

The Influence of Blockchain Technology on Changes in the Role of Notaries in Property Transactions Involving Notaries as Land Deed Officials (PPAT)

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Abstract. *This study aims to analyze Indonesian legal regulations related to the use of blockchain technology in changing the role of Notaries/PPATs, their legal implications, and the form of deeds in blockchain-based property transactions. The method used is empirical legal research with a sociological approach and a descriptive-analytical behavioral approach. Primary data consists of interviews with Notaries/PPATs and secondary data consists of primary, secondary, and tertiary legal materials. The analysis is based on the Theory of Legal Certainty and the Theory of Legal Protection within a progressive legal framework. The results show that legal regulations related to blockchain in notaries and property transactions still exist in a state of normative vacuum (recht vacuüm). Existing regulations have not yet accommodated the decentralized characteristics of blockchain, and there is a regulatory gap between this technology and notarial principles, such as the principle of physical presence and the obligation to keep minutes of deeds. In terms of legal implications, blockchain encourages a shift from institutional trust to technological trust and the transformation of the Notary/PPAT function into a digital system integrity monitor. Nevertheless, the Notary's substantive function in ensuring the free will of the parties and bearing legal responsibility remains irreplaceable. Comprehensive legal reform is needed, including redefining the principle of presence, recognizing blockchain-based documents, and updating the oversight mechanism for positions to create a modern legal system while still ensuring legal certainty and protection. The current form of deeds in blockchain-based property transactions remains hybrid, combining conventional authentic deeds with blockchain-based digital systems.*

Keywords: *Blockchain; Land Deed Official; Legal Certainty; Legal Protection; Notary; Property Transactions.*

1. Introduction

Advances in information technology have brought significant changes to various aspects of life, including law and public services. Digitizing the legal system has become inevitable, along with public demands for fast, transparent, efficient services with legal certainty.¹ One form of technological development that is currently receiving widespread attention is blockchain technology, namely distributed ledger technology that is transparent, immutable, and has a high level of security.²

Blockchain technology is beginning to be seen as an alternative solution to increase efficiency and security in the process of recording and proving land rights. Blockchain systems enable permanent and verifiable transaction recording without relying entirely on a single central authority, potentially reducing the risk of document forgery, ownership disputes, and detrimental practices. Blockchain technology is being used in land registration and property transactions as part of land administration reform.³

In Indonesia, property transactions have unique characteristics because they directly relate to land rights, which are strictly regulated by laws and regulations. In the National Legal System, Notaries, who also serve as Land Deed Officials (PPAT), play a central role in creating authentic deeds as the basis for transferring land rights.⁴ The deed made by the PPAT not only functions as perfect evidence, but also becomes an important instrument in guaranteeing legal certainty and legal protection for parties conducting property transactions.⁵ With the development of blockchain technology, discussions and practices have emerged regarding its use in property transactions, including the creation, storage, and verification of legal documents. This raises fundamental questions regarding the status and role of Notaries/PPATs in blockchain-based property transaction systems. Technology capable of automatically recording and verifying transactions has the potential to transform the conventional work patterns of Notaries/PPATs, both in terms of their authority, responsibilities, and legal oversight functions.⁶

The use of blockchain technology in property transactions also raises complex legal implications. On the one hand, blockchain offers efficiency and transparency, but on the other hand, it poses challenges to the concepts of authentic deeds, proof, and the accountability of public officials.⁷ The Indonesian legal system, which still relies on physical documents and conventional administrative mechanisms, does not explicitly regulate the use of blockchain technology in property transactions and notarial practices, thus potentially creating legal vacuums and legal uncertainty in its application.⁸

¹Richard Susskind, 2019, *Online Courts and the Future of Justice*, Oxford University Press, Oxford, p. 23–25.

