

Implications for Legal Certainty of Incorporating Blockchain Into the Documentation of Customary Law Institution Decisions

Darmawan Yusuf¹, Jhon Tyson Pelawi²

¹ Faculty of Law, Universitas Al Azhar, Indonesia

² Faculty of Law, Sekolah Tinggi Agama Islam Negeri Mandailing Natal, Indonesia

E-mail: darmawan@alazhar-university.ac.id, jhontysonpelawi@stain-madina.ac.id

Manuscripts received : 11/04/2025, Revision and Review : 12/04/2025, Approved 31/12/2025

Abstract

The development of blockchain technology opens up new opportunities in the digitization of legal documents, including decisions of customary institutions which have previously been documented conventionally and are vulnerable to loss, forgery, and discrepancies in recording. This study aims to analyze the potential for blockchain integration into customary law institutions' decision documentation systems and its implications for increasing legal certainty for indigenous communities and other stakeholders. The research method used is normative juridical, with legislative, conceptual, and comparative approaches, supported by secondary data in the form of literature related to blockchain, customary law, and legal certainty. The research results show that blockchain characteristics such as immutability, transparency, and decentralization can strengthen the authenticity and reliability of customary ruling documentation, making them more secure, permanent, and easily verifiable instruments. This technological integration also has the potential to clarify the position of customary rulings within the national legal system by improving documentation standards and facilitating the presentation of evidence before state institutions. However, blockchain implementation faces challenges such as digital infrastructure readiness, technological literacy among indigenous communities, and the need for regulatory harmonization, particularly regarding data protection, recognition of indigenous communities, and the validity of electronic evidence.

Keywords: *Implications, Legal Certainty, Blockchain, Documentation, Customary Institutions.*

A. Introduction

Indonesia is a country that has a diversity of cultures and legal systems, including the existence of customary law as part of the national legal system which is recognized in Article 18B paragraph (2) of the 1945 Constitution¹. The existence of customary

¹ Veren Sempo, "Hak Masyarakat Hukum Adat Di Tengah Modernisasi Di Tinjau Dari Pasal 18b Ayat (2)

institutions that function to resolve various disputes at the customary community level is important as a form of customary law that continues to exist amidst societal development². In practice, the decisions of customary institutions have legal and social value because they reflect the norms, agreements, and recovery mechanisms believed by indigenous communities. However, the documentation of customary law institution decisions is often still done manually, is not standardised, and is even poorly documented. This raises a number of issues, including: a) difficulty in tracing the decision's history, b) vulnerability to document manipulation or loss, c) low accessibility for parties needing proof, and d) weak formal recognition of customary decisions due to the lack of a definite documentation standard.

This condition impacts the lack of legal certainty, both for indigenous communities and for external parties interacting with them³, especially in land disputes, inheritance, or social conflicts that require authentic evidence. The development of digital technology presents new opportunities to address this issue. Blockchain technology, with its characteristics of immutability, transparency, and a decentralised ledger, offers a data recording mechanism that is secure, unchangeable, and verifiable at any time⁴. This technology integration in the documentation of customary institution decisions has the potential to provide solutions to various classic problems, such as document manipulation, unclear publication dates, and the loss of customary archives. Additionally, blockchain can strengthen the legitimacy of customary decisions because every decision recorded on the network is permanent and digitally accountable.

Integrating blockchain into customary law documentation can also support the government's efforts to promote the digitalisation of public administration⁵, including strengthening the legal standing of indigenous communities through transparent and standardised registration. Nevertheless, the implementation of this technology still faces several challenges, such as human resource readiness, access to technology in indigenous territories, compatibility with customary norms, and harmonisation with national regulations like the ITE Law, the PDP Law, and policies related to the recognition of indigenous legal communities. Therefore, a comprehensive study is needed to examine how the integration of blockchain into the documentation of customary law decisions can strengthen legal certainty, both from a normative and practical perspective. This study is important for understanding the extent to which technology can serve as a bridge between customary law as living law and modern digital-based legal systems.

