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ANALYSIS OF CONSUMER LEGAL PROTECTION AGAINST UNFAIR CLAUSES IN SMART CONTRACTS IN INDONESIA

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ABSTRACT

The swift advancement of blockchain technology has introduced a transformative innovation known as smart contracts, which are self-enforcing, unchangeable computer programs for agreements. While these contracts offer benefits like efficiency and openness, their inherent qualities present major hurdles for protecting consumers, especially from the risk of inequitable terms being included. This study aims to deeply investigate the strengths and weaknesses of current Indonesian law in offering legal safeguards to consumers who use smart contracts for their transactions. Utilizing a normative juridical methodology with a statutory and conceptual framework, the research reveals several key findings. First, the essential features of smart contracts, most notably their unchangeable and self-enforcing nature, are in direct opposition to the adaptable and justice-focused principles of Indonesian contract law, like the doctrine of good faith. Second, although a foundational level of protection is offered by the Indonesian Civil Code (KUHPerdata), the Consumer Protection Law (UUPK), and the Law on Information and Electronic Transactions (UU ITE), substantial legal vacuums and difficult enforcement problems persist. Third, the research pinpoints specific ways unfair clauses appear as functions within the code and confirms that applying a purposeful interpretation of current legislation can help lessen their negative effects. In conclusion, this paper asserts the pressing requirement for creating specific legal rules and bolstering institutional supervision, especially by the Financial Services Authority (OJK), to ensure that consumer rights remain protected amidst the evolution of contractual technology.

Keywords: Smart Contract, Unfair Clauses, Consumer Protection Law, Agreements, Indonesian Civil Code,

1. Introduction

The digital era has fundamentally transformed the legal and business landscape, driven by continuous technological innovation. One of the most significant innovations in recent years is blockchain technology, which has given rise to a revolutionary application in the form of smart contracts.[1] A smart contract, an idea first developed by Nick Szabo, is a digital transaction protocol that independently enacts the conditions of an agreement.[2] By operating on a blockchain network, smart contracts promise various advantages over conventional contracts, such as increased

[1] Sakirman, Akib, M., & Umar, W. (2024). *Kepastian hukum smart contract dalam perspektif hukum perdata*. Rewang Rencang: Jurnal Hukum Lex Generalis, 5(10), 1–10. https://ojs.rewangrencang.com/index.php/JHLG/article/view/617

[2] Wahyuni, H. A., Naili, Y. T., & Ruhtiani, M. (2023). *Penggunaan smart contract pada transaksi e-commerce dalam perspektif hukum perdata di Indonesia*. Jurnal Hukum In Concreto, 2(1), 1–11. https://doi.org/10.35960/inconcreto.v2i1.1018

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efficiency, absolute transparency, cryptographic security, and the elimination of the need for third-party intermediaries, which can ultimately reduce transaction costs significantly. This potential has driven the adoption of smart contracts in various sectors, from Decentralized Finance (DeFi) and e-commerce to supply chain management.

However, behind its technological advantages, the smart contract gives rise to a complex and urgent legal dialectic. Its main characteristics—namely, being self-executing and immutable—create a direct clash with the fundamental pillars of Indonesian contract law as stipulated in Book III of the Indonesian Civil Code (KUHPerdata). Indonesian contract law, which is based on principles such as good faith, reasonableness, and justice, is designed to protect the weaker party and provide room for flexibility in the interpretation and execution of contracts.[3] The rigid and deterministic nature of smart contracts, where code is law, has the potential to override considerations of justice and automatically enforce exploitative outcomes without human intervention. An unfair clause, which in a traditional contract could be annulled by a court, will be mercilessly executed by the network in a smart contract.[3]

This issue becomes crucial in the context of consumer protection. Consumers, as parties interacting with smart contract-based services, are often in a very weak bargaining position (unequal bargaining power).[4] They generally lack the technical expertise to read, understand, let alone negotiate the clauses embedded in complex lines of programming code. This situation creates extreme information asymmetry, opening a loophole for business actors (developers) to insert unfair clauses or exoneration clauses that are detrimental to consumers. Thus, the technology that is supposed to build trust can instead become an efficient instrument of contractual oppression.

