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Validity of Automatic Approval in Smart Contracts as a Form of Agreement under Indonesian Civil Law

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ABSTRACT
The development of digital technology, especially blockchain, has given birth to a new innovation in the world of contract law known as smart contracts. These contracts work automatically through programming code, so their execution no longer relies on human intervention. This provides various advantages such as a faster, more transparent process, and minimal risk of breach of agreement. However, the emergence of smart contracts also raises an important question: whether this form of agreement is in accordance with the applicable legal provisions in Indonesia, especially regarding the requirements for the validity of agreements and the recognition of electronic agreements. This study shows that basically smart contracts can be considered valid as long as the parties really understand and agree on the mechanisms embedded in the system. This means that even if the agreement is done digitally and automatically, the important elements of the agreement can still be met. On the other hand, there are still several challenges that need to be considered, such as difficulties in proving in the event of a dispute, limitations in making contract changes, and the possibility of inequality in technology understanding between parties. Compared to countries such as the United States, which are already more adaptive, Indonesia still needs more specific arrangements so that the use of smart contracts can provide legal certainty as well as adequate protection for the parties.

Keywords: Smart Contract, Blockchain, Agreements, Electronic Agreements.

I. Introduction

Major changes in modern societal systems are inseparable from the rapid advancement of information and communication technology. Digital innovation has significantly penetrated various sectors, including the legal field, which is now beginning to encounter new forms of technology-based contracts. One such innovation is the Smart Contract, a type of agreement that functions and is executed automatically through a blockchain system. Its existence offers several advantages, including greater efficiency, reduced transaction costs, and enhanced transparency. However, its application in civil law practice still requires further examination, particularly because Indonesia's positive legal framework has not yet fully accommodated the characteristics of technology-based contracts. In the context of Indonesian civil law, every form of contract must comply with the legal requirements for validity as stipulated in the Civil Code. However, the automated and decentralized nature of Smart Contracts often raises potential inconsistencies with

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fundamental principles of traditional contract law, such as consensualism and the principle of good faith. Therefore, a thorough analysis of the compatibility of Smart Contracts with civil law is necessary to assess the level of legal certainty and identify potential regulatory challenges (Hans, S., & Syamsul, 2025). The acceleration of digitalization in the global era has brought significant changes to societal lifestyles. Increasing human needs across the world demand the presence of technology that facilitates various activities, including those in the economic sector. The emergence of electronic contracts represents one form of this transformation, enabling parties to conduct transactions without physical interaction. This shift not only simplifies the contracting process but also enhances the protection of the parties' interests through more precise automated systems, such as those offered by Smart Contracts. As an advanced development within the blockchain ecosystem, Smart Contracts were initially introduced alongside the emergence of cryptocurrencies. However, their function is no longer limited to digital asset transactions. Fundamentally, a Smart Contract is a computer program that establishes a protocol-based electronic agreement mechanism, in which the execution of contractual terms occurs automatically based on predefined conditions. This technology relies on a distributed and transparent blockchain database, thereby minimizing the risk of manipulation (Corinthians & Adi, 2024).

Technological advancement has also given rise to new methods of forming contractual relationships. Unlike traditional contracts, which require signing procedures and oversight by legal professionals, Smart Contracts operate through cryptographic code. The use of an "if–then" mechanism enables the automatic execution of contractual clauses, positioning Smart Contracts as an innovation capable of transforming conventional legal interactions and introducing new approaches to contract drafting (Hans, 2025). The contribution of technology to global development is increasingly evident. Countries that successfully integrate technology into their economic systems have greater opportunities to create added value, enhance productivity, expand employment, and improve societal welfare. Accordingly, technological mastery has become a key factor in maintaining international competitiveness. Indonesia continues to pursue digital transformation as a strategy to strengthen its position in the global market (Tanaiyo, Puluhulawa, & Achir, 2024). Information technology, which integrates computer and telecommunication functions, has evolved into a major solution for improving the efficiency of human activities. In Indonesia, the use of electronic systems in public services continues to increase, in line with the government's efforts to establish a more effective and transparent bureaucracy. In several countries, such as Germany, blockchain technology has proven to enhance both the security and efficiency of digital administration. However, the implementation of similar technologies in Indonesia still faces regulatory and technical challenges that must be addressed. Smart Contracts are essentially computer protocols designed to facilitate the execution of digital agreements. These protocols function to verify, organize, and automatically execute contractual terms once predetermined conditions are fulfilled. Their primary advantages lie in their high levels of transparency, accuracy, and data security. Nevertheless, debates persist regarding their legal validity under Indonesian civil law.

