ISSN: 2614-6754 (print)
ISSN: 2614-3097(online)

Halaman 6938-6944
Volume 7 Nomor 2 Tahun 2023

Legal Status and Implications of Smart Contracts in Indonesia

Nina Carona[1], Arina Novizas Shebubakar[2]

[1,2]Program Studi Magister Hukum, Universitas Al-Azhar Indonesia

e-mail: ninacrnuai@gmail.com

Abstrak

Dalam beberapa tahun terakhir, perkembangan pesat teknologi blockchain dan cryptocurrency telah memengaruhi industri keuangan dengan menciptakan ekonomi kripto baru. Kemudian, aplikasi terdesentralisasi generasi berikutnya tanpa melibatkan pihak ketiga tepercaya telah muncul berkat munculnya kontrak pintar, yaitu protokol komputer yang dirancang untuk memfasilitasi, memverifikasi, dan menegakkan secara otomatis negosiasi dan kesepakatan di antara banyak pihak yang tidak dapat dipercaya. Penelitian ini merupakan penelitian hukum normatif dan menggunakan pendekatan konseptual dan perundang-undangan. Penelitian ini dirancang untuk menjawab permasalahan hukum yang masih menjadi tantangan bagi para peneliti sebelumnya melalui kajian literatur. Tujuan penelitian ini adalah untuk mengetahui status hukum smart contract dari perspektif hukum Indonesia. Hasil akhir dari penelitian ini adalah kajian kritis terhadap smart contract dalam kaitannya dengan hukum Indonesia. Selain itu, penelitian ini juga memberikan Upaya Hukum yang Dapat Dilakukan jika terjadi perselisihan antara para pihak dalam The Smart Contract.

Kata kunci : Smart Contract, Blockchain, Status Hukum

Abstract

In recent years, the rapid development of blockchain technology and cryptocurrencies has influenced the financial industry by creating a new crypto-economy. Then, next-generation decentralized applications without involving a trusted third-party have emerged thanks to the appearance of smart contracts, which are computer protocols designed to facilitate, verify, and enforce automatically the negotiation and agreement among multiple untrustworthy parties. This study is normative legal research and used the conceptual and statutory approaches. This study is designed to answer the legal issue that still become challenges for previous researchers through literature review. The objective of this study is to determine the legal status of smart contracts from the perspective of Indonesian law. The final result of this research was a critical study of smart contracts in relation to Indonesian law. In addition, this study also provided the Legal Remedies that Can be taken if there is a dispute between the parties in The Smart Contract.

Keywords : Smart Contract, Blockchain, Legal Status

INTRODUCTION

The rapid advancements in digital technology have had a significant impact on contract usage in various legal and business activities. The emergence of electronic contracts, also known as e-contracts, coincided with the growth of information technology and the widespread adoption of the internet in the 1990s in Indonesia. To align with current trends and enhance efficiency, e-contracts have evolved into a more streamlined contract system known as Smart Contracts. These Smart Contracts represent a disruptive form of contract that has emerged as a result of technological advancements, intense competition, and evolving consumer demands.

The financial industry has been significantly impacted in recent years by the rapid growth

of blockchain technology and cryptocurrencies, leading to the emergence of a new crypto-economy. This development has paved the way for next-generation decentralized applications that eliminate the need for a trusted intermediary. One key innovation enabling this shift is the advent of smart contracts, which are computer protocols designed to facilitate, automatically verify, and enforce negotiations and agreements among multiple parties who may not trust each other.

