2021)

Figure 1 shows the simple framework above developed by Nor Paizin et al. (2021) which presents the collection side of zakat using blockchain technology. The smart contracts that are bound by organizations involved with zakat institutions as example PPZ-MAIWP and MAIWP can guarantee transparency, reliability, and traceability Shariah compliant products and services. This is because of the blockchain technology developed enable the consolidation of any contract terms with zakat payers and management zakat. Existing practices in current zakat institutions which depends on physical and partial documents technology (certain accounting system software) are subject to inefficiency and increased exposure to risk and dishonesty (Nor Paizin, 2021).

2.4 Waqf Sector Development in Malaysia

Waqf has been recognized and regulated by the Majlis Agama Islam Malaysia of each respective States in the country. Thus, each MAIS in the 14 states is responsible for the implementation, supervision and development of waqf. Many states have given licenses to companies, mosques and individuals to gather waqf and report to the Majlis based on certain guidelines. At the Federal level also, Malaysia established two strong departments to support the development of waqf sector. These are Department of Awqaf, Zakat and Hajj (JAWHAR) and Yayasan Waqf Malaysia in 2004 and 2018 respectively. Both agencies are under the Department of Islamic Development of Malaysia (JAKIM) under Prime Ministers Office. These are to ensure proper coordination and support of waqf sector. Statistics from Yayasan Waqf Malaysia however, reveals that only 13 percent of 30,000 hectares of waqf land have been developed and mostly allocated to traditional Islamic institutions or schools.

2.5 Waqf Sector Development in Nigeria

Historically, waqf cannot be separate with the coming of Islam to Northern Nigeria or Bilad al-Sudan (Muhammad and Naiya, 2015). Precisely, it has been in practice before the coming of colonial masters, under Sokoto caliphate established by Sheikh Uthman bin Fodio who was the Amirul Muminin. Even after the independence, particularly in Northern Nigeria where Muslims are in majority and by and large under the Emir of each jurisdiction. A dedicated office exists till today of a caretaker of waqf called *wali*.or *matawalle* or *Mutawalli* in Arabic, i.e protector of waqf properties and finances. According to Galadanci (2011)

cited in Muhammad and Naiya, (2015) waqf is a critical component for any Islamic community especially on education and social welfare.

Hitherto, there are several efforts and initiatives that have been carried by other stakeholders (Lamido, 2024). The constitution of the Federal Republic of Nigeria in section 262 (1) recognizes waqf and places it under personal matter in Sharia Court of Appeal. It states “For the purpose of subsection (1) of this section the Sharia Court of Appeal shall decide (c) any question of Islamic personal law regarding a wakf, gift, will or succession where the endower, donor, testator, or deceased person is a Muslim”

Ironically, in Nigeria, section 16 of the 1999 constitution as amended stated that: The state shall direct its policy towards ensuring:

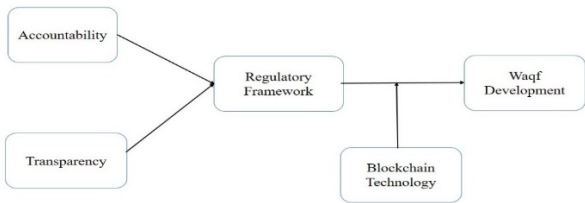
- (a) The promotion of a planned and balanced economy.
- (b) That the material resources of the nation are harnessed and distributed as best as possible to serve the common good.
- (c) That the economic system is not operated in such a manner as to permit the concentration of wealth or the means of production and exchange on the hands of few individuals or a group; and
- (d) That suitable and adequate shelter, suitable and adequate food, reasonable national minimum living wage, old care and pensions, and unemployment, sick benefits and welfare of the disabled are provided for all citizens

The inadequacy of the existing system is very bold. The capitalistic tendencies, coupled with inappropriate economic policies and institutions could not allow a balanced economy goal to be achieved neither inhibit wealth concentration in the hands of the few. The institution of waqf has huge potentials as material resources that have not been recognized fully neither at state level not at federal level.

At state levels, out of the over 19 Muslim majority states only eight (8) have enacted laws on waqf. These include Sokoto, Zamfara, Kebbi, Kano, Jigawa, Katsina, Bauchi and Niger. Other few states rely on Waqf Foundations while majority do not have any standard collection and distribution of either zakat or waqf. Even where the laws exist, there are other challenges as lack of awareness and lack of political will to say the least.

