Al-Ilm Vol.7. No.1. 2025 p-ISSN 2685-175XI
Jurnal Pendidikan dan Hukum e-ISSN 2797-3204

Legality Of *Smart Contract* In The Indonesian Civil Legal System: A Literature Study

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ABSTRACT

Blockchain and smart technology Smart contracts bring significant changes to digital economic transactions, but they pose challenges in terms of legality and evidence in the Indonesian civil law system. This study aims to analyze the legality of smart contracts. contracts based on the valid terms of agreements in the Civil Code and evaluate the rigor and challenges of proving such automated contracts in court. The research method used a literature review with a qualitative approach, examining national regulations related to electronic documents and digital contracts, as well as international literature and academic articles as data sources. The results show that smart A contract can formally be categorized as a valid electronic contract, but its immutability makes it difficult to change or cancel the contract, thus creating the risk of disputes. In addition, smart proof contracts in court face obstacles in proving the intent and agreement of the parties, as well as determining the responsibilities of the parties involved, especially in the context of decentralized blockchain platforms . This study concludes that the legality of smart contracts in court is Contracts in Indonesia require adaptive legal interpretation, comprehensive digital evidence guidelines, and regulatory harmonization to support the recognition of automated contracts as a legitimate and secure transaction tool in the digital economy ecosystem.

Say key: *Legality , Smart Contract, Civil Law , Literature Review*

INTRODUCTION

Development blockchain technology and contracts automatic (*smart contract*) becomes the more important in ecosystem digital economy . Smart contracts are used in transaction asset crypto , *decentralized finance* (DeFi), trading electronics , as well as automation transaction business . Development This demand existence clarity about legality and nature tie from smart contract in system Indonesian law , considering the more Lots transaction business being run in a way automatic without manual intervention (Nick Szabo, 1997). In context law civil , a contract considered legitimate if fulfil element Article 1320 of the Civil Code , namely agreement , skill , a matter certain , and halal (Don Tapscott, 2016) *causes* . However , smart contracts, which are essentially operate in a way autonomous and automatic based on recorded instructions in code source computer , causing a number of question about whether this digital contract in a way valid and correct can considered as agreement that can recognized according to the laws in force in Indonesia. Moreover , the argument main in question certain is how smart contracts work in practice can and must implemented in environment a very dynamic and continuously growing modern business changed fast (Imam, 2021).

Study previously has discuss various smart contract aspects , including aspect contractual and challenges interpretation law (Warbach, 2017), perspective law civil general related agreement electronic (Raharjo, 2020), recognition sign hand electronics and documents electronic based on the ITE Law and the PSTE PP (Pratama, 2019), as well as strength tie transaction electronic in Indonesian legislation (Ismail, 2021). Although Thus , the study comprehensive literature about legality of smart contracts in system law Indonesian civil law still limited . Although a number of study state that smart contracts can categorized as contract

electronic without obstacle law , literature international show existence a number of problematic , such as difficulty proof , ambiguity the party holding the event contract , problem disability will , and difficulty modification or cancellation the contract that has been executed (Primavera, 2018).

Condition This confirm the need understanding theoretical regarding smart contracts in context law civil and legal cyber . From the perspective theory development digital economy , smart contracts emerge For increase efficiency , transparency , and accountability transaction electronic through mechanism automatic (*trustless execution*). However , the elements agreement and *cause* as arranged in the Civil Code Article 1320 demands existence proof that the parties understand and agree content contract , while execution automatic can limit interaction mentioned . Besides that , theory contract electronics and law cyber emphasize legality document electronics and signs digital hand (UU ITE, PP PSTE), although the nature of smart contracts that are not can immutability gives rise *to* challenge proof and interpretation law .

The legality of smart contracts must also be seen from perspective digital evidence . The ITE Law provides base law confession document electronic as tool valid evidence , but implementation automatic cause question about responsible party answer , risk error code , and compliance to condition legitimate contract (Unidroit, 2022). With combine perspective law civil law cyber , and comparison law international , research This try fill in gap literature regarding the legal status of smart contracts in Indonesian context , at the same time give guide practical for perpetrator business and maker policy .

Objective study This is analyze legality of smart contracts in perspective law Indonesian civil law , assesses smart contract compliance with condition legitimate agreement Article 1320 of the Civil Code , examines strength proof digital contracts , as well as identify gap regulation and provide recommendation strengthening . Research This use method study literature with study regulations national (ITE Law, Civil Code , PP PSTE), literature international , articles academic , as well as document organization international such as UNIDROIT, OECD, and UNCITRAL. The results of the study expected can strengthen understanding law regarding smart contracts, as well become base development relevant regulations with need modern digital economy .

