International Journal of Application on Social Science and Humanities
Vol. 1, No. 2, May 2023: pp 1595-1602 ISSN-L 2987-8241 (Electronic Version)

REVOLUTIONIZING THE INDONESIAN PROPERTY LAW WITH BLOCKCHAIN TECHNOLOGY

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Submitted: July 2022, Revised: December 2022, Accepted: May 2023

ABSTRACT

Amidst the arguments of legal intervention in the aspects of society, most scholars, either economists or legal experts, would agree that property law is one of the few things to be sustained regardless the circumstances. The certainty offered by the property law allow society to allocate resources to the more welfare-creating activities. For long, Indonesian property law relies on the classic property law in the framework of our civil code ruling, namely the Burgerlijk Wetboek or Kitab Undang-Undang Hukum Perdata. Movable object relates its ownership with the possessor of the object, which is known as bezit, while immovable object or a special movable object ownership is attached to a certificate to evidence one's ownership. This has been recognized by law as the most efficient procedure to enforce property law. However, we have to note that these set of rules were in nature defect, yet is used due to our limitation of technology. Bezit, for example, might allow a legal notion that one possessing it as a legal owner, while in reality, he might illicitly obtain the objects. Certificate-based ownership sounds firm, yet the legal procedure to issue or transfer a certificate is more complicated than that. This paper identifies the new technology development, the blockchain technology, as one solution of the complex procedures. Blockchain allows a safe and transparent transaction with less intervention of the government, reducing the high workload from the bureaucratic procedures. The derivative product, the Non-Fungible Token, allows a creation of digital certificate to be created and in its early development, has shown a strong possibility of future use in the property law regime.

Keywords: *Blockchain, property law, ownership, technology*

1. PREFACE

The government intervention in the society remains a huge debate between scholars. Some argue that government intervention in the form of policy and regulation is much obliged since the government is responsible for the welfare of the society [1]. Some others disagree with an interventionist approach, not because it links the society with the government, but because of the idea that too much intervention would halt the welfare development of the society, if not worsening it [2]. However, even the most non-interventionist economists would agree that the enforcement of property law is compulsory in the framework of a state. Property law protection allows the society to secure the element of certainty and allocate their effort and resources to a more welfare-boosting activities. A simple example to picture this phenomenon is when there is no institution that would defend one's property ownership, individuals would waste more resources to defend it, which essentially incur extra cost for him and eventually becoming a welfare-destructive behaviour when practiced over by a lot of individuals [3]. It would be cheaper for the society to establish an institution that would set a clear property ownership mechanism and protection.

In Indonesia, property laws are regulated under the Civil Code, a set of civil rules that remains a legacy since the Netherlands' occupation. Under this law, Indonesia classifies objects in some categorization, however, for the purpose of this paper, we will focus on its category based on its movability, which is the main elements of classification for ownership status. We recognize movable and immovable object and each has different ways of claim its ownership. The ownership of movable object is relatively simpler to claim, where the possession of the goods itself is a prove of ownership. This rule applies for most of movable objects. An exception to this is for instance

the ownership of vehicle, which require an extra certificate for its ownership prove. For immovable objects, either by nature or by law designed to be so, the ownership is proven by a certificate. Such regulation is stipulated in the Agrarian law 1960 that has revoked the law of the lands regulated under the civil code. A general reasoning of such ownership is due to the nature of immovable objects like land are not possessable. In the circumstance where a land is to be legally owned by an individual, one needs to request a certificate to be issued by the government. This request also applies when a land is an object of transaction. From the perspective of the buyer and seller, both need to settle the transaction in front of a certified land deed official (LOD). In the back end, The LOD is required to continue the process further. The LOD will proceed the procedure to the National Land Agency (NLA), where the process of transfer of right is conducted. While in the regulation these practices are clear, the practical experience would disagree with the rule book. The procedure is rather complicated since it takes a lot of parties involved and each of the verification process takes time, which equals to extra cost under the economics theory.

