ABSTRACT

Purpose: The development of digital finance is leading to the increasing use of Smart Contracts because of their simple and self-executing characteristics. However, there exists the potential for legal loopholes, including protection of the included parties aside from the simplicity and convenience.

Methods: A normative method using primary, secondary, and non-legal materials was adopted. Meanwhile, legal materials were collected through literature review and analytical methods based on deductive syllogism.

Results and Conclusion: The results showed that the synchronization of regulations supported the development, certainty, and stability of the Indonesian economy. The application of contracts law, technological neutrality, and privacy principles in Indonesian regulations related to the proliferation of technology-based contracts was adequate.

Research implications: Therefore, this research analyzed the extent to which the Indonesian legal system afforded adequate protection to parties and identified the improvements necessary for the future development of Smart Contracts.

Originality/value: It analyzes the importance of existing regulations with the social demands of the community to ensure the prompt establishment of economic certainty and stability.

Keywords: Smart Contracts, Protection, Legal System, Indonesian.

OPTIMIZING LEGAL PROTECTION OF PARTIES IN SMART CONTRACTS WITHIN THE INDONESIAN LEGAL SYSTEM

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OPTIMIZANDO A PROTEÇÃO JURÍDICA DAS PARTES EM CONTRATOS INTELIGENTES NO SISTEMA JURÍDICO INDONÉSIO

Resumo

Objetivo: O desenvolvimento das finanças digitais está a levar à utilização crescente de Contratos Inteligentes devido às suas características simples e autoexecutáveis. No entanto, existe potencial para lacunas legais, incluindo a protecção das partes incluídas, para além da simplicidade e conveniência.

Métodos: Foi adotado um método normativo utilizando materiais primários, secundários e não legais. Enquanto isso, o material jurídico foi coletado por meio de revisão bibliográfica e métodos analíticos baseados no silogismo dedutivo.

Resultados e Conclusão: Os resultados mostraram que a sincronização das regulamentações apoiou o desenvolvimento, a certeza e a estabilidade da economia indonésia. A aplicação da legislação contratual, da neutralidade tecnológica e dos princípios de privacidade nas regulamentações indonésias relacionadas com a proliferação de contratos baseados em tecnologia foi adequada.

Implicações da pesquisa: Portanto, esta pesquisa analisou até que ponto o sistema jurídico indonésio proporcionou proteção adequada às partes e identificou as melhorias necessárias para o desenvolvimento futuro de Contratos Inteligentes.

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INTRODUCTION

Indonesia is experiencing significant technological advancements, and these are contributing to the nation's growth and development (Ansori, 2019). The presence of modern technology is closely connected with the current lifestyle of society, making everyday activities accessible through its use. Currently, tasks requiring lengthy and complicated procedures can be accomplished with a single click on smartphones.

In Indonesia, an area with technological advancement is the banking system. Nearly all financial transactions can be managed from anywhere and at any time without the need to visit a physical bank. Different convenient features and applications are available online, making it easier for the community to manage finances. This has become possible due to the development of communication tools used in one-way and interactive system, thereby bringing Indonesia into Industrial Revolution 4.0 and resulting in a dramatic increase in internet users (Kusuma & Asmoro, 2021).

Many contracts and agreements are now carried out digitally with the rising number of internet users and the ability to conduct interactions online. Agreements based on computer system are referred to as electronic contracts and digital transactions using electronic contracts grew by 1,556% between 2017 and 2020. The total value in 2017 was only IDR 12.37 trillion, which increased to IDR 204.9 trillion in 2020. The value of digital banking transactions reached IDR 3,468.4 trillion, growing by 61.80% in 2021. In 2022, the value increased by 28.72% compared to the previous year, reaching IDR 52,175.1 trillion. In line with this remarkable growth, technology has also evolved to address the challenges encountered in digital transactions. One of these developments is the creation of electronic contracts with the genre of Smart Contracts (Alazzam et al., 2023).

Smart Contracts are an innovation created after the development of blockchain technology system using data and nodes, which is a computer term related to network communication and security. The automatic, human-free execution makes them a novelty in the world of conventional contracts. The efficient, transparent, simple, and self-executed characteristics further promoted the adoption of this formal human interaction in the digitalization era.