Previous research in Indonesia has extensively studied smart contracts from various perspectives. Some studies focus on the general validity analysis of smart contracts based on the requirements in Article 1320 of the Civil Code. Other research highlights their application in specific contexts such as crypto asset transactions or e-commerce.[5] A significant gap exists in the research concerning a structured investigation into unfair clauses through the lens of consumer protection. Previous work has not integrated the perspectives of three foundational laws—namely the Civil Code, the Consumer Protection Law (UUPK), and the Law on Information and Electronic Transactions (UU ITE)—into a single, coherent framework. This paper intends to fill this void by offering a thorough analysis that is suitable for advanced undergraduate students of law.

Based on this background, this research is designed to answer two main research questions. The first inquiry explores the impact that the unique traits of smart contracts (such as their automation, unchangeable nature, and transparency) have on applying the core principles of the Indonesian Civil Code's contract law, along with how unfair clauses tangibly manifest in these digital agreements. The second research question then assesses the strengths and weaknesses of Indonesia's existing positive law—which includes the Consumer Protection Law, the Indonesian Civil Code, and the Law

[3] Taryono, K. P. (2024). *Asas iktikad baik dalam penggunaan smart contract pada jaringan blockchain dan perbandingan regulasi smart contract di Australia, Amerika Serikat dan Inggris* (Skripsi, Fakultas Hukum, Universitas Islam Indonesia). Retrieved from https://dspace.uii.ac.id/bitstream/handle/123456789/50363/20410590_BAB%20I%20DAPUS.pdf?sequence=3&isAllowed=y

[4] Chusnida, N. L. (2023). *Click-wrap agreement: Pengalihan tanggungjawab dalam melindungi konsumen*. PROGRESIF: Jurnal Hukum, 17(2), 180–202. https://doi.org/10.33019/progresif.v17i2.4368

[5] Silitonga, H. D., Windari, R. A., & Ardhya, S. N. (2024). *Analisis keabsahan (smart contract) transaksi aset digital di platform Ethereum dalam teknologi blockchain*. Jatayu: Jurnal Ilmu Hukum, 7(1), 1–17. https://doi.org/10.23887/jatayu.v7i1.94160

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on Information and Electronic Transactions—in its function to shield consumers from unfair terms in smart contracts, and further seeks to identify the legal challenges and voids that remain to be addressed.

2. Research Method

This research is conducted using a normative juridical method, which treats law as a compilation of written rules, principles, and norms. The study integrates two main strategies: a statutory approach and a conceptual approach. Through the statutory approach, a methodical review and analysis of all pertinent laws and regulations concerning the legal problem are carried out. Concurrently, the conceptual approach is applied to examine legal doctrines and ideas associated with contract law, the safeguarding of consumers, and digital technology to construct a cohesive legal argument. The research draws upon both primary and secondary legal materials.

The primary sources consist of the key laws and regulations in effect in Indonesia, such as the Indonesian Civil Code (KUHPerdata), Law No. 8 of 1999 on Consumer Protection (UUPK), Law No. 1 of 2024 which amends the Law on Information and Electronic Transactions (UU ITE), Government Regulation No. 71 of 2019, and pertinent rules from the Financial Services Authority (OJK). For secondary sources, the study relies on a range of legal literature including academic journals, books on contract and cyber law, dissertations, and scholarly articles focusing on smart contracts, blockchain, and consumer rights. All materials were gathered via library research and subsequently examined through a qualitative analysis using a descriptive-analytical technique to provide a systematic and in-depth response to the research questions.