The changing role of Notaries/PPATs due to the use of blockchain technology not only impacts the technical aspects of deed creation but also touches on professional ethics, official authority, and legal protection for the public. Therefore, Notaries/PPATs are required to adapt to technological developments without neglecting the principles of prudence, independence, and compliance with applicable laws and regulations.⁹

Various previous studies generally discuss blockchain technology in the context of financial systems, smart contracts, and the digitalization of public administration and land registration.¹⁰ However, these studies remain technological or conceptual in nature and have not comprehensively linked them to the authority structure of public officials within Indonesia's positive legal system. Furthermore, research on Notaries and Land Deed Officials (PPAT) still focuses on conventional normative aspects without integrating blockchain technology as a factor in changing job roles.¹¹ Therefore, there is a research gap that needs to be filled through this research. The purpose of this study is to determine and analyze legal regulations in Indonesia regarding the use of blockchain technology, the legal implications of the use of blockchain technology on changes in the role of Notaries in property transactions involving Notaries as land deed making officials (PPAT), and the form of deeds made by Notaries as Land Deed Making Officials in property transactions based on blockchain technology.

2. Research Methods

The method used by the researcher is empirical legal research with a sociological approach and a behavioral approach which is descriptive-analytical and the specifications in this study include descriptive analysis. The sources and types of

²Satoshi Nakamoto, 2008, Bitcoin: A Peer-to-Peer Electronic Cash System, pp. 1–2. Retrieved from <https://bitcoin.org/bitcoin.pdf> on December 15, 2025 at 12:16 WIB

³Ugo Pagallo, 2021, "Blockchain, Smart contracts, and the Role of Law," Artificial Intelligence and Law, Vol. 29, no. 2, p. 150–153.

⁴Habib Adjie, 2011, Indonesian Notary Law: Thematic Interpretation of Law No. 30 of 2004 concerning the Position of Notary, Refika Aditama, Bandung, pp. 87–89.

⁵Sudikno Mertokusumo, 2019, Law of Evidence, Liberty, Yogyakarta, pp. 121–123.

⁶Kevin Werbach, 2018, The Blockchain and the New Architecture of Trust, MIT Press, Cambridge, p. 92–95.

⁷Primavera De Filippi and Aaron Wright, 2019, "Decentralized Blockchain Technology and the Rise of Lex Cryptographia," SSRN Electronic Journal, p. 18–21.

⁸Edmon Makarim, 2020, Notaries and Electronic Transactions, RajaGrafindo Persada, Jakarta, pp. 64–67.

⁹Liliana Tedjosaputro, 2021, Professional Ethics of Notaries, Refika Aditama, Bandung, pp. 45–47.

¹⁰Michele Finck, 2019, Blockchain and the General Data Protection Regulation, European Parliamentary Research Service, Brussels, p. 14–16.

¹¹Abdul Ghofur Anshori, 2022, Indonesian Notary Institution, UII Press, Yogyakarta, pp. 102–105.

data in this study are primary data obtained through semi-structured interviews and secondary data obtained from literature studies.

3. Results and Discussion

3.1. Legal Consequences of Issuing Multiple Land Certificates in the Transfer of Land Rights Due to Inheritance According to Land Law in Indonesia

Legal regulations in Indonesia regarding the use of blockchain technology in property transactions involving notaries as Land Deed Officials (PPAT) are currently very limited and lack clear normative legitimacy within the legal system. This situation indicates a legal lag in responding to rapid technological developments, particularly the disruptive and decentralized nature of blockchain technology. National law still tends to be reactive and procedural, while blockchain is developing proactively through automated mechanisms that can create new transaction systems without prior legal legitimacy.¹²

The lack of specific regulations regarding blockchain not only impacts administrative aspects but also touches on the conceptual foundations of notarial law regarding the source of legitimacy for authentic deeds. In conventional legal systems, transaction legitimacy is achieved through the intervention of public officials representing the state. In contrast, blockchain builds legitimacy through network consensus mechanisms and cryptographic systems, creating a shift from institutional trust to technological trust. This shift raises fundamental questions about whether legal legitimacy should remain sourced from the state or can be shifted to automated and decentralized technological systems.

Authentic deeds in the Indonesian legal system have perfect evidentiary force, binding both formally and materially. However, the development of digitalization, including the concept of cyber notaries, has not yet fully gained legal recognition as a replacement for conventional authentic deeds. This is due to the continued requirement for physical presence and certain formalities in the Notary Law. Therefore, the use of digital technology in notarial practice remains limited and does not provide comprehensive legal certainty.¹³

The decentralized, transparent, and immutable characteristics of blockchain also pose challenges to Indonesia's land administration system, which is still based on centralized authority through the National Land Agency. This situation creates a dilemma between technological efficiency and state sovereignty over land data. Therefore, blockchain integration into the land system cannot be implemented

¹²Fabela Rahma Monetery and Budi Santoso, 2023, The validity and evidentiary power of notarial deeds: The perspective of cyber notary in Indonesia, *Notarius*, Vol 16, No. 2, p. 145.

