Technology and the Evolution of Civil Law: Implications of Cryptocurrency Transaction Regulation

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Abstract
This research investigates the regulatory implications of cryptocurrency transactions in the context of the evolution of civil law that includes consumer protection, prevention of illegal activities, and maintenance of financial market integrity. The background of the research refers to the economic paradigm shift towards digital assets such as cryptocurrencies, which has changed the global financial transaction landscape. This research method involves a combined approach between civil law analysis, literature study on blockchain technology, and review of the latest regulations related to cryptocurrencies in Indonesia. The results show that the evolution of technology in the form of cryptocurrencies has presented new challenges to conventional civil law. The unclear legal status of cryptocurrencies, security risks, and potential illegal use are major concerns. The regulatory implications on cryptocurrency transactions in Indonesia illustrate the government's efforts to accommodate innovation while protecting the public interest. Some recommendations include a more collaborative approach between government, the industry sector, and legal institutions to develop a regulatory framework that fits the characteristics of these technologies.

1. Introduction

Cryptocurrencies, such as Bitcoin and Ethereum, have been a global concern since their emergence in the early 2010s.[1] The underlying blockchain technology has changed the way we view financial transactions and digital assets. In Indonesia, interest in cryptocurrencies is also increasing, with wider adoption in various sectors.[2] However, the legal complexities surrounding cryptocurrencies are becoming an increasingly pressing issue.

The rapid growth of cryptocurrencies has fueled demands for better legal

[1] Nader Naifar et al., "How Media Coverage News and Global Uncertainties Drive Forecast of Cryptocurrencies Returns?," *Heliyon* 9, no. 6 (2023): e16502, doi:10.1016/j.heliyon.2023.e16502.
[2] Afrizal Afrizal, Marliyah Marliyah, and Fuadi Fuadi, "Analysis of Cryptocurrencies (Currency, Law, Economics and Sharia Perspectives)," *e-Mabis: Journal of Management and Business Economics* 22, no. 2 (2021): 13 –41, doi:10.29103/e-mabis.v22i2.689.

understanding and an appropriate regulatory framework. Cryptocurrencies have different characteristics to traditional assets, including cross-border capabilities without intermediaries, anonymity, and the potential for illegal use.[3] Therefore, the need for effective regulation is essential to protect consumers, prevent money laundering, and maintain financial stability.

When it comes to cryptocurrency regulation, many countries have taken diverse approaches. Some countries such as Japan and the United States have adopted more inclusive regulations to facilitate industry growth[4], while others such as China have taken strict measures to ban some aspects of cryptocurrency transactions.[5] The payment system authority in Indonesia, Bank Indonesia, has made a clear statement that the use of cryptocurrencies as a form of payment is not legally recognized.[6]

Although many studies have been conducted on cryptocurrency regulation in various jurisdictions, there is a research gap in the Indonesian context. As a developing country with unique economic and legal dynamics, a deeper understanding of how cryptocurrency technology interacts with the evolution of civil law in Indonesia is needed. Previous research has tended to focus on technological and economic aspects,[7] while comprehensive legal studies have been limited.

The novelty of this research lies in an interdisciplinary approach that combines civil law analysis and cryptocurrency technology in the context of Indonesian regulation. This research will fill a literature void by investigating how technological evolution affects civil law and identifying regulatory implications for cryptocurrency transactions in Indonesia. By blending legal and technological perspectives, the study aims to provide in-depth insight into the challenges and opportunities faced by cryptocurrency regulation in the country.

