

Regulating The Use of Smart Contract in Indonesia

Fitri Arianti Saputri¹

¹Program Studies Bachelor Knowledge Law, Faculty of Law, Sriwijaya University, Sumatera Selatan, Indonesia

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Corresponding Author:

Fitri Arianti Saputri

Fitriarianti400@gmail.com

Abstract: *There are many characteristics of the industrial revolution 4.0, one of which is the rapid development of technology, one of which is the existence of smart contracts. A smart contract is an agreement made by two or more parties that is generated automatically from a code guaranteed by a technology called blockchain. Nick Szabo was the first to introduce smart contracts. In Indonesia, smart contracts do not yet have specific arrangements in their implementation. There are only basic arrangements regarding agreements, namely in Book III of the Civil Code to be precise in Article 1320, as well as arrangements regarding electronic contracts in Government Regulation Number 71 of 2019 concerning Implementation of Electronic Systems and Transactions. However, even though this smart contract only contains basic rules, it does not make it an agreement that is prohibited by the government, as long as an agreement or contract does not conflict with the law and meets the basic requirements, an agreement can be legally binding. Therefore, in this writing, it is necessary to further examine what are the rules governing smart contracts in Indonesia. The research method applied in this paper is to use qualitative normative juridical, which is a separate focus in describing a problem related to regulations or rules that exist in Indonesia. The results of this study will then find a broader elaboration of regulations for the use of smart contracts in Indonesia and how this smart contract system can work using blockchain technology.*

Keywords : *Smart Contract, Agreements, Rules*

INTRODUCTION

There are many characteristics of the industrial revolution 4.0, one of which is the the rapid development of technology. The Industrial Revolution 4.0 introduces new innovations using artificial intelligence, which is a testament to the advancement of current technology. technology today. And many are replacing the role of humans with advanced technology, which technology, which affects the dependence of people's lives on technology. Thus, Indonesia as a state of law, in regulating human life, law is needed to function as it should. human life, it is very necessary for the

law to function properly in accordance with the applicable law in resolving issues. with the applicable law in resolving issues that will arise in people's lives from the impact of these technological developments. society from the impact of this technological development.

One of the innovations brought about by technological developments is smart contracts. contract. Smart contracts are agreements made by two or more parties that are automatically generated from code guaranteed by the blockchain.¹ Nick Szabo was the first to introduce smart contracts. Nick said that a smart contract is a set of computer instructions to

¹ Suryo Adi Wibowo, dkk., *Penerapan Smart Contract dalam Sistem Blockchain Pada Pengakuan Sistem Kredit Semester Kampus Merdeka*. Jurnal Seniati, Juli 2022. P.536.

execute the the terms of an agreement.² Furthermore, Nick outlines the objectives of using "The general objectives of smart contract design are to satisfy common contractual conditions (such as payment terms, liens, confidentiality, and even enforcement), minimize exceptions both malicious and accidental, and minimize the need for trusted intermediaries. Related economic goals include lowering fraud loss, arbitration and enforcement costs, and other transaction costs".

This smart contract is a new electronic contract that is a conventional agreement, smart contracts have self-executing properties that are run by blockchain technology which of course will cause legal problems.³ This smart contract is found in activities such as buying and selling transactions in e-commerce, which in fact with this smart contract makes a buying and selling activity more efficient, which is characterized by the buyer or seller not needing to meet in person in the transaction. directly in the transaction. Smart contracts can be done without a third party, agreements made with smart contracts cannot be changed because they are made automatically by computer systems and can be tracked. by a computer system and can be tracked. What is contained in it are the terms and information about the contract.