It is undisputable that the contemporary waqf sector in Nigeria is still at its infancy despite the renewed efforts of the Association of Zakat and Waqf Operators in Nigeria (AZAWON) which is an umbrella body working for a decade with membership in all parts of the country. The prime objective of which is to reposition zakat and waqf practices in Nigeria to compete globally. The Association engaged stakeholders and organized three National Conferences conducted series of workshops, seminars and newsletter publications over a decade. However, inadequate funding is limiting its potential.

2.6 Figure 2. Proposed Framework for Waqf Development



Source: Authors (2024)

Figure 2 above shows the relationships between the key variables developed. In particular it demonstrates how blockchain technology can strengthen the relationship between the regulatory environment and waqf sector development. The smart contract is subsumed in the blockchain technology and it will ensure accountability and transparency are achieved automatically. The proposed model will enable waqf development in the society.

3. RESEARCH METHODOLOGY

For this study qualitative technique was adopted. Qualitative technique involves words from interviews, focus group discussions, or personal observations. It also involves careful doctrinal analysis. While qualitative research provides insightful information, quantitative research provides more accurate data using an empirical approach to analyze a phenomenon (Adam, 2023). In this regard, Specifically, an extensive literature review will be conducted. The study gathered data from websites,

manuals, newsletters, audited accountings, and other published materials to assess the accountability and transparency (Miles and Huberman, 1994).

This was followed by interviews of the respondents who are subjects' experts in their areas, waqf administrators, beneficiaries, and experts in blockchain technology. Thus, interview questions would be developed based on the study's objectives, and validation would be made. The data gathered would be analyzed thematically to deduce the findings. Semi structured interview and focused group discussion questions were developed and validated by a group of researchers. Direct visitations to the selected agencies have been made. Where necessary, phone calls and zoom meeting would be utilized to reduce cost. The data was recorded and transcribed for the analysis. Thematic analysis was adopted for interpretations and discussions.

Table 1. Interview schedule

NO.	Institution	Respondents	Designation	Type of Meeting and Date
1.	Zakat Institution of Federal Territory of Malaysia (PPZ)	Muhsin Nor Paizin,	Manager of Zakat Academy	Physical at the Head Office, 16 th May, 2024
2.	Zakat Institution of Federal Territory of Malaysia (PPZ)	Muhammad Hazir	Waqf Executive Officer	Physical at the Head Office, 16 th May, 2024
3.	Finterra-A Fintech Company in Malaysia	Hamid Rashid	Chief Executive Officer	Physical at the Head Office, 17 th May, 2024
4.	Sokoto State Zakat and Endowment Commission (SOZECOM)	Muhammad Lawal Maidoki	Executive Chairman, SOZECOM and Deputy Secretary General World Zakat and Waqf Gorum	Physical at Abuja on 5 th July, 2024

5.	INCEIF-The Global University in Islamic Finance	Prof. Aisha Muneeza	Associate Dean, Postgraduate	Online on 7 th August, 2024.
6.	Bayero Univerisity Kano, Nigeria	Prof. Amina Ismail and	Department of Economics, BUK	Physical on 30 th June, 2024
7.	Former Staff, Central Bank of Nigeria	Mr. Rabiui Yaradua	Former CBN Staff	Physical on 30 th June, 2024

Source: The author(s) own work.

4. FINDINGS AND DISCUSSION

The existence of information asymmetry and moral hazards in the society necessitate the need to offer viable solutions to the problem. The level of corruption in Nigeria accentuates the urgency for an effectively transparent system as blockchain waqf. In view of this, the study was conducted and the following findings were arrived at:

4.1 Sharia Issue and Technology Neutrality

This is an area of contention. However, taking it step by step will resolve the matter. Technology in general in neutral as stated by respondent 2. “This is simply to say, we cannot deny technology. So also, social finance is never an exception to that. If you do not use it, others will do. So, this is the reality.

Respondents 3 stated that “So, when we talk about blockchain, it is just like operating system. There are many types of blockchains. There is public blockchain, private blockchain and hybrid distributed blockchain. And then, within the technology, there is so many things just like operating system such as what type of network you use, what type of database do you use, what type of security do you use. In fact, there is so many elements to consider.”

However, when asked specifically about the sharia position, respondent 3 stated that “The Shari’ah position in Malaysia is that, the Shari’ah agencies which are independent are quite progressive and willing to allow the use of Blockchain technology and crypto currency based on certain Research and Development. They do not say yes, and they also do not say no. It is a wait and see because, there is no global ruling on whether Blockchain technology and crypto currency are permissible or not.”