2. Research Method

This study uses a qualitative approach to normative legal research and relies on secondary data.[8] Information gathered from previous works includes books, articles, and research

[3] Deepak Kumar Sharma et al., *Cryptocurrency Mechanisms for Blockchains: Models, Characteristics, Challenges, and Applications*, *Handbook of Research on Blockchain Technology*, 2020, doi:10.1016/B978-0-12-819816-2.00013-7.
[4] Imad Antoine Ibrahim and Jon Truby, "Governance in the Era of Blockchain Technology in Qatar: A Roadmap and a Manual for Trade Finance," *Journal of Banking Regulation* 23, no. 4 (2022): 419–38, doi:10.1057/s41261-021-00165-1.
[5] Lestari Ningsih, "Resolute! China Officially Bans All Cryptocurrency Transactions | Republika Online," *Ekonomi.Republika.Co.Id*, 2021, https://ekonomi.republika.co.id/berita/r02abt2317000/tegas-china-resmi-larang-semua-transaksi-mata-uang-kripto.
[6] Kadek Dyah Pramitha Widyarani, Ida Ayu Putu Widiati, and Ni Made Puspasutari Ujianti, "Juridical Study of the Use of Crypto Coins as a Payment Instrument in Indonesia," *Journal of Legal Preferences* 3, no. 2 (2022): 300–305, doi:10.55637/jph.3.2.4934.300-305.
[7] Tamanna Choithani et al., "A Comprehensive Study of Artificial Intelligence and Cybersecurity on Bitcoin, Crypto Currency and Banking System," *Annals of Data Science* 2, no. September (2022): 1–33, doi:10.1007/s40745-022-00433-5.
[8] Ming-Hsi Sung and Wahyudi Umar, "A New Industry and Tax Base on Taxing Esports in Indonesia," *Jurnal Media Hukum* 27, no. 2 (2020), doi:10.18196/jmh.20200148.

findings relevant to the current subject matter. The analysis method used involves a thorough examination and description of the data.[9]

3. Results and Discussion

1) The Evolution of Cryptocurrency Technology and Its Implications for Civil Law in Indonesia

The evolution of cryptocurrency technology has brought significant changes in the paradigm of civil law in Indonesia. At first, cryptocurrencies were seen as an alternative medium of exchange that had no clear legal basis. However, with the development of underlying blockchain technology, cryptocurrencies are beginning to change the way we understand the concepts of ownership, exchange, and contracts in the realm of civil law.[10]

The anonymity brought by cryptocurrencies is one aspect that is changing the way we view responsibility in transactions.[11] In conventional transactions, the identities of the parties involved can usually be clearly identified. However, with cryptocurrencies, transactions can be carried out anonymously, presenting new challenges when it comes to determining legal liability. This implication can be felt in cases of fraud or illegal transactions where the identity of the perpetrator is difficult to trace.

The concept of smart contracts also carries significant implications in civil law.[12] Smart contracts allow automatic execution of contract terms when certain conditions are met. This raises the question of how traditional contract interpretations adapt to contracts executed automatically by computer code. Understanding of civil law must change to accommodate these dynamics, including recognition of the legality of smart contracts and ways of resolving disputes involving such contracts.

Decentralization, which is a key feature of blockchain technology, has also changed the ownership paradigm.[13] In the conventional civil system, ownership tends to be centralized and can be easily identified. However, with cryptocurrencies and digital assets that can be stored in individual digital wallets, the question of how ownership is recognized and protects individual rights comes to the fore. This implication also impacts inheritance rights and bankruptcy handling in the context of cryptocurrencies.

The mismatch between conventional civil law paradigms and the dynamics of

[9] Ahmad Rustan, Ju-lan Hsieh, and Wahyudi Umar, "Maladministration of Mining Business Licenses: A Case Study" Mining Business License Production Operations of PT . Miscellaneous," *Varia Justicia* 17, no. 3 (2021): 246–57.
[10] Kelvin F.K. Low and Eliza Mik, "Pause the Blockchain Legal Revolution," *International and Comparative Law Quarterly* 69, no. 1 (2020): 135–75, doi:10.1017/S0020589319000502.
[11] Rina Candra Noorsanti, Heribertus Yulianton, and Kristophorus Hadiono, "Blockchain - Cryptocurrency Technology," in *Proceedings SENDI_U 2018, 2018*, 978–79.
[12] Pietro Ortolani, "The Impact of Blockchain Technologies and Smart Contracts on Dispute Resolution: Arbitration and Court Litigation at the Crossroads," *Uniform Law Review* 24, no. 2 (2019): 430–48, doi:10.1093/ulr/unz017.
[13] Aneesh Zutshi, Antonio Grilo, and Tahereh Nodehi, "The Value Proposition of Blockchain Technologies and Its Impact on Digital Platforms," *Computers and Industrial Engineering* 155, no. May 2021 (2021): 107, doi:10.1016/j.cie.2021.107187.