In the international realm, there is a provision that is the basis for regarding the provisions of conducting trade through electronics such as in smart contract, namely the United Nations in Contracts for International Sale of Goods (CISG), United Nation Commission on International Trade Law (UNCITRAL) Model Law on Electronic Commerce and UNCITRAL Model Law on Electronic Commerce. Electronic Commerce

and UNCITRAL Model Law on Electronic Signatures. While in the national realm in carrying out e-commerce there is an underlying regulation Law Number 11 of 2008 concerning Information and Electronic Transactions (which was later amended to and Electronic Transactions (which was later amended by Law Number 19 of 2016 concerning Amendments to Law Number 11 of 2008 concerning Information and Electronic Transactions). Year 2016 concerning Amendments to Law Number 11 Year 2008 concerning Electronic Information and Transactions (which is then referred to as Law Number 19 Year 2016). Information and Electronic Transactions, hereinafter referred to as "ITE Law").⁴

The existence of this Law gives legal force to electronic transactions and documents that are related to the law of engagement and provides legal certainty in its proof. It can protect users who misuse technology and information accompanied by criminal sanctions.⁵ Arrangements and provisions regarding electronic-based transactions that have been designed in such a way by the government sometimes still have problems to the occurrence of default.

There are two legal systems in the world, namely common law and civil law. Both legal systems regulate contracts or agreements made by several parties. The common law legal system regulates contracts or agreements that obligate or force and are legally binding which can be proven by fulfilling the elements of the contract, namely acceptance and agreement. proven by the fulfillment of the elements of the contract, namely acceptance and offer, and there is an intention to create a legal relationship and accompanied by a

² Cieplak, Jenny, and Simon Leefat. *Smart Contract: a smart way to automate performance*. Geo. L Tech Rev. 2016. P. 417

³ Corrales Marcello dkk. *Legal Tech, Smart Contracts and Blockchain*. Singapore: Springer Singapore. 2019. p.20.

⁴ Kadly, E. I., Rosadi, S. D., & Gultom, E. *Keabsahan Blockchain-Smart Contract Dalam*

Transaksi Elektronik: Indonesia, Amerika dan Singapura. Jurnal Sains Sosio Humaniora. Vol 5 No 1. 2012. p. 199-212.

⁵ Setia Putra. *Perlindungan Hukum terhadap Konsumen dalam Transaksi Jual-Beli melalui E-Commerce*. Jurnal Ilmu Hukum. Vol 2 No 2. 2014. p 291.

consideration between the parties. with the existence of consideration between the parties.⁶ While the civil law legal system to make an agreement or legal relationship must fulfill the objective and subjective conditions objective and subjective requirements.

The existence of this smart contract is a great proof of the rapid development of technology, but it must be in line with the laws and regulations in force in Indonesia. The basic rules of the legal requirements of an agreement in a civil law legal system such as Indonesia lie in Book III of the Civil Code (BW). Article 1313 BW states the definition of an agreement, namely "an agreement is an act by which one person or more binds himself to another. or more binds himself to another person or more."⁷ Before making agreement there are several conditions for the validity of an agreement which are stated in Article 1320 BW, namely "Agreement of those who bind themselves, capacity to make something, a certain thing, a halal cause. to make something, a certain thing, a halal cause."⁸

The existence of a contract in an agreement if one of the legal conditions does not comply with what is stated in the BW will result in the agreement made will be null and void (nietig, null and void) or the agreement can be canceled (vernietigbaar, voidable). If an agreement that has not fulfilled the objective requirements, it will be null and void, namely about a certain thing or a halal causa. Furthermore, an agreement that does not meet the objective requirements will be cancelable, namely regarding the agreement between the parties and the the competence of the parties.

In addition to what is contained in Book III of the Civil Code, there are other arrangements related to the use of electronic contracts, namely in Article 1 number 17 of Law

Number 11 of 2018 concerning Electronic Information and Transactions, which states that an electronic contract is a legal relationship in which there are parties and made through electronic media. Looking further, there are other rules regarding this electronic contract, namely in Government Regulation of the Republic of Indonesia Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions (PSTE).

Smart contracts are structured and written and executed by electronic systems or computer languages, this eliminates the need for third parties in making agreements which makes this smart contract an efficient contract because it is self-executing. This automated execution is done by translating the legal phrases into a program that can be executable program into a smart contract using a standardized agreement.⁹ This arising clause removes the limitation of the creditor's responsibility for risks that arise in the future, and one party can determine the contract unilaterally. If we look deeper, the validity of smart contracts operated by Blockchain technology can still be questioned. The initial purpose of smart contracts is to make conventional contracts more efficient and easier, but it is inevitable that this will cause legal problems between the parties to the agreement. Therefore, it is necessary to have restrictions that are realized in the regulations regarding the smart contract itself in Indonesia. Based on the problems described above, the author will examine the regulation of the use of smart contracts in Indonesia.

