

## THE ROLE OF BLOCKCHAIN IN ZAKAT MANAGEMENT

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### ABSTRACT

*The global financial system continues to experience rapid development along with advances in information technology. The development of information technology can create opportunities and even challenges at the same time. Blockchain in the field of Islamic economics, adaptation to digital systems is also a major concern, however the Islamic economic system must be able to adapt to increasingly rapid technology. This research uses qualitative methods with library research. The results of this research: The application of Sharia smart contracts in blockchain has the potential to provide various benefits, such as facilitating fair and transparent transactions, minimizing the risk of violating sharia principles, and increasing public trust in carrying out digital transactions. Having a blockchain system in managing zakat is very important, because in the blockchain zakat system there is already some data from mustahik and programs from zakat institutions that have been provided and verified by the zakat institution itself. Then in this blockchain zakat system, the muzakki process who will pay zakat can distribute their zakat directly through programs or mustahik whose data is already in the system. Furthermore, the transaction process will be verified by a verifier who has been determined by the zakat institution regarding the truth of the transaction carried out by the mustahik.*

**Keyword:** *Blockchain, Digital Economy, Islamic Economy, Zakat*

## PERAN BLOCKCHAIN TERHADAP PENGELOLAAN ZAKAT

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### ABSTRAK

Sistem keuangan global terus mengalami perkembangan pesat seiring dengan kemajuan teknologi informasi. Perkembangan teknologi informasi ini dapat menimbulkan peluang bahkan tantangan dalam waktu yang secara bersamaan. Blockchain di bidang ekonomi Islam, penyesuaian terhadap sistem digital juga menjadi perhatian utama, bagaimanapun sistem ekonomi Islam harus mampu beradaptasi dengan teknologi yang semakin pesat. Penelitian ini memakai metode kualitatif dengan studi pustaka atau *Library Research*. Hasil dari penelitian ini Penerapan Smart contract Syariah dalam blockchain memiliki potensi untuk memberikan berbagai manfaat, seperti memfasilitasi transaksi yang adil dan transparan, meminimalkan risiko pelanggaran prinsip-prinsip syariah, serta meningkatkan kepercayaan masyarakat dalam melakukan transaksi digital. Dengan adanya sistem blockchain dalam pengelolaan zakat sangat penting sekali, karena di dalam sistem zakat blockchain sudah terdapat beberapa data dari mustahik maupun program-program dari lembaga zakat yang sudah disediakan dan di verifikasi oleh lembaga zakat itu sendiri. Kemudian dalam sistem zakat blockchain ini, proses muzakki yang akan membayarkan zakat bisa menyalurkan langsung zakatnya melalui program-program maupun mustahik yang datanya sudah ada dalam sistem

tersebut. Selanjutnya proses transaksi tersebut akan diverifikasi oleh verifikator yang sudah ditentukan oleh lembaga zakat mengenai kebenaran dari transaksi yang dilakukan oleh mustahik.

**Kata Kunci :** *Blockchain, Ekonomi Digital, Ekonomi Islam, Zakat*

## INTRODUCTION

The global financial system continues to experience rapid development along with advances in information technology.(Hidayat et al., 2023)The development of information technology can create opportunities and even challenges at the same time

Blockchain has become increasingly popular in various circles in recent years. This is because blockchain is a new technology that can provide new ways of obtaining, processing and sharing data and information. Mc Kinsey has tried to conduct research and studies to look for opportunities to utilize blockchain technology in various fields.(Dewi & Hakiki, 2023)

Currently, blockchain is in the spotlight in the context of implementing sharia principles, which are the basis for the Sharia financial system. In the digital era, blockchain technology has emerged as a potential solution to strengthen and improve the Islamic financial system.(No et al., 2023). Blockchain In the field of Islamic economics, adaptation to digital systems is also a major concern, however the Islamic economic system must be able to adapt to increasingly rapid technology. Technological innovations such as Blockchain have been in the spotlight in recent years, due to their potential to change the existing paradigm of financial transactions.(Hidayat et al., 2023)