Speaking of smart contracts as a form of agreement between parties, under Article 1320 of the Indonesian Civil Code, the valid requirements for an agreement include: (1) agreement between the parties; (2) capacity of the parties; (3) a specific subject matter; and (4) a lawful cause. Although smart contracts, as a new form of electronic contract, share a similar structure with conventional agreements, the self-executing nature of smart contracts conducted through blockchain technology raises some legal issues. According to Article 1320 of the Civil Code, which outlines the elements for the valid formation of an agreement, the provisions regarding the validity of agreements also apply to electronic contracts as regulated by the implementing regulations of the Information and Electronic Transactions Law (UU ITE), such as Government Regulation on Electronic Systems and Transactions (PP PSTE). Article 46(2) of the PP PSTE addresses electronic transactions conducted based on Electronic Contracts as a form of agreement between parties, which includes conditions such as: (a) the existence of an agreement between the parties; (b) being performed by legally capable subjects or authorized representatives in accordance with the provisions of the laws and regulations; (c) the presence of a specific matter; and (d) the transaction object must not contradict the laws and regulations, morality, and public order. In contrast to the PP PSTE, which directly establishes the valid requirements for agreements based on Article 1320 of the Civil Code, the Government Regulation on Electronic Systems and Transactions (PP PMSE), as an implementing regulation of the Trade Law, does not provide explicit conditions regarding the validity of an electronic contract.

Nick Szabo has described smart contracts as a form of artificial intelligence technology that facilitates and executes digital contracts. While the purpose of smart contracts is similar to conventional contracts in terms of binding parties through an agreement, there are differences in their form and execution. Conventional agreements are typically designed and signed directly by the involved parties, whereas smart contracts are designed, written, and executed within an electronic system or computer code, eliminating the need for a third party in transactions. Consequently, the validity of smart contracts executed on blockchain technology is still a subject of scrutiny.

Smart contracts, as a form of artificial intelligence, have emerged as a result of technological advancements and are believed to offer advantages compared to conventional contracts, particularly in terms of contract security. However, there have been cases where smart contracts were hacked, leading to financial losses, such as the DAO (Decentralized Autonomous Organization) and Parity Wallet incidents. These cases highlight that, despite the use of technology, smart contracts are not immune to issues. Despite the sophistication of smart contract technology and its advantages in the realm of artificial intelligence, there are potential concerns related to codification, security, performance, and privacy. In addition to data security challenges in the context of blockchain-based business development in Indonesia, another issue surrounding smart contracts is the ongoing discourse among legal experts regarding their validity under Indonesian law and the legal protection of the second party in the event of a dispute. This is due to the fact that smart contracts rely on computer program code as a substitute for a third party.

METHOD

This research is is a legal normative research that utilizes both conceptual and statutory approaches. The statutory approach involves a method of research that involves reviewing all the laws and regulations pertaining to the relevant legal issue being examined. On the other hand, the conceptual approach involves a research method that entails reviewing perspectives based on legal doctrines in the field of legal studies.

RESULT AND DISCUSSION

The Definition of Smart Contract

Smart contracts are self-executing agreements that are encoded and implemented on a blockchain platform. They are computer programs that automatically facilitate, verify, or enforce the negotiation or performance of a contract, without the need for intermediaries or centralized authorities.

Smart contracts operate based on predefined rules and conditions written in code, in which the transacting parties must carry out the promise. These contracts execute actions or transactions once the specified conditions are met, ensuring that all parties involved adhere to the agreed-upon terms. The terms and conditions of the contract are directly written into the code, making it transparent, immutable, and tamper-proof.

One of the key features of smart contracts is their ability to automate processes, removing the need for manual intervention and reducing the potential for errors and disputes. Smart contracts are typically associated with blockchain platforms like Ethereum, where they can be deployed and executed on the decentralized network.

By leveraging blockchain technology, smart contracts enable secure and trustless interactions among parties, as the execution and outcome of the contract are verified by the decentralized network of nodes. This decentralization ensures that no single entity has control over the contract, enhancing transparency and reducing the risks of fraud or manipulation.

Overall, smart contracts provide a reliable and efficient way to conduct various types of agreements, ranging from financial transactions and supply chain management to decentralized applications (DApps) and token issuance within the blockchain ecosystem.

