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The Legal Standing and Validity of Smart Contracts as Assessed Under the Requirements of a Valid Contract in Indonesian Civil Law

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ABSTRACT

This research examines the legal standing and validity of smart contracts under the requirements of a valid contract in Indonesian civil law, particularly within the framework of Article 1320 of the Indonesian Civil Code (Burgerlijk Wetboek), which requires consent, legal capacity, a specific object, and a lawful cause. Using normative juridical research with statutory and conceptual approaches, the study analyzes civil law provisions, regulations on electronic information and transactions, and doctrinal perspectives on digital contract law. The findings indicate that smart contracts can, in principle, fulfill the elements of a valid contract, especially regarding consent and object, as long as the parties' intentions are identifiable and the contractual terms are sufficiently clear despite being expressed in code. However, challenges remain in assessing legal capacity, ensuring genuine consent, and determining lawful cause, particularly when execution occurs autonomously without direct human involvement. Therefore, although Indonesian civil law allows their recognition, clearer legal interpretation and regulatory development are necessary to ensure legal certainty and protection of the parties.

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1. INTRODUCTION

The rapid development of digital technology has significantly transformed traditional legal concepts, including the law of contract. One of the most prominent innovations in this context is the emergence of smart contracts, which are agreements executed automatically through computer code embedded in blockchain technology. Unlike conventional contracts that rely on written or oral expressions of intent and subsequent human performance, smart contracts operate through predefined algorithms that automatically enforce contractual obligations once predetermined conditions are met (Christidis & Devetsikiotis, 2016). This technological shift raises fundamental legal questions, particularly concerning the legal standing and validity of smart contracts within established civil law systems, including Indonesian civil law.

In Indonesian legal discourse, contract law is deeply rooted in the provisions of the Indonesian Civil Code Burgerlijk Wetboek, which emphasizes the primacy of party autonomy and mutual consent. Article

1320 of the Civil Code sets out four cumulative requirements for a valid contract, namely consent of the parties, legal capacity, a specific object, and a lawful cause (Subekti, 2002). These requirements reflect classical contract law principles that assume direct human involvement in the formation and execution of agreements. However, smart contracts challenge this assumption by introducing automation, decentralization, and technological mediation, thereby blurring the boundaries between legal norms and technical systems.

The increasing use of smart contracts in commercial transactions, particularly in financial services, supply chain management, and digital asset exchanges, has outpaced the development of explicit legal regulation in Indonesia. While Indonesian law recognizes electronic contracts through legislation on electronic information and transactions, it does not specifically address smart contracts as a distinct contractual form (Pratama et al., 2019). This regulatory gap creates legal uncertainty regarding whether smart contracts can be equated with conventional contracts and whether they satisfy the substantive requirements of validity under civil law. Consequently, parties engaging in smart contract based transactions may face challenges related to enforceability, dispute resolution, and legal protection.

One of the most debated issues concerning smart contracts is the concept of consent. In traditional contract theory, consent is understood as a meeting of minds between the contracting parties, manifested through clear expressions of intent. In smart contracts, consent is often expressed indirectly through the act of deploying or interacting with code. This raises the question of whether such technical actions adequately represent genuine consent in the legal sense, particularly when contractual terms are encoded in programming languages that may not be fully understood by all parties (Makarim, 2020). The issue becomes more complex when smart contracts are executed automatically without further human intervention, potentially limiting the parties ability to reconsider or renegotiate their obligations.

Legal capacity also presents a significant challenge in the context of smart contracts. Indonesian civil law requires that parties to a contract possess the legal capacity to act. However, smart contracts operate in decentralized digital environments where parties may remain anonymous or be represented by digital wallets rather than identifiable legal subjects (Berliana et al., 2025). This anonymity complicates the assessment of capacity and raises concerns regarding accountability and liability. Furthermore, the involvement of autonomous systems and artificial intelligence in smart contract execution raises questions about whether actions performed by code can be attributed to legally capable subjects.