cryptocurrency technology raises questions about how the law can accommodate these innovations. Improper regulation can hinder industry growth and pose risks to consumers. Therefore, adaptive measures are needed to bring civil law closer to technological developments.

In the Indonesian context, an inclusive and adaptive approach to technological change is crucial. As a developing country with a rapidly growing cryptocurrency industry, there needs to be a regulatory framework that facilitates innovation while protecting consumers and preventing abuse. The Indonesian government has taken several steps in accommodating cryptocurrencies as legal tender, but the challenges of legal interpretation and the development of appropriate regulations still need to be overcome.

It is important to note that the evolution of technology and law will not stop at this point. Change is continuous, and regulations must be able to adapt quickly. This may require a collaborative approach between governments, industry sectors, and the legal community to develop a regulatory framework that fits the unique characteristics of cryptocurrencies and the underlying technology.

2) Regulatory Framework for Cryptocurrency Transactions in Indonesia

In response to this phenomenon, the government has established fundamental regulations for managing money as stated in Law Number 7 of 2011 concerning Currency. In addition, other commonly referred laws include Law Number 23 of 1999 concerning Bank Indonesia, and Law Number 11 of 2008 concerning Electronic Information and Transactions, which was implemented later. However, along with the development of this cryptocurrency, the government has introduced several new policies with a more technical focus, such as Bank Indonesia Regulation Number 18/40/PBI/2016 concerning the Implementation of Payment Transaction Processing. This ensures that the legality of this crypto is upheld, and that various technical aspects of financial transaction processing are properly considered.[14]

The legal status of cryptocurrencies in Indonesia is not classified as "money" or "currency". As a result, different types of cryptocurrencies are not legally allowed to be used as a means of transaction. In order to maintain public trust in banking, Bank Indonesia as the Central Bank, has issued a regulation (Bank Indonesia Regulation Number 18/40/PBI/2016) that recognizes cryptocurrency as a virtual currency and regulates its implementation for payment transaction processing.

Responding to advances in financial technology in the era of industrial revolution 4.0, Bank Indonesia has prioritized the application of prudential principles, adequate risk management, and access expansion while taking into account the national interest and

[14] Muhammad Rusydi Anta, "Legal and Economic Dynamics in Social Reality in Indonesia (A Critical Study of Law-Economic Policy in Indonesia)," *Journal of Rechts Vinding: Media Pembinaan Hukum Nasional* 6, no. 3 (2017): 309, doi:10.33331/rechtsvinding.v6i3.193.

consumer protection.[15] This regulation explains the legal status of cryptocurrencies, which meet the minimum requirements of electronic systems authorized in Indonesia based on Law Number 11 of 2008. However, Bank Indonesia Regulation No. 18/40/PBI/2016 only prohibits virtual currencies from operating payment systems, as stated in Article 34.

Nonetheless, the interpretation of cryptocurrencies caused problems between Bank Indonesia and the Ministry of Trade. Bank Indonesia considers it an illegal medium of exchange that could endanger national financial stability, while the Ministry of Trade sees it as a new opportunity for economic growth. The Ministry of Commerce has changed the definition of cryptocurrencies to "commodities" in their policy for the execution of crypto asset futures trading.[16] However, these differences in interpretation make it difficult to create consistent and fair policies and affect people's perceptions of the legality and use of cryptocurrencies.[17]