The Characteristic of Smart Contract based on the Indonesian Contract Law

The benefits of electronic facilities play a crucial role in the realm of contracts. However, similar to traditional contracts, e-contracts can still undergo revisions or addendums during a transaction, and there is also the possibility of a contract breach. In essence, e-contracts are essentially conventional contracts conducted without the use of physical paper. The distinguishing factor lies in the platform utilized. As a result, the advancement of internet technology, which has now transitioned into digital technology, offers an alternative method for conducting contracts. This alternative minimizes undesired changes and the risks associated with contract breaches and other fraudulent activities. This alternative is known as a smart contract, facilitated by blockchain technology.

A smart contract is a digital agreement that is written in computer code and executed on a blockchain or distributed ledger. It is designed to automatically enforce and comply with the terms of the contract, making it self-executing and self-enforcing. The use of blockchain technology allows for the registration of all assets and global transactions using either cryptocurrencies or information transmission in a decentralized data system. In a decentralized system, the blockchain processes the same data in each block, which means that changes made to one block can impact other blocks. Every block in the blockchain is connected through a unique set of characters known as a hash, ensuring the immutability of the blockchain technology. Consequently, the rights and responsibilities pertaining to the execution of the contract are pre-programmed into the smart contract, even before it becomes active and enforceable.

A smart contract is an implementation of blockchain technology that seeks to establish agreement and consensus among the parties involved. It achieves this by utilizing a specific type of consensus mechanism and is represented in the form of a script or code that serves as the business logic governing the usage of the system or application built on the blockchain technology. To engage in transactions using blockchain technology, two requirements must be fulfilled. Firstly, there must be a mutual agreement among the parties involved to conduct transactions without relying on a bank or any third-party intermediaries. Secondly, there need to be a minimum of three individuals who have consented to utilize digital currency in the form of cryptocurrency on the blockchain.

Ensuring that a contract encompasses and addresses all expectations is of utmost

importance. A contract serves as a mechanism to safeguard the interests of the involved parties and facilitate the attainment of their objectives. The law of contracts functions as a legal instrument that governs exchanges while providing protection to the party who may suffer harm or loss. Understanding the validity and lawfulness of a contract is crucial. One way to assess the validity of a contract is by determining whether it fulfills the requirements outlined in the applicable laws. In Indonesia, these legal foundations can be found in Article 1320 of the Indonesian Civil Code (ICC), as well as other relevant articles such as Article 1335, 1337, 1339, and 1347. Article 1320 stipulated that there are four requirements for a contract to be valid and to be legally binding: 1) both parties consented to legally bind themselves to the contract; 2) both parties are legally capable; 3) a certain object in the contract; and 4) a lawful cause.

The requirements mentioned above are essential for ensuring the validity of contracts in any type or form. However, in the case of smart contracts, which are self-executing contracts utilizing programming language or code, additional legal provisions come into play. The Law number 11 of 2008 concerning Information and Electronic Transactions (UU ITE), along with its subsequent amendments under Law number 19 of 2016, is applicable to smart contracts. Furthermore, the implementing regulations of UU ITE, namely Government Regulation number 71 of 2019 concerning System Administration and Electronic Transactions (PP PSTE) and Government Regulation number 80 of 2019 concerning Trade Through Electronic Systems (PP PMSE), are also relevant in governing smart contracts.

According to Article 46, clause (2) of Government Regulation number 71 of 2019 concerning System Administration and Electronic Transactions (PP PSTE), which pertains to electronic transactions based on electronic contracts, there are four requirements for an electronic contract to be considered valid: a) there are consent of both parties; b) conducted by a capable legal subject or someone capable to represent according to the prevailing law; c) there is a certain object in the contract; and d) the object transaction shall not violate the prevailing law, morality, and public order. Meanwhile, PP PMSE which is a government regulation does not provide any clear requirements on the validity of a contract.

