

APPLICATION OF BLOCKCHAIN AND SMART-CONTRACT ON WAQF ASSET MANAGEMENT: IS IT NECESSARY?

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Abstract

Waqf assets are assets that can be utilized for the benefit of the people. Currently, there are many waqf asset management using internet-based Waqf Information Systems. However, the database used by the system is generally centralized, so it is prone to data manipulation. Each waqf entity has its data, causing data differences between waqf entities. This study aims to provide the concept of waqf asset management using Blockchain technology and Smart Contracts. The method is a qualitative analysis method with secondary data from various kinds of literature, study journals, and reports published by the government and related agencies. This study concludes that the concept of waqf asset management based on Blockchain technology and Smart contracts can facilitate the management of waqf assets, both movable and immovable assets. In addition, it can increase data transparency between nadzhir, wakif, and waqf regulators and minimize data manipulation. The role of regulators such as the Ministry of Religion, BWI, and BI is needed to create regulations that support the implementation of waqf management based on Blockchain technology and Smart Contract

Keywords: *Asset Waqf Management; Waqf Blockchain; Smart Contracts*

Abstrak

Harta benda wakaf adalah aset yang bisa didayagunakan untuk kepentingan maslahat umat. Saat ini sudah banyak pengelolaan aset wakaf yang menggunakan Sistem Informasi Wakaf berbasis internet. Namun umumnya basis data yang digunakan oleh sistem tersebut tersentral sehingga rawan terjadinya manipulasi data. Setiap entitas wakaf memiliki data masing-masing menimbulkan terjadinya perbedaan data antar entitas wakaf. Penelitian ini bertujuan untuk memberikan konsep manajemen aset wakaf menggunakan teknologi Blockchain dan Smart Contract. Metode yang digunakan kajian literatur metode analisis kualitatif dengan data sekunder yang diambil dari berbagai literatur, jurnal kajian dan laporan dipublikasikan oleh pemerintah, badan atau instansi terkait. Kesimpulan dari penelitian ini bahwa konsep manajemen



aset wakaf berbasis teknologi Blockchain dan Smart Contract dapat mempermudah manajemen aset wakaf baik aset bergerak ataupun tidak bergerak. Selain itu dapat meningkatkan transparansi data antara nadzhir, wakif dan pihak regulator wakaf serta dapat meminimalisir terjadinya manipulasi data. Diperlukan peran regulator seperti Departemen Agama, BWI dan BI agar dapat menciptakan regulasi yang mendukung implementasi manajemen wakaf berbasis teknologi Blockchain dan Smart Contract.

Kata kunci: Manajemen Aset Wakaf; Wakaf Blockchain; Smart Contract

INTRODUCTION

Based on the results of the population census conducted by the Central Statistics Agency (2020), Indonesia's total population was around 270 million people. Of this total, 27.77 million people, or 10.19%, are below the poverty line. Of a large number of poor people, Indonesia's economic welfare level is still a problem. Al Arif (2012) argues that waqf can be used as a way out to overcome poverty and improve interest in Indonesia.

Waqf assets, especially waqf money, can be empowered into business capital to fund the poor. Empowering waqf money as capital assistance will provide business opportunities or increase the business capacity of underprivileged communities not touched by banks and other official financing institutions. Utilizing waqf to the productive sector will further empower the economy of disadvantaged communities and increase their income/welfare (Anas & Ryandono, 2017).

The implementation of productive waqf in Indonesia currently focuses more on waqf money. Other waqf assets, such as majority land, are not managed productively. Based on data from the Waqf Information System of the Ministry of Religious Affairs of the Republic of Indonesia until May 2022, the allocation of waqf land is used for the construction of Mosques by 43.75%, Musholla by 27.91%, Schools by 10.74%, Tombs 4.37%, Islamic Boarding Schools 4.00%, and other social 9.24% (Ministry of Religion of the Republic of Indonesia, 2022).

Figure 1 shows that the Data on waqf land allocation is mostly used for the consumptive sector. Waqf land is mostly used as a facility for worship facilities that are not asset-produced to get more beneficial results for the general public in various sectors. Based on data from the Directorate of Waqf Empowerment of the Ministry of Religious Affairs in March 2016, the total waqf land reached 435,944,317 hectares. Until 2018, the Ministry of Agrarian and Spatial Planning / National Defense Agency (ATR / BPN) revealed that there were as many as 460 thousand hectares of waqf land owned by waqf



institutions that were not used and became passive assets (Tanjung et al., 2020).