Despite the conveniences offered, there are clear and hidden risks in implementing the concept of Smart Contracts. Rapid technological advancement often renders existing regulations inadequate in addressing new emerging problems and unseen crimes. Consequently, unscrupulous individuals take advantage of these legal "loopholes" to engage in wrongful and immoral actions.

Based on the research conducted, Smart Contracts created in Indonesia have not been discovered yet, but many contracts from other countries can be accessed by the Indonesian community. Examples of executing Smart Contracts can be seen in the buying and selling of Ethereum and SwissBorg (Switzerland) where both regulate crypto-asset transactions.
Additionally, blockchain technology is used for Supply Chain management in the United States, property rentals in Australia, stock trading in Sweden, and some insurance processes in Japan, such as automating insurance claims and payment processes.

This research examines the adequacy of legal system in place for Smart Contracts in Indonesia and legal protection for the included parties to ensure certainty and justice. Furthermore, it analyzes the importance of existing regulations with the social demands of the community to ensure the prompt establishment of economic certainty and stability.

2 METHOD

This research was structured based on a normative juridical method using primary, secondary, and non-legal materials (Peter, 2010). Primary legal materials included relevant regulations and several agreements traced on the internet. Furthermore, secondary legal materials made use of both physical and online literature. The data collection method was literature review or document analysis, including gathering and examining documents or literature that provided the information or evidence needed (Syamsudin, 2007). The analytical method used deductive syllogism, commencing with the presentation of a major premise consisting of legal norm or provision part of positive law. This was followed by the presentation of a minor premise consisting of legal facts within the community, and then concluding from these two premises.

3 RESULTS AND DISCUSSION

The discussion in this research is divided into two subparts. The first subpart delves into the existing regulations concerning Smart Contracts in the Indonesian legal system. The second subpart addresses the current legal protection, including proposed enhancements to ensure stronger legal guarantees when Smart Contracts are introduced in Indonesia.

3.1 Regulations Concerning Smart Contracts in the Indonesian Legal System

Transactions including agreements in the current system are centralized, requiring third parties and posing several issues, such as confidentiality concerns and high transaction costs. Therefore, the development of blockchain technology, when used for transactions, enables individuals to interact without the need for third parties. The blockchain system records all transactions occurring on the internet. The technology has evolved to include various other applications, such as Smart Contracts developed for Bitcoin (Alharby & Moorsel, 2017).

Distributed Ledger Technology, also known as blockchain, is a technological concept that grants access rights to parties included in a distributed network to interact and make changes within a specific ledger system. Blockchain represents a more advanced manifestation of the existing concept, namely distributed databases. It was developed with the introduction of Bitcoin to the community and served as a solution for eliminating intermediaries or third parties in transactions between parties. This reduced the need to establish trust among parties, enhanced transaction security, and ensured confidentiality.

In its concept, the blockchain system shares the same foundation as a distributed data system. Information stored and recorded in a database system is distributed among all parties in the same network. Besides eliminating intermediaries or third parties in the transaction process, the concept of this system can prevent double-spending by combining public key cryptography. This is an encryption method including two distinct keys with one serving as a public key providing widespread access to a peer-to-peer network (a networking model that allows two or more computers within the same environment/system/network to communicate with each other).
The characteristics of blockchain technology include:

1. A ledger that can be accessed by parties within the same network and is continuously verified using agreed-upon criteria and variables by all network nodes or included parties.
2. Verified data remains unchanged and retains the same informational value.
3. Guaranteed transparency for all parties in the network, with no authority to alter the data.
4. Formation of smart contracts, a means or method consisting of a set of rules required during negotiation to automatically verify and execute the consensus.