Even though the rapid development of information technology has started to show its contribution to many aspects, the property law is one of a few aspects that yet to receive significant upgrade from the development. Regardless the reason, it is understandable that property law is highly correlated with economic value which is prone to uncertainty risk if updated too frequently. The recent development of technology introduces a way to manage database in a different manner. Under the previous development, data is always structured under a selected institution, making database to be centralized and to some extent, making it prone to data distortion, hacking, corruption, or any other technical-related problem of a stored data. This technology is recognized as blockchain, a database technology that stores data in the form of block, and once this block is fully-loaded, it will chain the block to a new block. The consequence of such mechanism is that any stored data is irreversible and to chain this block, a decentralized verification process is required.

While the law recognizes that regulation will always one step behind the technology, the aim of the writers in this paper is to make a theoretical circumstance of the blockchain adoption to the property law. The decentralized nature of blockchain along with its transparency may serve as a good medium for property right transfer, and eventually result in a great reduction of costs for the society.

The rest of the paper is organized as follows. Section 2 introduces concepts used in this paper, including the essence of property law, its application in Indonesia and how blockchain works. Section 3 elaborates the application of blockchain in boosting the practice of property law and the benefit of its application on numerous property law ownership assignment. Lastly, section 4 will conclude this paper and review some possible steps to be taken in order to realize the concept proposed in this paper.

2. RESEARCH METHOD

Property Law

Under the legal science, property law is exercised as a form of legal certainty, where one should be allowed to enjoy economic benefits as a part of one's human right as stipulated under article 17 of the Universal Declaration of Human Rights. Therefore, ownership over property should be under the regulation of the government. The economics, despite its agreement on the property law concept, derives its argument on a different basis. Economics sees property ownership as a mean to ensure efficient allocation. Property law is enforced to ensure that society does not waste resources on overprotecting their object ownerships, which burdens the government to provide both *ex-ante* (prevention) and *ex-post* (repressive) settlement in exercising the property law.

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The scope of property law is relatively wide. It regulates types of ownership, transfer of right mechanism, losing ownership status, and all ownership-related cases. The economic value comes with this right often turns unclear ownership status into a dispute. Therefore, a clear set of rules and governing policy that allows legal certainty is highly encouraged in this regime of law as it would greatly minimize the possibility of dispute, which is a cost to the society in general.

The Property Law Regime in Indonesia

The property law regime in Indonesia is mostly a legacy from the Netherlands law. This is an expected condition as Indonesia was previously colonized by the Netherlands until 1945, when Indonesia declares its independence. Indonesian property law recognizes a special classification to certify its ownership. Under the Indonesian Civil Code, in which most of property law is regulated, an object can be categorized based on its movability. This separates most objects into either a movable object, and immovable object.

The Ownership of Movable Objects in Indonesia

The Indonesian Civil Code, which is known also as *Burgerlijk Wetboek*, has set a condition to evidence once ownership over a movable object. Indonesian law recognizes one's ownership over a movable object if one has a possession over it. This form of possession condition is known as '*bezit*' under Indonesian Law [4]. A prominent expert in Indonesian Civil Law, Soebekti, defines *bezit* as a condition where one enjoys a possession over an object without a legal question on its true ownership, and this possession is protected by the law [5]. This concludes two elements over ownership of a good: 1) Ownership does not necessarily owned by the one that possess the objects, but 2) this possession is protected by the law. Let us create a hypothetical condition where A borrows a smartphone from B. B hands his smartphone to A, and the *bezit* is also handed from B to A, as now A is a the possessed the smartphone. While in this situation we could conclude that A is the one owns the *bezit* but is not the legal owner of the phone, and B is the true owner but does not have the *bezit* over his own smartphone, the property law would disagree with this knowledge. The point of view of property law would still associate A's *bezit* as the true ownership and therefore A is the owner of the smartphone. Of course, this is not absolute, and B could regain his ownership status back if he could prove his ownership over his phone. However, in another hypothetical condition where A gains his *bezit* through an illegal mean (e.g. robbing B, or snatching the smartphone from A), a transfer of ownership is also happening, unless B proves the illicit activity conducted by A in physically possess the smartphone.