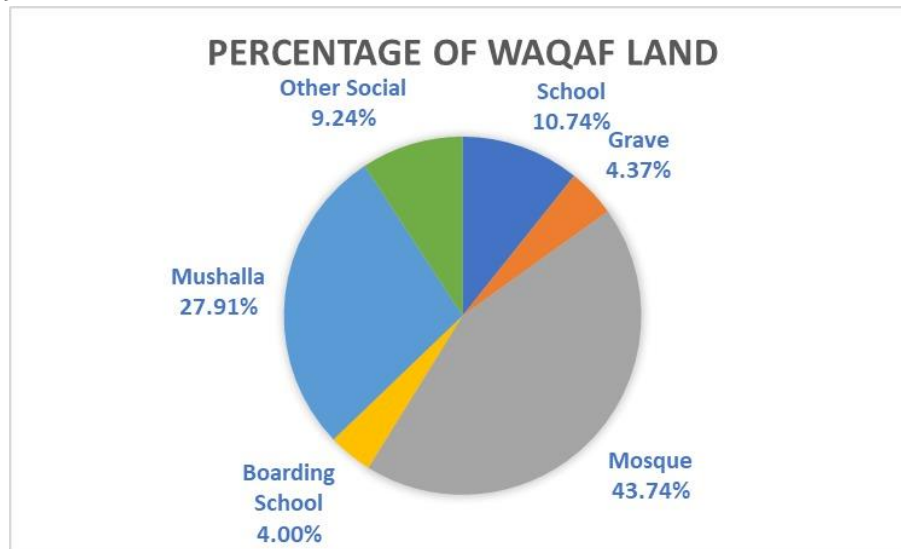


Figure 1. Percentage of Waqf Land in Indonesia

Source: Waqf Information System of the Ministry of Religious Affairs (2022)

In addition to the problem of many waqf assets, that are unproductive and only become passive assets. Another obstacle that occurs is the recording of the administration of waqf assets. The results of research conducted by Susilo (2020) show there are many transfers of waqf assets because waqf assets that are not officially administered are not taken over and certified by the heirs or other individuals. Improvements are needed through the system to minimize the problem of controlling waqf assets (Fahmi & Sugiarto, 2016). The waqf asset management of information systems can be a solution for recording waqf assets and their management, making it easier to track and trace waqf assets in the future.

Internet-based waqf applications have now been widely implemented, especially for productive waqf transactions for waqf actors who want to represent their assets in the form of cash waqf (Sukmana et al., 2020). Wakif can waqf through web-based or mobile applications. Nevertheless, the database used by the application is generally centralized and located in one location. In the event of a hack against the database, it results in inconsistencies and data loss. Massive cyberattacks occurring in Indonesia can cause damage and even loss of stored data. The State Cyber and Password Agency recorded over 741 million cyberattacks in Indonesia until mid-2021 (Cyberthread.id, 2021).

Another obstacle can arise during the data reconciliation process to match the data of waqf assets owned by each waqf entity. Starting from the



Indonesian Waqf Agency (BWI), the Ministry of Religion, the Office of Religious Affairs (KUA), the National Defense Agency (BPN), Islamic Financial Institutions – Recipients of Waqf money (LKS-PWU), Waqf Institutions (nadzhir) and wakif. Data inequality issues between entities can occur because each entity has its data and database. With Blockchain technology, data distribution is carried out simultaneously, in real-time, permanently, and verified (Cachin & Vucolic, 2017).

In addition, there is the issue of data transparency regarding the use and management of waqf by *nadzir* (waqf manager). There are still gaps in the Data on the use or management of waqf assets manipulated because the data processing process is on the side of *nadzir*. Currently, the wakif cannot know whether their waqf property is being utilized according to the wishes of the wakif. Blockchain is a technology that can create transparency and efficiency in managing assets following the dynamics of the world's rapid changes (Nakasumi, 2017).