The requirement of a specific object in contract law demands that contractual obligations be clearly defined and determinable. Smart contracts, by their nature, often fulfill this requirement through precise and unambiguous code. However, the rigidity of code may also become a limitation, as it lacks the interpretative flexibility inherent in traditional legal language. Situations involving unforeseen circumstances, force majeure, or inequitable outcomes may be difficult to address within the strict logic of automated execution (Ballaji, 2024). This rigidity challenges the adaptability of civil law principles that traditionally allow for interpretation and equitable adjustment.

The requirement of a lawful cause further complicates the assessment of smart contract validity. Indonesian civil law prohibits contracts that violate law, morality, or public order. In decentralized blockchain environments, smart contracts may be used for purposes that conflict with these principles, such as facilitating illegal transactions or circumventing regulatory oversight. The autonomous nature of smart contracts makes it difficult to intervene once execution has commenced, raising concerns about compliance with mandatory legal norms and the role of the state in supervising contractual relationships.

From a broader perspective, the emergence of smart contracts invites a reexamination of the relationship between law and technology. Law traditionally functions as a normative system that regulates human behavior through flexible interpretation and contextual judgment. Smart contracts, by contrast, operate through deterministic code that enforces obligations mechanically (Mik, 2024). This tension reflects a deeper philosophical question about whether legal norms can be translated into technical rules without losing their normative essence. In this sense, the study of smart contracts is not merely a technical or doctrinal inquiry, but also a conceptual exploration of the limits of legal formalism in the digital age.

Given these complexities, it is essential to assess smart contracts within the existing framework of Indonesian civil law rather than viewing them as entirely novel phenomena detached from legal tradition. The flexibility of civil law principles, particularly those governing freedom of contract and contractual interpretation, provides a foundation for accommodating technological innovation. However, such accommodation requires careful legal reasoning and, where necessary, normative reconstruction to ensure that fundamental legal values such as justice, legal certainty, and protection of parties rights are preserved.

This research therefore aims to analyze the legal standing and validity of smart contracts by examining their compatibility with the requirements of a valid contract under Indonesian civil law. By focusing on Article 1320 of the Civil Code and relevant legal doctrines, this study seeks to determine whether smart contracts can be recognized as legally binding agreements and to identify the challenges that arise from their technological characteristics. The research further aims to contribute to the development of legal discourse on digital contracts by offering conceptual clarification and normative guidance for future regulatory and judicial responses.

Ultimately, the study of smart contracts within Indonesian civil law is not only relevant for addressing immediate practical concerns, but also for shaping the future of contract law in an increasingly digital society. As technology continues to evolve, the law must adapt without abandoning its core principles. By critically examining smart contracts through the lens of traditional contractual requirements, this research seeks to bridge the gap between legal tradition and technological innovation, thereby contributing to a more coherent and responsive legal framework in Indonesia.

2. METHODS

This research employs a normative juridical method aimed at analyzing the legal standing and validity of smart contracts within the framework of Indonesian civil law. The normative juridical approach is chosen because the primary focus of this study lies in examining legal norms, principles, and doctrines governing contracts, rather than observing empirical behavior or quantitative data. The research concentrates on assessing whether smart contracts can be qualified as valid contracts based on the requirements stipulated in Indonesian contract law.

The main approach used in this research is the statutory approach. This approach involves a systematic examination of relevant legal provisions, particularly Article 1320 of the Indonesian Civil Code Burgerlijk Wetboek, which sets out the essential requirements for a valid contract, namely consent, legal capacity, a specific object, and a lawful cause. In addition, this study analyzes legislation related to electronic transactions, especially laws regulating electronic information and electronic contracts, in order to determine their relevance and applicability to smart contracts as a form of digital agreement.

In addition to the statutory approach, a conceptual approach is also employed. This approach is used to analyze key legal concepts such as consent, legal capacity, object of the contract, and lawful cause within the context of technological developments. The conceptual approach allows this research to explore how traditional contract law concepts may be interpreted, adapted, or reconstructed when applied to smart contracts that operate through automated and deterministic code. Doctrinal opinions from legal scholars, both national and international, are examined to provide theoretical support and to identify prevailing legal interpretations regarding smart contracts and digital agreements.