At this point, from the economic point of view, the writers argue that this mechanism is adopted because it is the most efficient mean to assign ownership status to the date the law was enacted. To issue a certificate over all goods is ridiculous and would be a huge cost to the society and would even cause more administrative problems. Another argument to justify this ownership mechanism is that for a lot of objects, the certification cost would be more than the value of the goods instead. Say for example, to make a certificate for a fabric bracelet might cost more than the bracelet itself. This idea is fortified by the fact that some valuable movable goods, like vehicles and gold, require a certificate of ownership for one to be deemed as the owner.

The Ownership of Immovable Objects in Indonesia

While most of immoveable objects are in default recognized to be owned by the one in possession, the default rules for immovable object are on the contrary. Most immovable objects require a proper certification process to establish an ownership status. Indoensia classifies immovable objects into two types: 1) immovable due to its nature (e.g. land) or 2) immovable due to its function

(e.g. ship, industrial machinery). The similarity of both types is that both require certificates to evidence an ownership status, and require some administration work to transfer. That said, we could safely tell that a transactional procedure of a laptop, a movable object), would be a lot simpler than a land (an immovable object).

In this paper, when we discuss the immovable object, we would focus more on the land-ownership, since the rights related to a land ownership occurs more often than the other immovable objects, like a ship for example. The process of transferring one's ownership to the others take some time cost. The legal procedure starts with the buyer and seller agrees to have a contractual meeting in front of an LOD. The LOD will then coordinate with the NLA to process the transfer of right. The details of the procedure would not be the scope of this paper, but these procedures are required for the sake of verification in order to prevent double transaction over a single object.

Blockchain Technology

If there is a question of the most game-changing innovation in the database field, we would not falter to say that one of them is the blockchain technology. Often discussed, yet remains a uncovered to most, the blockchain technology was first introduced by the pseudo-founder of Bitcoin, Satoshi Nakamoto. To date, Bitcoin remains as the most prominent cryptocurrency and has become a popular alternative investment instrument. Prior to the innovation of blockchain technology, digital asset was seen to be unviable, due to its duplicability and the haunt of technical hacking risk.

Decentralized System of The Blockchain Technology

Blockchain is essentially a form of database that consists of information in the format of table. What makes it different from a conventional database is that these data are arranged in a form of block and once the block's capacity is full, it will be chained to the next block [6]. This innovative way has allowed a database to own a special feature yet to be seen from other databases, which is: immutability [7]. Apart from irreversibility, blockchain also offers another innovative feature, which is decentralized system.

To picture a centralized system, when we are sending money to the other via bank, we are essentially only giving a transaction order to the bank. The bank, as a centralized system, will then record this transaction and imagine all transactions done by individuals are recorded in one big database owned by the bank. This is a model of centralized system. A clear weakness of the centralized system is that a hacking attempt is easier to be made [8]. As long as the hacker is capable of gaining control over the database in that one computer, he could gain the transaction control over all transaction recorded. Centralized system will also be more prone to internal corruption by the individuals that has control over the database, especially when it is related to a centralized ownership of natural resources [9]. In the blockchain ecosystem, this feature works on the other way around. Instead of centralizing the data, the system will share the database to computers around the world within its ecosystem. The data is designed to be transparent to anyone. This data is called a 'public ledger'. In order to record any transaction, we need a verification process and this verification process is not done in a centralized way as previously displayed in the banking system**.** The verification process is done by all the computers within the selected blockchain ecosystem. When a transaction is occurring, all the computers within the ecosystem will need to 'agree' that the transaction is legitimate. In the perspective of the computers, this process is known as 'mining', where the owners of these computers earn profit as the fee of verifying the transactions. The verification process will ensure that the parties involved in the transactions are the party

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that owns the object of the transaction, and once it happens, then the ledger will record this transaction and there is no way to edit it.