.The development of fintech cannot be separated from the Islamic perspective as the majority country in Indonesia. Even though the government prohibits trading in cryptocurrencies in accordance with CoFTRA Regulation Number 5 of 2019 concerning Technical Rules for Organizing Cryptocurrency Markets on the Futures Exchange. Several religious institutions such as Muhammadiyah have issued fatwas regarding the use of cryptocurrency as a means of exchange or investment. Even though blockchain and cryptocurrency are different things, they are still related. Crypto is used as a digital currency and blockchain as a digital data storage technology and media related to crypto transactions. A more in-depth study of the use of blockchain from an Islamic perspective is needed, enabling the use of blockchain in zakat institutions as a new operational innovation, but in a more in-depth way. A thorough investigation and thorough and detailed research is required. Based on this background and previous research, this research was conducted to explore and study blockchain from an Islamic perspective.

Adaptation to the digital system is also a major concern, however the Islamic economic system must be able to adapt to increasingly rapid technology, as well as in the field of blockchain technology. Several opportunities in the Islamic economic system that can be implemented using blockchain technology include Sharia banking, the zakat and waqf industry, and the halal industry.

Zakat management in Indonesia has been carried out in a much more professional and modern manner since the promulgation of Law Number 23 of 2011 concerning Zakat Management where the law regulates zakat management under the coordination of the National Zakat Amil Agency (BAZNAS) as a Non-Structural Government Institution (LPNS ) who is responsible to the President of the Republic of Indonesia for the management of zakat which is carried out nationally by more than 600 Zakat Management Organizations (OPZ) throughout Indonesia.

Against the background of the various introductions that have been explained, it is interesting to examine in more detail the urgency and possibility of introducing the blockchain system into zaakat

institutions, especially in Indonesia. This study has a vision to look deeper and assess how the potential and skills for increasing financial costs through digital technology and supported by the blockchain system are related to matters and regulations related to Indonesia's focus. This study is balanced by assessing studies regarding this phenomenon in other parts of the world.

### 1. Zakat concept

Zakat is one of the pillars of Islam that every Muslim must fulfill. In circumstances like this, zakat becomes a sign of a person's love for Allah SWT as well as a symbol and sense of social care (social love). Therefore, zakat is one of the financial pillars of the five pillars of Islam. (Dzulqurnain & Sari, 2020)

If zakat is done well, it will work on good things, cleanse and filter the spirit, and create and reward good fortune. Assuming it is well supervised and trustworthy, zakat will actually work with government assistance for individuals (Sobah et al., 2020)

In this view, zakat has the aim of improving the poor and not leaving them in need. In accordance with developments, zakat is generally not wasteful, but instead gives rise to useful zakat or zakat that is produced with the full intention of becoming business capital for them so that the capital can be utilized. (Wasik, 2020).

In general, the presence of zakat fitrah and zakat mal is expected to be able to limit poverty rates and reduce income inequality in Indonesia. A useful idea for socializing zakat is giving zakat to poor people to use as capital for businesses that can be used as jobs. With this business, it is believed that they will really want to fulfill their own living needs. (Mulyana, 2019)

In general, the act of zakat in the eyes of the community is characterized by providing assistance in the form of merchandise to buyers provided by zakat amil organizations, such as cooking oil, rice, gas, etc. , zakat can also be converted into useful zakat. In practice, amil zakat provides business equipment, for example gas ovens, natural product presses, and so on. or vice versa, business money to mustahik as an instrument in developing the ability or potential of mustahik to further develop the mustahik economy so that the zakat given can grow. (Hakim et al., 2021)

In the Qur'an and Hadith there are many orders for carrying out zakat, including the following:

لَهُ بِمَا تَعْمَلُونَ بَصِيرٌ message God willing

*"Establish prayer and pay zakat. All the good that you do for yourself you will get (reward) from Allah. Indeed, Allah is All-Seeing of what you do."*

According to Monzer Kahf, the main function of zakat is to achieve socio-economic justice. Zakat only transfers a certain portion of the wealth of the rich (muzaki) to the poor (mustahik).

There are 8 groups who are entitled to receive zakat, including the poor, poor, amil, converts, riqob, gharim, fi sabilillah and ibn sabil. Two important factors in managing zakat: collection and distribution of zakat funds. However, the most frequent and most important problem is the distribution of zakat. Distribution of zakat to show whether the zakat management (amil) can be trusted. This shows public trust in the management of the Zakat organization.

