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Implementation of Blockchain Technology in Storing Minutes of Deeds as a Notary Protocol for Security and Realizing Legal Certainty

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Abstract. *The role of Notaries in Indonesia in creating legal certainty by issuing authentic deeds. Using blockchain technology is one solution to simplify and deal with problems regarding Notary storage protocols that still use conventional media. This study aims to analyze how the implementation of blockchain technology into the Notary deed minutes storage protocol can improve security and transparency, as well as examine and explain the legal certainty of Notary protocol storage using blockchain technology based on the principles and legal norms applicable in Indonesia. The type of research used in this study is Normative law. which examines the principles, systematics, level of synchronization, history and comparative law. The theories used in this study are Information Security Theory, Trust Theory, and Legal Certainty Theory. The types and sources of data in this study are secondary data obtained by researchers through literature. The data analysis method used is qualitative analysis, namely describing data in the form of regular and effective sentences to facilitate interpretation and understanding of the results of the analysis. The results of the study show that implementing blockchain technology in the storage of Notary deed minutes can significantly increase security and transparency, blockchain technology offers a solution in maintaining the validity and security of legal data in the digital era. Thus, the application of blockchain in storing notarial deed minutes can also strengthen the integrity of the legal system as a whole. The absence of regulations that explicitly regulate the storage of notarial protocols in digital form in the UUJN causes legal uncertainty. Although there is a legal basis from the Archives Law and the ITE Law regarding electronic documents, this is not enough to provide complete legal protection for notaries in carrying out their duties digitally. Therefore, legal efforts are needed to adjust technological developments to applicable laws and regulations.*

Keywords: *Blockchain; Deed; Notary; Storage.*

1. Introduction

In Indonesia, which is currently in the digitalization era, we must also face increasingly developing technology, information and communication. The advancement of information and communication technology will also have an influence on the authority of Notaries in the future, in line with the development of a sufficient period. Notaries in Indonesia until now still use legal provisions that have not changed in the preparation of deeds, especially regarding the act of appearing, reading, signing, storage protocols or the use of stamps.[1]

Archives that still use paper media stored in large quantities can pose risks in terms of storage, including the potential for damage to the archives. Therefore, the management of paper-based deed archives that were previously a top priority will now soon be replaced by digital or electronic formats.[2]

A notary is a public official who is authorized to make authentic deeds and has other authorities as referred to in this Law or based on other laws. The authority of a notary is further explained in Article 15 paragraph (1) of the Amendment to the UUJN, which confirms that a notary is authorized to make authentic deeds regarding all acts, agreements and determinations required by laws and/or which are desired by the interested party to be stated in an authentic deed, guarantee the certainty of the date of making the deed, store the deed, provide a grosse/copy and an extract of the deed.

Therefore, the importance of authentic deeds made by Notaries, the Law gives responsibility to Notaries to store authentic deeds as minutes of deeds, which must be kept well. As in Law Number 2 of 2014 concerning Amendments to Law Number 30 of 2004 concerning the Position of Notaries (hereinafter referred to as UUJN-P), Article 1 number 13 explains that Notary Protocols are a collection of documents that resemble State Archives that must be stored and maintained by Notaries in accordance with the provisions of laws and regulations. Then based on Article 15 paragraph (1), Article 16 paragraph (I) letter b, Article 58, Article 59, and Article 63, Notaries are responsible for storing deeds and Notary Protocols throughout their term of office and will be continued by the Notary who replaces them.

The storage of the Notary protocol is carried out with the aim that if at a later date one of the parties to the agreement defaults and lawsuits arise after the signing of the deed, either from the parties or other third parties related to the contents of

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[1]Desy Bungdiana, Arsin Lukman. (2023). "Efektivitas Penerapan Cyber Notary Dengan Meningkatkan Kualitas Pelayanan Notaris Pada Era Digital", *Jurnal Ilmu Sosial dan Pendidikan*, Vol.7 No.1, p.2.

[2]Dellia Santi Wulandari. (2023). Pengelolaan Arsip Elektronik di Era Digital. *IKOMIK: Jurnal Ilmu Komunikasi dan Informas*i, Volume 3 Nomor 2. p. 39.

the deed, then the minutes of the Notary deed which are part of the Notary protocol can be used as one of the strongest and most complete pieces of evidence in every case related to the Notary deed in court.[3]

Therefore, Notaries need to utilize information technology to improve effectiveness and efficiency in public services. By using the Cyber Notary concept, the application of blockchain technology is one solution to simplify and deal with problems regarding Notary storage protocols that still use conventional media.