3. Results and Discussion

3.1. Characteristics of Smart Contracts and Their Implications for the Principles of Contract Law

To understand the legal problems posed by smart contracts, it is first necessary to deeply understand their definition and technological characteristics. The idea of a smart contract was first conceptualized by Nick Szabo in 1994, who described it as a digital protocol for transactions that automatically carries out the provisions of an agreement. In simple terms, a smart contract can be understood as a computer program that is executed on a blockchain network. This program contains pre-determined "if-then" conditional logic. When a trigger condition is met, the contract will automatically execute the programmed action without requiring further intervention or approval from a third party. An analogy often used to explain its operation is a vending machine: if you insert the correct amount of money (condition met), the machine will automatically dispense the product you selected (execution).[6]

The technological characteristics inherent in smart contracts are the source of both their advantages and legal challenges. These characteristics include automation (self-executing), where the contract is executed independently by the computer network based on the agreed-upon code, thereby eliminating the need for intermediaries and making the process faster and more efficient. Another key feature is transparency, which stems from the fact that all transactions and the underlying code are recorded on a distributed ledger that all involved parties can access, thus lowering the

[6] Nurcahyanto, M. (2024). *Perkembangan dan isu-isu hukum utama berkaitan dengan penerapan smart contract berbasis blockchain*. Prosiding Seminar Hukum Aktual, 1(1), 44–46. https://journal.uii.ac.id/psha/article/view/34027

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potential for fraudulent activity.[7] Another characteristic is security, achieved through the use of cryptographic technology to secure transactions from manipulation or hacking. Finally, the most fundamental is immutability, which means that once a smart contract and its transactions are recorded on the blockchain, the data becomes permanent and is nearly impossible to change or delete. It is these characteristics that create serious implications for the fundamental principles of Indonesian contract law as stipulated in Book III of the Civil Code.

The first legal concept to consider is the Principle of Freedom of Contract, which is stipulated in Article 1338(1) of the Civil Code. This principle provides every legal subject with the liberty to create agreements about any matter, on the condition that the agreement does not contravene the law, morality, or public order.[8] Theoretically, this principle legitimizes the creation of smart contracts as an expression of the parties' free will. However, the essence of true freedom of contract, which includes a balanced negotiation process, is eroded. In practice, most smart contracts faced by consumers are in the form of standard form contracts or contracts of adhesion, where all terms have been unilaterally formulated by the business actor in the form of code.[9] Consumers have no power to negotiate the content of the code; their choice is to either accept it in its entirety (take-it-or-leave-it) or reject it. This lack of negotiation space substantively injures the principle of freedom of contract, which requires a balance of bargaining power.

The second legal tenet for consideration is the Principle of Consensualism, as established in Article 1320(1) of the Civil Code. This doctrine posits that an agreement is officially formed when a consensus, also known as a "meeting of the minds" (consensus ad idem), has been reached between the involved parties. In the context of smart contracts, achieving "agreement" becomes highly problematic. How can a true meeting of the minds occur when one party (the consumer) is unable to understand the language used to write the contract's terms (programming language)?.[10] The consent given by a consumer by clicking an "Agree" or "Confirm" button is more of a blind acceptance of a set of rules they do not understand, rather than an agreement based on informed consent. Furthermore, the anonymous or pseudonymous nature of blockchain addresses also creates difficulties in verifying the identity and legal capacity of the parties, which are subjective requirements for a valid agreement.

