The Challenges of The Implementation of Smart Contracts Related to Consumer Protection in Electronic Transactions

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Abstract
Smart contracts, which are computer code protocols that leverage digital contracts in the blockchain network. Smart contracts can make transactions not easy to change, more permanent, not easily damaged, more efficient, faster, and more secure because everything is recorded in the blockchain system. However, smart contracts are not without challenges. This study uses a normative juridical approach by analyzing secondary legal materials complemented by relevant primary legal materials. Challenges related to smart contracts in consumer protection, namely programming codes, may not guarantee representation of the parties, the inability of smart contracts (to date) to provide flexibility in contractual frameworks, and complex programming languages for parties unfamiliar with coding. In addition, the parties involved in the transaction and do not have a coding background, of course, do not easily interpret smart contracts. In the end, regulation is essential to protect users, ensure the security and rights of the parties, so that this technology does not disrupt particular markets, but on the other hand, too much regulation will hinder innovation.

I. Introduction

Consumers are every user of goods or services, both for their own interests, families, others and other living creatures and not for trading. While consumer protection is a legal instrument created to protect and fulfill consumer rights as stipulated in Law Number 8 of 1999.[1] The United Nations issued Resolution

[1] Article 4 paragraph 8 of Law Number 8 of 1999 states that "The right to obtain compensation, compensation and/or replacement if the goods and/services received are not in accordance with the agreement or not as it should."

No.39/248 of 1985 related to consumer protection, which contains: 1) Providing protection to consumers from the impact of hazards on health and safety; 2) promotion and protection of the importance of consumer socioeconomic; 3) Availability of adequate information to consumers to provide their ability to choose the right choice and in accordance with their wishes and needs; 4) consumer education; 5) Effectively compensated losses; 6) Free in forming consumer associations.[2] Protection to consumers is seen as very important because consumers occupy a weaker position than the position of business actors, moreover at this time with the rapid development of technology.

The development of technology and the principle of freedom of contracting[3] is the cause of the emergence of various electronic agreements, including the presence of Smart Contract Blockchain. Smart contract is divided into 5 (five) namely Basic Token Contract, Crowd Sale Contract, Mintable Contract, Refundable Contract, and Terminable Contract. Of the five forms of smart contract, the first four forms are commonly used in buying and selling cryptocurrencies. While terminable contracts are used for blockchain systems in buying and selling online goods and the execution of the blockchain program in financial services.[4] Most of the legal analysis related to smart contracts is currently centered on contract law.[5] Such analysis is narrow because it only focuses on the use of computer codes to articulate, verify, and carry out agreements between the parties.[6] Whereas technological developments have

[2] Erman Rajagukguk, 2000, *Pentingnya Hukum Perlindungan Konsumen dalam Era Perdagangan Bebas*, dalam Erman Rajagukguk, dkk, *Hukum Perlindungan Konsumen*, Cetakan l, Bandung, Mandar Maju.

[3] The law gives the freedom to the parties to 1) make or not make an agreement; 2). Enter into an agreement with anyone; 3). Determine the content, implementation and terms of the agreement; 4). Determine the form of the agreement (HS, Salim, 2011, *Hukum Kontrak, Teori dan Penyusunan Kontrak*, Jakarta, Penerbit Sinar Grafika).

[4] Reggie O'Shields, 2017, *Smart Contract: Legal Agreements for the Blockchain*, Cambridge University Press.

[5] Chamber of Digital Commerce, *Smart Contracts Alliance, Smart Contracts: 12 Use Cases for Business & Beyond 40,* (2016), https://digitalchamber.org/wpcontent/uploads/2018/02/Smart-Contracts-12-Use-Cases-for-Business-and-Beyond_Chamber-of-Digital-Commerce.pdf or *Contract Law 2.0: Smart Contracts as the Beginning of the End of Classic Contract Law,* (14 Desember 2016), Higher School of Economics Research Paper No. WP BRP 71/LAW/2016, https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2885241; Raskin, Max, *The Law and Legality of Smart Contracts*, (2017), 1 GEO. Law Technology Review 305; Karen Levy, *Book-Smart, Not Street-Smart: Blockchain-Based Smart Contracts and the Social Workings of Law*, (2017), 3 Engaging Science, Technology and Society 1; Jeremy M. Sklaroff, *Smart Contracts and the Cost of Inflexibility*, 166 U, (2017), PA. Law Reiew, 263.