Regarding zakat development in Indonesia, of course it cannot be separated from the main strategies that support this development to run well and in line with expectations. There are several steps that can be taken in the context of the process of accelerating zakat development in Indonesia.

These steps are:

- Optimizing zakat socialization.

- Building the image of a zakat institution that is trustworthy and professional.
- Building human resources (HR) who are ready to fight in developing zakat in Indonesia.
- Improve and perfect the regulatory apparatus regarding zakat in Indonesia.
- Building a national database of mustahik and muzakki, so that the exact distribution map is known.
- Creating standardization of BAZ and LAZ working mechanisms as a performance parameter for the two institutions.
- Strengthening synergy or ta'awun between zakat institutions.
- Building an independent and professional national zakat system.

## 2. Blockchain Technology

This Blockchain network was created by Satoshi Nakamoto<sup>40</sup> in early 2008. He introduced the hash function method to create blockchains. The main goal is to improve blockchain development so that it no longer uses traditional financial transaction services. The implementation is by building a network for cryptocurrency known as bitcoin. The bitcoin network is a publicly available ledger used to record all transactions.

Blockchain is a decentralized system that allows financial transactions or other information to be recorded and verified securely. This technology creates immutable and transparent records that can be accessed by all interested parties. The core concepts of Blockchain, including decentralization, encryption, and transaction validation, are important elements

Block chain is a collection of data elements that are interrelated and continue to develop to form a chain by utilizing cryptographic techniques or sophisticated communication sciences with modern technology that are integrated with each other and guaranteed confidentiality and security.(Kholis, 2022).

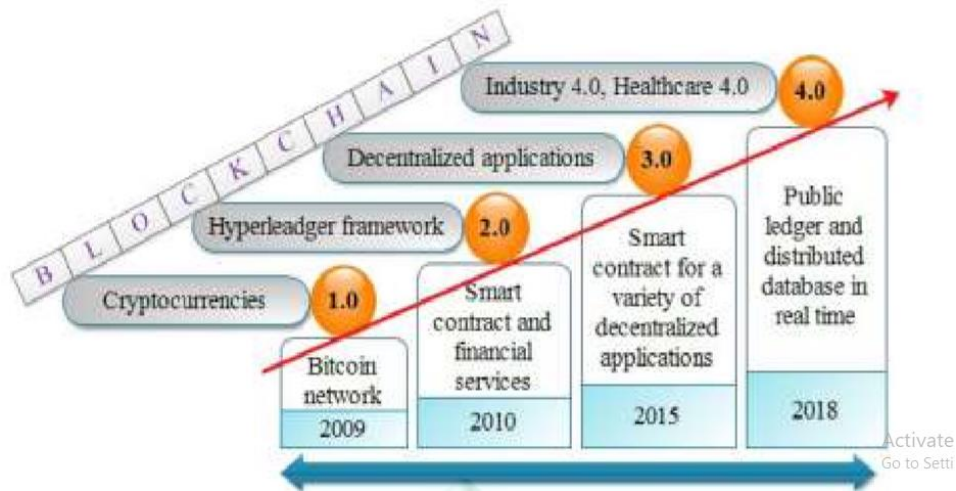
Blockchain technology was first known as the infrastructure underlying crypto-assets such as Bitcoin, but over time, this technology has shown its potential beyond the mere crypto-asset aspect. Blockchain technology offers a secure and cryptographically encrypted distributed ledger, which records transactions transparently and permanently. Each new transaction is linked to previous transactions in the form of an immutable block chain, ensuring data integrity without a central authority.(Dzaky Muhammad & Amalia Junianti, 2023)

Blockchain is a chain of user transaction data stored between users stored in blocks, and each block records a certain amount of data that is encrypted thanks to cryptographic hashing. Hashing cryptography is the process of changing input from letters and characters of variable size to output of fixed size through an algorithmic process so that the data becomes more secure. Blockchain as a management system can be a tool for zakat institutions in planning funding and distribution. The blockchain concept, which is a chain that connects the activities of stakeholders and managers, does not contain non-syar'i elements in it. On the other hand, it can provide problems for all parties(Business et al., 2017)