A third, and arguably the most foundational, issue arises from the clash with the Principle of Good Faith, as stipulated in Article 1338(3) of the Civil Code. This principle requires every agreement to be executed in good faith, meaning its implementation must adhere to norms of reasonableness and justice. Good faith acts as a legal safety valve, allowing a judge to set aside the literal provisions of a contract if their application would lead to a highly unfair or improper result. The self-executing and immutable nature of smart contracts is diametrically opposed to the flexibility inherent in the principle of good faith. Imagine a scenario where a bug occurs in the code or an external event (e.g., a sudden economic crisis) makes the automatic execution of the contract extremely detrimental to the consumer. In a traditional contract system, a court could intervene based on the principle of good faith. However,

[7] Lim, W., Angkasa, S., & Wibowo, A. D. P. (2024). *Smart contracts: Validitas hukum dan tantangan di masa depan Indonesia*. Jurnal Kewarganegaraan, 8(1), 829–837. https://doi.org/10.31316/jk.v8i1.6410
[8] Hutapea, K. W. H., & Sulistiyono, A. (2024). *Keabsahan smart contract dengan teknologi blockchain menurut Kitab Undang-Undang Hukum Perdata*. Aliansi: Jurnal Hukum, Pendidikan dan Sosial Humaniora, 1(3), 86–94. https://doi.org/10.62383/aliansi.v1i3.177
[9] Suwardiyati, R., Widhiyanti, H. N., & Wicaksono, S. (2024). *Sah atau tidak smart contract dalam sistem blockchain?* Widya Yuridika: Jurnal Hukum, 7(2), 459–468. https://doi.org/10.31328/wy.v7i2.5156
[10] Habibah, A. (2024). *Implementasi blockchain dalam meningkatkan kepastian hukum dan penyelesaian sengketa kontrak di Indonesia*. Jurnal Hukum Mimbar Justitia, 10(2), 386–395. https://doi.org/10.35194/jhmj.v10i2.4812

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in a smart contract, the code will continue to run rigidly and automatically, executing a result that is materially unjust.

This gives rise to a paradox: the feature designed to create trust and certainty (immutable automatic execution) becomes the most efficient mechanism for enforcing injustice. Immutability, marketed as a key feature, turns into a fatal flaw when viewed through the lens of contractual justice. The technology, by its design, prioritizes the enforcement of the letter of the contract (the code) while potentially violating the spirit of the contract (justice and good faith).

3.2. Consumer Legal Protection Against Unfair Clauses in Smart Contracts Based on Indonesian Positive Law

The analysis of legal protection for consumers must move from a theoretical level to a concrete identification of how unfair clauses manifest in smart contracts and how Indonesian positive legal instruments can be applied to counter them.

3.2.1. Identification of Forms of Unfair Clauses in Smart Contracts and Their Impact on Consumers

Unfair clauses in smart contracts are no longer passive text but active code functions that can be executed automatically. This phenomenon can be termed as obfuscation by code. The injustice becomes far more dangerous because it is (1) hidden behind technical complexity that an average consumer cannot understand, (2) executed instantly and automatically by the network, and (3) its results are difficult or even impossible to reverse. The consumer's problem shifts from mere legal interpretation of text to confronting a technical execution that has already occurred perfectly. By the time the consumer realizes the injustice, the damage has often already become permanent, placing the law in a reactive position to an irreversible technological event.[11]

Several forms of unfair clause manifestations can be identified. First is the Exoneration Clause (Transfer/Elimination of Liability), where the business actor inserts code to limit or eliminate their liability for system failures, losses from bugs, or hacking.[12] The impact is severe, as the consumer is forced to bear all technical risks, and financial loss becomes their absolute burden. This type of clause clearly violates Article 18(1)a of the UUPK, which prohibits "stating the transfer of the business actor's liability," and from the perspective of the Civil Code, it contradicts the principle of good faith (Article 1338(3)) and reasonableness by placing risk unequally.