One reason for this is that Smart Contracts do not exist in the form of physical documents and are instead written in programming languages. Meanwhile, Article 1320 of the Civil Code stipulates that a valid contract must fulfill four essential requirements: consent, legal capacity, a certain object, and a lawful cause. This raises the question of whether such an automated digital form can be considered to satisfy these legal requirements from a juridical perspective. Within Indonesian law, contracts are generally categorized into two types: named contracts (nominaat), which are explicitly regulated in the Civil Code, and unnamed contracts (innominate), which develop within society. Article 1338 of the Civil Code provides that all legally formed agreements are binding upon the parties as law. Furthermore, the provisions in Book III of the Civil Code establish that contracts serve to define the rights and obligations of the parties, whereby one party holds the right to demand performance, while the other bears the obligation to fulfill it. In the concept of Society 5.0, technology is positioned as a means of integrating the physical and digital worlds in human life. Technologies such as the Internet of Things (IoT), smart homes, big data, and autonomous vehicles form part of the ecosystem supporting this era. The Government of Indonesia has also designated digital transformation as a national priority through the 2020–2024 National Medium-Term Development Plan (RPJMN), which

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represents an initial step toward achieving Indonesia's Vision 2045. Blockchain, as the foundational technology underlying Smart Contracts, is considered capable of creating a more secure and efficient contractual process. Smart Contracts not only enable the automatic execution of agreements but also allow programming languages to be translated into legal logic without the need for intermediaries. Once contractual conditions are satisfied, the system can independently perform various follow-up actions in accordance with the provisions embedded in its code.

II. Literature Review and Hypothesis Development

2.1. Smart Contract Concept and Automated Approval Mechanisms

Smart contracts are a form of digital agreement that operate on blockchain technology and are executed automatically through programming code. Unlike conventional contracts, which rely on human intervention, smart contract's function based on predetermined "if–then" logic. In this context, consent is not always expressed explicitly in written or verbal form but may instead be manifested through digital actions, such as clicking an approval button or executing a transaction within the system. This development introduces a new perspective in which agreements can be formed implicitly, provided that the parties are aware of and accept the mechanisms embedded in the system.

2.2. Agreements from the Perspective of Indonesian Civil Law

Under Indonesian civil law, consent constitutes one of the essential requirements for the validity of a contract, as stipulated in Article 1320 of the Civil Code. Consent is defined as a concurrence of wills between parties, free from coercion, misrepresentation, or fraud. In the digital context, including smart contracts, the form of agreement has evolved from conventional to electronic formats. The Law on Electronic Information and Transactions (UU ITE) recognizes the legal validity of electronic agreements, thereby creating an opportunity for smart contracts to gain legal recognition. As long as valid consent exists and the parties possess legal capacity, agreements formed through smart contracts may be considered to fulfill the essential elements required under civil law.

2.3. Challenges and Legal Implications of Smart Contracts in Indonesia

Despite their significant potential, the implementation of smart contracts in Indonesia continues to face several challenges. One major issue relates to evidentiary aspects, as contracts written in programming code may be difficult to interpret by parties lacking technical expertise. Furthermore, the automated and immutable nature of smart contracts can create complications when errors occur or when modifications to the agreement are required. Disparities in technological understanding between parties may also give rise to issues of fairness and imbalance. Therefore, clearer and more specific regulatory frameworks are necessary to ensure that the use of smart contracts not only enhances efficiency but also provides legal certainty and equitable protection for all parties involved.