According to Article 23 of the Financial Services Authority Regulation Number 77/POJK.01/2016 on Information Technology-Based Lending and Borrowing Services, fintech providers are allowed to exchange data with supporting service providers. This includes information technology such as big data analytics, aggregators, robo advisors, or blockchain. Based on this regulation, blockchain technology is legal in Indonesia and according to the explanation in Article 3 paragraph (1) letter a of the Bank Indonesia Regulation Number 19/12/PBI/2017 on Financial Technology, the use is also legal. This constitutes a form of financial technology implementation in payment system that functions to execute authorization, clearing, final settlement, and payment settlement. Other organic regulations that legalize the use of blockchain or distributed ledger technology can be found in the Commodity Futures Trading Regulatory Agency Regulation Number 5 of 2019 on Technical Provisions for the Operation of Crypto Asset Physical Market on Futures Exchanges, specifically in Article 1 numbers 7 and 14, as well as Article 3 paragraph (2).

Smart Contracts are a form of electronic agreement closely associated with blockchain technology (Muhammad, 2019). In another editorial, the concepts are discussed as computerized and digital transaction procedures capable of autonomously executing the terms of an agreement to formally bind parties. Smart Contracts are executed without intermediaries and are typically transparent, promising commercial efficiency, reduced legal and transaction costs, and the potential for anonymous transactions. These qualities have made the technology increasingly popular, specifically in the financial sector to reduce the risk of payment inaccuracies and fraud as well as enhance the quality of financial contracts in terms of credibility and independence from the influence of third parties (Negara et al., 2021). Even though Smart Contracts have a similar form to electronic contracts, the characteristic of being self-executed is possessed.

The information is relevant to Nick Szabo's statement that Smart Contracts are computerized transaction protocols executing the terms of contract. The goal is to satisfy common contractual conditions (such as payment terms, liens, confidentiality, and even enforcement), minimize exceptions both malicious and accidental, as well as reduce the need for trusted intermediaries. Related economic goals include lowering fraud loss, arbitration, and enforcement costs, as well as other transaction costs.

In the development of civilization and culture, agreements became written in documents, and there were specific officials authorized to create authentic agreements. Transactions and contracts could be carried out electronically, transforming contracts from paper documents to electronic/digital/paperless forms. The subsequent development, after the discovery of blockchain technology, allowed people to create Smart Contracts.

Electronic contracts are legal relationships or agreements conducted electronically by combining a network of computer-based information system with communication system and telecommunications services facilitated by the internet (network of network) (Makarim, 2003). E-commerce (electronic commerce) is a transaction process including the buying and selling of goods or services using electronic tools, such as telephones and the Internet (Alwendi, 2020).
The transactions conducted through digital platforms, both email, SMS, WhatsApp, Facebook, and websites, are considered electronic contracts and their execution constitutes transactions.

The difference between Smart and electronic contracts lies in the technology used. Even though electronic contracts use different web-based or email-based technologies, Smart Contracts use blockchain 2.0 technology. This technological difference results in distinct characteristics between electronic and Smart Contracts.

**Table 1. Comparison of Characteristics between Electronic and Smart Contracts**

<table>
<thead>
<tr>
<th>No</th>
<th>Indicator</th>
<th>Electronic Contracts</th>
<th>Smart Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Presence of legal subjects</td>
<td>At the pre, contractual, and execution stages</td>
<td>Only at the pre and contractual stages</td>
</tr>
<tr>
<td>2</td>
<td>Contracts execution</td>
<td>Require action from parties and/or third parties</td>
<td>Self-executed</td>
</tr>
<tr>
<td>3</td>
<td>Possibility of changing rights and obligations</td>
<td>Can be changed at any time as long as there is an agreement between parties</td>
<td>Cannot be changed since it was created in system based on blockchain technology</td>
</tr>
<tr>
<td>4</td>
<td>Intermediaries/third parties</td>
<td>Sometimes necessary</td>
<td>No longer needed</td>
</tr>
<tr>
<td>5</td>
<td>Electronic agent</td>
<td>Person</td>
<td>Software that runs on the blockchain platform</td>
</tr>
<tr>
<td>6</td>
<td>Security</td>
<td>Require electronic signature for authentication</td>
<td>Have high security and transparency because they work on a decentralized blockchain system</td>
</tr>
</tbody>
</table>

*Source: Prepared by the author, (2023).*

Indonesia applies the technological neutrality principle in regulating electronic transactions. This is performed to ensure that existing laws can anticipate technological advancements without waiting for the creation of new legal instruments in the future. Indonesia's choice of the technological neutrality principle can be found in Article 3 of Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE Law). The technological neutrality principle provides legal certainty to law enforcement agencies, eliminating hesitation in using the articles of the ITE Law to prosecute individuals in information technology crimes.