Blockchain is used in financial transactions or cryptocurrency applications because it can improve the quality of various applications related to speed, security, ease of use, and confidentiality. To explore the possibilities of applying blockchain technology in various industries, many companies have set up their research centers for the growth of this technology. For example, IBM

has a research center in Singapore that was inaugurated in July 2016. In November 2016, the world economic forum group discussed the development of governance models for blockchain technology. The global blockchain forum was introduced to the digital trading space in 2016 by trade group Accenture. Emma Macclarkin suggested using blockchain to improve trades executed by European parliament trading in 2018.(Majid & Aditya, nd) The following is an overview of the Blockchain revolution

**Figure 1.**  
**Blockchain Revolution**



1) Blockchain 1.0

The first generation of technology started with the bitcoin network in 2009, known as blockchain 1.0. In this generation, the creation of the first cryptocurrency was introduced. The idea is about payments and their function to generate cryptocurrency.

2) Blockchain 2.0

At the second level of blockchain technology, smart contracts and financial services for various applications were introduced in 2010. In blockchain 2.0, blockchain development was proposed with the Etheruem and Hyperledger frameworks.

3) Blockchain 3.0

In this generation of blockchain, convergence is towards decentralized applications. Various research fields such as health, governance, IoT, supply chain, business, and smart cities are considered for building decentralized applications

4) Blockchain 4.0

In this generation, the main focus is on services such as public ledgers and real-time distributed databases. At the integrated blockchain level of Industry 4.0 based applications. It uses smart contracts which reduce paper usage.

**3. Zakat Blockchain**

Zakat is a means of Islamic philanthropy, implementing the principles of justice in Islam. In Islamic history, zakat, apart from being based on the Koran and Sunnah, also plays an important role

as a source of national income and a means of worship. Zakat also functions as a means of income distribution, growth and general welfare. The potential of zakat as a way to eradicate poverty is very potential if zakat is still paid with the awareness of every Muslim and is successfully distributed to those in need.

Zakat needs a person or institution to manage it, this is in accordance with Governance Law no. 23 of 2011, zakat management is an activity that includes planning, organizing, implementing, supervising the distribution and utilization of zakat. The aim of zakat management is to increase service efficiency in zakat management and increase the benefits of zakat in realizing shared prosperity and alleviating poverty. Blockchain is a technology used as a digital storage system or data bank connected to cryptography where one device will be connected to another device to communicate with each other. record and check existing data.

The blockchain system itself requires several primary databases to be input into the blockchain system, namely, muzakki data, mustahik data, collected zakat data, zakat distribution data, and amil data that manages it. This technology makes all transactions transparent and safe from fraud. Apart from that, transactions with blockchain are also safer because the possibility of interference is very small and this system is not easily hacked.

Having a blockchain system in managing zakat is very important, because in the blockchain zakat system there is already some data from mustahik and programs from zakat institutions that have been provided and verified by the zakat institution itself. Then in this blockchain zakat system, the muzakki process who will pay zakat can distribute their zakat directly through programs or mustahik whose data is already in the system. Furthermore, the transaction process will be verified by a verifier who has been determined by the zakat institution regarding the truth of the transaction carried out by the mustahik. Apart from that, the existence of auditors in the system also increases the trust of muzakki to make zakat payments to these institutions through the implemented blockchain zakat system.(Yelvita, 2022)

## **RESULT AND DISCUSSION**

Blockchain technology has created a significant breakthrough in various sectors, including the financial industry. Blockchain, which is a decentralized distribution technology, provides a secure and transparent mechanism for recording and verifying transactions. Currently, blockchain is in the spotlight in the context of implementing sharia principles, which are the basis for the Sharia financial system.