RESEARCH METHODS

Study This use method study literature **(** *literature review* **)** For analyze legality of smart contracts in perspective law Indonesian civil law . Approach This chosen Because study focus on analysis theory , regulation , and research previously related digital contracts , so that allows researchers compile synthesis findings and recommendations law based on various source academic and regulatory . The data used nature secondary , including regulations national such as the Civil Code (Articles 1313–1320), the ITE Law and PP PSTE, literature academic national and international , as well as document organization international such as UNIDROIT, OECD, and UNCITRAL which discuss contract electronics and digital assets .

Data collected through search electronically in relevant journal , article and book databases , then identified and selected based on theme main research , namely legality of smart contracts, validity contract , agreement electronics , *causation* , and proof . Selected literature is relevant with system Indonesian law and discuss practice international , so that can give description comprehensive about position good smart contract law in a way national both global and international.

Data analysis was performed use thematic analysis , with steps grouping literature based on theme main , comparison perspective Indonesian law and practice international (*comparative analysis*), as well as synthesis findings For answer question research . Validity guarded with use

peer-reviewed and official sources , whereas reliability of data analyzed through cross-checking between source **.** With method this research capable give analysis systematic about legality of smart contracts in Indonesia and provide recommendation for development regulations and practices law digital contracts .

RESULTS AND DISCUSSION

Smart Concept and Characteristics Contract

Smart contracts are executed digital contracts in a way automatic through code computers on the blockchain network . The concept This first introduced by Szabo (1997) as method For "formalizing and securing relationships on public networks", so transaction can walk without intermediary . In Tapscott & Tapscott (2016) emphasizes that blockchain allows contract walk in a way *trustless* , meaning implementation agreement based on code , not trust to party other (Tapscott, 2016). In context digital economy , smart contracts are used in asset crypto, *decentralized finance* (DeFi), trading electronics , as well as automation business , so that demand clarity law regarding contract status and responsibilities answer the parties.

Characteristics The main smart contract is automation , no can changed after executed (*immutability*), as well high transparency and security via blockchain. However , the characteristics This cause question about its suitability with condition legitimate agreement in the Civil Code Article 1320 , namely agreement of the parties , competence law , object certain , and lawful causes (*causa*) (Samuelson, 2019). The agreement represented code computer cause challenge for law civil , because awareness and consent of the parties No always can verified in a way explicit .

Smart Legality Contract in Indonesian Civil Law

Civil Code arrange condition legitimacy agreement through Article 1320, which emphasizes four element main : agreement , skill , object certain , and lawful *causes* . *Smart contracts* challenge interpretation element agreement Because implementation contract done in a way automatic without verbal communication or written between party. Besides that , *cause* contract Possible No looks in a way direct in code , so that court must evaluate the intentions and objectives of the parties through interpretation law.

The ITE Law and the PSTE PP provide base law for contract electronics , including documents and signs hand electronics . With Thus , smart contracts can categorized as contract legitimate electronics formally . However , the nature of *immutability* contract cause difficulty in cancellation or modification contract if happen error , defect will , or mismatch purpose . This is show that formal recognition of digital contracts is not always ensure suitability with condition legitimate contract in the Civil Code , so that required regulations addition or interpretation adaptive law .

In law Indonesian civil law , a agreement considered legitimate if fulfil the conditions set Article 1320 of the Civil Code , namely : agreement of the parties , capacity law of the parties , objects certain , and lawful causes (*causa*). Smart contracts give rise to challenge to element agreement Because implementation contract done in a way automatically by code computer without verbal interaction or document written in a way directly . The only agreement expressed

through code cause question whether digital contracts can recognized equivalent with contract signed traditional manually .

Besides that , element *cause* also becomes problematic Because objective contract sometimes hidden in logic code , so that court need interpret the intent and purpose of the parties For ensure contract No contradictory with law . Disability will (*vitiated consent*), such as error in writing code or ambiguity approval , can cause dispute about legitimacy contract . This is show that although contract executed automatic , court still must consider the intentions and objectives of the parties For evaluate its validity .

From the side regulations Electronics , Law No. 11 of 2008 in conjunction with Law No. 19 of 2016 (*ITE Law*) and Government Regulation No. 71 of 2019 (*PP PSTE*) provide base law for confession document electronic and signs hand electronic as tool valid evidence . With base this , smart contract can categorized as contract legitimate electronics formally . However , the nature of *immutability* smart contracts create cancellation or modification contract become difficult done If happen error code or mismatch different goals with contract electronic traditional that still allows change based on agreement of the parties .

Challenge main other is proof in court . Smart contracts require mechanism For determine responsible party answer if happen error execution , assessment suitability contract with element legitimate agreement , and complete dispute . Use document supporting documents , transaction logs , and other digital evidence as tool proof additional . This is show that formal recognition of the contract electronic No enough ; digital contracts must be equipped guidelines implementation so that the court can evaluate its validity in a way accurate .