The above opinion can be applied to civil law in argumentum per analogiam. Therefore, all unlawful acts or defaults within the field of information technology, specifically concerning contracts law, can be subject to existing positive laws, including the Civil Code, the ITE Law, and other relevant regulations.

The regulations addressing Smart Contracts cannot be found in a single legal framework but can be identified across several pieces of legislation. This includes Civil Code, Law Number 11 of 2008 on ITE as amended by Law Number 19 of 2016 on Amendments to Law Number 11 of 2008 on ITE Law, and Law Number 27 of 2022 on Personal Data Protection (PDP Law).

Civil Code is a law that governs the general aspects of legal relationships among subjects in civil law, and in particular, Book 3 deals with engagements, such as agreements. Smart Contracts fall within the agreements and should also adhere to the provisions of the Civil Code, as summarized in Article 1319. Specifically, Smart Contracts are agreements made through digital media and should comply with the ITE Law. The identities of parties are regulated and protected under the PDP Law.
Several articles in the Civil Code are essential to be understood and discussed, given the recent development of various cases. This discussion focuses on four aspects, namely validity, form, legal relationship between parties in Smart Contracts, and the stages in the creation.

The crucial article in the Civil Code that deals with validity is Article 1320. This stipulates that an agreement is considered valid and gives rise to legal relationship among parties when the following four conditions are considered: 1) there should be an agreement, 2) parties should have legal capacity, 3) there should be a specific subject matter, and 4) the content of the agreement, from the title to the conclusion, should be lawful, without false, empty, or illegal provisions according to Indonesian regulations. For Smart Contracts as a variant of electronic contracts, the validity is also governed by Article 46(2) of Government Regulation Number 71 of 2019 on the Implementation of Electronic System and Transactions (PP PSTE). Article 46(2) of PP PSTE contains similar provisions to Article 1320 of the Civil Code but differs slightly in the second and fourth conditions. The second condition is expanded to state that an agreement is valid when executed by legal subject or an authorized representative. The fourth condition does not use the term lawful content and the transaction object should not contradict the laws and regulations, morality, and public order. According to this research, the change in the second condition is beneficial by widening the scope of contractual parties. However, the change in the fourth condition narrows the meaning because PP PSTE only focuses on the objects, which are covered by the third condition. The existence of these differences should not lead to controversy but be understood that the two validity conditions in Article 1320 of the Civil Code and Article 46(2) complement each other.

In the case of Traveloka Paylater in 2021 (https://finance.detik.com/moneter/d-5540365/viral-paylater-traveloka-bikin-skor-jelek-ini-kronologinya accessed on July 23 at 8:30 AM), there was fraud/falsification of the borrowers’ identities. According to Article 1320 of the Civil Code, the second condition related to legal capacity of parties was unfulfilled. Legal capacity can only be proven when the identities of parties are clear. Article 47(3) of PP PSTE asserted that electronic contracts were expected to contain the identity data of parties, and this also applied to Smart Contracts. Therefore, when there is any ambiguity or lack of clarity regarding the identities of parties, it leads to the invalidity of the agreement. In many electronic contracts conducted through Facebook, where the seller does not want their identity or address to be known, this violates the second condition. Based to Articles 1331 and 1346 of the Civil Code, the agreement can be canceled when the second condition is unfulfilled.