Blockchain technology can provide solutions to problems of inconsistency, reconciliation, and transparency of waqf asset data. Data in the Blockchain is stored on many servers at once and synchronized in *real-time*. If there is damage or interference on one server, the data will remain safe because hundreds or even thousands of other servers still have copies of the same data. Likewise, if there is a hack on one of the servers, the other server in the Blockchain network will validate the data. If the Data is found to be different from the majority of data on other servers, then Blockchain technology can synchronize the Data automatically. Data in Blockchain cannot be changed or deleted retroactively without changes to subsequent blocks and requires the consensus of most network members (Narayanan et al., 2016).

In contrast to a centralized system, hardware damage or hacking will cause system failure and require human intervention to recover data. Centralized data systems require administrators with full control authorization to manage systems and databases. Opens a data manipulation loophole because data authorization is centralized on one admin or multiple admins. Meanwhile, Blockchain does not require a system administrator because the Data is shared automatically by all Blockchain network members (Hanifatunnisa, 2017).

Blockchain technology has been implemented in the waqf system, one of which is carried out by Finterra (Mywaqf.com, 2022). Finterra is a fintech from Singapore engaged in the social sector, especially the collection and distribution of waqf. Finterra developed a crowdfunding-based waqf platform using digital currencies (Naoual, 2022). Blockchain-based waqf can make it easier for wakifs to track each transaction contract electronically. Wakifs can



know what they are for and how their waqf treasures are utilized. To give certainty to the wakifs that their waqf property is used according to the desired purpose.

As the regulator, BWI began exploring using a waqf system based on Blockchain technology. In 2020, Zakaria Anshar, as Head of the Cooperation, Research, and Development Division of BWI, revealed that using Blockchain in the future National Representation is considered important and useful for its development (Badan Waqf Indonesia, 2020).

Based on the background and problems of waqf, it is necessary to find solutions to improve so that waqf assets can be utilized optimally. Currently, not much research discusses the innovation of the waqf asset management system in Indonesia. Previous studies on Blockchain waqf were limited to general explaining the concept of waqf management. Zulaikha & Rusmita (2018), Sukmana et al. (2020), and Mutmainah et al. (2021) offer a framework regarding Blockchain-based waqf management. The author has not found any research specifically discussing the management of waqf assets based on Blockchain technology. To fill the research gap, the author is interested in researching the concept of waqf asset management using Blockchain technology and Smart Contracts. This study seeks to develop an ideal waqf asset management scheme in waqf management. Therefore, the following research question is formulated: What is the form of implementation of the management of waqf assets based on Blockchain technology and Smart Contracts? The waqf asset management concept discussed is only limited to the use of Blockchain technology and Smart Contracts. The concept does not involve cryptocurrencies in conducting financial transactions due to a ban from the MUI and Bank Indonesia (MUI.or.id, 2021).

LITERATURE REVIEW

Waqf Asset Management

The main point of asset management is that it is efficient and effective. Siregar (2004) explains three efficiencies in asset management, namely: First, efficiency, that is, ownership and utilization. Second, maintaining economic value so that the assets under management produce fixed economic assets and increase income. Third, objectivity in the supervision, control, and transfer of power.

In the context of waqf management, the object of management is waqf assets. Waqf asset management needs to be done starting from collecting waqf, certifying waqf assets, managing, developing, maintaining relationships with waqf givers, and producing waqf assets. Waqf asset management has the aim



that the assets owned can provide benefits to the widest possible community (Syifaul & Yuni, 2018).

In her book productive waqf management, Rozalinda (2015) explained that in waqf asset management. It is necessary to pay attention to the objectives of waqf development and waqf asset development programs, risk losses and profits, identify potential waqf assets and prepare alternatives if there are failures in the implementation of the waqf asset management program.

In addition, data transparency regarding the management of waqf assets. It is also needed so that wakifs can know where and for what their waqf assets are used. Is it following the wishes of the waqf giver? Data transparency can foster wakif trust in *nadzir*. One factor determining the success of collecting cash waqf is the wakif's trust in *nadzir* (Hafiz Bin et al., 2019).

Iman et al. (2020) stated that waqf asset data in Indonesia is currently centralized in waqf institution management organizations. Waqf asset management is closed, so the public does not get information about its management. The recording of waqf assets is still manual. However, a digital recording limited to the Ministry of Religious Affairs at the District level. has caused difficulties in consolidating and inventorying waqf assets.