Sharia principles, which underlie Islamic financial practices, emphasize justice, mutuality, and compliance with Islamic law. In this context, the application of Smart contracts, which are software protocols that execute contracts automatically, in blockchain technology offers interesting opportunities. Sharia smart contracts can be an innovative tool for managing financial transactions in accordance with sharia principles without involving third parties

The application of Smart contracts on blockchain technology in Sharia financial transactions does not yet have a legal umbrella in the form of fatwa guidelines from the Indonesian Ulema Council. However, regarding financial technology mechanisms, the Indonesian Ulema Council has established guidelines through Fatwa Ref. 117/DSN-MUI/II/2018 concerning Information Technology-Based Financing Services Based on Sharia Principles (DSN MUI Fatwa No. 117/2018

Implementing Sharia smart contracts in blockchain has the potential to provide various benefits, such as facilitating fair and transparent transactions, minimizing the risk of violating Sharia principles, and increasing public trust in carrying out digital transactions.

In the Islamic economic sector, the implementation of digital principles in systems in various sectors has the potential to facilitate and increase the efficiency and effectiveness of an institution. By implementing blockchain as a system, it is hoped that it can guarantee transaction security, transparency and cost efficiency. Apart from that, blockchain can reduce the possibility of corruption, fraud and other risks. The concept of blockchain technology has significant potential to be applied in the Islamic financial system for several reasons, namely Transparency: blockchain provides and displays provenance, traceability and transparency in transactions; control: access to permitted networks is restricted to identified users only; security: financial data in the form of a digital bookkeeping system cannot be changed or damaged once the data is entered; the possibility of fraud is very small and easier to trace; real time information: when information is updated, it is instantly and automatically updated for everyone on the network at the same time.

In the process of collecting and distributing Zakat by adopting blockchain technology, data will be easy to track, audit, and cannot be changed. Collection of zakat funds has been institutionalized in many Muslim countries. The promotion, collection and distribution of zakat is carried out by religious authorities in each country, in accordance with sharia provisions and is starting to lead to the adoption of digital systems. For example, in Indonesia the Amil Zakat Agency (BAZ) and the Amil Zakat Institution (LAZ) collaborate with fintech service providers through e-commerce sites and digital wallets. Apart from that, the trend of digital donations has proven to be increasing.

Blockchain as a warehouse for interconnected data chains requires several primary databases to be input into the system, namely muzaki data, mustahiq data, collected fund donation reports, fund distribution reports and management amil data. Next in the process, the data that has been collected will be received online and entered into the blockchain platform.

In the traditional multi-system model, data is technically entrusted to someone, so that zakat fund transactions cannot be tracked by various parties. This could pose a risk of manipulation or hacking of the system or funds. Apart from that, zakat institutions also require expensive monitoring costs because they need supervision from various parties such as external auditors, OJK supervision, BI and security forces. In the traditional zakat fund operational system, loopholes can be found for information asymmetry and moral hazard to occur. Multi-system activities involving many parties ranging from muzaki, amil, mustahiq and supervisory institutions make it difficult to trace the truth and absoluteness of each transaction stage. Data with a centralized system makes this possible. Practices that are opportunities for dishonesty and carelessness that can harm an institution or organization, especially Islamic organizations that manage zakat funds, really need to be avoided. In recording Waqf, blockchain-based technology is implemented to overcome the problem of lost or damaged physical data of waqf items. With a blockchain database, waqf data will be stored safely and cannot be changed, because the nature of the blockchain itself is that it cannot be deleted and cannot be changed, blockchain

The development of the Indonesian Waqf application uses blockchain technology in order to facilitate balance transactions on this application, as well as mass transaction recording which is believed to be able to maintain security. With clearer storage methods and data capabilities that cannot be changed, blockchain technology can be developed for other applications. This waqf application will always be developed in terms of easier payments or waqf systems so that everything can be done online without

having to come directly to the waqf institution. With the development of this waqf application, it is hoped that it can become a runway for other applications in Indonesia that can be developed using blockchain technology

## CONCLUSION

Blockchain, which is a decentralized distribution technology, provides a secure and transparent mechanism for recording and verifying transactions. In the process of collecting and distributing Zakat by adopting blockchain technology, data will be easy to track, audit, and cannot be changed.

In recording Waqf, blockchain-based technology is implemented to overcome the problem of lost or damaged physical data of waqf items. With a blockchain database, waqf data will be stored safely and cannot be changed, because the nature of the blockchain itself is that it cannot be deleted and cannot be changed, blockchain

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