In the study titled "Legal Tech, Smart Contracts and Blockchain" by Marcello Corrales et al., it is highlighted that smart contracts differ from traditional paper contracts. While they are executed electronically, there are notable distinctions compared to general electronic contracts. These distinctions include the utilization of programming code to define contract clauses, the necessity of blockchain as a distributed storage technology, and the unique capability of self-execution and self-enforcement inherent in smart contracts. Traditional contracts establish specific rights and obligations for the parties involved and provide mechanisms for enforcement and remedies in case of contract breaches. On the other hand, smart contracts operate autonomously by default. This means that each obligation is triggered by a previous transaction. Since A smart contract is a type of self-executing contract that enables transactions to take place without the need for the contracting parties to meet in person. In this context, the parties engage in transactional activities based on mutual trust. The condition of mutual consent is established when the buyer responds to the seller's offer through a payment mechanism, which serves as a declaration of agreement. This situation aligns with the Acceptance theory (ontvangst theorie), which is also reflected in Article 20 of the Law number 11 of 2008 concerning Information and Electronic Transactions (UU ITE). Acceptance is considered one form of a statement of intent that leads to consent. Acceptance refers to the expression of willingness by a party to accept an offer made by the other party with the aim of concluding an agreement or contract. Another form of a statement of intent is an offer, which represents an initial step in initiating an agreement.

The concept of the Agreement theory is a response to the Knowledge theory (Vernemingstheorie). The Knowledge theory poses a challenge in determining an agreement since it is uncertain whether the buyer is aware of the details of the offer. In contrast, the Agreement theory asserts that once an offer is accepted, regardless of whether the buyer has thoroughly read the offer or not, the transaction is still considered valid. This theory has gained widespread acceptance among legal scholars (communis opinio docturum).

Considering the nature of a smart contract, which is represented by a computer code, it can legally bind the contracting parties. Its legal basis lies in contract law, specifically the requirements outlined in Article 1320 of the Indonesian Civil Code (ICC) and Government Regulation number 71 of 2019 concerning System Administration and Electronic Transactions (PP PSTE). An agreement made through electronic means, including a smart contract, occurs when the recipient submits an application or a recipient form, as stated in Article 20 of the Law number 11 of 2008 concerning Information and Electronic Transactions (UU ITE).

According to Article 20 of the Law number 11 of 2008 concerning Information and Electronic Transactions (UU ITE), consent is demonstrated through actions in accordance with the ontvangst theorie. Based on this provision, the use of smart contracts in Indonesia is permissible as long as it aligns with the existing laws in Indonesia and adheres to the principles outlined in UU ITE. Regarding legal capacity, there is no guarantee that the contracting parties possess full legal capacity to enter into a contract. In the electronic commerce (e-commerce) industry, it is common to encounter standard contracts imposed unilaterally by the seller. In practice, e-commerce platforms do not typically set an age limit. The buyer often only needs to check or agree to the terms and conditions. This means that anyone, including teenagers who can operate a computer and have internet access, can engage in online transactions. As a result, if the subjective requirement of a contract, such as legal capacity, is not met, and if the parents or legal guardians of the party involved do not approve the transaction, then such a transaction is considered voidable.

Considering the unique features of smart contracts, which operate on-chain working system, the legal capacity requirement can be fulfilled. In a smart contract, buyers are required to verify their identities and submit their personal private keys into the system. This ensures that only parties with legal capacity are selected for transactions. The code of the smart contract may include provisions that mandate the receiving party to provide authentic scans of their identity, along with a selfie, identity card, or electronic signature. Through this verification process, the system automatically verifies the legal capacity of the parties involved.

Furthermore, smart contracts adhere to the objective requirements outlined in Article 1320 of the Indonesian Civil Code (ICC) and Article 46, clause (2) of Government Regulation number 71 of 2019 concerning System Administration and Electronic Transactions (PP PSTE). These requirements include having a certain object and a lawful cause that does not violate the law, public morality, or public order. The primary purpose of a smart contract is to streamline and simplify its own performance and enforcement. Therefore, the content of a smart contract, similar to conventional or electronic contracts, does not inherently violate the law. It is the content of the smart contract itself that may potentially be unlawful. Thus, smart contracts have the ability to fulfill the essential elements of a contract.