In the case of Shopee Paylater, which also occurred in 2021 (https://www.kompas.com/tren/read/2021/07/13/094050765/penjelasan-shopee-soal-tagihan-spaylater-yang-membengkak-dari-rp-400000 accessed on July 23 at 08:40 AM), the concept does not fulfill the fourth condition regarding the lawful content because the interest imposed on the agreement greatly exceeds the usual interest rates based on Article 1320 of the Civil Code. System used does not comply with other regulations, namely the ITE Law and the PDP Law when this happens due to system error. For agreements that do not fulfill the criteria for validity, the agreements can be canceled or even voided ab initio. In the absence of an agreement, there exists no legal relationship between parties, resulting in the absence of any associated rights and obligations. Furthermore, the absence of rights and obligations also implies the absence of the entitlement to demand performance from the other party.

Contracts law system differs from the United States, which recognizes anonymous click transactions. In this system, the second condition regarding the validity of agreements in the Civil Code and PP PSTE can be disregarded. To gain a deeper understanding of the strengths and weaknesses of contracts law system, a thorough discussion is necessary. Meanwhile, the positive law in Indonesia is as outlined above.

Smart Contracts using digital media have sparked a debate regarding their form. According to the Civil Code, the form of an agreement is essentially vrij or free according to
the will of parties. The freedom of form, as mentioned in the Civil Code, is elaborated on by doctrine, where the form of an agreement can be distinguished as written, unwritten/oral, and through gestures (body language) (Anjar SC Nugraheni et al., 2021). The existence of Smart Contracts using digital media is not covered by this doctrine, hence references from other sources should be conducted.

Article 11 of the United Nations Convention on Contracts for the International Sale of Goods (UN-CISG) stipulates that a sales contract is not obligated to be formed in writing or be evidenced in a specific manner. This article establishes that a sales contracts does not need to be made in writing or fulfill any specific form requirements. The existence can be proven through any means, including witnesses.

Article 6 of the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Electronic Commerce (1996) articulates two key provisions: (1) In cases where the law necessitates information to be documented in writing, this obligation is satisfied through the use of a data message, provided the information remains accessible and usable for subsequent reference. (2) The principle, as outlined in Paragraph (1), applies universally, even though the statutory requirement takes the form of an obligatory condition or pertains to legal consequences imposed due to non-compliance. This article establishes that when the law mandates information to be presented in written form, the prerequisite is duly met by the use of a data message, contingent on the accessibility and utility of the information for future reference. The provision holds regardless of whether the requirement takes the shape of a mandatory obligation or when the law merely prescribes penalties for failing to adhere to the written documentation criteria.

From these international sources, the formulation of contracts is consistent with the Civil Code, permitting a degree of autonomy. This implies that the form may manifest in written, unwritten/oral, or any other accessible format suitable for referencing in delineating the rights and obligations of parties within an agreement. Consequently, it is important to expand the doctrinal interpretation to include all facets, such as the integration of data messages.

To establish legal framework underpinning Smart Contracts, it is crucial to gain a comprehensive understanding of the substantive elements governed by the agreement. This is because Smart Contracts are electronic, and their divergence from conventional agreements lies primarily in the medium used, rather than the substance. A similar perspective is presented in Article 1(17) of the ITE Law, which defines electronic contracts as agreements forged by parties through electronic system. Furthermore, a congruent definition is also found in Article 1(24) of Law Number 7 of 2014 on Trade, stipulating that transactions conducted through a series of electronic devices and procedures constitute trade through electronic system.

Legal framework for agreements is found in the Civil Code, specifically in Article 1313. An agreement or contracts is defined as any act where one or more individuals intend to mutually bind themselves to one or more others. Contracts is not an action that can be unilaterally undertaken by a single party rather it becomes legally binding when parties actively engage in actions consistent with their respective interests. These activities establish a formal legal relationship among parties entering into contract. The conduct is regulated by Article 1234 of the Civil Code, including actions such as providing something, executing specific tasks, or refraining from particular activities. These three facets of an agreement are commonly referred to as "performance."