[6] Josh Stark, *How Close Are Smart Contracts to Impacting Real-World Law?* Coindesk, (2016), http://www.coindesk.com/blockchain-smarts-contracts-real-world-law/, diakses pada tanggal 15 Maret 2022.

increased electronic trade transactions,[7] and certainly making problems related to electronic contracts have become increasingly broad and diverse.[8]

Based on legal analysis, the problem that is often submitted to the court is first, related to click-wrap, shrink-wrap and browse-wrap.[9] Consumers on the type of contract cannot bargain, and have no choice but to click the "I agree" button,[10] or only by registering and giving OTP have been considered sufficient approval.[11] Studies from 2003-2010, show that agreement with Klik has become an increasingly acceptable norm, although on the side of the consumer, it is increasingly less profitable.[12] On the other hand, the court has allowed the application of clickwrap contracts and browsers in the name of efficiency, and consumers will be considered guilty when not reading contracts that can harm it with the heart -heart.[13]

Second, problems related to privacy, namely consumers usually when agreeing to the requirements, do not read the clause carefully so that unconsciously has submitted his personal data to the seller, so the seller has access to contact, location, search history, even access to photos of consumers,[14] things This can pose a risk of phishing for that information.[15] Third, related to fraud and the issue of trust,[16] although such as agreed upon, it could be that there is still a sense of disbelief or anxiety related to the goods sent not on time, doubts about the suitability of the goods and disability of the goods. The confidence deficit can get worse when dealing with international online transactions where the parties only provide an agreement online.[17]

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[7] Indah Parmitasari, 2021, *Penerapan Asas Perjanjian pada Kontrak Elektronik,* Prosiding Seminar Nasional Hukum Perdata, Yogyakarta, UII Press, hlm. 123

[8] J Davis, Nathan, 2007, *Presumed Assent: The Judicial Acceptance of Clickwrap*, 22 Berkeley Technology Law Journal 577.

[9] Chamber of Digital Commerce, *Smart Contracts Alliance, Smart Contracts: 12 Use Cases for Business & Beyond 40*, (2016), https://digitalchamber.org/wpcontent/uploads/2018/02/Smart-Contracts-12-Use-Cases-for-Business-and-Beyond_Chamber-of-Digital-Commerce.pdf, diakses pada tanggal 11 November 2021.

[10] Fairfield, Joshua A.T, 2014, *Smart Contracts, Bitcoin Bots, and Consumer Protection*, Washington & Lee Law Review, https://scholarlycommons.law.wlu.edu/wlulr-online/vol71/iss2/3, n 4), hlm.36, diakses pada tanggal 14 Februari 2022

[11] Trilegal, September 2017, *Electronic Signatures in India*, diakses pada tanggal 8 April 2022.

[12] J Davis, Nathan, *Op.Cit.*

[13] Zaslowsky, David, *What to Expect When Litigating Smart Contract Disputes*, Law360, (Apr. 4, 2018), 5:11 PM, https://www.law360.com/articles/1028009/what-to-expect-when-litigating-smart-contract-disputes, diakses pada tanggal 15 Januari 2022

[14] Metzger, Miriam J, 2004, *Privacy, Trust, and Disclosure: Exploring Barriers to Electronic Commerce*, Journal of Computer Mediated Communication.

[15] Megaw, Gregory, 2010, Phishing Within E-Commerce: Reducing the Risk, Increasing the Trust, http://vital.seals.ac.za:8080/vital/access/manager/Repository/vital:11131?site_name=GlobalView&view=null&f0=sm_creator%3A%22Megaw%2C+Gregory+M%22&sort=null diakses pada tanggal 14 April 2022.

[16] Bacon, Nigel Brook & George Bazinas, *Smart Contracts: Where Law Meets Technology*, CLYDE&CO, (June 22, 2006), http://www.clydeco.com/insight/article/smart-contracts-where-law-meetstechnology, diakses pada tanggal 21 April 2022.