Blockchain is a digital ledger-based technology that offers security, transparency, and decentralization in data management. This technology is relevant for Notary storage systems because it is able to maintain the integrity and authenticity of documents efficiently, while preventing data manipulation. By adopting blockchain, document storage systems can be more reliable and support legal certainty through immutable records and transparency that can be verified by authorities.[4]

The development of network technology called blockchain, which has data security capabilities as its advantage. First introduced through bitcoin technology in 2008, blockchain network security involving several parties as access providers, can provide high security guarantees for data stored on the network. Where transaction history in the blockchain can be changed or deleted without overall changes to the contents of the blockchain.[5]

2. Research Methods

This type of research is normative legal research, Ahmad Mukti Fajar ND and Yulianto explain the definition of normative law as "legal research that places law as a normative system. The normative system in question is regarding the principles, norms, rules, from laws and regulations, court decisions, agreements and doctrines (teachings)".[6]Normative legal research, namely, "research that examines the principles, systematics, level of synchronization, history and comparative law.[7]The type and source of data in this study are secondary data. Secondary data is data obtained by researchers through literature which is the

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[3]Desy Rositawati., I Made Arya Utama, & Desak Putu Dewi Kasih, 2017, Penyimpanan Protokol Notaris Secara Elektronik Dalam Kaitan Cyber Notary. *Acta Comitas: Jurnal Hukum Kenotariatan, 2*(2) p. 172-182.

[4] Daniyah Fadhilah Hasyan, Didiana Wisnaeni. (2024). Pemanfaatan Kecerdasan Buatan dan Blockchain dalam Pembuatan Akta Notaris di Indonesia. *Notarius*, Vol.17, No 1, hlm. 432-445.

[5]Zheng Z, Xie S, Dai H., Chen X. and Wang H., 2017 "*An Overview of Blockchain Technology: Architecture, Consensus, and Future Trends,*" *2017 IEEE International Congress on Big Data (BigData Congress)*, Honolulu, HI, USA, pp. 557-564, doi: 10.1109/BigDataCongress.2017.85, accessed on 20 January 2025, at 20.00 WIB.

[6]Mukti Fajar ND & Yulianto Achmad. (2010). *Dualisme Penelitian Hukum Normatif dan Penelitian Hukum Empiris,* Yogyakarta: Pustaka Pelajar. p. 34.

[7]Soerjono Soekanto. (1981). *Pengantar Penelitian Hukum*, Jakarta: Universitas Indonesia. p. 44

result of research. Which is already available in the form of books that are usually provided in the library.[8]

a. Primary legal materials, Mukti Fajar and Yulianto Achmad explain that primary legal materials are legal materials that are authoritative in nature, meaning they have authority, namely they are the result of actions or activities carried out by an authorized institution for that purpose.[9]As per the Law of the Republic of Indonesia

b. Secondary legal materials, namely legal materials that provide an explanation of primary legal materials.[10]For example, literature or research results in the form of research results consisting of books, journals and scientific works.

c. Tertiary legal materials, namely legal materials that provide guidance or explanations regarding primary legal materials and secondary legal materials.[11]Such as legal dictionaries, online media, print media, and so on.

Data analysis is an activity in research in the form of conducting a study of the results of data processing assisted by previously obtained theories. The research material in the form of legal material that has been collected is then processed and analyzed qualitatively, namely in the form of words and not in the form of numbers. The data obtained is then arranged systematically and then analyzed qualitatively to obtain clarity and find solutions to the problems being studied.

3. Results and Discussion

3.1. Implementing Blockchain Technology Into Notary Deed Minutes Storage Protocol Increases Security And Transparency.

The advantage for Notaries who utilize cutting-edge technology, especially blockchain, is saving on the cost of storing data electronically. In addition, Notaries who do not have adequate space are forced to do suboptimal archiving, so that tracing old deeds will be difficult.[12]

For archival practices, blockchain provides similar opportunities to records management. Speaking of provenance tracking, blockchain offers the ability to prove ownership of archival materials because every movement and change of data is recorded and time-stamped on the blockchain network. Another advantage that is considered to be special and very superior that can be achieved with the application of blockchain technology, which cannot be achieved by conventional

[8]Hilman Hadikusuma. (1995). *Metode Pembuatan Kertas Kerja atau Skripsi Ilmu Hukum*, Bandung: Mandar Maju. p. 65.
[9]Mukti Fajar & Yulianto Achmad*, Op.Cit*, p. 157.
[10]Hilman Hadikusuma, *Op Cit*. p. 141.
[11]*Ibid*
[12]*Ibid.*

document storage methods, is the ability to create documents that are eternal and cannot be changed once recorded.[13]

Blockchain technology has a number of fundamental characteristics that make it a potential solution in data recording and storage systems, including in the context of storing notarial deed minutes. These characteristics include:

1) Decentralization

*Blockchain*operates on a distributed network system that does not rely on a central entity. Data stored in the blockchain is copied and distributed to all nodes in the network. Thus, no single party has absolute control over the stored data. This characteristic increases the reliability of the system and reduces the risk of abuse of authority or data manipulation.[14]

2) Transparency,

Every transaction recorded in the blockchain can be seen and verified by all network participants, depending on the type of blockchain used (public or private). This transparency allows for accountability and openness in data recording, which is relevant for building trust in legal document storage systems such as minutes of deeds.[15]

3) Immutability,

*Blockchain*designed to ensure that any data that has been recorded cannot be changed, deleted, or modified without the consent of the majority of the network. This is achieved through the use of a cryptographic hash function that locks each block of data in an inseparable chain. In the context of legal document storage, this characteristic is critical to maintaining the integrity and authenticity of the document.[16]

4) Cryptographic Security,

*Blockchain*using encryption mechanisms and digital signatures to ensure data security. Every transaction entered into the blockchain must go through a strong validation and authentication process, so that only authorized parties can add data

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Tiara Karlina. (2024). "Penerapan Teknologi Blockchain dalam Penyimpanan Protokol Notaris", *Badamai Law Journal*, Volume 9 Issue 1, Fakultas Hukum Universitas Lambung Mangkurat,

[14]Nakamoto, S. 2008. *Bitcoin: A Peer-to-Peer Electronic Cash System*. https://bitcoin.org/bitcoin.pdf. accessed on April 24, 2025 at 21.00 WIB

[15]Budi Raharjo. (2022). *Uang Masa Depan : Blockchain, Bitcoin, Cryptocurrencies*, Semarang: Yayasan Prima Agus Teknik. p. 17.

[16]Crosby, M., Pattanayak, P., Verma, S., & Kalyanaraman, V. 2016. Blockchain Technology: Beyond Bitcoin. *Applied Innovation Review,* 2, p. 6-10.

to the system. This provides assurance of data protection from unauthorized access and forgery.[17]

5) Distributed Consensus,

Any new data to be added to the blockchain must be approved by the majority of nodes in the network through a consensus mechanism such as Proof of Work, Proof of Stake, or other methods. This process ensures that only valid and legitimate data can be recorded in the system, thus minimizing the risk of irregularities or errors in recording.[18]

6) Automatic Time Recording (Timestamping)

Every transaction in the blockchain is automatically recorded along with a timestamp when the transaction occurred. This allows for chronological tracking of every change or activity in the system, which is very relevant for legal evidence and verification of the time of creation or modification of documents.[19]

7) Distributed Ledger.

*Blockchain*acts as a distributed digital ledger, where every transaction is recorded uniformly and stored in identical copies across all network nodes. This creates strong redundancy and ensures complete data availability even if one part of the system is disrupted.[20]

Based on the previous description, it can be concluded that blockchain technology is one of the solutions that is feasible to be implemented in the Notary protocol storage system. This technology offers a number of main advantages, such as a high level of security, transparency in recording, and resistance to data changes or manipulation. These characteristics show a close match with the basic principles of Notary protocol storage. For example, security, which is one of the main strengths of blockchain, is in line with the needs of Notaries in maintaining the confidentiality and integrity of the minutes of the deed. This is very important in order to maintain the credibility and integrity of legal data stored in the Notary protocol.

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[17]Aditya Bayu Nugraha, Peran Kriptografi dalam Blockchain: Keamanan, Enkripsi, dan Hashing,,https://teknikelektro.ft.unesa.ac.id/post/peran-kriptografi-dalam-blockchain-keamanan-enkripsi-dan-hashing, accessed on April 24, 2025 at 21.55 WIB

[18]Budi Raharjo, *Op.cit*., p. 8.

[19]Zohar, A. (2015). Bitcoin and Cryptocurrency Technologies. IEEE Security & Privacy, *13*(2), p. 36-43.

[20]PuskoMedia Indonesia, *Blockchain dan Desentralisasi: Pahami Konsep Dasar*, https://www.puskomedia.id/blog/blockchain-dan-sentrism-pahami-konsep-dasar/, accessed on April 24, 2025 at 22.20 WIB.

The application of blockchain technology in the Notary protocol storage system brings a number of significant benefits, including:

1) Improving Data Security

*Blockchain*uses strong cryptographic technology to ensure that stored data cannot be changed, deleted, or manipulated by unauthorized parties.

2) Ensuring Transparency and Accountability

Every entry or transaction in the blockchain is permanently recorded and traceable. This creates a more transparent and accountable system.

3) Strengthening Public Trust

With the assurance that documents cannot be changed unilaterally and all activities can be audited, public trust in the integrity of Notary protocols will increase.