Undang Undang Dasar 1945," *Lex Privatum* 13, no. 5 (2024).

² Muhammad Iqbal, Zaki Ulya, and Muhammad Natsir, "Eksistensi Keujreun Blang Dalam Hukum Adat Aceh: Antara Tradisi Dan Modernisasi," *Jurnal Adat Dan Budaya Indonesia* 7, no. 2 (2025): 321–32.

³ Yuldiana Zesa and Fransiskus Samderubun, "Kepastian Hukum Penyelesaian Konflik Tanah Ulayat Di Bidang Investasi Di Kabupaten Merauke," *Animha Law Journal* 1, no. 1 (2024): 13–39.

⁴ Alisa Qotrunada, "Implementasi Teknologi Blockchain Dalam Transformasi Sistem Audit Lembaga Keuangan Syariah," *Journal of Islamic Finance and Economics* 2, no. 02 (2025): 296–312.

⁵ H M Harry Mulya Zein and Sisca Septiani, *Digitalisasi Pemerintahan Daerah: Katalis Untuk Integrasi Dan Optimasi Good Governance* (Sada Kurnia Pustaka, 2024).

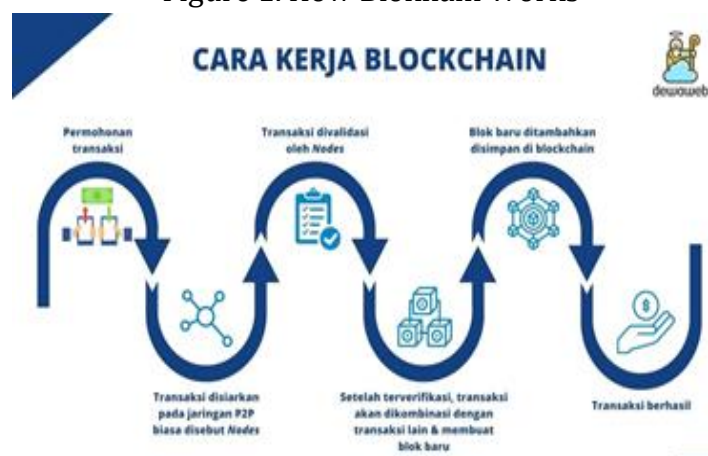
B. Research Method

This research is normative legal research (juridical normative) that analyses legal norms, rules, and doctrines related to: a) the validity of customary law, b) the recognition of customary institution decisions within the national legal system, c) technology regulation, particularly blockchain, and d) the concept of legal certainty in Indonesian law. This research is supplemented by a limited empirical approach (juridical-empirical) through observation and interviews with traditional leaders or relevant parties. This research also uses a legislative approach: (1945 Constitution Article 18B, ITE Law, PDP Law, Regulations on the recognition of customary law communities, Policies related to digitalisation and technological innovation). This research method helps to deeply assess how the integration of blockchain technology can add value to customary law documentation and strengthen legal certainty, as well as examine the challenges of its implementation in the social and cultural practices of indigenous communities.

C. Results and Discussion

The relationship between digital technology and customary law lies at the intersection of several disciplines: legal science (customary law, law of evidence, administrative law), information technology (blockchain, smart contracts), legal anthropology (living law, customary institution practices), and public policy (digital governance, recognition of Indigenous Peoples). This study positions blockchain integration as a technical-institutional effort to improve the documentation and proof of customary decisions, while simultaneously questioning the social-cultural and legal norm consequences that follow.