The Secretary General of Accounting and Auditing Organizations for Islamic Financial Institutions (AAOIFI) Mustafa Ansari (2021) states that, “While technology is Shari’ah-neutral, Islamic banking industry must lead technology to play a greater role in its development.” It is also seen as a maslaha to all parties (Urfiyya, 2021).

4.2 Adoption of Technology with caution is desirable

Blockchain technology is new thing and therefore, what we have done is the exploration part. We also have to adopt blockchain technology especially the investment part of it and when it is matured enough, although it is already adopted in CIMB where they use it in their operations but it is not every company that adopt it.

Given that, talking about crypto currency, there is need to develop a Shari’ah framework on it otherwise, people will consume the mixed halal and haram part of it.

“For this one, we already developed it. For instance, if you have bitcoin, we have calculated how much bitcoin you will have to pay zakat out of it. The fatwah is already there but the system

is not ready yet. As for now, we just did the exploratory part but we do not get to the stage of implementation. There is one for zakat but for waqf, I am not sure if there is anyone. May be the next task for you is to go NGO that I think they have it. It is called Finterra.”

Respondent 3 interestingly happened to come from Finterra. When asked about their initiatives in blockchain, he stated that “So, because here you mentioned specific for Waqf, so when we developed the system in 2019 for the first time, we did not have consent from the awqaf industry, so when we introduced it to them, they said they had no idea what it was because they only know Microsoft office and they did not know programming. So, we had to just create it to them. Our objectives were to bring transparency, accountability and traceability in the awqaf industry. So, based on that, the public network will be very good so we went on the Ethereum of this network and created the whole waqf chains on the Ethereum network using ERC 2020 and smart contract in 2017 and 2018. Now, when we take this technology and we started going to the awqaf institutions to implement.

He added that for some reasons, “the awqaf did not want to disclose their assets value and also, they did not want to disclose the sources of their income. It is not that they are hiding but just that, they do not want to that information in public domain. They only like to share it with stakeholders. So then, every customer, that is the awqaf institutions liked the idea but they said, can you make it private? We don't want it on public network, we rather want it on a private network and only what we publish by ourselves in the public domain, that is for public consumption. Otherwise, it is for our stakeholders. So

then, by the end of 2020, we started changing our code on smart contract and we started the hybrid network that we piloted in Oman waqf and few others.”

The respondent added that the preference is the organizational choice which he confirms they “they prefer to have private network and they will take data to create annual reports which they will put out for public consumption.” Perhaps, even if its private network the data will be accessible through various means and at least the most significant and usable part of it through their audited annual reports.

Respondent 3 intelligently summarizes the processes of applying waqf in blockchain technology particularly in Malaysia. According to him, “Blockchain is a platform, you need to create smart contract to run the process. So, of you are running a trade or you are running cash Waqf, smart contract which is executed automatically on Blockchain and transparency, it is actually a process. So, anyone can come and donate cash Waqf and I don't want to know his identity and that is our process. Later on, a policy of Know your customer was introduced. Then to avoid any problem, you must design a process to cover the regulatory framework. You must do KYC before you can take the money. I need to take a copy of passport, residential address and mobile number. Once you have these three, the KYC is done successfully and then you can proceed and take the money.”

Respondents 4, who demonstrated vast experiences in managing waqf in Nigeria stated that they have property more 3 billion as waqf and they have planted over 80,000 seedlings in tree waqf campaign. He added that they signed MOU with Fintera, Malaysia BHD where it helps to create an interactive

website and donation and now, they are raising fund through blockchain platform to raise fund in Sokoto and elsewhere although not yet launched. According to him, to support their growth, Lembaga Negeri Zakat Kedah transfers its IT management system to help us monitor human resource, collection and distribution of zakat and waqf.

According to respondent 5, we all understand the benefit of using blockchain technology, because in social finance largely we cannot do proper governor, the donor do not know how much impact they are making, therefore, the charity organization should have more standardized governance.”

She added, “Another advantage is using smart contract, in cash waqf, currently there is no contract, it just happened like in traditional way giving charity, if you receive the money first and then you invest it. This is an unwritten trust and we expect something to happen...but if you can reduce the whole process in form of contract with terms and conditions in the blockchain, if you also enable people to pay using crypto currency, if that door is open, I foresee, it is going to attract many Muslims to Islamic charity.”