A second form is the Unilateral Asset Freeze Function. This is manifested through a function in the code, such as function set Paused, which can only be called by the business actor (owner).[13] When activated, vital functions like fund withdrawal become inexecutable by the consumer. Consequently, the consumer loses access to and control over their digital assets unilaterally and instantly, as if their assets are held hostage. This action is a potential violation of Article 18(1)d and g of the UUPK. According to the Civil Code, this could indicate a defect of consent in the form of abuse of

[11] CMS Cameron McKenna Nabarro Olswang LLP. (2020). *Disputes and smart contracts: Traditional solutions to modern problems?* Retrieved from https://cms.law/content/download/434764/file/Future%20Facing%20Disputes%20-%20Disputes%20and%20Smart%20Contracts.pdf

[12] Valentina, D. D., & Suraji, S. (2024). *Analisis pencantuman klausula eksonerasi dalam perjanjian e-commerce menurut Undang-Undang Nomor 8 Tahun 1999 tentang Perlindungan Konsumen*. Terang: Jurnal Kajian Ilmu Sosial, Politik dan Hukum, 1(1), 361–369. https://doi.org/10.62383/terang.v1i1.148

[13] Behnke, R. (2022, November 21). *How to pause a smart contract*. Halborn Blog. https://www.halborn.com/blog/post/how-to-pause-a-smart-contract

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circumstances (misbruik van omstandigheden) or even be considered contrary to a lawful cause due to its exploitative purpose.

Third, the Unilateral Modification Clause, where the business actor has the ability to change the contract's business logic by referring to a new contract address without consumer consent, a technique exploited in the Parity Wallet hack.[14] This allows the rules of the game to be changed unilaterally mid-stream, harming consumers bound by the initial agreement. This clause violates Article 18(1)g of the UUPK and fundamentally injures the principle of consensualism (Article 1320 of the Civil Code).

Finally, a Burdensome Dispute Resolution Mechanism can be embedded in the code. This mechanism automatically directs disputes to an expensive and complicated foreign online arbitration platform, with all costs borne by the consumer, as seen in the Uber v Heller case.[15] As a result, the consumer's right to access to justice becomes illusory. This approach goes directly against the core principles of justice and reasonableness that are embedded within the concept of good faith under the Civil Code.

3.2.2. Application of the Consumer Protection Law (UUPK)

Law No. 8 of 1999 on Consumer Protection (UUPK) is the primary defense for consumers in Indonesia, and its relevance remains strong in the face of smart contract challenges. The definitions of "consumer" and "business actor" in the UUPK are broad enough to cover users and developers of smart contract-based platforms or services.[16] A business actor is defined as any individual or business entity that conducts business activities, which clearly includes entities that create and offer smart contracts to the public.

The main focus of the UUPK's application lies in Article 18, which expressly prohibits business actors from including unfair standard clauses. As shown in the preceding analysis, various forms of exploitative code functions in smart contracts can be directly mapped to the prohibitions listed in Article 18(1). For example, a unilateral asset freeze function is a clear manifestation of the prohibitions in letters (d) and (g), while an exoneration clause is a violation of letter (a).

The legal consequence of this violation is very clear and strong. Under Article 18(3) of the UUPK, any standard clause included in a document or agreement that satisfies the conditions of paragraphs (1) and (2) is deemed "null and void" from the beginning (void ab initio). This means that, legally, the clause is considered to have never existed from the beginning. Thus, a judge can declare that a code function to unilaterally freeze assets is null and void, and any legal consequences arising from the execution of that function (e.g., the asset freeze) are invalid.

Nevertheless, the application of the UUPK faces significant challenges. First, the UUPK was drafted long before the blockchain era, so its oversight and dispute resolution mechanisms (e.g., through the Consumer Dispute Settlement Board/BPSK) may not be agile enough or have the

[14] Choy, W. (2017, December 22). *When smart contracts are outsmarted: The Parity wallet "freeze" and software liability in the Internet of Value*. Blockchain and the Law. https://www.blockchainandthelaw.com/2017/12/when-smart-contracts-are-outsmarted-the-parity-wallet-freeze-and-software-liability-in-the-internet-of-value/

[15] Salazar V, A. R. (2021). *Unconscionability, smart contracts, and blockchain technology: Are consumers really protected against power abuses in the digital economy?* International Journal on Consumer Law and Practice, 9(2). https://repository.nls.ac.in/ijclp/vol9/iss1/2