Blockchain Technology

The history of Blockchain was started in 2001 by a group of organizations that named themselves CyberPunk. They opposed the monetary policy that was then in force in the United States. Blockchain first appeared in 2008, introduced by Satoshi Nakamoto (Ayu et al., 2019). In 2008, Nakamoto introduced genesis blocks as the initial blocks of Blockchain. The Blockchain is managed by many computers (nodes) over a peer-to-peer network by following certain protocols for communication between nodes and confirming each new block. Each data block reference and previous data block identification uses a hashing function that forms an unbroken chain (Bambara & Allen, 2018).

Blockchain technology is short and different from Cryptocurrency (binus.ac.id, 2021). Blockchain can be analogous to a highway used by vehicles running on it. Currently, Blockchain technology is most widely utilized by cryptocurrencies (Cryptocurrencies), Non-Fungible Tokens (NFTs), and Decentralized Applications (dApp). Zhang et al. (2019) explain that Blockchain technology is divided into three types: Public Blockchain, Consortium Blockchain, and Private Blockchain. Public Blockchain is developed by a community and is freely used by the public. Examples of implementations of this type of Blockchain technology are Bitcoin and



Ethereum. *Consortium* Blockchain is developed by a group of companies or entities that make up a consortium. An example of a consortium formed to develop Blockchain technology is R3. Meanwhile, Private Blockchain is developed privately and only runs on internal networks. An example of using private-type Blockchain technology is a company that utilizes Blockchain for internal purposes.

The implementation of Blockchain technology in Indonesia has been implemented outside of cryptocurrencies. PT Bank Central Asia (BCA) utilizes Blockchain technology internally to accelerate payment transactions and reduce transaction complexity in the back office process. Pt. Pos Indonesia uses Blockchain to develop its giro services (Online-Pajak.go.id, 2018).

Blockchain technology is also utilized in Islamic socioeconomics, Universitas Airlangga through community service programs developed waqf crowdfunding based on Blockchain technology to the Nambangan and Cumpat Fishermen Groups, Kelurahan Kedung Cowek, Kenjeran District, Surabaya City. They built a waqf application based on Blockchain technology to make it easier for waqf wakif. The waqf application was developed using the Rupiah currency for donating. Sharia Economists from Universitas Airlangga reinforce that one of the strategies to optimize the management of waqf assets in Indonesia is using Blockchain technology (Sukmana et al., 2020).

Blockchain technology does not contradict Islamic teachings because technology is neutral. The use of technology is what makes it leads to Halal or Haram. It depends on the user being used for good or evil. The technology of Blockchain shows that its form, substance, and implications are all aligned with Islamic values, where it creates openness and transparency so as not to cause slander in the future (Abozaid, 2014).

Smart Contracts

Szabo (1996) introduced the concept of a Smart Contract to facilitate and verify the implementation of a digital contract running on a Blockchain network. These contracts are programmed to be activated and executed automatically when certain conditions are met. These transactions are traceable and cannot be changed. Creating Smart Contracts eliminates dependence on trusted third parties such as banks, lawyers, and other third parties. These contracts or transactions are executed alone in a joint that is completely controlled by a computer.

There are two types of Smart Contracts, namely Deterministic and Non-deterministic. When executed, deterministic Smart Contracts do not require data from external parties (outside the Blockchain network). Meanwhile, Non-



deterministic Smart Contracts require data from outside the Blockchain network. Such as from external database sources (digitalis.id, 2018).

Smart contracts can be extended for asset management use, known as smart property (Bambara & Allen, 2018). Smart properties are created by embedding smart contracts into real objects (Szabo, 1996). The smart contract protocol allows the property to be able to give access to the actual owner of the contract agreement that has been made. Buying and selling transactions that are carried out will cause an automatic transfer of ownership and rental transactions.

Smart Contracts are trustworthy because they do not require third-party intervention, thus eliminating loopholes in manipulation and human error. Smart Contracts also create efficiencies, reducing paper waste and time efficiency because the process runs automatically. In reviewing Islam, the nature of being trusted and not extravagant with Islamic rules align with the nature of Rasul, Sidiq, and Amanah (Kholifah, 2021).