In the purview of the Civil Code, there exist two distinct legal constructs as in Articles 1315 to 1317, namely, two-party and three-party contracts. Article 1315 governs the framework for two-party contracts, while Articles 1316 and 1317 regulate three-party contracts. The term "party" in this context should not be misconstrued as an individual since a single party may comprise multiple individuals collectively participating in the agreement.
A two-party contract is made by and legally affects two parties typically referred to as the creditor and the debtor in the Civil Code. The creditor is the party with an obligation, while the debtor is the one receiving a right. Examples of contracts that only require two parties in their formation include grant, lease, exchange, as well as sale and purchase. In this case, a party can simultaneously be a debtor and a creditor when rights and obligations are gathered within the single party, including in a mutual exchange contract. In one-sided contracts, one party acts as the creditor while the other assumes the role of the debtor. This is because, in one-sided contracts, only one party has obligations, and the other has rights.

A three-party contract has a different legal construction compared to a two-party contract. Even though this contract is made by two parties, it has legal consequences for a third party. In the Civil Code, a three-party contract includes suretyship and insurance. Suretyship occurs when an individual, as a third party, willingly and legally binds themselves to the creditor, for the benefit of the debtor, and agrees to assume the obligations when there is a failure to fulfill the agreed performance. Meanwhile, insurance happens when two parties mutually promise, and the benefits of the agreement are given to a third party as the beneficiary.

Legal relationship of Smart Contracts is not limited to these legal constructions but can take the form of two-party and three-party contracts depending on the substance governed.

The stages of contracts can be divided into pre, execution, and post-contracts stages, as outlined by Van Dunne. Based on these stages, one advantage is the existence of the execution stage, referred to as self-executed. In this stage, the inclusion of parties or third parties is not necessary to execute contracts since execution occurs automatically. The pre and contractual stages still occur similarly to regular electronic contracts.

The provisions within the ITE Law applied to Smart Contracts include the stipulation that electronic information/documents accessible, verifiable for integrity, and accountable to describe a situation, are recognized as valid evidence (Article 6 of UU ITE). Smart Contracts between parties can be acknowledged and protected under Indonesian law with this article in place. The rights and obligations from these contracts can be pursued through litigation or alternative dispute resolution/arbitration (APS/arbitration), known as non-litigation. Meanwhile, electronic transaction providers should possess reliability certification (Articles 7-8 of UU ITE). Business actors suffering losses can also be sued with this reliability certification. Smart Contracts should be executed (signed in the form of a "click") by individuals with clear identities. This is consistent with the second condition for the validity of agreements, as regulated in Article 1320 of the Civil Code and Article 46 paragraph (2) of the PP PSTE. The provision firmly establishes that Indonesia does not recognize anonymous click transactions (Articles 9-12 of UU ITE). Other provisions state that parties in Smart Contracts have the choice of law and forum rights according to their agreement (Articles 17-18 of UU ITE). Parties can select the governing law for their contracts, provided the concept has a connection to foreign elements with the choice of law right. In addition, the choice of forum right or the freedom to select the dispute resolution venue allows parties to determine whether disputes from Smart Contracts is settled in court or through APS/arbitration. The choice of APS/arbitration can also be within Indonesia through the National Arbitration Board of Indonesia (BANI) or foreign APS/arbitration. Any party attempting to bring their case to court or the litigation route can be rejected because the court lacks jurisdiction when parties have agreed to use the non-litigation route.

The PDP Law regulates protection of personal data for all Indonesian citizens in general. This law is relevant to be examined since Smart Contracts in Indonesia should include clear identities. In transactions, the provisions in the PDP Law are the determination of personal data subjects, controllers, and processors. Individuals are afforded the fundamental right to access their data, which is overseen by the controller, as stipulated in Articles 7 to 9 of the UU PDP. The presence of the PDP Law necessitates that Smart Contracts drafters, designers, and
programmers carefully consider the privacy rights of parties, who are safeguarded as personal data subjects. Since Smart Contracts operate within blockchain system or distributed ledger technology, programmers must exercise caution in their design process, consistently ensuring adherence to legal requirements, protection of privacy rights, and the accessibility rights of personal data owners.

The use of distributed ledger system states that all participants within the network have visibility into the transactions, but are unable to discern the identities of parties included in these transactions. It is important to acknowledge that the regulations surrounding this aspect can differ for each Smart Contract. In cases of personal data breaches, the controller may be exposed to a range of consequences, including administrative, criminal, and civil penalties. The notion of personal data control is more intricate than in traditional electronic transactions. Consequently, it becomes crucial to define the roles and responsibilities of each party in the operation of these contracts.