METHODOLOGY

The research method used is normative juridical research which is qualitative in nature. qualitative, which is a research guided by

⁶ John Cartwright. *Contract Law: An Introduction to The English Law of Contract*. Blooms-burry. 2016. p.6.

⁷ Pasal 1313 Kitab Undang-Undang Hukum Perdata

⁸ Pasal 1320 Kitab Undang-Undang Hukum Perdata

⁹ Agus Satory. *Perjanjian Baku dan Perlindungan Konsumen dalam Transaksi Bisnis Sektor Jasa Keuangan: Penerapan dan Implementasinya di Indonesia*. *Padjajaran Journal of Law*. Vol 2 No 2. 2015.

regulations or rules and legal values both in legislation and in court decisions as well as norms and rules born and formed in society.¹⁰ The norms and rules that are born and formed in society. The main source of law The main legal sources are all laws and regulations related to smart contracts that apply in Indonesia.

RESULTS AND DISCUSSION

1. Use of Smart Contracts in Blockchain Technology

In today's rapidly growing technological age, entering into an agreement or contract no longer requires a third party, it can be replaced by a computer system. The third party in question is a party who becomes an intermediary in conducting transactions between the parties. Smart contracts are generally the same as electronic contracts, but there are still differences between the two, namely the rules of the agreement in the form of programming code, in smart contract requires blockchain for its distributed storage technology besides that, smart contracts also implement self-executing contracts.

Smart contracts were first introduced by the legal expert and computer expert Nick Szabo in 1994. Nick Szabo simply stated that a smart contract is a digital contract whose execution is carried out automatically without requiring human performance. Nick also said that the purpose of a smart contract is to act as a computerized transaction protocol that executes the terms of a contract.¹¹ The definition of smart contracts is also mentioned by Gideon Greenspan who said that smart contracts as "a piece of code which is stored on an Blockchain, triggered by Blockchain transactions, and which reads and writes data in that Blockchain's database."¹² Or what is translated that "a piece of code that is stored on the Blockchain, triggered by Blockchain transactions, and that reads and writes data in

the Blockchain database" based on this, there is an emphasis that smart contracts are the most important part of the blockchain because a transaction carried out by the blockchain occurs because of the code stored in the system that is automatically executed which results in smart contracts.

Apart from Gideon Greenspan, there are other experts who provide defines related to smart contract, namely Kost De Sevres, who said smart contracts are computer rules that can facilitate, execute and perform an agreement between two or more parties. Other experts also commented on smart contract is Wattenhofer who said that smart contracts are agreements made by several parties by creating code that performs an automatic automatic execution process guaranteed by the blockchain. Furthermore, UNCITRAL says that smart contracts are said to be the same as electronic records which consist of electronic transferable records. That is, a record that is created, generated, sent, and received electronically.

Initially, the form of a smart contract consists of lines of code or lines of code that uses computer language which is usually also called meta data that shows the rules of an agreement that is then executed. data that shows the rules of an agreement which is then executed by the system automatically. by the system automatically. When a smart contract is created, a series of lines of code are compiled into EVM bytecode format by the system and sent to the blockchain through so-called 'transactions'. Therefore, when a smart contract is stored on the blockchain, both the initial and final forms can be said to be encrypted. The meaning of EVM bytecode is the binary code of the smart contract that makes the smart contract executable or run on a virtual machine or blockchain device. Therefore, when a smart contract is stored on the blockchain, both the initial and final forms can be said to be encrypted.

Smart contracts are divided into two models including external and internal models.

¹⁰ Zainuddin Ali. *Metode Penelitian Hukum*. Jakarta: Sinar Grafika. 2009. Hlm 105..