Regulating crypto assets poses significant challenges for regulators due to rapid innovation and technological advancements. Responses from regulators have so far been sporadic, inconsistent, and often poorly coordinated. In addition, the lack of a universally accepted definition of crypto assets and the global, borderless nature of the digital world makes it difficult to establish consistent regulations.[18] In some countries, the use of crypto assets is prohibited, while in others it is widely accepted, and in some it is only allowed with certain restrictions.[19]

A comparative analysis with other countries reveals diverse approaches to regulating cryptocurrency transactions. In the United States, for example, regulations vary more at the state and federal levels. Some states have passed laws regulating the operations of cryptocurrency companies, while federal agencies such as the SEC (Securities and Exchange Commission) are focusing more on investor protection in crypto token offerings.[20] In addition, Japan has adopted an inclusive approach by recognizing cryptocurrencies as legal tender and regulating operating licenses for crypto companies.[21]

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[15] M Najibur Rohman, "Normative Juridical Review of Crypto Currency Regulation in Indonesia," *Journal of Supremacy 11*, no. 2 (2021): 1–10, https://ejournal.unisbablitar.ac.id/index.php/supremasi.

[16] Wandra Wardiansha Purnama, "Cryptocurrency Regulation in Indonesia: Regulators' Views and Legal Implications for the Community's Economy," *Journal of Serambi Hukum* 15, no. 02 (2022): 96–101.

[17] Hafiz Addinanto, "Determinants of Cryptocurrency Use in Indonesia," *Energies* 6, no. 1 (2018): 1–8, http://journals.sagepub.com/doi/10.1177/1120700020921110%0Ahttps://doi.org/10.1016/j.reuma.2018.06.001%0Ahttps://doi.org/10.1016/j.arth.2018.03.044%0Ahttps://reader.elsevier.com/reader/sd/pii/S1063458420300078?token=C039B8B13922A2079230DC9AF11A333E295FCD8.

[18] Thomson Reuters, "Cryptocurrency Regulations by Country," *Regulatory Intelligence. Crypto on the Rise.*, 2022, https://www.thomsonreuters.com/en-us/posts/wp-content/uploads/sites/20/2022/04/Cryptos-Report-Compendium-2022.pdf.

[19] Purnama, "Cryptocurrency Regulation in Indonesia: Regulators' Views and Legal Implications for Society's Economy."

[20] Frank Emmert, "Cryptocurrencies: The Impossible Domestic Law Regime?," *American Journal of Comparative Law* 70, no. 1 S (2022): 185–219, doi:10.1093/ajcl/avac022.

[21] Freeman Law, "Japan - Cryptocurrency Laws and Regulation," *Freeman Law*, 2022, https://freemanlaw-com.translate.goog/cryptocurrency/japan/?_x_tr_sl=en&_x_tr_tl=id&_x_tr_hl=id&_x_tr_pto=tc&_x_tr_hist=true.

In this comparison, Indonesia can learn from these approaches to identify policy elements that can be adopted in the regulation of cryptocurrency transactions. In taking this step, it is necessary to consider Indonesia's unique social, economic, and legal context. The effectiveness of cryptocurrency regulation in Indonesia is still a subject of debate. Despite legal recognition, uncertainty still exists in terms of legal liability in transactions and consumer protection. Many businessmen and investors are still hesitant to participate in the cryptocurrency market due to this lack of clarity.

In addition, aspects of reporting and supervision also need to be further evaluated. Current regulations require cryptocurrency service providers to report transactions to relevant authorities. However, the effectiveness of this reporting and how authorities monitor and deal with violations is still a concern. A balanced approach between regulation that provides freedom for innovation and adequate protection for consumers and financial security is needed.

3) Challenges and Opportunities in Cryptocurrency Transaction Regulation in Indonesia

Challenges in Cryptocurrency Transaction Regulation in Indonesia

1. Legal Uncertainty

One of the main challenges in regulating cryptocurrency transactions in Indonesia is legal uncertainty.[22] Rapid technological developments often outstrip the ability of the law to keep up with these changes. This creates uncertainty in terms of legal recognition, liability in transactions, and consumer protection. Businessmen and investors tend to be hesitant to engage in cryptocurrency transactions due to the lack of legal clarity.