Figure 1. How Blokhain Works



Source: riset.guru (panda.id) Year 2025

Fig 1 explains that there is a decentralised and immutable system that permanently records transactions. Imagine a ledger that is widely distributed across many computers, where each

page contains records linked to the previous page. If someone tries to damage one page, the entire chain will be broken, making manipulation very easy to detect:

- a) Characteristics of customary law decisions: Legal and anthropological literature emphasises that customary law decisions often rely on community consensus, oral evidence, ritual practices, and non-formal documents. The decision serves as a restorative/social sanction mechanism, not merely a formal legal order;
- b) Documentation issues: Studies show common problems: non-standardized documentation, vulnerability to loss or manipulation, difficulty in verification outside the community, and low formal recognition by state institutions. This weakens legal certainty when customary decisions must interact with national administrative or litigation processes;
- c) The role of state recognition: Normative literature notes that formal recognition of indigenous legal communities within the national framework (constitution and regulations) opens space for integrating recording mechanisms, but little empirical research shows how documentation harmonisation is carried out in the field.

In this case, blockchain guarantees and provides legal protection and certainty in the existing system, just as blockchain guarantees technical principles and legal relevance, and blockchain applications can ensure the presentation and storage of data in public and land records (relevant parallel).

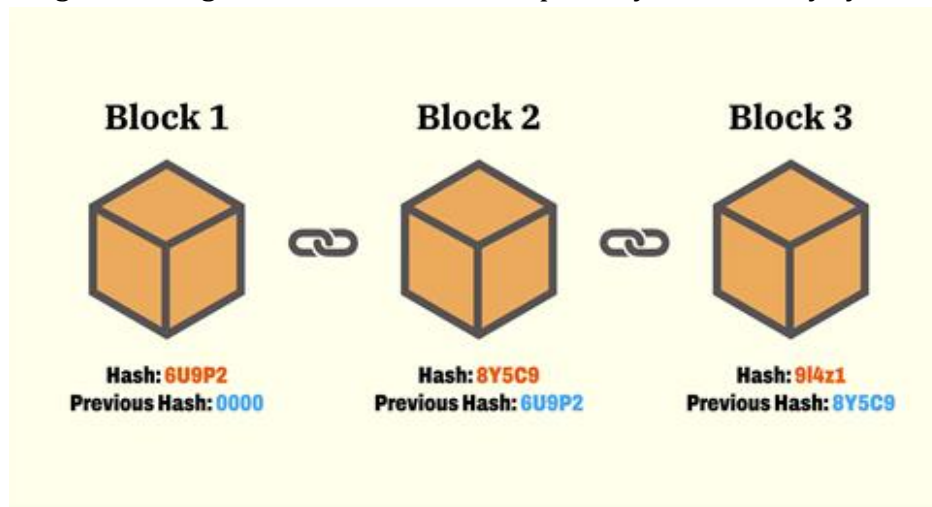
1. Blockchain: technical principles and legal relevance

- a) Key technical features: Blockchain is known for its immutability (records are not easily changed), decentralisation (not reliant on a single authority), transparency (transaction trails can be verified), and cryptographic authentication (digital signatures);
- b) Relation to legal proof: Legal-tech literature states that recording on the blockchain can strengthen the integrity and timestamping of digital evidence, which is useful for proving the chronology of decisions and recognising the authenticity of documents;
- c) Smart contracts: Some studies examine smart contracts as a mechanism for automating obligations; however, many authors argue that smart contracts are not a substitute for legal norms or customary decisions that contain subjective, moral, and restorative elements.

2. Blockchain applications in public and land records (relevant parallel):

- a) Land registries & public records: Numerous international literature and case studies (pilot projects in several countries) have tested blockchain for land registration, ownership certificates, and the chain of ownership. The results show gains in transparency and a reduction in fraud, but also highlight issues of interoperability, cost burden, and institutional needs;
- b) Lessons for customary decisions: Practical lessons can be drawn from the land registry study: the need for integration between digital records and traditional adjudication mechanisms; the importance of hybrid models (on-chain pointers + off-chain data) for storing sensitive documents; and the role of clear key-holding entities (custodianship).

Figure 2. Diagram of blockchain transparency and security system



Source: Ridha Dinda Fadhilah, Blockchain and Geographic Information System (GIS): A Digital Solution for Land Mafia Problems in Indonesia, 2025.