¹¹ Jonathan H. Bergquist. *Blockchain Technology and Smart Contracts: Privacy-Preserving Tools*. Tesis UPPSALA Universitet. p16

¹² Gideon Greenspan. *Beware of The Impossiblle Smart Contract*. <https://www.theblockchain.com/2016/04/12/beware-of-the-impossible-smart-contract/> , diakses 29 November 2022

In a smart contract that uses an external model, the smart contract party can decide to pre-order an existing contract. In other words, the contract made by the parties usually remains in physical form using paper media, but the provisions of the clauses or the rights and obligations of the parties relating to the contract are recorded in cipher. Thus, the role of code in the external smart contract model is to control the fulfillment of the terms of the contract, which are written in the form of code, and when certain conditions are met, the execution of the contract is carried out automatically.¹³

Unlike the external smart contract model, the internal smart contract model presents the contract written by the parties entirely in code. A contract can still be written in this form, but ultimately the contract is expressed as code that runs on a computer. As such, in this model, the code has inviolable force between the parties and is not between the parties and can have legal effect (code as law or code as contract).¹⁴ The way smart contracts work, as explained by Nick Szabo, is by following simple 'if' and 'then' statements that are written in an encoded format on the blockchain, until the conditions specified by the parties are met and verified, it will be executed and specified by the parties are met and verified, they will be executed and notified automatically.

Often referred to as "Distributed Ledger Technology", smart contracts and blockchain are two technologies that are often similar yet different but essentially complementary. In the context of smart contracts, blockchain technology or DLT technology exists as a platform that performs the function of storing contracts in an encrypted and automatically in encrypted form and automatically executes them when certain conditions are met. The role of blockchain in smart contracts shows that there is a relatively new technology that transforms the functionality of DLT into a system of contract execution system that not only serves as a storage platform but also helps in the also assists in responding. The terms of the contract between the parties written in a

programming language are sent to the blockchain and executed automatically when the conditions codified by the parties are met.

Furthermore, Smart contracts are the development of blockchain after cryptocurrency, which is divided into several forms with different implementations, namely the following which are as follows:

- a. Basic Token Contract
Smart contract containing a card with address and account balance. The balance represents a value specified by the contract creator.
- b. Crowd Sale Contract
Smart contracts that strive for tokens with many as a means of payment that has been agreed upon in the contract. In this case, it is very possible for transactions to occur by investors buying tokens using Ethereum, one of the types of cryptocurrency.
- c. Mintable Contract
Smart contract that enters into an NFT sale and purchase agreement. An NFT is a digital asset that represents an object that exists in the real world such as music, in-game items or a work of art.
- d. Refundable Contract
An advanced smart contract that performs crypto buying and selling transactions that provides a guaranteed return of assets from investors in the event of failure to reach an agreement.
- e. Terminable Contract
Smart contracts that perform online buying and selling transaction agreements and executes blockchain systems in finance.¹⁵

Storing smart contracts on the blockchain is essential for security prioritization. When smart contracts are stored on the blockchain, no party can prevent the automatic execution of the contract. The encrypted contents of the contract cannot be altered. Blockchain was chosen because it is believed to prevent fraud by one party or the other. In practice, smart contracts

¹³ ISDA. *Whitepaper: Smart Contracts and Distributed Ledger – A Legal Perspective*. New York: ISDA. p.14.

¹⁴ *Ibid*.

¹⁵ Reggie O'Shields. *Smart Contracts: Legal Agreement for the Blockchain*. NC Baking Inst. Vol 21. 2017. P177.

may require information outside of the blockchain. This information is provided by a service provided by a third party known as "Oracle". The role of the oracle as a third party is to obtain and verify the data obtained outside the blockchain and smart contract before it is used.¹⁶ As said earlier, smart contracts do not have a third party and this is different from conventional agreements in general. In a smart contract, a third party is a party that improves or makes a smart contract into an algorithm design. Business actors who provide services based on agreements or contracts only have a relationship with the seller, namely a cooperative relationship to provide facilities in the transaction agreement. Therefore, only the buyer has a legal relationship, namely the relationship of buying and selling transactions with the seller.

2. Regulating of Smart Contracts in Indonesia

In a legal country like Indonesia, there is a Law governing Electronic Information and Transactions which is divided into several parts, namely first, rules regarding information and electronic transactions and second, rules regarding prohibited acts. The regulations made therein have been adapted to international rules such as the UNCITRAL Model Law on Electronic Commerce and the UNCITRAL Model Law on Electronic Signature, this is done in order to create legal certainty. when conducting legal relations in buying and selling transactions through electronic media for users or business people as well as the electronic media for users or business people and buyers.