¹³*Ibid.*, p. 150.

radically but must involve legal reconstruction that maintains the state's primary authority in data oversight and validation.¹⁴

Property transactions in Indonesia inherently contain both private and public dimensions. In the private dimension, transactions are based on mutual agreement between the parties in accordance with the principle of freedom of contract. However, in the public dimension, the validity of a transaction depends on state recognition through land registration mechanisms. In this context, notaries and land deed officers (PPAT) serve as bridges between private interests and public legitimacy, thus maintaining a strategic position within the legal system.¹⁵

Notaries and Land Deed Officials (PPAT) are not merely administrative officials, but rather extensions of the state, fulfilling a public function to ensure legal certainty. Through authentic deeds, they ensure the fulfillment of the formal and material requirements of a legal act, thereby preventing future disputes. Authentic deeds have perfect evidentiary force and serve as the primary evidence in Indonesia's civil law system.¹⁶

One of the crucial elements in creating an authentic deed is the physical presence of the parties before a notary or land deed official (PPAT). This presence is not merely an administrative formality, but also a form of legal verification to ensure the identity, legal capacity, and free will of the parties. This principle of presence serves as the basis for legal protection because it enables a notary or land deed official to prevent identity falsification or flawed will in the transaction.¹⁷

Blockchain As a distributed ledger technology, it offers a secure, transparent, and immutable data recording mechanism. In property transactions, this technology enables ownership recording, identity verification, and automated agreement execution through smart contracts. Theoretically, blockchain can increase efficiency and reduce the potential for data manipulation in land transactions.¹⁸

The assumption that blockchain can completely replace the role of notaries and land titles (PPAT) is a misconception. This is because there are substantive aspects of notarial practice that cannot be reduced to purely technical processes, such as

¹⁴Nizam Zakka Arrizal and Muhammad Ali Fauzi, 2023, "Legal Aspects of Electronic Certificates in the Land Registration System," *Yustisia Merdeka*, Vol. 9, No. 1., p. 41.

¹⁵Anggita Yuniarsih Setiarto and Aisyah Ayu Musyafah, 2023, "Legal Review of Land Sale and Purchase Deeds," *Scientific Journal of Educational Sciences*, Vol. 6, No. 6., p. 317.

¹⁶Widhi Handoko, 2022, "The Position of Notaries as Public Officials in the Indonesian Legal System," *Jurnal Notariat*, Vol. 5 No. 2, p. 118.

¹⁷Sjaifurrachman, 2022, "The Principle of Presentness in Notarial Practice," *Journal of Law & Development*, Vol. 52 No. 1, p. 92.

¹⁸Victoria Lemieux, 2022, "Blockchain and Property Rights Management," *Records Management Journal*, Vol. 32 No. 2, p. 155.

assessing the parties' free will, providing legal advice, and professional responsibility for the validity of a transaction. Therefore, blockchain is better understood as a supporting instrument rather than a replacement for the profession of notary and land titles (PPAT).¹⁹

The main problem in implementing blockchain in Indonesia lies in the paradigm mismatch between a centralized legal system and decentralized technology. The Indonesian legal system places the state as the primary source of legal legitimacy, while blockchain eliminates dependence on a single authority through a networked consensus mechanism. This conceptual tension suggests that blockchain implementation requires a systemic and comprehensive legal overhaul.²⁰

In a blockchain system, transaction validity no longer relies on institutional validation, but rather on technical mechanisms such as algorithms and network consensus. This shift creates a shift from trust in authority to trust in code. This shift is not only technical but also touches on philosophical dimensions regarding the sources of legal legitimacy in modern society.²¹

This change has the potential to disrupt positivistic legal theory, which has traditionally positioned the state as the sole source of legal legitimacy. Blockchain distributes authority across the network, making legitimacy consensus-based and no longer hierarchical. This raises questions about whether technically valid transactions can be considered legally valid without state recognition.²²