Respondent 6 suggested that the Central Bank of Nigeria to provide a platform and regulation for the blockchain as a mechanism of harnessing zakat and waqf. “You see there is social investment introduced by the CBN we can now capture the need of Islamic finance industry. The actual mobilization can be in zakat and waqf, so as ummah, these must be part and parcel of Islamic finance industry.”

Respondent 7 stated that “Blockchain uses cryptography to ensure the integrity and security of the data, making it resistant

to tampering and censorship. It has various applications, including cryptocurrency, supply chain management, and smart contracts.”. By scoring the feasibility 7.4 out 10, the respondent added that “Building a waqf blockchain technology is feasible, but it requires careful planning, collaboration between technical and Islamic finance experts, and significant resources.”

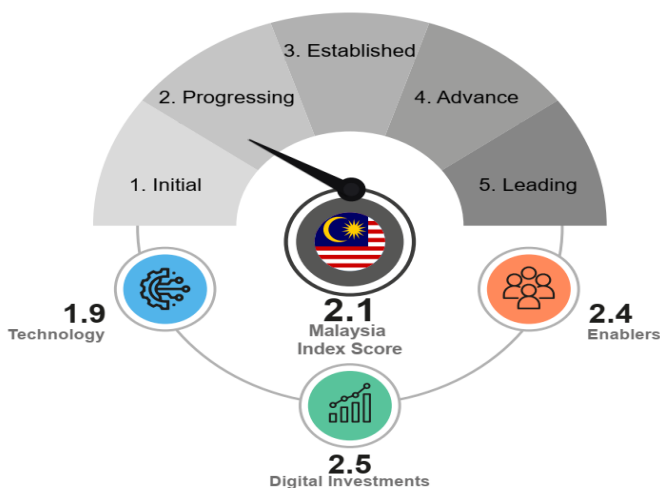


Figure 3. Business Digital Adoption Index (BDAI) in Malaysia (2.1 out of 5)
Source: MDEC (2022)

On the scale of 5, as shown on figure 3, Malaysia is ranked 2.1 which is progressing range. The key aspects are three vis-à-vis enablers which stand for the people/talent and governance; digital investment which stands for spending strategy; while technology comprises of digital infrastructure and connectedness, digital experience, digital innovation, digital process and application data and cybersecurity.

4.3 Specific benefits for using technology to harness the potentials of waqf

Some of the benefits are directly and indirectly stated by the respondents. According to respondent 2, “the system is much more secured, transparent and it increases the easiness to the payments.” He added that “I think there is also traceability because the thing is, accountability and transparency are there to increase the trust of the donors. So also, technology makes it easy for them to trace what have been done. There is also the CIA which simply denotes too confidentiality, integrity and availability. Meaning, the system is secured and cannot change.”

On the first respondent, on PPZ role in waqf mobilization he has this to say “.... So, PPZ is a zakat institution established by Islamic Council of Federal Territory. So, the first phase of collecting zakat started in 1991 till the end of 2022 where we have been given two additional tasks, which are zakat-ul-Fitr and cash waqf collections.” According to him “The objective is of course to make them more efficient especially in the territory. The waqf unit was established since 2018 by Majlis Agama Islam Wilayah but they have some problems in their management which mostly involved in sustainability, they did not have enough fund and that is why in 2022 the task was given to PPZ, because we have much more experience in collecting fund and we already have enough man power.” He added.

Interestingly, in just one year because of the use of their platforms the waqf tripled. “The statistic for cash waqf, for the year 2022 we have collected around 2.5million after that, in 2023 we also collected 6.6 million, meaning there is 300%

increase in the collection.” When asked about huge increased in the waqf, he added that “There are many reasons among which are, because of the promotion of Waqf, the campaign, the structure, and network with rich people and many other reasons. And then, we have about 300,000 zakat payers. So, we collaborate with these customers...Yes, of course. And among the strategies we use is by mail campaign, SMS and anything you can think of, we do it. Also, having known all the rich people who pay zakat. In short, he stated that the states of Perlis, Selangor and Wilayah have adopted zakat on cryptocurrency but the payment would be on fiat money instead as found by Yusof, et al, (2021).