Fig 2 explains that Blockchain enables decentralised, transparent, and immutable data recording. In the context of customary institution decisions, blockchain can store ownership documents for customary land and the history of customary systems in place in an encrypted digital format. For example, in Georgia, since 2016, blockchain has been used to record over 1.5 million property transactions, which has significantly.

Based on data from Switzerland, which has implemented blockchain in information and public services and blockchain-based voting, the figures show positive results and provide a very high level of public trust.

Table 1. Data on countries that have implemented blockchain technology in public information and services, as well as blockchain-based voting.

No	Country	Public Service	Year	Satisfaction Score
1	Swiss	Voting	2018	79%
		National E-Government Study	2022	64%
		Trust and Transparency	2025	81%
2	Georgia	Increased Efficiency and Speed	2018	90%
		Transparency and Accountability		90%
		Public Trust		90%
3	Filipina	Government Service Performance	2022	96.96%

Source: Self-managed, Year 2025

Based on Table 1 above, it shows that the use of blockchain in public service systems and voting systems in the election of state officials received satisfaction scores above 85% in the three countries that use the blockchain system. The relevance in the decisions of customary institutions is also very effective when based on blockchain because it will produce customary institution decisions that are effective, transparent, and provide legal certainty.

Customary law institutions are institutions whose existence is recognised as part of the living law in Indonesian society⁶. Customary law has social legitimacy because it is based on deliberation, moral values, and norms that are alive within the community⁷. Constitutionally, the state recognises the existence of customary law through Article 18B paragraph (2) of the 1945 Constitution, which states that the state respects the unity of customary law communities and their traditional rights. In practice, customary law decisions often face several issues: a) Non-standard and inconsistent documentation of decisions, b) Many decisions are only in oral form or simple notes, c) Susceptible to loss, damage, and manipulation, d) Difficult to use as strong evidence in the context of state administration or modern courts.

This situation creates legal uncertainty, especially when customary law decisions relate to land disputes, inheritance, customary territory boundaries, or social conflicts that require formal proof. Blockchain is a distributed digital ledger technology with three main characteristics⁸: a) Immutability: Once a record is entered, it cannot be changed. b) Transparency and verification: All authorised parties can verify the authenticity of the data. c) Cryptographic security: Data can only be accessed by authorised parties. In the context of legal documentation, blockchain is often seen as a technology capable of: a) strengthening document authenticity, b) providing an immutable timestamp, c) enhancing the integrity of electronic evidence, and d) facilitating the tracking of decisions. This concept is highly relevant for indigenous institutions that have been facing documentation issues. Blockchain can provide a digital ledger that securely, structurally, and consistently holds all decisions, making it more credible evidence.

Blockchain integration can be achieved through several mechanisms: 1) On-Chain Recording of Judgement Metadata⁹: Complete documents are stored offline (off-chain), but the hash or cryptographic summary is stored on the blockchain to guarantee authenticity. 2) Digitisation of the Documentation Process: Customary decisions that were previously oral are converted into digital documents through minutes, videos, or written scripts before being

⁶ Andi Aco Agus, "Eksistensi Masyarakat Adat Dalam Kerangka Negara Hukum Di Indonesia," *Jurnal Sosialisasi* 4, no. 1 (2017): 5–15.

⁷ Maria Magdalena Nago, Theresia Emilia B Da Cunha, and Gervatius Portasius Mude, "Kekuatan Hukum Atas Keputusan Adat Oleh Lembaga Pemangku Adat Dalam Penyelesaian Sengketa Tanah Warisan Pada Suku Wolowea (Studi Kasus Pada Kelurahan Ratongamobo Kecamatan Boawae Kabupaten Nagekeo)," *Judexnipa-Jurnal Ilmu Hukum* 6, no. 1 (2025).