[16] Fajarianto, E. R., Zulfikar, P., & Mulyadi, E. (2022). *Tinjauan yuridis penggunaan blockchain-smart contract dalam transaksi non-fungible token (NFT) pada PT. Saga Riung Investama*. Pemandhu, 3(2), 84–97. https://doi.org/10.33592/jp.v3i2.2997

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technical competence to handle complex digital disputes. Second, the enforcement challenge is immense in cross-border transactions. It is very difficult to take action against business actors who are anonymous, operate as decentralized autonomous organizations (DAOs), or are domiciled outside of Indonesian jurisdiction.[17]

3.2.3. Application of the Indonesian Civil Code (KUHPerdata)

Serving as the lex generalis, or primary source of contract law in Indonesia, the Civil Code presents several legal grounds that can be used to safeguard consumers. The first of these is Article 1320 of the Civil Code, which details the requirements for a valid agreement. The analysis can focus on two subjective conditions. The first condition, "consent of those who bind themselves", can be argued as not being substantively met. The consent given by a consumer to a smart contract can be categorized as having a defect of consent (wilsgebrek), particularly in the form of mistake (dwaling) regarding the substance of the contract or even abuse of circumstances (misbruik van omstandigheden). Consequently, the agreement can be requested for annulment (voidable) in court. The fourth condition, "a lawful cause" (geoorloofde oorzaak), can also be a basis for a lawsuit. A smart contract designed with the purpose of exploiting consumer weaknesses through hidden clauses can be considered to have an illicit cause, as it contravenes the law (UUPK), morality, and public order. As a result, the agreement is rendered invalid from the outset, or null and void (nietig).[18]

The second and most pivotal point is Article 1338(3) of the Civil Code, which pertains to the Principle of Good Faith. This principle is a very powerful legal instrument in the hands of a judge. It grants the court the authority to test the execution of a contract, not just based on its literal text, but also based on reasonableness and justice. Even if a smart contract is deemed to meet all the conditions of Article 1320, a judge can still refuse to recognize or enforce the legal consequences of its automatic execution if the result is deemed contrary to good faith. In other words, the court can declare that although the code has been executed, the result of that execution (e.g., the transfer of all of the consumer's funds to the business actor due to a bug) has no binding legal force because it violates the fundamental principle of justice. This provides a judicial override mechanism against the rigidity of code.

3.2.4. The Role of the Law on Information and Electronic Transactions (UU ITE)

The UU ITE, especially after its latest update through Law No. 1 of 2024, plays a crucial dual role. On one hand, the UU ITE serves to legitimize smart contracts. Through the definition of "Electronic Contract" in Article 1(17) and the recognition of electronic information and documents as valid evidence, the UU ITE provides a formal legal basis for the existence of smart contracts as binding agreements in Indonesia.[19]

On the other hand, the UU ITE also has a protective role. One of the most important principles adopted by the UU ITE is the principle of technological neutrality. This principle asserts that the law should not favor or discriminate against any particular technology; the substance of the law must apply

[17] Dethan, J. A., & Irianto, Y. E. G. (2024). *Analisis keabsahan smart contract dalam perjanjian bisnis di Indonesia*. UNES Law Review, 7(1), 462–468. https://doi.org/10.31933/unesrev.v7i1.2291
[18] Hazilina, & Soedagoeng, G. H. (2021). *Analisis kebebasan berkontrak dalam smart contract e-commerce*. Tanjungpura Law Journal, 5(1), 53–66. https://doi.org/10.26418/tlj.v5i1.46223
[19] Fahlevi, F. S., & Fitriana, Z. M. (2024). *Keabsahan smart contract sebagai solusi praktik manipulasi kontrak di Indonesia*. Kabilah: Journal of Social Community, 9(2), 243–254. https://ejournal.iainata.ac.id/index.php/kabilah/article/view/382