The definition of a contract provides a broad description of an electronic contract as an agreement formed within an electronic system. Therefore, a smart contract utilizing blockchain technology can be considered legally binding. The fact that it operates automatically as an electronic system does not render it an unlawful electronic transaction. The Law number 11 of 2008 concerning Information and Electronic Transactions (UU ITE), Government Regulation number 71 of 2019 concerning System Administration and Electronic Transactions (PP PSTE), and Government Regulation number 80 of 2019 concerning Trade Through Electronic Systems (PP PMSE) specifically define smart contracts as electronic agents that function automatically based on predetermined or predefined terms.

In essence, a blockchain-based smart contract, with its distinctive feature of automation, can be classified as an electronic agent as defined by Article 1, point (8) of UU ITE. This definition characterizes an electronic agent as a device or system designed to automatically perform actions based on electronic information. Additionally, Article 47 of PP PMSE states that an electronic contract can be established through interactions with an automatic system, and the validity of such an electronic contract cannot be challenged unless it can be proven that the automatic system failed to perform as intended.

The electronic agent can take various forms, such as electronic data in the form of computer code or other formats. Therefore, the implementation of blockchain-based smart

contracts does not suffer from a "legal vacuum" issue or the absence of applicable laws. Government Regulation number 71 of 2019 concerning System Administration and Electronic Transactions (PP PSTE), specifically Article 37, establishes clear guidelines on the minimum standard features that must be present in a smart contract for its implementation.

These features include the ability to make corrections, cancel commands, provide confirmation and reconfirmation options, continue or discontinue processes, review contract information or advertisements, check transaction statuses, and review the contract itself prior to transactions. The risk of contract breaches may arise in undesirable situations. Some legal cases have been addressed by states according to their respective laws, adapting their norms to accommodate the implementation of smart contracts. However, in practice, this open norm approach can be challenging to secure within a programming language and may not be adequately aligned with the concept of smart contracts as "code is law" if a judge deems it necessary to issue a decision afterwards.

Legal Remedies that Can be Taken If There is A Dispute between The Parties in The Smart Contract

When it comes to disputes arising from smart contracts, legal remedies can vary depending on the jurisdiction and the specific terms and conditions of the contract. In Indonesia, the legal remedies that can be pursued in the event of a dispute arising from a smart contract can vary depending on the circumstances and the specific terms and conditions of the contract. While smart contracts are relatively new and there is no specific legislation in Indonesia addressing them, the general legal framework can still be applicable to resolve disputes. Here are some potential legal remedies that can be considered:

1. Negotiation and Mediation: The parties involved in the dispute can attempt to resolve the issue through negotiation or mediation. This involves open communication and discussions with the aim of reaching a mutually acceptable resolution. Mediation can be facilitated by a neutral third party who helps the parties find common ground.
2. Arbitration: The parties may choose to include an arbitration clause in their smart contract. Arbitration is a private process where the dispute is resolved by one or more arbitrators who are chosen by the parties. The decision reached through arbitration is usually binding on the parties and enforceable under Indonesian law.
3. Litigation: If the smart contract dispute cannot be resolved through negotiation, mediation, or arbitration, the parties may resort to litigation and bring the matter before a court. The court will consider the evidence and arguments presented by both parties and make a legally binding decision based on Indonesian laws and regulations.
4. Specific Performance: If one party fails to fulfill its obligations under the smart contract, the non-breaching party may seek specific performance. Specific performance is a court order that requires the breaching party to fulfill its contractual obligations. This remedy is typically used when monetary damages are inadequate or impractical.
5. Rescission or Termination: In some cases, a party may seek to rescind or terminate the smart contract altogether due to a material breach or fundamental mistake. Rescission involves the cancellation of the contract, returning the parties to their pre-contractual positions.
6. Damages: The non-breaching party may seek monetary damages as compensation for any losses suffered as a result of the breach. Damages can include actual losses, consequential damages, or liquidated damages if specified in the contract.
7. Equitable Remedies: Equitable remedies, such as injunctions or specific performance, can be sought to prevent irreparable harm or to compel a party to perform or refrain from performing certain actions. Equitable remedies are discretionary and granted by the court based on fairness and the circumstances of the case.