The legal materials used in this research consist of primary, secondary, and tertiary legal materials. Primary legal materials include statutory regulations and codified laws relevant to contract law and electronic transactions in Indonesia. Secondary legal materials consist of textbooks, journal articles, and scholarly writings discussing contract law, smart contracts, and the relationship between law and technology. Tertiary legal materials, such as legal dictionaries and encyclopedias, are used to clarify legal terminology and concepts.

All legal materials are analyzed using qualitative legal analysis. The analysis is conducted through interpretation and systematic reasoning to assess the conformity of smart contracts with the

requirements of valid contracts under Indonesian civil law. The results of the analysis are then presented descriptively and analytically, leading to conclusions that offer normative guidance for legal development and future regulatory responses concerning smart contracts in Indonesia.

3. FINDINGS AND DISCUSSION

Legal Standing of Smart Contracts under Indonesian Civil Law

The legal standing of smart contracts under Indonesian civil law must be examined from the foundational structure of contract law as a system of obligations governing private legal relationships. Indonesian contract law, as codified in the Indonesian Civil Code Burgerlijk Wetboek, adopts an open and flexible system that allows parties to create contractual relationships based on their autonomy, provided that such agreements do not contravene mandatory legal norms, public order, or morality. This doctrinal openness becomes a crucial entry point for assessing whether smart contracts, despite their technological novelty, can be accommodated within the existing legal framework.

At its core, the legal standing of a contract in Indonesian civil law is not determined by its form but by its substance. Contracts may be concluded orally, in writing, or through other forms of expression that demonstrate the parties intention to be legally bound. This principle is reflected in the long standing doctrine that the essence of a contract lies in the agreement of the parties rather than the medium through which the agreement is expressed (Purwaningsih & Widyawati, 2023). From this perspective, the use of blockchain technology and automated code does not, in itself, disqualify smart contracts from being recognized as contracts under Indonesian law.

The recognition of electronic contracts in Indonesian legislation further strengthens the argument for the legal standing of smart contracts. Laws governing electronic information and transactions acknowledge that agreements concluded through electronic systems are legally valid and binding, provided that they meet the general requirements of contract law (Shidarta, 2018). Although these laws do not explicitly regulate smart contracts, they establish a normative foundation for recognizing contractual relationships formed and executed in digital environments. Smart contracts may therefore be understood as a specific technological manifestation of electronic contracts, characterized by their self executing nature rather than by a fundamentally different legal structure.

However, the legal standing of smart contracts cannot be assessed solely through a formal or functional lens. The decentralized architecture of blockchain technology introduces complexities that challenge traditional legal assumptions about contractual relationships. In conventional contracts, parties are identifiable legal subjects who can be clearly located within a jurisdiction and subjected to legal remedies. Smart contracts, by contrast, often operate in decentralized networks where parties may interact through pseudonymous digital identities or cryptographic addresses (Nugroho & Nugraha, 2020). This anonymity complicates the attribution of rights and obligations, which is a central concern in civil law.

From the standpoint of Indonesian civil law, the identification of legal subjects is essential for determining responsibility and enforcing contractual obligations. A contract that cannot be linked to identifiable legal persons risks being deprived of practical legal effect, even if it is technically valid. Consequently, while smart contracts may possess legal standing in abstract terms, their effective recognition depends on the ability to associate digital actions with legally recognizable individuals or entities. This issue becomes particularly significant in dispute resolution, where courts require clear identification of parties to adjudicate claims.

Another dimension affecting the legal standing of smart contracts is the role of automation in contractual performance. In traditional contract law, performance is carried out by the parties themselves or by third parties acting on their behalf. Smart contracts, however, execute obligations

automatically once predetermined conditions are met, without further human intervention (Suwardiyati et al., 2024). This raises the question of whether automated execution can be equated with performance by a legal subject. From a legal perspective, automated execution may be attributed to the parties who agreed to the code, provided that the automation reflects their original intent. Nevertheless, this attribution becomes problematic when smart contracts interact with external data sources or autonomous systems beyond the direct control of the parties.