METHOD

This type of research uses a literature review method with a descriptive qualitative approach. The application considers the data obtained in the field as figures and facts. A waqf asset in Indonesia requires in-depth analysis to establish a blockchain waqf scheme in waqf asset management. The renewal of the schemes and instruments based on waqf is managed with a modern blockchain platform, so the management is hoped to be more optimal.

The Data used is secondary data. Data is obtained from various sources such as literature, study journals, and reports published by the Government or certain agencies or agencies or agencies that can support the results of this research. So that the establishment of a scheme for managing waqf assets based on blockchain technology and smart contracts would be ideal.

RESULTS AND DISCUSSION

Blockchain-based Waqf Asset Acceptance Concept

The current process of receiving waqf assets goes through a long bureaucratic process so that the completion time becomes longer (Kemenag.go.id, 2017). Blockchain offers a solution that can speed up time and summarize bureaucracy. The blockchain system can carry out the registration and certification process, then be validated by the server/network. All processes ranging from submission, review, approval, repair, and payment to

certificates, are issued through Smart Contracts that run on the Blockchain network.

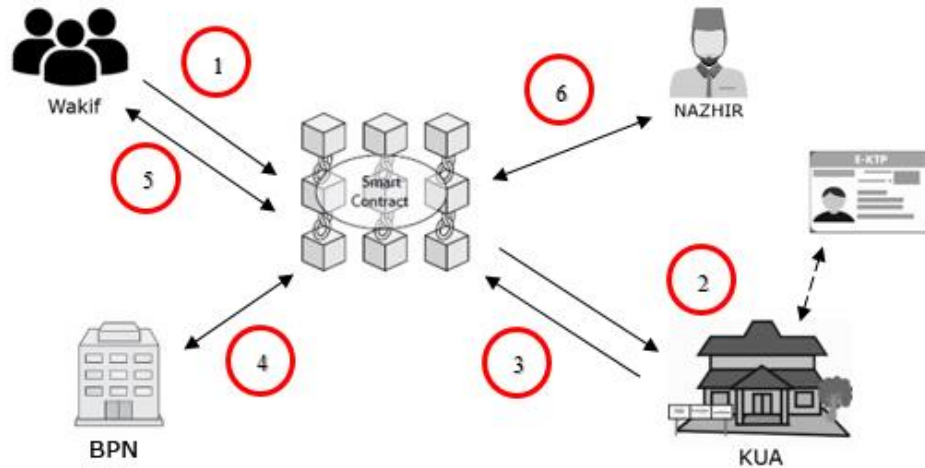


Figure 2. The concept of submitting and applying for waqf land certificates with Blockchain

Source: Processed by authors from various sources (2022)

The existence of a Smart Contract guarantees the integrity and consistency of data on all servers. Minimize the possibility of falsification and data inoculation between entities. With a model like this, transparency and data integrity are maintained. The concept for the submission and submission of land waqf certificates can be seen in Figure 2.

Based on Figure 2, the concept of submitting and submitting waqf land certificates with Blockchain is as follows: First, Wakif submits by inputting data and uploading the required files through the application. The data input is in the form of personal data information according to the e-KTP, waqf land information according to the certificate (area, ownership status, location), the identities of the two witnesses according to the e-KTP, and determining the chosen *Nadzir*. *Nadzir* must have been registered with the Ministry of Religious Affairs/KUA and in the waqf system. Then continue to upload a scan of the land ownership letter (Sertifikat SHM / HGB), upload proof of PBB payment, and upload a scan of the IMB if there is already a building and a Family Card (KK). After the wakif finishes inputting the data, it will get a hashcode or a unique code as proof of waqf submission.

Second, KUA as the Maker of the Waqf Pledge Deed (PPAIW), will check the legality of *Nadzir* and verify e-KTP data wakif, *Nadzir* and witnesses by checking the validity of identity online through the Directorate General of Dukcapil. Access population data, a cooperation agreement (PKS) is needed



between the Ministry of Religion /KUA and the Directorate General of Dukcapil (Kemendagri) as the issuer of e-KTP and the owner of the Indonesian population database. Checking online to the Dukcapil database, it will eliminate the validation and legalization process at the Kelurahan office so that data verification activities will be faster and more valid. The Directorate General of Dukcapil is not included in the Blockchain network because the data stored is personal data protected by Law No. 11 of 2018 concerning Electronic Information and Transactions.