In Article 3 of the ITE Law, it is stated that "The utilization of information technology and electronic transactions are carried out based on the principles of legal certainty, benefits, prudence, good faith, and freedom of choice of technology or technology neutral."¹⁷ In this case, the technology-neutral principle provides a definition of electronic contracts, that: first, The use of technological standards included in

the issuance of regulations (laws) aims to minimize any negative impacts that may occur and does not limit the adoption of technology transfers that are appropriate to obtain the objectives of the law or regulation. Second, the rules created are mandatory to be applied regardless of the technology used. Third, regulators should refrain from using regulations that are structured to steer the market into a particular structure.

If these principles are applied, the future will open up the possibility of applying more advanced technology in conducting legal relationships in electronic transactions with sufficient legal certainty. These innovations aim to facilitate electronic transactions to achieve clear legal certainty without the need to create new legal tools specific to certain technologies. When applying the principle of technology neutrality when accepting blockchain smart contracts as electronic agreements, technology neutrality means that the use of blockchain technology systems used in smart contracts is not limited to legal electronic contracts in information and/or documents under the ITE Law.

Smart contract is a contract or agreement, as the basis of agreement law is the legal requirements of an agreement contained in Article 1320 of the Civil Code which includes: "(1) agreement of the parties; (2) capacity of the parties; (3) a certain thing; and (4) halal cause." These are the legal requirements of a legal relationship or agreement. The agreement stated in Article 1320 is the adjustment of the will of the parties, namely the meeting of positions between acceptance and offer.¹⁸

Apart from the Civil Code, there are rules that regulate further

regarding agreements, especially electronic agreements, such as in Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions ("PP PSTE") and Government Regulation Number 80 of 2019 concerning Trading Through Electronic Systems ("PP

¹⁶ Richard Baron dan Magali Chaudey. *Blockchain and Smart Contract: A Pioneering Approach of Inter-Firms Relationship? The Case of Franchise Networks*. Working Paper University of Lyson Saint-Etienne. 2019. p.7

¹⁷ Pasal 3 Undang-Undang Nomor 11 Tahun 2008 tentang Informasi dan Transaksi Elektronik

¹⁸ Ahmadi Miru dan Sutarman Yodo. *Hukum Perlindungan Konsumen*. Raja Grafindo Persada. 2005. hlm 68.

PMSE"). Which is precisely in Article 46 paragraph (2) of PP PSTE also states the conditions so that an electronic agreement or contract can be said to be valid if it fulfills:

“Article 46 Paragraph (2) of PP PTSE

- a. There is an agreement of the parties;
- b. Performed by a capable legal subject or one authorized to represent in accordance with the provisions of laws and regulations;
- c. There is a certain matter;
- d. The object of the transaction must not conflict with laws and regulations, decency and public order.”¹⁹

In addition, it is also stated in Article 47 paragraph (3) of PP PSTE that an electronic contract or agreement must at least contain sufficient data relating to the transaction being carried out, which at least contains the following the following matters:

“Article 47 paragraph (3) of PP PTSE

- a. Identity data of the parties;
- b. Objects and specifications;
- c. Electronic Transaction requirements;
- d. Prices and fees;
- e. Procedures in the event of cancellation by the parties;
- f. Provisions that give the aggrieved party the right to be able to return the goods and/or receive product replacement if there are there are hidden defects; and
- g. Choice of Electronic Transaction settlement law.”²⁰

There are several theories that can lead to an agreement in transaction agreements, namely such as (1) Oral Statement Theory; (2) Theory of Delivery Theory; (3) Knowledge Theory; (4) Acceptance Theory; (5) Trust Theory; (6) Statement Theory and (7) Will Theory. In the implementation of blockchainsmart contracts that occur cell-executing, the agreement formed from smart contract is the state of openness of the answer to the offer by the seller which then in the form of a payment mechanism by the buyer as a form of acceptance. This reflects the theory of acceptance which is also contained in Article 20 of ITE Law.