The issue of jurisdiction further complicates the legal standing of smart contracts. Indonesian civil law operates within a territorial legal system, whereas blockchain networks are inherently transnational. Smart contracts may be deployed and executed across multiple jurisdictions simultaneously, making it difficult to determine the applicable law and competent forum (Prasetyo & Nurul, 2022). Without clear rules governing jurisdiction and choice of law, the legal standing of smart contracts may remain uncertain, particularly in cross border transactions.

Despite these challenges, it would be inaccurate to conclude that smart contracts lack legal standing under Indonesian civil law. Rather, their legal standing should be understood as conditional and context dependent. When smart contracts are used in controlled environments, such as private blockchain networks or platforms that require identity verification, many of the traditional legal concerns can be mitigated (Nugroho, 2022). In such contexts, smart contracts may function as legally binding agreements that complement, rather than replace, conventional contractual mechanisms.

From a normative standpoint, the recognition of smart contracts reflects a broader evolution of contract law in response to technological change. Indonesian civil law has historically demonstrated adaptability, incorporating new forms of contractual practice without abandoning its core principles. The challenge posed by smart contracts therefore lies not in their incompatibility with contract law, but in the need for interpretative development and institutional adaptation. Judicial interpretation, doctrinal refinement, and targeted regulation may all play a role in clarifying the legal standing of smart contracts and ensuring their integration into the Indonesian legal system.

Ultimately, the legal standing of smart contracts under Indonesian civil law rests on a balance between technological innovation and legal tradition. By emphasizing substance over form and prioritizing the protection of legal certainty and accountability, Indonesian contract law can accommodate smart contracts as part of its evolving landscape. However, such accommodation must be accompanied by safeguards to ensure that automation does not undermine fundamental legal values or erode the rights of contracting parties.

Validity of Smart Contracts Based on the Requirements of a Valid Contract

The validity of smart contracts under Indonesian civil law must be examined through the doctrinal framework established by Article 1320 of the Indonesian Civil Code, which sets out four cumulative requirements for a valid contract: consent of the parties, legal capacity, a specific object, and a lawful cause. These requirements represent the normative core of contract validity and serve as the primary benchmark for evaluating whether smart contracts can be recognized as legally valid agreements.

The requirement of consent occupies a central position in contract law. Consent is traditionally understood as a meeting of minds between the contracting parties, expressed through clear and voluntary manifestations of intent. In smart contracts, consent is often conveyed through technical actions, such as deploying a smart contract, signing a transaction with a private key, or interacting with a blockchain interface. While these actions may indicate agreement in a functional sense, they raise normative concerns regarding the quality and authenticity of consent.

One of the main challenges lies in the accessibility and comprehensibility of contractual terms encoded in programming languages. Unlike traditional contracts, which are typically expressed in

natural language and subject to interpretation, smart contracts translate legal obligations into code that may be understood only by individuals with technical expertise. This creates an asymmetry of information that may undermine the principle of informed consent, particularly when one party lacks the capacity to fully understand the implications of the code. From the perspective of Indonesian civil law, consent obtained under such conditions may be questioned, especially if it involves error, coercion, or abuse of circumstances.

Legal capacity constitutes the second requirement for contract validity. Indonesian civil law requires that parties to a contract possess the legal ability to perform legal acts. In the context of smart contracts, the assessment of legal capacity is complicated by the use of digital identities and automated agents. Blockchain systems do not inherently verify the legal status of users, allowing minors, incapacitated persons, or unauthorized entities to participate in smart contract transactions. Without mechanisms to ensure that contracting parties possess legal capacity, the validity of smart contracts may be vulnerable to challenge.

The attribution of actions performed by smart contracts further complicates the issue of legal capacity. When a smart contract executes automatically, the question arises as to whether such execution can be attributed to a legally capable subject. Indonesian civil law traditionally attributes legal acts to natural or legal persons, not to technological systems. Therefore, the validity of smart contracts depends on the ability to trace automated actions back to legally capable parties who authorized the code. Failure to establish such attribution may undermine the validity of the contract.