Respondents 3 added that “In Blockchain Waqf, first, it gives you end-to-end security from the person that is giving the contribution all the way to the person who is the ultimate beneficiary. We can see the fund flows. It gives total transparency on the transaction. Second is, it gives immutability in the sense that, there is no double transaction because, the system only allows one record. Third, is accountability which means every stakeholder has access to the Blockchain. For example, you want to give cash Waqf on my Blockchain, so when you transfer it, it is debit to you and credit to the waqf Blockchain. There will be consensus that validates this transaction. People must validate it before it becomes credit. It is tripartite transaction and this is called mining. In other words, in mining, three auditors have to say yes before your transaction is written in Ethereum network. That is why any transaction on Blockchain database is hundred percent authentic. So, nobody can just go and write some dollars when he did not actually give it.

Narrating his experiences, Respondents 3 stated that they developed a blockchain waqf for plantation. According to him, "We just see that waqf is the property, so we wanted to prove that waqf could also be in other Industries than real estate. "So, we are developing a plantation land. So, we planted that after many years we cultivated that and used it for furniture..... So, it's more sustainable for ecology and the environment so in partner with land owner of partner with the contract the partner with the contract farmers because we have no experience in actual farming so we have contract farmers...we raise the fund from private and Institutional investors using the waqf linked *musharaka*." He added that they have developed a waqf blockchain and other initiatives. According to him "so far, we raised at least RM32millions in 3 years. And the industrial trial the result is very healthy."

With regards to benefits, respondent 4 stated that the benefits are many and include "very easy for anyone, faster, transparent, every one comfortable both the donor and manager, monitoring and evaluation. Auditing is also easy." He added that if the model of blockchain is ready "it will motivate the youth in today's digital world, and it will provide opportunity for low income to participate in the development."

Respondent 5, eloquently described the benefits to include good governance, efficiency and organization. According to her "governance will improve, there is rules-based approach, it will be more transparent, people will know that nobody will misuse their funds...so that assurance if very important. Again, on Sharia audit or sharia review, takes a lot of money because you have to put your house in order therefore costly. So, using technology you are organizing your house properly so that

there is even no need for auditing anymore because no body can pinpoint anything as long as you comply with the rules in your platform, so that is the advantage whether in Malaysia or in Nigeria as our legal framework is similar.

Respondent 7 stated that “By combining waqf and blockchain technology, it is possible to create a secure, transparent, and decentralized platform for managing waqf funds and assets. This can include creating a blockchain-based waqf management system that allows for: i) transparent tracking of donations and funds ii) iii) secure and tamper-proof recording of transactions iv) automated distribution of funds to beneficiaries and v) decentralized decision-making and governance.

4.4 Challenges

The challenges for the blockchain waqf is obviously include lack of awareness, complexity of the system and attitude of the implementers. According to respondent 1, the blockchain needs investment secondly there is more for more discussion on the understanding of the technology. Respondent 2 added that “We are developing the framework in collaboration with IIUM. We have already developed the collection part because there is lack of accountability and transparency as no one knows how much is collected so, when it comes to distribution, it will be easier.”

Respondent 3 buttresses this position where he stated that “for some reasons, the awqaf did not want to disclose their assets value and also, they did not want to disclose the sources of their income. It is not that they are hiding but just that, they do not want to that information in public domain.” In other words, they prefer private domain of blockchain than public.

He added that another challenge they are facing in Malaysia is slow adoption by agencies despite the advocacy their company have been making. He narrated the case of other countries like Saudi Arabi that see future in Technology. According to him "This is what happens in Saudi Arabia and other countries that take technology seriously and they are piloting and adopting it because they see the future of the technology." The current knowledge of blockchain technology in Malaysia is 49 percent according to the National Blockchain Roadmap 2021-2025. This lack of adoption is however, related to the regulation that is still at development stage. Thus, agencies are a bit skeptical on violating the rules of the regulators.

On the challenges, respondent 4 stated that currently, "Nigeria is facing challenges in terms of energy and blockchain needs energy, solar is available but services for such technology solar may not be sufficient as it consumes a lot of energy." He called for Malaysian scholars, researchers and practitioners to put heads together to develop blockchain technology for waqf sector due to its win-win situation in both countries.

Respondent 5, however, raised the question whether is matured to move to technology. She asked "do we have enough investment that we can divert to have this technology, you should also ask whether it is necessary to have blockchain to manage our cash waqf or if the waqf is small can we focus more on the governance we don't need technology instead of going into complicated technology. Technology as good as the user of it. We built offline system first and they governance standard that can uniformly applied." In short, Respondents 5, call for using artificial intelligence, data analytics and fintech as it may be more effective.