The Activation of Digital Asset

The economic consequences irreversible recordation system is that one cannot duplicate his digital asset and have another transaction with a same object or known as 'double-spending' problem [10]. To clarify this mechanism, say that John has a knife and he plans to sell this to Amy. Amy comes with her money and John hands Amy the knife. The transaction is clear, now that Amy has the knife but lose some money and John has money and lose the knife in the transaction. It is impossible for John to make another transaction with the knife he sold to Amy as an object of transaction as he is no longer in possession of the knife. Prior to the blockchain development, this is the main problem with digital asset to be an object of a transaction. One can duplicate a digital asset if there is no centralized recordation institution that intermediate the transaction. The decentralized feature of blockchain has allowed digital asset to grow, which is why cryptocurrency like Bitcoin, Ethereum, Doge and other digital currencies could develop.

Non-Fungible Token

Apart from the existence of cryptocurrency, another rising derivative product from the blockchain in the Non-fungible Token, the NFT. NFT in its nature is essentially a digital certificate [11]. The ownership of an NFT will be associated with the ownership of something. A clear difference between NFT product and the cryptocurrency product is its non-fungibility. One bitcoin would be the same value with another Bitcoin and it does not matter for one to have whichever token since they value the same, thus is fungible. However, NFT is individually unique and one token will not have an identical fungibility with another NFT.

While it may sound maniacal, the object of NFT presently derives from petty things that was previously unimaginable to be on sale: the first tweet on twitter, digital arts, short videos of basketball scene and other digital objects. While we will discuss its potential utilization in the future, to the date this paper is written, NFT is dominantly used for digital art transactions and yet to be associated with real-life objects.

3. RESULT AND DISCUSSION

The Possible Application of Blockchain Technology in Assigning Property Ownership

The aforementioned features of the blockchain invites us to review the present enforced property law. This review aims to unlock the possibility to have a less costly procedure in identifying a property possession and ease the process to transfer the related rights. In this paper, we propose a different method to utilize blockchain technology in assigning the ownership of a property and transferring the right over those properties.

Tokenizing Immovable Object Certificates

Reviewing back to the immovable ownership, we argue that, in the economic perspective, the present property ownership based on '*bezit*' is applied due to the high administrative cost. If the society requires certificates for any recognition of ownership, a huge inefficiency will take place in an attempt to protect ownership right. Therefore, the society agrees that some errors in identifying ownership, in the sense of mistakenly recognizing someone with possession but without ownership status as a real owner, is more efficient that to certify each object to associate the ownership status. However, in this paper, we propose that the issuance of digital certificate in the blockchain ecosystem would deal with the problem.

Say that we own a laptop, we can assign the laptop ownership with a certificate. This certificate is not necessarily in the form of physical certificate, but only in the form of data where it is stored in the system that we will call as a 'token'. Every time this laptop changes ownership, we can simply record the change of possession of the 'token' in the ledger, and every time it is involved in a transaction, the decentralized system in the selected ecosystem would verify every transaction to ensure that the transaction is real. This way, the transaction is less costly and as long there is a computation mechanism that allows the system to recognize an object to be associated with the 'token', the transaction will be automatically recorded in the system and any illicit mean to own an object would be easily recognized as the owner of 'token' is not the same individual as the one that possess the object.

A More Efficient Transfer of Right for Immovable Objects

The right transferring process is well-regulated in the Indonesian law and constantly applied to date. However, the real process of transfer takes a lot of time and effort for all parties, the buyer, the seller, the LOD and the NLA in the verification process. The verification itself is duplicative and requires a lot of manpower to complete. This high cost is justified as we do not want to have a duplicative transaction in the process which would cause uncertainty in the ownership of an object.

The way that blockchain technology could help this system is to simplify the verification process. In this paper, we will be using an example of land registration system. Since the *status quo* has certified the lands in Indonesia, the right will be associated with the certificate. This certificate can be converted into a national token in the government-based ecosystem, just like the immovable object concept. This ledger ecosystem would be used to replace the centralized ledger in the NLA. In this mechanism, the NLA verification process would only take seconds, compared to the present method that takes days to verify. This means that there will be no queue in transaction recordation, reducing the time cost of every party involved in a transaction. The NLA, however, would need to tokenize all piece of lands within the territory of Indonesia before we could see the system works in a very fast pace.