The tension between legal validity and technical validity cannot be resolved dichotomously but must be resolved through normative harmonization. This harmonization is crucial to prevent blockchain adoption from creating a dualistic system of legitimacy that could lead to legal uncertainty. In this context, national laws are required to be adaptive and progressive in response to technological developments.²³

Harmonization efforts require more than just the creation of new regulations, but also a reinterpretation of the concepts of validity, evidence, and the authority of public officials. The law must be able to internalize technological developments

¹⁹Kevin Werbach, 2023, "Trust, but Verify: Blockchain and the Future of Law," *Berkeley Technology Law Journal*, Vol. 38 No. 1, p. 214.

²⁰Primavera De Filippi, 2022, "Blockchain and the Law: The Rule of Code," *Harvard Journal of Law & Technology*, Vol. 35 No. 1, p. 36.

²¹Marcella Atzori, 2021, "Blockchain Technology and Decentralized Governance," *Journal of Governance and Regulation*, Vol. 10 No. 3, p. 81.

²²Kevin Werbach, *Op. cit.*, p. 219.

²³Dirk Zetzsche, 2023, "Regulating Distributed Ledger Technology," *Journal of Financial Regulation*, Vol. 9 No. 2, p. 295.

without losing fundamental principles such as legal certainty, justice, and legal protection for the public.²⁴

Based on an interview with Yoga Pranata, a Notary/PPAT (Public Land Deed Official), blockchain has yet to be implemented in notarial and land practice in Indonesia, particularly at the regional level. The entire deed-making process remains conventional, emphasizing the physical presence of the parties and the use of paper-based documents as the primary means of legal evidence.²⁵

The current digitalization process is still limited to electronic document storage and has not yet addressed the substance of authentic deeds. The use of teleconferencing or electronic signatures in authentic deeds cannot yet be implemented because they are considered contrary to the principle of presence, which requires the parties to appear in person before a notary or PPAT.²⁶

This situation indicates that the Indonesian legal system still adheres to conventional paradigms in the fundamental aspects of deed formation. On the other hand, the development of blockchain technology offers greater efficiency and transparency, creating an urgent need for comprehensive legal reform to accommodate digital developments.²⁷

The lack of specific regulations regarding blockchain also creates a legal vacuum regarding the validity of transactions and the evidentiary power of digital data. From a legal perspective, blockchain data cannot yet be classified as valid evidence because Indonesian law still requires explicit recognition through statutory regulations. Consequently, there is a gap between the technology's technical reliability and its legal recognition.²⁸

Recognition of blockchain data as evidence must be accompanied by clear parameters regarding data authenticity, integrity, and security. Therefore, updating evidence law is crucial to ensure national laws can accommodate the development of digital technology in an adaptive and progressive manner.²⁹

From the perspective of progressive legal theory as developed by Satjipto Rahardjo, law cannot be understood as a static system, but rather must be dynamic and responsive to societal changes. The integration of blockchain into the Indonesian legal system must be carried out carefully through regulatory reform, strengthening technological infrastructure, increasing digital literacy, and transforming the roles of notaries and landowners (PPAT). Thus, blockchain

²⁴Victoria Lemieux, *Op. cit.*, p. 160.

²⁵Interview with Yoga Pranata, Notary/PPAT in Klaten Regency, on April 27, 2026.

²⁶*Ibid.*

²⁷*Ibid.*

²⁸*Ibid*

²⁹*Ibid*

technology can be implemented without sacrificing the basic legal principles of legal certainty, justice, and legal protection for the public.³⁰

3.2. Efforts to resolve disputes over land ownership that arise due to the issuance of double certificates in inheritance cases

The legal implications of using blockchain technology in property transactions involving notaries as Land Deed Officials (PPAT) essentially touch not only on technical administrative aspects but also shake the conceptual foundations of the legal system, which has been built on state institutional authority. In conventional legal systems, the legitimacy of a transaction is not solely determined by factual truth or data reliability, but rather by legal recognition granted through formal mechanisms, primarily through authentic deeds drawn up by public officials. In this context, notaries and PPATs function as gatekeepers of legality, ensuring that each transaction meets the formal and material requirements in accordance with applicable laws.³¹