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equally regardless of the medium used.[20] It is this principle that opens the door for courts to apply the substance of protection from the Civil Code and the UUPK—which are products of the pre-digital era—to the realm of smart contracts. Thus, the argument that "this is a new technology that is not yet regulated" can be countered by stating that fundamental legal principles such as good faith and the prohibition of unfair standard clauses remain applicable, whatever technology is used to form the contract. Furthermore, the UU ITE, working in conjunction with the Personal Data Protection Law (UU PDP), offers an extra layer of security for how consumer personal data is managed within the blockchain ecosystem.

3.3. Challenges and Legal Gaps in Consumer Protection for Smart Contracts

Although the existing legal framework offers several avenues for protection, its application is faced with fundamental challenges and significant legal gaps. First, the main challenge is the legal vacuum or the absence of a specific legal framework (lex specialis) for smart contracts.[21] Efforts to apply existing laws (Civil Code, UUPK) are often interpretive and analogical. This creates legal uncertainty as judicial interpretations can vary. Existing laws were not designed to address the unique characteristics of technology such as immutability, anonymity, and decentralized operation.

Second, law enforcement and jurisdictional challenges are the most severe practical obstacles. How can an Indonesian court execute its judgment against a Decentralized Autonomous Organization (DAO) that has no legal entity, no physical office, and whose members are anonymously scattered across the globe? The global and borderless nature of blockchain creates a jurisdictional nightmare that has not yet been solved by the current territory-based legal system.[22]

Third, there is the problem of proof in court. Although the UU ITE recognizes electronic evidence, explaining the workings of a complex smart contract code, proving the existence of a bug or malicious intent behind the code, and translating it into legal language that can be understood by judges is a huge technical challenge for lawyers and a judicial system that may not have adequate technological literacy.

Fourth, there is an inherent conflict between immutability and legal remedies. Many remedies in civil law, such as annulment or rectification of a contract, require the ability to change or cancel an existing legal status. However, how can a court order the rectification of a contract that is technically immutable? Drastic technical solutions like a hard fork (splitting the blockchain chain) are only possible in extraordinary cases involving massive losses and requiring the consensus of the entire network community, not for everyday individual consumer disputes.[23]

Amidst these challenges, a crucial institutional development has occurred in Indonesia. Effective January 2025, a foundational shift in the regulatory paradigm will occur as the authority for overseeing digital financial assets, including crypto assets and their associated technology, transitions from the

[20] Saputri, F. A. (2024). *Regulating the use of smart contract in Indonesia*. Jurnal Hukum dan Keadilan, 1(2), 42–50. https://doi.org/10.61942/jhk.v1i2.84
[21] Azmi, M. U., Sunarmi, Azwar, T. K. D., & Sutiarnoto. (2023). *Risiko hukum penggunaan smart contract pada Ethereum di Indonesia*. Locus Journal of Academic Literature Review, 2(3), 235–242. https://doi.org/10.56128/ljoalr.v2i3.140
[22] Baso, F., Yusuf, D. U., Djaoe, A. N. M., Iswandi, I., & Ramadhany, A. (2024). *The overview of smart contract: Legality and enforceability*. Dialogia Iuridica, 16(1), 96–111. https://doi.org/10.28932/di.v16i1.10024
[23] CMS Cameron McKenna Nabarro Olswang LLP. (2020). *Disputes and smart contracts: Traditional solutions to modern problems?* Retrieved from https://cms.law/content/download/434764/file/Future%20Facing%20Disputes%20-%20Disputes%20and%20Smart%20Contracts.pdf