A Catalyst to a More Cost-effective Property Law Regime

In a perfect world pictured by economists, allocative efficiency will always happen and one of the reasons is that the transaction cost is deemed to be zero [12]. It is virtually impossible to have zero transaction cost, but the technology development would always move the cost to be nearing zero. In this case, the blockchain technology has allowed us to advance a little bit closer. Utilizing the technology would allow us to have less intermediary cost, saving a lot of time cost with numerous transactions to be executed at the same time, and allowing the society to put more effort and man-power in other sectors that is more efficient. Amplified with the big numbers, this would be a significant value for the government. The cost saved by utilizing the technology includes the time, effort, hassle, resources and others that might even be insignificant.

The Drawbacks

Despite all the magical possibilities offered by the blockchain technology, it does not come without any problems. There are some problems that we need to deal with before the proposed concept will be run in the way we explained in this paper. These problems include governmental control over decentralized system, the environmental cost over the blockchain ecosystem, the switching cost from the *status quo* to the offered system and unstable price of the fee.

Control Problem of The Government

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The decentralized system explained in this paper would sound solid under the theoretical approach, but it is not without any vulnerability. The centralized system is solely run by the Government, and therefore, the government has a full control of all registration and transaction recordation. The execution power would be linked with the *de facto* owned by the government. This bases the government power in exercising its jurisdiction. Turning to the decentralized system, the government would have less power in executing its jurisdiction. This might be a negative impact of governmental power and would result in the risk of uncertainty in the execution process.

Environmental Cost

We have been discussing in this paper that the decentralized system of blockchain ecosystem requires verification from other computers within the system. We need to note that aside from the verification fee that is paid to these miners, the electricity consumption of these computers is huge. The massive electricity consumption has a direct impact to the environmental and should this cost come as externality where people do not pay for the cost of environment, the mining activity will continue and so is the damage to the environment.

Switching Cost from the Status Quo

Digitalization speeds all administrative work and it saves the society a serious amount of time cost. However, we have to understand that turning a conservative system into a digital ecosystem require a huge amount of effort in the beginning. The existing data will not automatically turn into digital data and inputting all the historical data into a digital system need a huge amount of manpower. Other switching costs to be taken into account are the culture shock post the digitalization and the learning process to ensure that the system migration does not disrupt the future data entry and processing. As a clearer picture, say that we are replacing the traditional ledger in the NLA into a blockchain system. The system will require manpower to migrate all the written data into the blockchain system so that all the historical data will also be recorded in the system. The data has been recording since 1960, which means to date, there are 60 years long stored data in the ledger and every right transfer should be inputted if we want to have a strong historical data. The staffs also need to be trained to be able to do a more complicated data entry. The transition period should be managed well to make sure that all transactions during the period is not halted.

Unstable Price of Fee

The verification process, as previously explained, comes with a fee. This fee depends on the ecosystem we are using, for example if we are using the Ethereum-based ecosystem, then we will pay the verification fee in the amount of Ethereum. Ethereum, just like any other cryptocurrency, fluctuates heavily and defeats its main purpose as a mean of payment. However, we argue that if the government is serious in the proposed mechanism application, a stable coin that associates its price with underlying asset regulated by the government. Example of this form of coin is Tether, a USD-backed token.

4. CONCLUSIONS AND RECOMMENDATIONS

In this paper, we have briefly reviewed the property law regime in Indonesia. The Property Law in Indonesia is a legacy of the Netherlands colonization since 1945. We first establish an argument that the present Property Law is derived from the efficient allocation at the time these laws were drafted. The ownership of movable objects based on '*bezit*' and the certification of immovable objects, however, might require a technological review in its exercise in the property law regime. The development of blockchain technology, as we have discussed, might be a game-changing tools to deal with the problems of the ownership. The movable object could be assigned with a digital certificate or token that is stored in a blockchain ecosystem, and the immovable object

administrative burden would be reduced by utilizing the same ecosystem. However, despite the possible enhancement proposed in this paper, there are some serious drawbacks to be taken into account in order to reap the benefit of the technology.

Acknowledgement
The authors would like to acknowledge people who have supported this study.

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