Respondent 7 call for collaboration and careful planning for a successful implementation of the model. In short, it can be applied and the challenges can be overcome with proper planning.

4.5 Lessons for Nigeria

With regards to the benefits, respondent 1 stated that “I believe Nigeria can learn from our reporting system to the society. You know the adoption of technology is much faster when we ask people to use it. We can see here in Malaysia; some companies are very strict to their customers in terms of using technology-based instruments. In addition, there is need for collaboration with various agencies. We also have the community investment, capacity building, investment in Islamic finance and especially waqf sector.”

The myriads of socio-economic challenges in our society such as *daba* in Kano, *Sara-suka* in Bauchi, *`yan Kalare* in Gombe, *almajiri* on the streets, internally displaced persons everywhere and the general insecurity among others require intense and intellectually driven force supported with sustainable capital as in cash waqf linked with technology. This will be more effective and impactful when the channels of collection and distribution are transparent and accountable. Blockchain technology provides such opportunity in a secured, efficient and effective manner.

The role of Islamic financial institutions cannot be overemphasized in developing the Islamic economics and finance eco-system in Nigeria. However, the inaction of Islamic banks on what matters for the society or Islamic social finance is not encouraging. The zakat and waqf funds can easily be

mobilized and tapped through the channels of Islamic financial institutions. The regulation aspect also in this matter shall be strengthened to ensure that institutions are delivering their mandates especially as it relates to the environment in which they operate as obtainable in other jurisdictions. In Malaysia for instance, Maybank, contributed RM3.10 billion in taxes and zakat to the regional governments where they operate, 'which will be channeled towards socio-economic programmes aimed at bettering lives.' The Zakat contributions in 2023 impacted the lives of 45,918 beneficiaries, with 129 Zakat RISE programme graduates earning income exceeding RM2,500 (Maybank Annual Report, 2024). The same bank awarded research grants to academics for over RM250,000 to conduct impact assessment of their zakat distributed among beneficiaries. Their zakat auto deduction on savings and investments initiative for sharia compliant deposits and investment accounts is the first of its kind in Malaysia and is quite beneficial. They garnered 6,550 zakat auto debit registrations. This is in line with the statement of one of the respondents that "This is simply to say, we cannot deny technology. So also, social finance is never an exception to that. If you do not use it, others will do. So, this is the reality.

Similarly, respondent 4 agreed and accepted that "the blockchain approach in fund raising for waqf and its management" is a welcome development. He added that "it provides opportunity for everyone to participate regardless of gender or age, we can learn in Malaysia everyone is participating at his own level and it will bring rapid development in the social finance sector, education, infrastructure,

opportunity for inclusion for participation to be an active in the management.”

However, respondent 5 emphasizes the importance of governance, enabling infrastructure, data privacy and confidential information among others. According to her, “because once you do a transaction in blockchain you cannot reverse it.”

Respondents 6, stated that “Blockchain is a technology, that helps in resource mobilization and allocation in economics, therefore is a right choice for zakat and waqf as financial intermediation, is a wealth creation technology. “I believe it is an important instrument to sustain social welfare as it is an institution that will give you benefit in this work and hereafter.”

Respondent 7 stated that “Nigeria can learn from Malaysia's regulatory framework, which requires permission from State Islamic Religious Council (SIRCs) to establish a waqf fund.”

5. CONCLUSION

Waqf is a veritable Islamic economic institution that had played greater role in the history of Islam and Muslims especially during the Ottoman empire. Even in the contemporary period where some Muslim countries and organizations revive the institution, its impacts are being felt. However, the traditional application of waqf encounters lack of accountability and transparency which diminishes its potential impact in the society. The study explores the use of blockchain technology in waqf sector in a Muslim majority country like Nigeria. It also compares waqf between Malaysia and Nigeria with the aim of drawing some

lessons from the former which is considered advanced in terms of waqf development.

Based on the findings of this study, it is argued that, an embedded Smart Contract in waqf transactions can guarantee traceability, transparency and accountability. It will also boost public confidence which will lead to unprecedented increase in the mobilization of waqf resources. Consequently, the waqf sector will make the desirable impact as demonstrated in its history. Thus, the confluence features between waqf and blockchain technology are immutability, permanency and irrevocability. If these are applied, all the encroachments in the waqf will be overcome and the institution would achieve the goal of its creation.

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