Third, after verifying wakif data and the legalization of *Nadzir* were declared valid, Kua gave the Waqf Agreement and electronic Waqf Pledge Deed (AIW) to the Wakif. Fourth, BPN verifies waqf land certificates previously uploaded through the application. After the validation of the owner following the certificate, BPN will carry out physical verification of the location of the waqf land. BPN enters land measurement data and geolocation into the waqf system and incurs the costs that the wakif must pay.

Fifth, the wakif makes payments to the specified BPN account and gets a notification of the payment status. Sixth, after receiving the funds, BPN issues the Certificate of Tanah Wakaf Elektronik and sends it to *Nadzir* through the waqf application. The system will notify all Blockchain members that the Electronic Akaf Tanah Certificate has been issued and handed over to *Nadzir*. Regarding the legality of electronic certificates, the Government, through the Ministry of Agrarian and Spatial Planning or the National Land Agency (ATR/BPN) officially issued rules for using electronic land certificates starting in February 2021. Provision has been regulated in the Regulation of the Minister of ATR/Head of BPN Number 1 of 2021 concerning Electronic Certificates (Cnbcindonesia.com, 2021).

Blockchain-based Waqf Asset Recording Concept

Currently, tracking mutations and asset movements are difficult, especially for mobile waqf assets such as vehicles (Fahmi & Sugiarto, 2016). One reason is the absence of a system or limited resources to record each mutation of waqf assets. Can lead to the misuse of assets, such as using waqf assets for personal interests.

Lewis et al. (2017) proposed the idea of utilizing Blockchain that converts physical assets into digital forms for transactional and record-keeping purposes. Such digital assets essentially function as online instruments that change hands whenever the owner of an asset recorded in the Blockchain network changes. The idea of converting physical assets into digital data can be utilized in recording waqf. Concept for recording Blockchain-based waqf assets, as shown in Figure 3. To monitor the

movement/utilization of waqf assets, you can use the Internet of Things (IoT) technology. Christidis & Devetsikiotis (2016) explain that combining IoT with Blockchain can lead to significant transformation in several industries, paving the way for new business and distributed application models. The waqf application model based on Blockchain and IoT technology is very likely to be implemented as a new waqf asset management model.

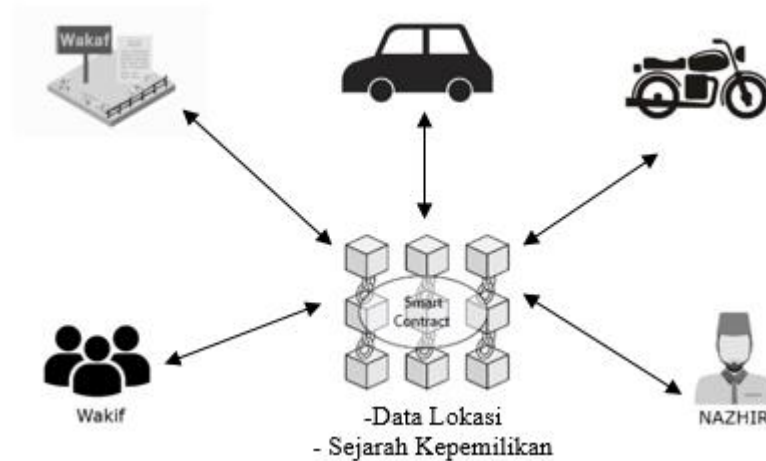


Figure 3. The Concept of Recording Waqf Assets with Blockchain

Source: Processed by authors from various sources (2022)

The implementation of Smart Property using smart contracts and IoT technology, especially in physical form, allows us to trace the historical Data of buying and selling goods, ownership, and even tracking the movement of the waqf asset. Every mobile waqf asset, such as a vehicle, can be installed with an IoT device with the General Positioning System (GPS) feature. Whose Data is then sent via the internet to the waqf Blockchain network to monitor the location and movement of waqf assets (Arief & Sundara, 2017).