III. Research Method

This study constitutes normative legal research employing a library-based approach, focusing on the examination and analysis of various literature sources relevant to the issue of the validity of automatic approvals in smart contracts. The population of this research does not consist of respondents; rather, it encompasses legal materials and related literature, including statutory regulations (such as the Civil Code, the Law on Electronic Information and Transactions, and its implementing regulations), academic books, scholarly journals, and expert opinions in the fields of contract law and digital technology. Data collection is conducted

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through a documentation study, involving the systematic collection, reading, and review of written sources pertinent to the research topic. The data obtained are then analyzed qualitatively by interpreting applicable legal norms and subsequently comparing them with the fundamental concepts of smart contracts, including automatic approval mechanisms and algorithm-based execution. Through this approach, the study aims to provide a comprehensive and systematic understanding of the legal position of smart contracts as a form of agreement within the framework of Indonesian civil law.

IV. Result and Discussion

4.1. The Validity of Smart Contracts Based on Blockchain Technology under Articles 1313, 1320, and 1338 of the Civil Code

The validity of smart contracts based on blockchain technology according to Articles 1313, 1320, and 1338 of the Civil Code is generated through an approval process between parties who choose to use smart contracts as a digital transaction tool, then enter the agreement into the blockchain network. Since blockchain systems store contracts permanently and only allow changes or cancellations if both parties provide authorization or if pre-programmed conditions are met, the level of security of the deal increases through verifiable data. Instructions related to payment, delivery, guarantees, compensation, compelling circumstances, and limits of liability are executed by the smart contract automatically. Smart Contracts operate through two configurations: an external model and an internal model. In external models, the parties first form a conventional or textual agreement before converting it into cryptographic code. Thus, contracts implemented as smart contracts are initially physical, similar to traditional paper-based contracts. After that, all the operational provisions of the contract, including the rights and obligations of the parties, are replaced with a series of code instructions. In external models, the code function is to perform automatic execution when the detected programmed conditions are met. Referring to Article 1313 of the BW, "An agreement is an act by which one or more persons bind themselves to another or more persons." Based on this definition, smart contracts can be categorized as a form of agreement. When two parties use a smart contract, an alliance is formed automatically. Computer code containing contractual clauses generates a structure of legal obligations that requires the parties to fulfill predetermined performances. Article 1233 of the BW states that obligations can arise from the approval or provisions of the law. Article 1234 of the BW adds that the type of achievement can be in the form of giving something, doing something, or refraining from doing something.

4.2. Conformity of Smart Contracts with Agreement Elements According to the Civil Code

Article 1320 of the Civil Code stipulates four requirements for the validity of an agreement: agreement of the parties, legal competence, certain objects, and permissible causes. In the application of smart contracts, the components of "agreement" and "meeting of wills" are the main issue points. This is because smart contracts do not rely on verbal or written negotiations, but agreements are represented in code that has been programmed to work automatically. The concept of functional equivalence can be used to equate the technical function of smart contracts with the legal functions of conventional agreements. With this approach, digital agreements are still considered to have an element of agreement if the parties understand and agree on the algorithmic logic that governs the contract. However, differences in interpretation still arise in implementation, especially when disputes arise that question the intentions of the parties that are not explicitly expressed through written or oral communication.