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Commodity Futures Trading Regulatory Agency (Bappebti) to OJK. This shift is not merely administrative but a change in regulatory philosophy. Bappebti's mandate has historically focused on commodity trading, where crypto assets were viewed as tradable goods. In contrast, OJK's mandate is much broader, covering the entire financial services sector with key pillars in prudential supervision, market conduct, and most importantly, consumer protection.[24] Given that a smart contract functions as more than just a commodity—it can be a financial instrument, a service agreement, or even a form of organization—OJK is institutionally better equipped to regulate the contractual and consumer protection aspects inherent in it. OJK Regulation No. 27 of 2024 (POJK 27/2024) has already indicated this new direction, granting OJK the authority to evaluate assets, halt trading to protect consumers, and mandate clear settlement procedures. This transition opens a critical opportunity to develop a holistic framework that directly addresses the issue of unfair clauses in smart contracts, a task that was outside Bappebti's primary focus.

4. Conclusion

Based on the analysis presented, conclusions can be drawn that answer the two research questions. Primarily, a foundational conflict exists between the distinct features of smart contracts, particularly their self-executing and immutable qualities, and the core tenets of Indonesian contract law. The standard agreement model common to smart contracts undermines the principle of freedom of contract, while the complexity of the code weakens the principle of consensualism by obstructing a genuine meeting of the minds. Moreover, the principle of good faith is in direct opposition to the inflexible and deterministic way the code is executed. Unfair clauses in this context are no longer text but manifest as exploitative code functions, such as unilateral asset freeze functions, liability transfer clauses, unilateral modifications, and burdensome dispute resolution mechanisms. Second, the effectiveness of Indonesian positive law in providing protection is partial and faces severe challenges. The UUPK, through the prohibition of standard clauses in Article 18, and the Civil Code, through the concepts of defect of consent and the principle of good faith, provide a strong legal basis for annulling unfair clauses. The UU ITE provides legitimacy as well as a bridge for applying old law to new technology through the principle of technological neutrality. However, the overall effectiveness of this legal framework is hampered by the existence of a specific legal vacuum (lex specialis), massive cross-jurisdictional law enforcement challenges, technical difficulties of proof, and the unresolved conflict between the immutable nature of the technology and the need for flexible legal remedies.

Facing these challenges and gaps, several recommendations can be put forward. For regulators, especially the Financial Services Authority (OJK) which now holds the supervisory mandate, it is recommended to promptly take proactive steps by drafting an OJK regulation (POJK) that specifically governs smart contracts that deal with consumers. This regulation should at least cover three things: (a) a blacklist of prohibited code functions, which is a digital reflection of the prohibitions in Article 18 of the UUPK; (b) an obligation for business actors to conduct a code audit by an independent third party to verify security and the absence of exploitative clauses before launching to the public; and (c) the establishment of an alternative dispute resolution mechanism that is affordable, fast, and has technical competence, for example, through a special digital arbitration body

[24] Otoritas Jasa Keuangan, Bank Indonesia, & Badan Pengawas Perdagangan Berjangka Komoditi. (2025, Januari 10). *Bappebti Kemendag alihkan tugas pengaturan dan pengawasan aset keuangan digital termasuk aset kripto serta derivatif keuangan kepada OJK dan BI* [Siaran pers]. https://ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Pages/Bappebti-Kemendag-Alihkan-Tugas-Aset-Keuangan-Digital-termasuk-Aset-Kripto-serta-Derivatif-Keuangan-kepada-OJK-dan-BI.aspx

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recognized by OJK. For legal practitioners and academics, there is an urgent need to increase technological literacy. Law faculty curricula need to integrate relevant "Law and Technology" courses, and advocates must equip themselves with a basic understanding of how smart contracts work to provide effective advice and defense. Finally, for business actors or developers, it is recommended to adopt a "Fairness by Design" approach. This means that the principles of consumer protection and justice should not only be external legal considerations but must be embedded directly into the code architecture of the smart contract itself, for example, by implementing a multi-signature approval mechanism for critical functions or using an upgradeable contract pattern to allow for bug fixes and amendments that are in line with the spirit of good faith.

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