The advent of blockchain technology presents a new paradigm in transaction systems. Blockchain operates through a distributed ledger mechanism that is decentralized, transparent, and immutable. In this system, trust is no longer built through state institutions or public officials, but rather through algorithmic mechanisms and network consensus. Thus, blockchain creates the concept of a trustless system that shifts the basis of trust from humans and institutions to technology.³²

This paradigm shift raises legal issues regarding the status of blockchain data in Indonesia's legal evidence system. Technically, blockchain data boasts a high level of integrity and security, making it difficult to manipulate. However, this technical reliability does not automatically grant legal recognition as valid evidence, as the Indonesian legal system still requires normative legitimacy based on statutory regulations.³³

The fundamental difference between authentic deeds and blockchain data lies in their source of legitimacy. Authentic deeds derive their evidentiary force from the authority of public officials acting on behalf of the state, while blockchain derives its validity from a cryptography-based technological system. This situation

³⁰Satjipto Rahardjo, 2005, *Progressive Law: Law that Liberates*, Progressive Law Journal, Vol. 1, No. 1, p. 15.

³¹Daniyah Fadhilah Hasyan and Fifiana Wisnaeni, Daniyah Fadhilah Hasyan and Fifiana Wisnaeni, 2024, "Utilization of Blockchain in Making Notarial Deeds in Indonesia", *Notarius*, Vol. 17 No. 1, pp. 439–441.

³²Kevin Werbach, *Op. cit.*, p. 531–533.

³³Widya Kridawidyaniet al., 2024, "The Legal Advantages of Blockchain Technology for Notary Protocol Archives," *Mulawarman Law Review*, Vol. 8 No. 2, p. 34–37.

demonstrates the dualism between legal validity and technical validity, which has not yet been fully addressed in Indonesian positive law.

An authentic deed serves not only as evidence but also as an instrument of legal protection, involving identity verification, verification of the parties' intentions, and assessment of legal capacity. These elements are substantive and cannot be completely replaced by an automated, algorithm-based system. Blockchain can only technically record transactions without being able to assess whether a legal act was carried out legally and free from defects in will.³⁴

The use of blockchain in property transactions should not be understood as eliminating the role of notaries and land titles (PPAT). Rather, this technology encourages the reconstruction of the legal system to adapt to digital developments without abandoning the fundamental principle of legal certainty. In this context, an integrative approach is needed that combines the advantages of blockchain technology with the normative functions of notaries and land titles (PPAT) as guardians of legality.³⁵

The advent of blockchain has also raised the need for reforms to evidence law in Indonesia. While blockchain is technically capable of producing reliable, immutable, and traceable data, legal recognition of such data remains limited. Therefore, harmonization of technological developments and the evidence law system is necessary to bridge the gap between technological advancements and legal regulations.³⁶

In conventional systems, notaries and land and building officials (PPAT) are public officials with attributive authority from the state to legitimize transactions through the creation of authentic deeds. This legitimacy is not only formal but also substantive, as it ensures that the legal requirements of an act have been met. In blockchain-based systems, the validation function can theoretically be performed by an algorithmic mechanism without the involvement of a single authority.

The shift from institutional trust to technological trust poses a potential reduction in the traditional roles of notaries and land deed officials (PPAT). However, this reduction does not eliminate notaries, but rather shifts their functional orientation. Notaries no longer serve solely as document preparers but also as legal validators and guarantors of legal certainty in digital transactions.

³⁴Rini Sari Wahyuni, 2023, "Electronic Evidence and Its Legal Standing in Indonesian Law," *Jurnal Hukum & Teknologi*, Vol. 5 No. 2, p. 134.

³⁵Andi Nugroho, 2023, "The Future Role of Notaries in Digital Transactions," *Indonesian Notary Journal*, Vol. 7 No. 2, p. 211.