4.3. Conceptual Basis of Consent and Agreement in Indonesian Civil Law

Consent (toestemming) is a fundamental condition in the formation of an agreement as stipulated in Article 1320 of the Civil Code. In classical civil law doctrine, consent refers to the meeting of will between

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the parties that creates a legal relationship in the form of rights and obligations. An agreement is interpreted as an expression of a will that is freed from coercion, fraud, and deception. The consent model is generally manifested through signatures, verbal statements, or tangible actions that reflect acceptance of the content of the contract. The development of digital technology has shifted this paradigm significantly. Modern transactions no longer rely on physical expression, but utilize electronic instruments such as digital signatures, click-wrap agreements, and code-based consent (algorithmic consent) as in smart contracts. The digitization of transactions requires contract law to expand the methods of treaty formation, including acceptance of contract making techniques that are no longer based on physical documents but still have equivalent legal consequences. Philosophically, Indonesian treaty law does not rigidly limit the form of agreement. The Civil Code only determines the conditions for the validity of the agreement without regulating how the agreement must be declared. Therefore, the automatic approval mechanism that occurs in smart contracts can be analyzed within the framework of the principle of freedom of contract (contractsvrijheid) as stipulated in Article 1338 of the Civil Code. As long as the parties have the freedom to determine the form of the contract and the content of the agreement, then even a digital or automated form can still be categorized as a valid agreement. The modern legal system must accommodate new methods of contract formation, as the dynamics of business globalization demand efficiency, automation, and certainty. Thus, the foundation of the agreement in Indonesian civil law is actually elastic enough to accept digital contract mechanisms, including smart contracts that work automatically based on programming logic.

4.4. Automatic Approval Mechanism in Smart Contracts and Analysis of Their Conformity with Articles 1320 and 1338 of the Civil Code

Smart contracts are computer programs that run on a blockchain network and are designed to execute the contents of the agreement automatically when certain conditions are met. The consent of the parties is not expressed through a signature, but through digital actions such as granting access permissions, agreeing to contract parameters in code, or depositing digital assets into a specific address. The system then executes the agreement without human intervention. Blockchain creates legal certainty because contracts are recorded in an immutable ledger. This makes automatic approval a form of agreement that has a high level of verification. The digital expression can be considered valid because there are active actions of the parties that show agreement to the contract algorithm.

4.5. Agreements in Smart Contracts

An agreement in a smart contract occurs when the parties agree on the code and logic that will execute the contract. Although it does not involve verbal or written expressions, the agreement still exists because there is a meeting of algorithmic wills. The regulatory gap regarding the form of agreement in smart contracts can be filled through the analogy method in rechtvinding, which equates the automatic approval function with explicit consent in conventional agreements.

a. Competence of the Parties

Proficiency is evidenced by the ability of the parties to operate digital identities, including private key holders as a representation of legal identity. Anyone who has control of the private key is considered an authorized party to the contract. This is in line with the principle that proficiency does not depend on the form of the media, but on the legal capacity of the subject.

b. Specific Objects

The objects in the smart contract are explicitly defined in the code. The impossibility of changing the code without the agreement of both parties actually provides certainty about the object of the agreement. This fulfills certain elements of objects in Article 1320 of the Civil Code.

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c. Reasons that are Halal

Because automation in smart contracts is determined through the purpose of the programmed contract. As long as the purpose does not conflict with Indonesia's positive law, the contract remains valid. In addition, Article 1338 of the Civil Code emphasizes that agreements made legally apply as laws for the parties. Smart contracts meet the principles of pacta sunt servanda because of their self-executing nature, making the execution of contracts unmanipulable and must run according to the code. Rukman et al. (2025) emphasized that the character of blockchain strengthens the certainty of the implementation of agreements, so that the principle of good faith is maintained through a transparent system that cannot be changed unilaterally.