CONCLUSION

The conclusion of the research can be summarized that The concept of a smart contract, classified as an electronic agent, fulfills the requirements for contract validity in Indonesia.

What sets smart contracts apart is their ability to self-execute or self-enforce. To determine the validity of a smart contract agreement, it must meet the legal requirements outlined in Article 1320 of the Civil Code: a) agreement between parties who consent; b) the capacity to make a commitment; c) a specific subject matter; d) a lawful cause. Based on a literature study, researchers have found that although smart contracts are still in their early stages and not fully established, they can be embraced with optimism. Most researchers believe that smart contracts will eventually replace traditional contracts due to their practicality and lower transaction costs. However, further examination and adaptation are necessary to keep up with technological advancements related to smart contracts and blockchain. In the context of Indonesian law, although research on smart contracts is currently insufficient, it is crucial to expand on it to anticipate future developments where smart contracts may replace traditional contracts.

REFERENCES

Eureka Inola Kadly, Sinta Dewi Rosadi, Elisatris Gultom. *Keabsahan Blockchain-Smart Contract Dalam Transaksi Elektronik: Indonesia, Amerika dan Singapura*, Scientific Journal of Sosio Humaniora, Vol.5, No. 1, June 2021

Delmolino, Kevin, Mitchell Arnett, Ahmed Kosba, Andrew Miller, and Elaine Shi. *Step by Step towards Creating a Safe Smart Contract: Lessons and Insights from a Cryptocurrency Lab*'. Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 9604 LNCS (2016), 79–94

Swan, Melanie, Blockchain: Blueprint for a New Economy (O'Reilly Media, 2015) Vukolić, Marko, *Rethinking Permissioned Blockchains*, BCC 2017 - Proceedings of the ACM Workshop on Blockchain, Cryptocurrencies and Contracts, Co-Located with ASIA CCS 2017, 2017, 3–7

Ida Bagus Prayoga B, *Teknologi Cryptocurrency di Era Revolusi Digital*, The 9th National Seminar Proceeding on Information Engineering Education (SENAPATI), Bali 08 September 2018

Ninis Nugraheni, *Crowdfunding-Based Fiduciary Warrant in Providing Capital Loans for Small and Medium Enterprises*, Hasanudin Law Review, Vol.6, Issue 3, December 2020.

Sabrina Oktaviani dan Yoni Agus Setyono, *Implementasi Smart Contract Pada Teknologi Blockchain Dalam Kaitannya Dengan Notaris Sebagai Pejabat Umum*, Kertha Semaya Journal, Vol. 9, No. 11, 2021.

Jennifer L. Frank, *Blockchain Functionality: How Smart Contracts Can Save Small Farms*, accessed through an electronic copy available at: https://ssrn.com/abstract=3662648 , accessed on 2 June 2023

Korevaar, E.P.W. *spoedwet verlenging tijdelijke huurovereenkomsten: kritisch belicht*. Nummer 5, juli 2020 / sdu tijdschrift huurrecht in praktijk

Lamber, Mersetyawati CM. (2018). *Legalitas Transaksi Penjualan Melalui Internet Ditinjau dari Hukum Perdata*. Lex Privatum, Vol.6, (No.8), pp.110-119.

Thomas, Philip. *Wishful Thinking; The Role and Development of Good Faith in the Roman Law of Contracts*. 2021 (51/3) právněhistorické studie, p.22

Agus Yudha Hernoko. (2014). Hukum Perjanjian, Asas Proporsionalitas dalam Kontrak Komersial, Jakarta:Kencana

Farhan Abel Septian Rachmadani, „Tinjauan Yuridis Terhadap Legalitas Dalam Smart Contract Ditinjau Dari Hukum Positif Di Indonesia", 5 (2021), 650–64.

Cunningham-Hill & Elder: Civil Litigation 2019-2020 *Injunctions and Other Equitable Remedies*, Oxford University Press, 2019. p. 3.

Lachlan Ward, Repudiation vs. Rescission of Contracts, https://lawpath.com.au/blog/repudiation-vs-rescission-contracts, accessed 1 June 2023.