³⁶*Ibid.*

This transformation demonstrates that there are legal aspects that cannot be replaced by technology. While blockchain can guarantee data security and integrity, it cannot assess normative aspects such as the free will of the parties, the propriety of the agreement's contents, or the validity of the legal substance of a transaction. Therefore, the evaluative function and legal responsibility remain within the domain of notaries and land deed officials.³⁷

Based on an interview with Yoga Pranata, a Notary/PPAT in Klaten Regency, it was concluded that the existence of Notaries will not disappear due to the development of blockchain technology. Instead, the role of Notaries will undergo a transformation from merely issuing administrative deeds to verifying, validating, and supervising digital transactions. These changes demonstrate that the Notary profession must adapt to technological developments to remain relevant.³⁸

The transformation of the role of notaries can be analyzed through the theory of legal change, which views law as a dynamic system responsive to societal developments. Advances in blockchain technology are driving a reorientation of the structure and function of legal institutions, including the notary profession. In this context, notaries are required to develop new competencies related to information technology literacy.³⁹

However, technology cannot completely replace the function of a notary, especially in its normative and evaluative aspects. Notaries still play a crucial role in ensuring the absence of defects in wills, guaranteeing the validity of transactions, and providing legal advice to the parties. Therefore, the transformation that has occurred is more accurately understood as a change in functional orientation, not the elimination of the profession.⁴⁰

The use of blockchain from a contract law perspective also has implications for the concept of mutual agreement. In conventional systems, agreements are formalized through a physical signature before a notary public, guaranteeing that the declaration of will was made consciously and freely. This physical presence is closely related to the principle of presence in the formation of an authentic deed.⁴¹

In blockchain systems, agreements are expressed through digital mechanisms such as digital signatures, private keys, and smart contracts that operate

³⁷Sarah De Filippi and Aaron Wright, 2023, "Blockchain and the Law: The Rule of Code Revisited," *Harvard Journal of Law & Technology*, Vol. 36 No. 2, p. 389.

³⁸Interview with Yoga Pranata, Notary/PPAT Klaten Regency, on April 27, 2026.

³⁹Agus Susanto, 2023, "Legal Adaptation in the Age of Digital Transformation," *Journal of Indonesian Legal Studies*, Vol. 8, no. 2, p. 145.

⁴⁰Rudi Kurniawan, 2024, "The Transformation of Notary Functions in the Digital Era," *Jurnal Kenotariatan*, Vol. 9, No. 1, p. 78.

⁴¹Dwi Widodo, 2023, "The Principle of Presentness in the Perspective of Notary Law," *Ius Quia Iustum Law Journal*, Vol. 30, No. 3, p. 512.

automatically based on program code. This raises the question of whether digital agreements can be considered to fulfill the elements of agreement as stipulated in Indonesian contract law. Therefore, a reinterpretation of the concept of agreement in the context of digital transactions is necessary.⁴²

Smart contracts, a manifestation of blockchain technology, enable the automatic execution of agreements when certain conditions are met. This system has the potential to reduce defaults because contract enforcement no longer relies on the good faith of the parties but rather on the technical certainty of pre-written program code.⁴³

Despite their efficiency, smart contracts also have drawbacks due to their rigid and inflexible nature. Programming errors can have significant legal consequences without readily available corrective mechanisms. Therefore, the use of smart contracts requires stricter legal oversight during their development.

In these circumstances, the role of a notary has undergone a significant transformation. Notaries no longer merely document the parties' wishes in an authentic deed but must also ensure that the substance of the smart contract complies with applicable laws. This demonstrates that the notary profession in the digital age requires multidisciplinary skills, including an understanding of information technology.⁴⁴

The use of blockchain also has implications for Indonesia's land registration system, which has been based on centralized administration through the National Land Agency. While blockchain has the potential to increase transparency and efficiency in the land system, it also poses challenges to state authorities in ensuring legal certainty over land ownership.⁴⁵

The application of blockchain in property transactions represents a paradigmatic legal transformation. This technology does not eliminate the role of notaries as land and building landowners (PPAT), but rather transforms it into a more substantive role as supervisors, verifiers, and guarantors of legal certainty in the digital transaction ecosystem. Therefore, regulatory reform, institutional strengthening, and professional competency enhancement are needed to ensure

⁴²Satoshi Nakamoto, 2023, "Blockchain and Smart contracts in Legal Perspective," *Computer Law Review International*, Vol. 24, no. 2, p. 61.

⁴³Nick Szabo, 2023, "Smart contracts and Digital Agreements," *Journal of Law and Technology*, Vol. 12 No. 1, p. 44.