4.6. Overview of Smart Contracts

The development of digital technology has driven major changes in the transaction patterns of modern society, especially through the use of blockchain and smart contracts. A smart contract is defined as a series of digital commands that are designed to be able to execute a legal act automatically when certain conditions have been met. From a civil law perspective, the existence of smart contracts is a new phenomenon because of its nature that no longer relies on conventional mechanisms in the form of signing or verbal agreements, but through programming code that works in a self-executing manner. Technically, smart contracts run on a decentralized blockchain network. Thus, each transaction execution is recorded in immutable blocks, improving the aspects of data integrity and transaction security. These characteristics provide added value in the form of efficiency, reduced administrative costs, and minimal potential for manipulation because the process is executed without third-party intervention. In the practice of electronic commerce (e-commerce), smart contracts are able to replace intermediary functions such as payment gateways, escrow, and other verification institutions. Smart contracts basically still have the same legal nature as contracts in general, namely the existence of an agreement, skills, certain objects, and a halal cause. However, differences arise in terms of form, medium, and method of execution. If contracts are generally written in physical writing or ordinary electronic documents, smart contracts are written in lines of code (code as law). This poses a challenge in the assessment of legality, especially regarding how the law views agreements that are not expressed in human language but in programming scripts. In various literatures, smart contracts are said to offer certainty due to their automatic nature and accuracy of execution. However, this certainty can actually become an obstacle when there is a change in the will of the parties or conditions that are not predicted beforehand. This is because smart contracts cannot be canceled unilaterally when they have run automatically on the blockchain. This condition shows that the existence of smart contracts not only brings benefits, but also new legal risks that must be considered by parties who want to use them.

4.7. The Binding Power of Electronic Agreements in Indonesian Civil Law

In the context of Indonesian civil law, the principle of pacta sunt servanda states that every legally made agreement is valid as a law for the parties who made it. This also applies to electronic agreements, as stipulated in the Electronic Information and Transaction Law (ITE Law). Electronic agreements, including smart contracts, are basically valid as long as they meet the requirements for the validity of the agreement as stated in Article 1320 of the Civil Code. The advent of electronic agreements brought about a major change in the practice of engagement as the form of agreement was no longer limited by physical media. The binding power of electronic agreements is no different from conventional agreements as long as the element of "agreement" can be proved. However, proving an agreement in a smart contract is more complex because the agreement does not appear as a speech or signature, but rather a declaration of code parameters created by the parties. One of the key issues in electronic agreements is legal certainty. Although the ITE Law has provided a foundation that electronic documents are valid as evidence, not all types of transactions can be fully transferred to the digital realm. In addition, the interpretation of contract clauses written in the form of codes can make it difficult for judges to assess the existence of defects of will, errors, or coercive circumstances. In

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traditional electronic agreements (e.g. click-wrap agreements), users are still given the opportunity to read the terms and conditions. However, in smart contracts, these provisions do not appear in the form of normative language, but directly in the form of programs that execute transactions automatically. Therefore, smart contracts present one of the big challenges, namely the imbalance of understanding between parties because not all parties have the ability to understand the code technically. The binding power of smart contracts is very strong because of its automatic and irreversible nature. However, in civil law, an agreement can still be canceled if the subjective conditions are defective. Challenges arise when the legal cancellation mechanism cannot change the blockchain execution that is already running. As a result, dispute resolution becomes more complex because the technical and legal aspects must be combined in one process.

4.8. Smart Contract Freedom in the Basic Perspective of Freedom of Contract

Smart contracts are a tangible manifestation of the principle of freedom of contract as stipulated in Article 1338 of the Civil Code. This principle provides space for the parties to determine the form, content, and mechanism of contract implementation without conflict with the law, public order, and morality. Budiyanto (2023) explained that smart contracts are a form of innovation that expands the interpretation of these principles through the use of technology. Smart contracts give the parties a wide range of freedom in determining the parameters of the contract because all terms can be set in a code language without any specific format restrictions. However, this freedom actually holds risks if the parameters are not formulated correctly. Due to its automatic nature, technical errors in the code can execute obligations that are not in accordance with the will of the parties. The freedom to contract in smart contracts is not only about the content of the contract, but also the means of contract execution, control over the execution process, and restrictions on changes. When smart contracts have been stored in the blockchain, the parties lose the flexibility to renegotiate. This is different from traditional contracts that still allow changes through addendums. From the perspective of freedom of contract, smart contracts also raise questions about protection for weak parties. Not all parties understand the technical implications of the code, so information asymmetry occurs. Therefore, some experts argue that the use of smart contracts should be accompanied by a normative version of the text in anticipation of a dispute or reinterpretation.