From the perspective comparison internationally , several countries have adopt principle law digital contracts that recognize smart contracts as contract legal , for example in the European Union , the United Kingdom , and the United States . Indonesia can adopt practice best This with still adapt the Civil Code and the ITE Law, so that smart contracts can recognized legitimate in a way law , safe For transaction digital economy , and remains in harmony with principles contract civil traditional . With Thus , the legality of smart contracts in Indonesia is open For formal recognition , however need interpretation law adaptive , guidelines proof , and harmonization regulation.

Rigidity and Challenges of Smart Proofing Contract

Smart contracts have characteristics main in the form of immutability , namely contracts that have been executed in a way automatically by code on the blockchain no can changed or canceled with easy . This nature give certainty law and security in implementation contract , because remove risk manipulation and delay execution contract by one of the parties . However , the rigidity this also gives rise to constraint if happen error in the code (*coding error*) or mismatch between content contract with implementation actual . Different with contract traditional or contract electronics that can modified or canceled on agreement of the parties , smart contracts do not provide internal mechanisms for do correct or cancellation in a way directly . This is cause potential risk dispute difficult law completed If No supported by mechanisms adequate legal and technical .

Although Constitution Information and Transactions Electronic (ITE Law) and Regulations Government Number 71 of 2019 acknowledges document electronics and signs hand

electronic as tool valid proof , smart contract presents challenge new in context proof in court . Smart contract running in a way automatic based on code executed by the system without interaction man directly , so that difficult For prove intention and agreement of the parties in a way conventional . Determination truth content contract , suitability with condition legitimate agreement , and identification binding party contract become problematic Because execution contract No depending on the document physique or statement explicit . Therefore that , the court must depend on digital evidence in the form of transaction logs , blockchain metadata, and records code that requires skill technical For analyzed and validated .

Smart contracts often run on blockchain platforms that are decentralization , involving Lots party like developer code , user end , and provider infrastructure technology . This is cause complexity in determine who is responsible answer if happen failure implementation contract or loss consequence error code . Is not quite enough answer lies with the maker contract (developer), user who activates contract , or blockchain platform provider ? System Indonesian law has not own provision explicit about distribution not quite enough answer kind of this , so that difficult For demand responsible party answer in smart contract (Fillipi, 2018) disputes . Condition This demand development regulations new clear and mechanism settlement dispute special For transaction smart contract based .

For overcome rigidity and challenges proof mentioned , some organization international and academic recommend development mechanism comprehensive digital evidence **,** including use proof supporters such as contract metadata , records activity transactions on the blockchain, as well as documentation communication related electronics with contract . UNIDROIT (2022) proposed guidelines For support validation of smart contracts in the judicial process , so that court can verify truth and validity contract in a way effective and efficient . Besides that , training for apparatus justice and harmonization regulations national with principle international become it is important that the system law can adapt self with technology contract automatic This . With mechanism said , smart contracts can integrated in a way safe and recognized in a way legitimate in system Indonesian law , encourages development transparent and trusted digital economy .

Legal Implications and Regulatory Recommendations

The legality of smart contracts provides implications significant for perpetrator business and maker policy . In practically , digital contracts speed up transactions , lowering cost intermediaries , and improve transparency . However , from perspective law , still there is gap regulations related validity contract , responsibility answer parties and mechanisms settlement dispute . Therefore that , it is necessary :

1. Guidelines interpretation law about element agreement and *cause* in smart contracts.
2. Mechanism clear digital evidence , including procedure court in dispute contract automatic .
3. Harmonization regulations national with principle international such as UNIDROIT and UNCITRAL for practice digital contracts .

With steps said , smart contracts can functioning in a way legitimate in system law Indonesian civil law , as well as support development efficient and secure digital economy . Research This confirm that formal recognition of the contract electronic must accompanied by

with guide clear implementation , so that digital contracts do not cause uncertainty law in the future .

CONCLUSION

Smart contract as innovation technology in digital transactions have increasing legality recognized in system law Indonesian civil law , especially based on provisions of the Civil Code and the Law on document electronics . However , the nature of the rigidity of smart contracts is not can changed after executed cause challenge big , especially in matter cancellation and modification contract If happen error . Besides that , proof in court become complex Because difficult prove the intention and agreement of the parties as well as determine responsible party answer in decentralized blockchain ecosystem . Therefore that , the implementation of smart contracts is necessary supported with adaptive regulation and mechanisms adequate digital evidence to be able to walk effective and safe .

In order to support more optimal implementation of smart contracts , the government need formulate regulations specifically regulating legal aspects and resolution smart contract disputes . The judiciary must also given training technical and legal related to smart contracts so that they can handle dispute with right . Besides that , developers and actors business recommended equip smart contracts with proof strong support and audit system for facilitate the process of proof . Research continuation is also important done use study implementation of smart contracts in various sectors and seek the most appropriate regulatory model with context Indonesian law .

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