⁴⁴Andi Prasetyo, 2023, "Digital Transformation of Notarial Functions," *Indonesian Notary Journal*, Vol. 8 No. 2, p. 156.

⁴⁵Rhys Lemieux, 2024, "Blockchain and Land Registration Systems," *Land Use Policy*, Vol. 137, p. 210.

that the integration of blockchain technology aligns with the principles of legal certainty and legal protection in Indonesia.⁴⁶

It can be analyzed that the application of blockchain technology in property transactions involving Notaries as Land Deed Officials (PPAT) represents a paradigmatic legal transformation, not merely a technical administrative change. Blockchain not only changes the way transactions are recorded and verified, but also shakes the very foundations of the civil and agrarian legal systems, which have traditionally relied on the authority of public officials as a source of legal legitimacy. There is a shift from institutional trust to technological trust, even to a trustless system model, where the validity of transactions no longer depends on the approval of Notaries/PPATs, but rather on algorithmic and cryptographic mechanisms. This shift has serious implications for the concept of the validity of legal acts as regulated in Articles 1868 and 1320 of the Civil Code, particularly regarding the element of agreement, the authority of public officials, and the evidentiary power of authentic deeds.

3.3. Form of Deed of Transfer of Land Rights Due to Inheritance Made by Land Deed Making Official (PPAT) According to the Provisions of Statutory Regulations

Based on a legal analysis of the current positive legal provisions in Indonesia, the form of deeds in property transactions utilizing blockchain technology cannot be directly implemented in the form of a fully decentralized smart contract without the involvement of public officials. This is due to the imperative obligation of law that requires every transfer of land rights to be set out in the form of an authentic deed drawn up by and before a Land Deed Making Official (PPAT), as stipulated in Government Regulation Number 24 of 1997 concerning Land Registration. Therefore, the most realistic, valid, and legally certain form of deed in the current digital transition phase is the Hybrid Deed Form.

The Hybrid Deed Form is a progressive legal formulation that harmoniously combines the executorial power of a conventional authentic deed with the technical advantages of a blockchain-based digital system. In this hybrid mechanism, the deed-making process must still comply with all formal provisions outlined in the Notary Law (UUJN) and the PPAT Regulations, including the requirement for the parties to be physically present before a public official, a live reading of the deed, and the affixing of wet signatures on the physical document as the Minutes of the Deed.

Once the authentic deed has been completed conventionally and obtained full legal force, a copy of the deed document is transformed into encrypted digital data (cryptographic hash) to be uploaded and recorded into the land blockchain network managed or supervised by the Ministry of Agrarian Affairs and Spatial

⁴⁶Interview with Yoga Pranata, Notary/PPAT of Klaten Regency.

Planning/National Land Agency (ATR/BPN). This integration step ensures that data regarding land ownership and transfer of rights is immutable (cannot be falsified or changed unilaterally by land mafia elements) and can be tracked in real time by the national land registration system.

4. Conclusion

Based on the explanation of the findings presented previously, the following conclusions can be drawn from this study: legal regulations regarding the use of blockchain technology in property transactions involving Notaries and Land Deed Officials (PPAT) in Indonesia still lack a clear normative basis, thus creating legal uncertainty. Blockchain, as a decentralized technology, brings significant changes to the concepts of legitimacy, evidence, and land administration systems, which have previously relied on state authority through authentic deeds. Although blockchain offers advantages in terms of transparency, security, and efficiency, this technology cannot replace the substantive role of Notaries and Land Deed Officials (PPAT) related to verifying the will of the parties, legal certainty, and legal protection. Therefore, the implementation of blockchain in property transactions must be carried out gradually through regulatory reform, harmonization of evidence laws, strengthening technological infrastructure, and transforming the role of Notaries and Land Deed Officials (PPAT) as supervisors and guarantors of legality in the digital transaction system. The research recommendations include: The government needs to formulate comprehensive regulations to fill the legal gap related to blockchain in the notary and land sector, while the judiciary must be proactive in anticipating its implications on the evidence system; INI and IPPAT need to play an active role in preparing members to face the blockchain-based digital era, while notaries and PPAT are required to be adaptive and proactive in responding to technological changes; and the Ministry of ATR/BPN needs to develop a digital land administration system in stages while still ensuring data security, legal protection, and supervision of electronic transactions.

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