4) Administrative Process Efficiency

By automating recording and verification with smart contracts, blockchain is able to simplify the process of storing and accessing documents, thereby reducing operational time and costs.

5) Data Loss Resilience

Block chain is decentralized, meaning that data is stored at multiple points in the network. If one node fails, data can still be accessed from other nodes, so the risk of data loss can be minimized significantly.

6) Ease of Audit and Verification

Supervisory authorities can perform data checks by digitally comparing document hashes without having to directly access the contents of the documents. This speeds up the audit process while maintaining the confidentiality of the protocol contents.

7) Adaptive to Technological Developments

The implementation of blockchain opens up opportunities for further integration with other legal technologies, such as digital signatures, digital identities, and national electronic filing systems.

3.2. How Legal Certainty is the Storage of Notary Protocols Using Blockchain

According to Article 1 paragraph 13 of the UUJN, the Notary Protocol is a collection of state archives that must be stored and maintained by a Notary in accordance with the provisions of laws and regulations. This explains that a Notary is one of

the creators of archives. The creator of this archive is determined by the Archives Law, which in Article 1 paragraph 19 states that the creator of the archive is a party who has independence and authority in carrying out functions, duties and responsibilities in the field of dynamic archive management. The Notary Protocol is part of the state archives, which thus becomes a very important state asset and must be maintained and accounted for, especially in terms of its storage and maintenance.

The digital Notary Protocol Regulations still cannot be applied at this time, even though the emergence of the digital Notary Protocol Regulations in the legislation is a breath of fresh air for the development of Notaries in Indonesia in the future. With this Notary Digitalization, it can open up opportunities for Notaries to carry out their practices electronically. However, UUJN has not regulated the development of Notaries, especially in storing digital Notary protocols. So that the legal certainty of storing Notary protocols digitally is currently a gray area for Notaries, because there are no implementing regulations for storing Notary protocols digitally. In terms of effectiveness, storing Notary protocols digitally will make it easier for Notaries in Indonesia and of course for the community.

Referring to Article 1888 of the Civil Code, the strength of written evidence is in the original deed. So in the trial, if the Notary can only provide electronic documents without including the original deed as instructed in Article 66 and Article 66 A of the UUJN-P and the Regulation of the Minister of Law and Human Rights Number M.03. HT.03.10. Year 2007, then the Notary is required to provide the reason, his statement to the investigator or judge regarding why he did not include the original deed, so that the Notary can provide other evidence such as a copy of the Notarial deed that has been made by the Notary concerned.

Article 5 of the ITE Law states that:

1) Electronic information and/or electronic documents and/or printouts thereof constitute valid legal evidence.

2) Electronic information and/or electronic documents and/or printouts as referred to in paragraph 1 constitute an extension of valid evidence in accordance with the procedural laws applicable in Indonesia.

3) Electronic information and/or electronic documents are declared valid if they use an electronic system in accordance with the provisions stipulated in this law.

4) The provisions regarding electronic information and/or electronic documents as referred to in paragraph (1) do not apply to:

a. A letter that according to law must be made in form written; and

b. The letter and its documents, according to law, must be made in the form of a notarial deed or a deed made by the deed-making official.

If we look at the article above, it explains that electronic information and/or electronic documents have been recognized as valid legal evidence, both in their original electronic form and in printed form.

In UUJN, there are no provisions that explicitly regulate the storage of Notary protocols in digital form. As a result, the rules regarding digital protocols in UUJN do not provide adequate legal certainty. The absence of legal certainty leads to a legal vacuum or a lack of norms that regulate this matter. One of the main obstacles to the implementation of digital Notary protocols is the absence of regulations that specifically and formally regulate the meaning and procedures related to the digital Notary protocol.

4. Conclusion

To support the implementation of blockchain in storing notarial deed minutes, there needs to be an update of regulations governing digital storage to be in line with applicable laws. In addition, socialization to Notaries regarding the benefits and uses of blockchain is very necessary so that they can optimize this technology in their practices. Related parties also need to develop infrastructure that allows for the safe and integrated implementation of blockchain, and start its implementation gradually to ensure its success on a wider scale.As a further step to create legal certainty in digital storage of Notary protocols, it is necessary to revise the Notary Law (UUJN) to accommodate the development of information technology, especially related to the use of blockchain. This revision should be carried out in harmony with other regulations such as the Archives Law and the Electronic Information and Transactions Law (UU ITE) in order to create strong legal synergy. In addition, the authorities are expected to prepare clear technical guidelines regarding the implementation and use of blockchain in storing legal documentation so that Notaries have strong guidelines in facing challenges in the digitalization era. The use of blockchain technology in this case can be positioned as a superior alternative in order to create a safe, transparent, and reliable storage system for the long term.

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