Likewise, waqf land exchanged for rolls or waqf money must be recorded through the Blockchain waqf application so that all entitled waqf entities can transparently know asset mutation data. Data transparency can minimize the misuse of waqf assets and increase wakif trust in *nadzir*.

Blockchain-based Waqf Asset Settlement

According to the National Committee for Sharia Economy and Finance (KNEKS), the obstacles to waqf management. In Indonesia, there are problems with of waqf land, data inoculation problems, and the immature waqf digitization system (Fortuneidn.com, 2021). The current manual asset settlement constraints are at the time of asset reconciliation. Each waqf entity has its data and often differences in data from one another. The problem is

even more complicated when there have been many transactions, so the asset tracking process becomes more difficult.

Bambara & Allen (2018) explained that Blockchain technology could be used to facilitate the process of asset settlement in real-time and reliably. Each entity in the Blockchain network will be interconnected and always have the same Data because of the peer-to-peer model that is peer to peer on the Blockchain network. Theonsep settlement of Blockchain-based waqf assets can be seen in Figure 4.

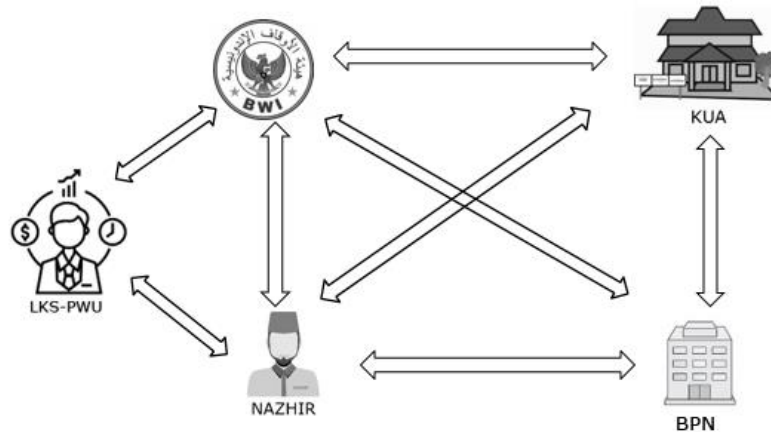


Figure 4. The Concept of Settlement of Waqf Assets with Blockchain
 Source: Processed by authors from various sources (2022)

With asset settlement using Blockchain technology, every time there is a data transaction, such as recording new waqf assets, the data entry will be entered and duplicated to all server nodes (Chiu & Koepl, 2018). Asset data can be previewed in the existing waqf application so that each waqf entity, such as BWI, Kemenag/KUA, Nadzhir registered, and even wakif, will receive the same information. Likewise, if there are reduced waqf assets, transaction data will be recorded and distributed to all blockchain network server nodes. Thus the transaction records in each connected waqf entity will always be the same and very difficult to manipulate because the Data is spread across many servers.

The waqf data of money in LKS-PWU and its distribution to *Nadzir* will also be distributed in BWI. Thus the Data on income and distribution of waqf money in LKS-PWU, *Nadzir*, and BWI will always be the same because it is duplicated in real-time in the Waqf Blockchain network. Likewise, the Data on land assets or waqf buildings recorded in KUA, BPN, *Nadzir*, and BWI will always be the same due to the data distribution mechanism in the blockchain network.

The Concept of Managing Waqf Assets with Blockchain Technology

From data from the Ministry of Religious Affairs (202 2), it is known that many waqf lands are still not utilized (idle assets). Funds are needed to be able to finance the construction of existing waqf land in order to be more productive and productive. Rashid (2018) offers the concept of using blockchain technology to help waqf management become more productive and provide transparency in utilizing waqf assets.

Wakif obtains current waqf information from the funds received and distributed through the blockchain waqf application. Concept management of waqf assets using Blockchain technology as Figure 5. Figure 5 shows that the concept of managing waqf assets with Blockchain is as follows: First, *nadzir* identifies and prepares waqf land assets that will be produced for development. Second, *nadzir* made a development project paper which includes feasibility studies, building architecture, building project plans, project costs, project advantages, and disadvantages, and recommended financing instruments. Third, BWI will review the feasibility of the development project paper.