4.9. The Validity of Smart Contracts as a Form of Electronic Agreement in Indonesia

The legality of smart contracts as a form of electronic agreement in Indonesia has . They explained that the validity of smart contracts is determined by the fulfillment of four terms of the agreement according to Article 1320 of the Civil Code, namely agreement, proficiency, certain objects, and halal causes. In terms of regulations, the ITE Law provides a basis that electronic information is considered legal evidence, so smart contracts are included in this category. However, challenges arise in proving the deal. In smart contracts, the agreement is not explicitly indicated, but through technical actions, namely the approval of the code to be executed. An agreement is considered to occur when both parties participate in the creation or tuning of the contract script. Thus, the proof of agreement is not in the form of a written document, but a digital record in the blockchain network. In the study, it was also emphasized that smart contracts are valid as long as they do not violate Indonesia's positive laws. Blind execution does not remove the principle of civil liability in the event of a loss. Although the execution is automatic, the parties can still be held liable if their actions cause damages, either intentionally or negligently. Another important point is the position of smart contracts as evidence. Blockchain records have strong evidentiary power because they cannot be changed. But the judge's understanding of technology is key in determining the evidentiary value. Without these technical capabilities, proofing can be ineffective.

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4.10. Smart Contract Setup in Indonesia and the United States

A comparison between smart contract arrangements in Indonesia and the United States shows significant differences in approaches. Indonesia uses a prudent approach by relying on the concept of electronic agreements that already exist in the ITE Law. In other words, Indonesia does not yet have special rules that regulate smart contracts separately from other electronic transactions. In contrast, the United States tends to be more progressive in accommodating the development of smart contracts. Several states such as Arizona and Nevada have passed laws that explicitly recognize smart contracts as legal contracts and recognize the validity of blockchain-based signatures. With this arrangement, smart contracts have stronger legal certainty in the United States than in Indonesia. In the context of comparison, he explained that Indonesia still places smart contracts under the big umbrella of the electronic transaction system so that many aspects have not been regulated such as cancellation mechanisms, dispute resolution, technical competence of the parties, and attribution of responsibility when code errors occur. Meanwhile, the United States has developed a pragmatic approach that provides room for innovation while paying attention to consumer protection. From the perspective of digital economy development, the United States model is considered more responsive to the needs of industry because it provides certainty and accelerates innovation. However, for developing countries such as Indonesia, a cautious approach is still needed given the uneven level of people's digital literacy. Therefore, the establishment of special regulations or interpretive guidelines for judges, notaries, and technology industry players.

V. Conclusion

Smart contracts as a digital transformation product are innovations that are able to change the face of the modern contractual system through a blockchain-based automatic execution mechanism. Based on the analysis of Articles 1313, 1320, and 1338 of the Civil Code and the provisions of the ITE Law, smart contracts can in principle meet the requirements for the validity of the agreement, including elements of agreement represented through technical actions in the form of approval of programming code. However, a number of challenges still need to be considered, especially related to proving the will of the parties, limited flexibility in changing contracts, the risk of code errors, and inequality of technological understanding that can cause information asymmetry. In a comparative context, countries such as the United States have provided explicit arrangements to strengthen the legality of smart contracts, while Indonesia still relies on common interpretations of electronic agreements. Therefore, strengthening special regulations, increasing digital literacy, and technical guidelines for law enforcement officials are urgent needs so that smart contracts can provide legal certainty while supporting the development of the national digital economy ecosystem.

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