Based on the description above, the provision of Smart Contracts within the Indonesian legal system can be derived from existing regulations, specifically based on Article 1338 of the Civil Code regarding the freedom of contracts principle, Article 3 of the ITE Law concerning the technology neutrality principle, and the privacy rights in the PDP Law. These regulations are fundamental and do not cover the entire scope, which is highly correlated with advanced technology. In the sense of providing a non-conflicting foundation for implementation, the existing regulations are adequate. For the execution of these contracts with the potential to generate conflicts, it is crucial to identify the role of an electronic system provider. Therefore, the widespread use of Smart Contracts in the Indonesian community is susceptible to legal loopholes exploited by parties with malicious intentions.

A better understanding of the principles of electronic contracts and PDP law should be understood by Smart Contracts drafter with this awareness. Given the nature of the open contracts law system for the development of countless agreements, regulating each contracts is difficult for the government. Therefore, it is better to rely on the principles of contracts and PDP law, specifically good faith, trust among parties, freedom of contracts, and privacy.

### 3.2 Legal Protection Of Parties In Smart Contracts In Indonesia

The term "legal protection" is related to formulations found in Dutch literature as "rechtsbescherming." According to the concept can be distinguished into two categories, namely preventive and repressive. After identifying the equivalence of these terms, some definitions provided by several legal experts are described as follows. Satjipto Rahardjo (2014) defined legal protection as provisions that provide shelter to human rights violated by others, ensuring the community can enjoy all the rights granted by the law. Meanwhile, Prakoso stated that legal protection includes the act of safeguarding the rights of individuals or groups who are physically, mentally, socially, economically, and politically disadvantaged, both preventively and repressively under applicable laws to achieve justice (Prakoso, 2016; Pujiyono et al., 2019).

A highly relevant theory regarding legal protection in the context of the current theme is presented by Moch. In this theory, legal protection is divided into internal and external categories. Internal legal protection consists of clauses or provisions within agreements created by parties or contracts drafter to offer protection. Meanwhile, external legal protection is protection provided by the government through regulations (Moch, 2016; Suwadi et al., 2022).

The effectiveness of external legal protection in a field allows for minimalistic internal legal protection to be incorporated into contractual documents. However, when external legal protection is weak, strong internal legal protection becomes essential as a preventive and protective measure against potential disputes (Khalid et al., 2023).
The relationship between external and internal legal protection can be likened to the relationship between statutory law and contracts based on the *naturalia* elements (as opposed to *essentialia* or *accidentalia* elements). The corresponding statutory provisions become irrelevant when parties include specific articles in their agreements. However, when parties do not include specific articles, the statutory provisions automatically apply to parties.

Based on the discussion in the previous subsection, the regulations related to Smart Contracts in the Indonesian legal system have been identified. These regulations constitute external legal protection for Smart Contracts in Indonesia. Furthermore, internal legal protection depends on the programming of these contracts. During their creation, it is essential to include programmers and seek guidance from contracts law experts. In response to rapid technological advancement, it is advisable to build smart businesses with actors and consumers. External protection only serves as a framework, while the internal protection provided within contracts should be highly functional.

### 4 CONCLUSION

In conclusion, the application of contracts law, technological neutrality, and privacy principles in Indonesian regulations related to the proliferation of technology-based contracts was adequate. The synergy between contracts law principles and the provisions found in the Civil Code, ITE Law, PDP Law, and organic regulations served as legal foundation for the execution of Smart Contracts in Indonesia. Legal protection for parties included in the execution of Smart Contracts should focus more on internal ones. External legal protection was unsuitable for new and standardized agreements like Smart Contracts. However, the identification of parties roles, as outlined in the ITE Law and PDP Law, should be clarified. Legal disputes in contracts-related domains frequently arose in after contracts execution throughout history. Therefore, the use of blockchain technology in the development of Smart Contracts, which were self-executing in nature reduced the likelihood of legal disputes.

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