2. Consumer Protection

Cryptocurrencies that can be traded anonymously increase the risk to consumers.[23] Perpetrators of fraud and other illegal practices can see opportunities to take actions that harm consumers. The lack of consumer protection in regulations is currently an issue that needs to be addressed. Efforts are needed to develop mechanisms that protect consumers from these risks, including in terms of safe exchange and protection of consumer rights.

3. Security and Money Laundering

Transaction security and money laundering risks are crucial issues in cryptocurrency transactions. The anonymity that cryptocurrencies have can be exploited by ill-intentioned parties to commit money laundering or other illegal activities.[24] The regulatory framework must ensure that transactions are supervised and conducted with strict security procedures

[22] Zayyan Hadhari Bik, "Risk Management, Challenges and Uncertainty of Cryptocurrency Investment Regulation in the View of Islamic Economics," *Journal of Citizenship* 6, no. 3 (2022): 6466–78.
[23] Unggul Dwi Pamungkas and Amrie Firmansyah, "How to Regulate Cryptocurrency Ownership by Companies Based on Financial Accounting Standards?," *Scientific Journal of Unitary Accounting* 9, no. 3 (2021): 489–510, doi:10.37641/jiakes.v9i3.895.
[24] Muh Afdal Yanuar, "Risk and Posibility of Crypto Asset Misuse in Money Laundering Crimes," *National Law Magazine* 52, no. 2 (2022): 104–16.

to prevent these risks.

Opportunities in Cryptocurrency Transaction Regulation in Indonesia

1. Fintech Industry Growth

Despite the challenges, responsive regulation can create great opportunities for the growth of the fintech industry in Indonesia. By providing legal clarity and properly regulating consumer protection, businesses and investors will feel more confident to engage in the cryptocurrency ecosystem. This can encourage the growth of innovative fintech companies and contribute to the national economy.

2. Financial Inclusion

Cryptocurrencies have the potential to increase financial inclusion in Indonesia, especially in areas that are difficult to reach by traditional financial services.[25] These technologies can enable access to financial services for previously underserved communities, giving them more control over their assets and expanding economic opportunities.

3. Technology Excellence

Indonesia has the potential to become a center for the development of innovative cryptocurrency technology. By adopting smart regulations and supporting innovation, Indonesia can encourage the development of blockchain and cryptocurrency applications that can provide solutions to existing social and economic problems in the country.

4. Foreign Investment

With clear and supportive regulations, Indonesia can attract foreign investment in the cryptocurrency industry. The huge market potential and conducive regulatory environment can be attractive factors for international investors to participate in the growth of this industry in Indonesia.

The challenges and opportunities in the regulation of cryptocurrency transactions not only affect the financial sector, but also impact economic growth and technology more broadly. By addressing existing challenges and seizing emerging opportunities, Indonesia can create an environment that supports innovation, industry growth, and broader financial inclusion. In the era of digitalization and a technology-based economy, smart and adaptive regulation is key to ensuring Indonesia remains competitive in the global scenario.

4. Conclusion

Based on the results of the discussion above, it can be concluded that the evolution of cryptocurrency technology has brought significant changes in the paradigm of civil law in Indonesia. Regulations related to cryptocurrencies in Indonesia are still a subject of debate. Many businessmen and investors hesitate to participate in cryptocurrency due to unclear legal responsibilities in transactions and consumer protection. Therefore, adaptive and innovative regulations are needed to face future challenges. In developing regulations in

[25] Vinay Kandpal et al., "Expanding Financial Inclusion Through Fintech and E-Governance," in *Circular Economy and Sustainability* (Springer, Cham, 2023), 103–29, doi:10.1007/978-3-031-22723-3_6.

accordance with technological developments and community needs, Indonesia can take essential steps with an integrated approach between civil law and technology.

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