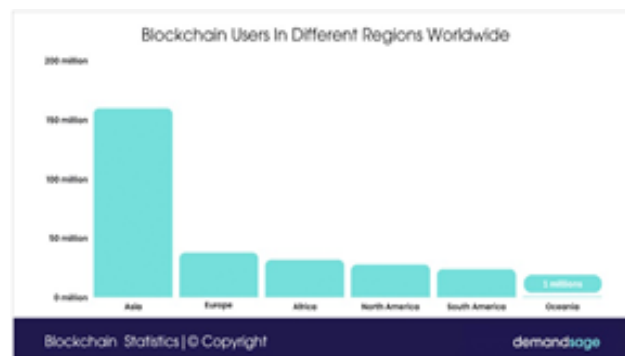
⁸ Dwi Apriliyasi and Bayu Ajie Putra Seno, "Inovasi Pemanfaatan Blockchain Dalam Meningkatkan Keamanan Kekayaan Intelektual Pendidikan," *Jurnal MENTARI: Manajemen, Pendidikan Dan Teknologi Informasi* 1, no. 1 (2022): 68–76.

⁹ Feri Agustina et al., "Blockchain untuk Pemerintahan Digital: Suatu Kajian Literatur Sistematis," *Integrative Research In Computer Science* 1, no. 01 (2025): 77–107.

uploaded to the blockchain system. 3) Digital Customary Platform. This model must continue to respect customary principles, including internal confidentiality, consensus-based decision-making, and community values.

Despite its potential, there are several obstacles to blockchain integration¹⁰: 1) Cultural aspect: Not all indigenous communities are accustomed to formal or digital record-keeping systems. Changes in documentation models need to consider cultural values and traditional consultation mechanisms, 2) Technological infrastructure: Many indigenous territories are located in areas with limited internet access, 3) Regulatory framework: Harmonisation is needed between the ITE Law, the PDP Law, and policies related to indigenous legal communities, 4) Privacy and sensitive data: Traditional decisions often contain personal information and internal conflicts that should not be known by outsiders.

Figure 3. Number of blockchain users in various regions worldwide



Source: Naveen Kumar, Blockchain Statistics (2025) Adoption Rates & More

Fig 3 shows that over 560 million people worldwide will be using Blockchain by 2025, which means 3.9% of the global population will be using blockchain. If we talk about usage by region, then 160 million people in Asia use this technology, while only 1 million people in Oceania use it. Blockchain integration also provides strategic benefits¹¹: a) creating permanent and protected documentation, b) facilitating proof in court if necessary, c) strengthening the legitimacy of decisions in the eyes of the state, d) serving as historical evidence and social archives for indigenous communities, e) increasing the transparency and credibility of indigenous institutions. With the right design, blockchain can be a tool for empowering indigenous communities, not a threat to their traditional values. With blockchain technology, customary decisions: 1) have stronger evidentiary value as electronic evidence, 2) are easier to verify by government agencies or courts, and 3) can serve as an administrative basis for land management, boundary disputes, or customary claims. This strengthening of documentation serves as a bridge between customary law and the modern legal system,

¹⁰ Azhar Dzaky Muhammad HM and Siska Amalia Juniarti, "Penerapan Teknologi Blockchain Dalam Sistem Informasi Akuntansi: Potensi Dan Tantangan," *Jurnal Jawara Sistem Informasi* 1, no. 1 (2023).

¹¹ Ismiatul Khairiyah, "Integrasi Teknologi Canggih Dalam Investasi: Cara Meningkatkan Keuntungan Dan Mengelola Risiko Dengan Efektif," *Jurnal Investasi Islam* 5, no. 1 (2024): 587-600.

making customary decisions less susceptible to debate or denial by outsiders.