Fourth, if it is approved, the official LKS-PWU is involved in announcing the waqf development project through the waqf application. The funds needed and the unique LKS-PWU account number determined is displayed. Because cryptocurrencies are not recognized in Indonesia, the currency used in this concept is the rupiah. Fifth, the Investor (wakif) can choose a waqf project and transfer funds to the LKS-PWU account according to the selected project. When investors (wakifs) will find waqf they are given a choice of financing instruments, namely: 1) Waqf of money, 2) Islamic Finance, 3) Islamic Investment 4) Sukuk (Budiantoro et al., 2020).

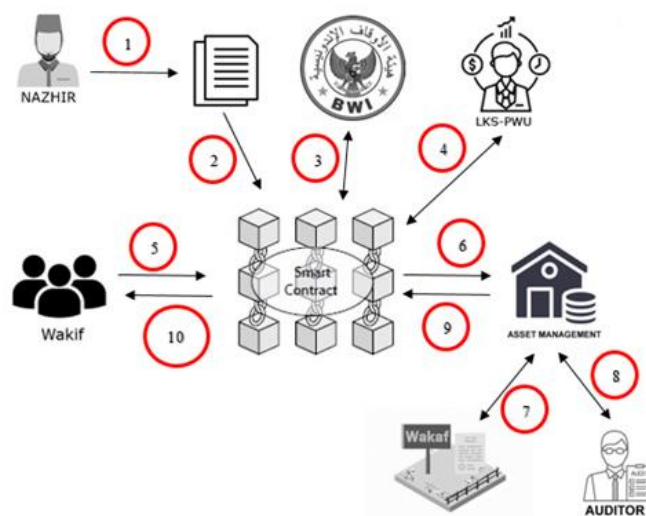


Figure 5. The Concept of Managing Waqf Assets with Blockchain

Sources: Rashid (2018); Sukmana (2020), modified



Sixth, once the capital requirement is achieved, the *waqf/Nadzir* institution appoints a construction company to start the construction and development of the structure. Seventh, after the construction is completed, the waqf institution, as the fund manager, appoints Asset Management to operate and maintain the assets. Eighth, an independent auditor will audit the income and expenditure of funds from waqf assets managed by Asset Management. Ninth, the steady income or income earned is then distributed to investors based on the selected investment instrument based on the agreed terms and conditions. Tenth, the Investor (*wakif*) will receive a report on the development of waqf assets and a fund of returns on the development of waqf assets according to their choice of financing instruments.

CONCLUSION

The role of waqf regulators, both the Ministry of Religious Affairs and BWI, is needed to provide regulations and a blockchain-based waqf application system that can later be used by waqf/nadzhir bodies all waqf entities. The role of Bank Indonesia is also needed as a regulator in charge of LKS-PWU. Banks regulate the legality of crypto money and billing to the Bank. To create an integrated waqf ecosystem unit starting from regulators, waqf providers, waqf bodies and other interested parties. The findings of the current waqf problem are unproductive waqf assets, problems of transparency and data inoculation, and an immature waqf digitization system. Blockchain and Smart Contract technology are needed to manage waqf assets, both movable and immovable assets. The process of receiving waqf, mutation and tracking of assets, settlement of asset data to management of technology-based waqf assets. Blockchain can help waqf management be more productive. Improved data transparency for all waqf entities and minimized manipulation. *Blockchain* database is centralized and spread across multiple server modes.

The limitations of this research are only limited to the use of Blockchain technology and Smart Contracts for managing waqf assets. Due to Bank Indonesia regulations and MUI Fatwas that prohibit the use of cryptocurrencies, currently, for the collection of waqf funds in the Blockchain waqf system, you can only use the official currency in Indonesia, namely the Rupiah. This regulation implies that the existing waqf system is only effectively running in the territory of the Republic of Indonesia and cannot use borderless cryptocurrencies. The concept of waqf asset management based on Blockchain technology and Smart Contracts can pave the way for the following research and provide input for the development of waqf digitalization in the future. If crypto currency is recognized as the legal currency in Indonesia, the research



and development of blockchain waqf will be even more developed. In the end, the integrity and transparency of waqf data can be realized, increase public trust, and cause a passion for waqf through waqf institutions.

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