[17] Metzger, Miriam J, *Ibid.*

Basically, the use of the internet makes it easier for electronic transactions, but that does not mean it is safe from problems.[18] To overcome the problems above, the Indonesian government issued Law Number 19 of 2016 concerning Information and Electronic Transactions. In addition, there is an arrangement regarding electronic contracts as stipulated in Article 1 number 17, Law Number 19 of 2016.[19] Electronic Contract is an agreement of the parties made through an electronic system if you look at the definition of an electronic contract, then the smart contract in Indonesian law can be categorized as an electronic contract because it is formed through an electronic system.

Even so, there are also those who assume that smart contracts are different from ordinary electronic contracts, although both in computer networks, because the smart contract agreement clauses are in the form of programming codes and based blockchains that are distributed, automatically designed,[20] self-executed,[21] and immutable (not can be changed the clause).[22] Smart contract can be accepted as long as it meets the arrangements in Articles 1320 and 1338 of the Civil Code. In addition, smart contracts are recognized for its use in Indonesia because the ITE Law uses the neutral principle of technology where the use of information technology and electronic transactions is not focused on certain technology, so there is freedom to adapt to the times to use any technology flexibly.[23]

In more detail, the government also regulates the validity of electronic contracts as in Article 47 paragraph (2) of Government Regulation Number 82 of 2012,[24] and regulates matters that must be published as Article 48 paragraph (3) Government Regulation Number 82 of 2012 concerning Implementation of the System and electronic transactions that must at least contain the following matters: a. the identity data of the parties; b. objects and specifications; c. Electronic Transaction Requirements; d. price and cost; e. Procedure in the event that there is a cancellation by the parties; f. Provisions that give rights to the disadvantaged party to be able to return the goods and/or ask for product replacement if there is a hidden defect; and g. The legal choice of electronic

[18] Khairandy, Ridwan, 2013, *Hukum Kontrak Indonesia dalam Perspektif Perbandingan*, Jogjakarta, FH UII Press, hlm 317-318.

[19] In the provisions of Article 1 number 2 regulates information and electronic transactions, is a legal act carried out using computers or other electronic media (Makarim, Edmon, 2004, *Kompilasi Hukum Telematik*, Jakarta, PT Raja Grafindo, hlm. 20).

[20] Raskin, Max, 2017, *The Law and Legality of Smart Contracts*, Geogetown Law Technology Review, vol. 304, hlm. 306.

[21] Marcello, Corrales dkk, 2019, *Legal Tech, Smart Contract and Blockchain*, Singapore, Springer, hlm. 20.

[22] Oktaviani, Sabrina, 2021, *Implementasi Smart Contract pada Teknologi Blockchain dalam Kaitannya dengan Notris sebagai Pejabat Umum,* Jurnal Kertha Semaya, vol.9, no. 11, hlm. 2210-2211.

[23] Pasal 3 UU ITE Nomor 19 Tahun 2016 jo UU No. 11 tahun 2008.

[24] Article 47 paragraph (2) of Government Regulation Number 82 of 2012 concerning Implementation of Electronic Systems and Transactions is considered valid if: a. there is an agreement of the parties; b. carried out by capable or authorized legal subjects representing in accordance with statutory provisions; c. there are certain things; and D. Transaction objects must not conflict with laws and regulations, decency, and public order.

transaction settlement,[25] so that when you are going to use Smart Contract in transactions it should be adjusted to the rules related to the implementation of the system and electronic transactions.

Online consumer contracts are also inseparable from the imbalance between parties, so it is necessary to arrange regulations by the state to minimize the gaps.[26] According to Joshua a.t. Fairfield, the Trustless Public Ledger (TPL) system can be a solution to the imbalance of traditional contracts. TPL is an online list (not managed by anyone and is available to everyone), and is formed through a consensus protocol,[27] so consumers do not need to worry about whom the contract will be made.[28]

2. Research Method

The problems in buying and selling transactions in E-Commerce that cannot be resolved using various legal instruments. Therefore, offering a solution mechanism described in the discussions to answer the a quo problem in the form of Smart Contract implementation along with a juridical review that supports constructive arguments

3. Results and Discussion

The application of Smart Contract is considered to have a positive impact because it can provide more benefits, ease and protection to consumers. Online buying and selling transactions made through the Smart Contract system are considered more efficient (reducing risks related to human participation),[29] cheaper (eliminating intermediaries), faster, more reliable and safer[30] because all transactions are recorded and stored through an immutable blockchain system.