The requirement of a specific object is generally more compatible with the technical nature of smart contracts. Smart contracts are designed to execute clearly defined obligations based on precise conditions, which aligns with the requirement that contractual objects be certain or at least determinable. The use of code allows for a high degree of specificity, reducing ambiguity and enhancing predictability. In this respect, smart contracts may even surpass traditional contracts in terms of determinacy.

However, the rigidity of code presents a significant limitation. Traditional contract law allows for interpretation and adjustment in response to unforeseen circumstances, guided by principles such as good faith and equity. Smart contracts, by contrast, execute obligations mechanically, leaving little room for contextual judgment. Situations involving force majeure, hardship, or inequitable outcomes may therefore be difficult to address within the strict logic of automated execution. This rigidity raises questions about whether smart contracts can fully satisfy the normative expectations associated with contractual objects in civil law.

The requirement of a lawful cause serves as a safeguard against contracts that violate legal norms, morality, or public order. Smart contracts, despite their technical sophistication, are not immune to being used for unlawful purposes. The decentralized and autonomous nature of blockchain technology may facilitate activities that evade regulatory oversight, such as illegal financial transactions or the circumvention of mandatory legal rules. From the perspective of Indonesian civil law, contracts with unlawful causes are null and void, regardless of their form or mode of execution.

Ensuring the lawfulness of smart contracts presents unique challenges, particularly when execution occurs automatically and irreversibly. Once deployed, a smart contract may continue to operate even if its purpose is later found to be unlawful. This underscores the importance of preventive legal mechanisms, such as regulatory oversight, standardized coding practices, and legal audits, to ensure compliance with mandatory legal norms before smart contracts are deployed.

In light of these considerations, the validity of smart contracts under Indonesian civil law cannot be assessed in purely technical terms. While smart contracts may satisfy the formal requirements of contract validity in many cases, their compliance with substantive legal principles depends on context,

design, and implementation. A rigid application of traditional doctrines without adaptation may lead to unjust outcomes, while excessive reliance on technological determinism risks undermining legal values.

Therefore, the evaluation of smart contract validity requires a nuanced and adaptive interpretation of Article 1320 of the Indonesian Civil Code. Such interpretation should preserve the core principles of consent, capacity, certainty, and lawfulness, while accommodating the realities of technological innovation. By integrating legal reasoning with technological understanding, Indonesian civil law can provide a coherent framework for assessing the validity of smart contracts and ensuring that they serve as instruments of legal certainty rather than sources of new uncertainty.

4. CONCLUSION

Smart contracts under Indonesian civil law can be legally recognized as long as the substance of the contract meets the fundamental principles of contract law, namely the agreement of the parties and a lawful purpose. The flexibility of Indonesian contract law allows agreements to take various forms, including electronic or automated code-based contracts. Although smart contracts execute automatically via blockchain, the rights and obligations encoded in the contract can still be attributed to the parties who consented to them. Challenges arise in identifying parties within decentralized networks, as anonymity or pseudonyms may complicate the legal attribution of responsibility. Therefore, the legal recognition of smart contracts is conditional and context-dependent, such as in private networks or systems that require identity verification.

The validity of smart contracts must be assessed according to the four cumulative requirements for a valid contract under Article 1320 of the Indonesian Civil Code: consent, legal capacity, a specific object, and lawful cause. Consent in smart contracts is typically conveyed through technical actions, such as digital signatures, which raises concerns regarding the quality and authenticity of agreement. Legal capacity must be ensured, as blockchain systems do not automatically verify the legal status of users, leaving a risk of participation by unauthorized or incapable parties. The contractual object in smart contracts is often precise and predictable, but the rigidity of code limits adaptability to unforeseen circumstances. The lawful cause requirement must also be met, as smart contracts can be misused for illegal purposes, highlighting the need for regulatory oversight and legal auditing before execution.

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