D. Conclusion and Recommendations

The integration of blockchain technology into the documentation of customary law decisions is a breakthrough that can address various fundamental issues related to the recording, archiving, and proof of customary law decisions, which have been vulnerable to loss, manipulation, and legal uncertainty. With its characteristics of immutability, transparency, and decentralised verification, blockchain is able to provide security and authenticity guarantees for every customary decision recorded in the digital system. This has a direct impact on increasing legal certainty, both for indigenous communities and external parties who need certainty about the validity of a decision. The application of blockchain also strengthens the position of customary law decisions within the national legal system, as permanently stored and verifiable documentation becomes digital evidence that is more easily accepted in administrative and legal proceedings. Thus, this technology has the potential to be a bridge between living law sourced from customary norms and modern legal developments that demand transparency, accountability, and ease of access to information.

However, the successful integration of blockchain in customary law documentation is not without several important prerequisites: the availability of technological infrastructure, the enhancement of indigenous human resource capacity, compatibility with cultural values and customary procedures, and the harmonisation of national regulations related to digital technology, data protection, and the recognition of indigenous legal communities. Without adequate support, this innovation could actually create gaps or inconsistencies with the existing customary systems. Thus, it can be concluded overall that blockchain has the potential to be an important instrument in improving legal certainty for decisions made by customary institutions, provided that its implementation is carried out gradually, is sensitive to cultural values, and is supported by a policy framework that is responsive to the needs of indigenous communities. This integration is not merely a technical modernisation, but a strategic step towards strengthening the legal position of indigenous communities within a more inclusive and technologically adaptive Indonesian legal framework.

References

- Agus, Andi Aco. 2017. "The Existence of Indigenous Peoples within the Framework of the Rule of Law in Indonesia." *Jurnal Sosialisasi* 4 (1): 5–15.
- Agustina, Feri, Arry Maulana Syarif, Edy Mulyanto, and Erlin Dolphina. 2025. "Blockchain for Digital Government: A Systematic Literature Review." *Integrative Research in Computer Science* 1 (1): 77–107.
- Apriliasari, Dwi, and Bayu Ajie Putra Seno. 2022. "Innovative Use of Blockchain to Enhance the Security of Educational Intellectual Property." *Jurnal MENTARI: Manajemen, Pendidikan dan Teknologi Informasi* 1 (1): 68–76.
- HM, Azhar Dzaky Muhammad, and Siska Amalia Junianti. 2023. "Implementation of Blockchain Technology in Accounting Information Systems: Potentials and Challenges." *Jurnal Jawara Sistem Informasi* 1 (1).
- Iqbal, Muhammad, Zaki Ulya, and Muhammad Natsir. 2025. "The Existence of Keujreun Blang in Acehese Customary Law: Between Tradition and Modernization." *Jurnal Adat dan Budaya Indonesia* 7 (2): 321–332.
- Khairiyah, Ismiatul. 2024. "Integration of Advanced Technology in Investment: Enhancing Returns and Managing Risk Effectively." *Jurnal Investasi Islam* 5 (1): 587–600.
- Nago, Maria Magdalena, Theresia Emilia B. Da Cunha, and Gervatius Portasius Mude. 2025. "Legal Authority of Customary Decisions by Traditional Institutions in the Settlement of Inherited Land Disputes among the Wolowea Tribe (Case Study in Ratongamobo Village, Boawae District, Nagekeo Regency)." *Judexnipa: Jurnal Ilmu Hukum* 6 (1).
- Qotrunada, Alisa. 2025. "Implementation of Blockchain Technology in the Audit System Transformation of Islamic Financial Institutions." *Journal of Islamic Finance and Economics* 2 (2): 296–312.
- Sempo, Veren. 2024. "Rights of Indigenous Law Communities amid Modernization as Reviewed from Article 18B Paragraph (2) of the 1945 Constitution." *Lex Privatum* 13 (5).
- Zein, H. M. Harry Mulya, and Sisca Septiani. 2024. *Digitalization of Local Government: A Catalyst for Integration and Optimization of Good Governance*. Bandung: Sada Kurnia Pustaka.
- Zesa, Yuldiana, and Fransiskus Samderubun. 2024. "Legal Certainty in the Settlement of Customary Land Conflicts in the Investment Sector in Merauke Regency." *Animha Law Journal* 1 (1).