Smart contracts seen from Indonesian positive law are very possible applied if it does not contradict or contradict the applicable law in Indonesia and is in accordance with the neutral nature of the technology applied. applicable in Indonesia and in accordance with the technology-neutral nature applied in the ITE Law. in the ITE Law. Because smart contracts are cell-executing then according to Article 1 Number 8 of the ITE Law, which is a device of media through electronics that is made to carry out an activity on electronic information automatically. automatically. In the PMSE Regulation, precisely in Article 47 of the PMSE Regulation, it can be said that that an agreement of an electronic nature can be created with the results of interaction with automated media and the size of the electronic contract cannot be challenged because it is valid unless it is can be challenged as valid unless it can be proven that the automated system is not properly implemented.

Article 37 of PP PSTE explains the minimum size of the limitations of the facilities that must be present in its implementation, such as features to make a correction, features to freeze an order, features to provide confirmation or reconfirmation, features to choose to continue or freeze a process, features to view information in the form of electronic contracts, features to view transaction history, and features to view contract clauses before conducting electronic transaction contracts.

Smart contracts are said to be binding agreements and being able to straighten out the agreements in smart contracts is not possible because smart contracts are immutable because they occur automatically. So in fact, smart contracts are not entirely able to share the appropriate features. Even so, this does not make it as an invalid electronic agreement because the regulation on this matter is not coercive. is not coercive. However, please note that not all causa can be used as objects in the implementation of smart contracts. One example is causa on the object of land, because in the process of land sale and purchase transactions must be stated in an authentic deed

¹⁹ Pasal 46 ayat (2) Peraturan Pemerintah Nomor 71 Tahun 2019 tentang Penyelenggaraan Sistem dan Transaksi Elektronik

²⁰ Pasal 47 Ayat (3) Peraturan Pemerintah Nomor 71 Tahun 2019 tentang Penyelenggaraan Sistem dan Transaksi Elektronik.

before a PPAT, therefore it cannot be used as an object in smart contract transactions.

The application of smart contracts when conducting sale and purchase transactions in e-commerce is stated in Article 55 of PP PMSE or at least can be provided in a form that can be read, downloaded and/or stored by consumers in e-commerce. After discussing the legal requirements of an agreement stipulated in the laws and regulations in Indonesia, there is a concept of thinking how to include this smart contract into the legal requirements of the legally binding agreement. When analyzed, the things that must be thought about smart contracts are as follows:

First, the smart contract itself must contain the conditions that have been listed in the regulation and this has been agreed upon by the parties parties who execute the contract and are written into the programming language. Second, smart contracts must contain the principles of the transaction, namely acceptance and offer. offer. Smart contracts that are attached to obligations will be able to be called that it is an agreement. Where, the "obligation clause" contained in the smart contract is self-executing, in other words, the smart contract is automatically executed. smart contracts are self-executing, in other words, obligations do not force the debtor, but this does not mean that there are no legal obligations that must be fulfilled. If there is dysfunctional in the smart contract, the obligations contained therein cannot be fully executed, then there are parties who are disadvantaged can make efforts for a mechanism that is often called "claiming for due performance". According to the explanation above, the rules regarding smart contracts are still few and mostly based on Government Regulations. However, it is inevitable that smart contracts are the impact of rapidly developing technology so that the laws and regulations have not specifically adjusted but have followed previous regulations such as the ITE Law. And also even though there are no specific rules regarding this smart contract, the government does not prohibit transactions that occur on blockchain technology. Because basically, an agreement is an agreement, as long as there are no contradictory things and in

accordance with the basis for regulating the agreement, the agreement will be valid.

CONCLUSION

Smart contracts were first introduced by Nick Szabo who said that a smart contract is a digital contract whose execution is carried out automatically without requiring human performance, namely through a technology called blockchain. The form of the smart contract itself is a collection of lines of code or lines of code that use computer language which is usually also called meta data that shows the rules of an agreement which is then executed by the system automatically. In contrast to conventional agreements that require third parties in making agreements, smart contracts themselves do not have third parties. This contract itself does not have a third party, the party is replaced by the party who makes the smart contract into an algorithm design.

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