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[25] Article 48 paragraph (3) of Government Regulation Number 82 of 2012 concerning Implementation of Systems and Electronic Transactions.

[26] Hondius, Ewoud, 2004, *The Protection of the Weak Party in a Harmonised European Contract Law: A Synthesis*, Journal of Consumer Policy, hlm. 245–251, http://10.1023/B:COPO.0000040520.48379.60, diakses pada tanggal 14 Desember 2021.

[27] Sheridan, Barrett, *Bitcoins: Currency of the Geeks*, (June 16, 2011), Bloomberg Businessweek, http://www.businessweek.com/magazine/ content/11_26/b4234041554873.htm/, diakses pada tanggal 19 Desember 2021.

[28] Fairfield, Joshua A.T, 2014, *Smart Contracts, Bitcoin Bots, and Consumer Protection*, Washington & Lee Law Review, https://scholarlycommons.law.wlu.edu/wlulr-online/vol71/iss2/3, n 4), hlm.45, diakses pada tanggal 14 Februari 2022.

[29] Sherborne, A, *Blockchain, Smart Contracts and Lawyers*, International Bar Association, (2017), https://www.ibanet.org/Document/Default. aspx?DocumentUid=17badeaa-072a-403b-b63c-8fbd985d198b, diakses pada tanggal 28 Februari 2022

[30] Supported by asymmetrical cryptographic codes through the Public Key and Private Key system, where the private key is only known by the signing because it is unique and very personal. . (Wibowo, Satriyo, *Membangun Identitas Digital Indonesia*, https://tte.kominfo.go.id/blog/5db508f4e2467517f4493afa, diakses pada tanggal 12 Oktober 2021).

For example, related to compensation for delayed flights,[31] where there is no need for human intervention and complicated legal interpretation, in addition, the execution of the contract can be carried out instantly. When the airline website shows flight delay information, compensation is immediately transferred to consumers, both in Bitcoin, or to the bank account of consumers who are linked through payment applications such as GooglePay, and concepts like this have been applied by giant insurance such as AXA.[32]

In buying and selling transactions, when consumers receive defective goods, or there are delayed shipments, the programming code in the Smart Contract will be triggered, and consumers will immediately receive a refund, or compensation. However, when the goods purchased have reached consumers, the system will automatically disburse funds, accompanied by proof of reporting. Funds will move in a very fast tempo, as promised by the seller and buyer.[33]

On the other hand, consumers can also communicate directly and enter data on smart contracts,[34] so as to reduce the possibility of evil behavior such as fraud and significantly reduce long settlement time.[35] Smart Contract also helps reduce transaction costs, complete contract faster, and help increase legal certainty in business transactions based on its damaged character (Tamper-Proof), time-time (time-stamp), and cannot be changed (immutable). Therefore, the presence of Smart Contracts is considered to be able to provide new options that strengthen trade relations.[36] Another advantage is that consumers can transact in the financial sector without the need for banks, and without a court[37] (where in the court requires complicated proof and procedural rule) so that it results in a decrease in law enforcement costs and litigation of consumer rights.[38]

However, considering that smart contracts that are still relatively new can certainly lead to new probability related to challenges in the legal landscape.

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[31] Buchleitner, C dan T Rabl, 2017, *Blockchain und Smart Contracts*, Ecolex 4, hlm. 7.

[32] Zheng, Zibin and others, *An Overview on Smart Contracts: Challenges, Advances and Platforms*, (2020) 105 Future Generation Computer Systems, https://www.sciencedirect.com/science/article/abs/pii/S0167739X19316280, diakses pada tanggal 26 Februari 2022, hlm. 475, 486.

[33] Muhammad, Dzulfikar, *Karakteristik Perjanjian Jual Beli dengan Smart Contract dalam E-Commerce*, Jurist-Diction, vol.2, no.5 (September 2019), hlm. 1662.

[34] Tjin, Tjong Tai, *Force Majeure and Excuses in Smart Contracts*, (2018) Tilburg Private Law Working Paper No. 10/2018, 4 diakses pada tanggal 10 Februari 2022.

[35] Zheng, Zibin and others, *Op.Cit*., hlm. 476.

[36] Borgogno, Oscar, *Usefulness and Dangers of Smart Contracts in Consumer Transactions* yang berada dalam Larry A Di Matteo, Michel Cannarsa and Cristina Poncibò (eds), 2019, *The Cambridge Handbook of Smart Contracts, Blockchain Technology and Digital Platforms,* Cambridge University Press, hlm. 288.

[37] David Morris, *Bitcoin Is Not Just Digital Currency. It's Napster for Finance*., Fortune (Jan. 21, 2014), http://fortune.com/2014/01/21/bitcoin-is-notjust-digital-currency-its-napster-for-finance, diakses pada tanggal 10 Maret 2022.

[38] Hsiao, I-H, 2017, *Smart Contract on the Blockchain-Paradigm Shift for Contract Law*, 14 US-China Law Review (n 66), hlm. 687.

Many questions that arise related to Smart Contract. For example, first, related to a legal system that can support smart contracts. What kind of question arises in the legal system has recognized approval through electronic facilities, digital signatures, or application -based agreements? Second, who compiled and how is the procedure for preparing a smart contract? Will the companies and commercial entities be given full access to design smart contracts (so that the resulting contract is unbalanced due to differences in bargaining positions)? Third, can Smart Contract be tested, or can it be modified? Or can one party unilaterally change such contracts?[39] Fourth, can the key to encrypting smart contracts can be categorized as the signature of the parties?[40] And of course there are many other questions, therefore to answer related to the challenges of implementing the regulation and use of Smart Contracts

4. Conclusion

The development of technology and the principle of freedom of contracting is the cause of the emergence of Smart Contract Blockchain. Smart contract that contains the agreement of the parties can be applied while fulfilling articles 1320 and 1338 of the Civil Code. The application of Smart Contract is also considered to have a positive impact because it can provide more benefits, ease and protection to consumers. Online buying and selling transactions made through the Smart Contract system are considered more efficient, cheaper, faster, more reliable and safer because all transactions are recorded and stored through an immutable blockchain system. The new smart contract can lead to challenges in the legal landscape of consumer protection in electronic transactions such as the first, it is not possible for consumers to withdraw from the contract after the contract is carried out effectively given the immutable smart contract nature.

Second, consumers are called more vulnerable to the terms and conditions encoded in the Smart Contract that can be made unfairly; Third, the parties involved in the transaction and do not have a coding background, certainly do not easily interpret smart contracts; Fourth, the smart contract requirements will most likely be considered an unfair court and not good in faith, because the contract execution is carried out automatically, and may be without taking adequate steps with a proper notice to consumers. In the Civil Code it is given freedom in contracting. However, if there is a unilateral execution or contract transfer, this will definitely cause problems for one of the parties.

[39] Tjong, TFE Tjin Tai, *Smart contracts En Het Recht* (2017) 93 Nederlands Juristenblad, hlm. 176, 177

[40] Zaslowsky, David, *What to Expect When Litigating Smart Contract Disputes*, Law360 (Apr. 4, 2018, 5:11 PM), https://www.law360.com/articles/1028009/what-to-expect-when-litigating-smart-contract-disputes, diakses pada tanggal 15 Januari 2022.

Fifth, the inability of Smart Contract (to date) to provide flexibility to the contractual frame; Sixth, only consumer rights do not depend on the term ambiguous or abstract that can be translated into the code; Seventh, it is difficult to enter the clause related to force majeur or hardship, because it could be an incorrect assessment of decisions produced by the automatic system, eighth; Smart contract is difficult to program the procedures and coding of contextualization in order to slip new interpretations in the contract because computer language is only regulated to be able to facilitate one meaning and does not open opportunities for differences of interpretation/multi-interpretation; Ninth, traditional litigation is considered difficult to resolve in the event of a dispute in the Smart Contract.

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