

Land and Digital Identity: The Potential and Threat of Electronic Certification to Indigenous Peoples

Salha Marasaoly
Universitas Khairun, Indonesia

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Corresponding Author:

Author Name : Salha Marasaoly

Email : salha@unkhair.ac.id

Abstract: Digital transformation in the national land administration system through electronic certification brings hope for increased efficiency, transparency, and legal certainty. However, this modernization also raises serious problems related to structural inequality, especially in relation to customary law communities. Electronic certification based on individual ownership and formal digital identity is not in line with the principles of communal land tenure in customary law. As a result, indigenous peoples who do not have access to digital infrastructure and formal population documents experience digital exclusion which has a direct impact on the marginalization of customary land rights. Customary lands that are not officially documented become vulnerable to claims by other parties, including the state and corporations. This study uses a normative juridical approach by examining the synchronization between the UUPA, the ITE Law, and regulations related to electronic certification, as well as analyzing the acceptance of customary law principles in the digital system. The importance of reformulation of land policies that ensure formal recognition of customary rights through a community-based collective certification mechanism is emphasized. In addition, strengthening inclusive digital identities and the application of Free, Prior and Informed Consent (FPIC) principles are prerequisites to ensure the constitutional protection of indigenous peoples. Without a contextual and social justice-based legal approach, land digitalization risks becoming an instrument of structural exclusion that systemically threatens customary rights.

Keywords: Digital Exclusion; Right; Electronic Certification

INTRODUCTION

Digital transformation in the national land administration system is part of the bureaucratic modernization policy initiated by the state to strengthen legal certainty over land rights. Through electronic certification, the state aims to speed up services, suppress corrupt practices, and create an integrated and efficiently accessible land database. However, behind the efficiency rhetoric, structural problems arise that are rooted in the incompatibility between the formal legal system of the state and the customary law system, especially



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in the context of indigenous peoples' land management. Electronic certification represents not only a technical change, but also a paradigmatic change in the relationship between people, land, and law.¹

One of the fundamental issues in the implementation of electronic certification is the gap in access and digital literacy experienced by indigenous peoples. Indigenous peoples, who generally live in remote areas with limited access to digital infrastructure, often lack adequate technological tools and understanding to follow electronic-based administrative processes.² In addition, many indigenous communities do not have formal population documents or legal identities that are prerequisites in the digital land administration system. This condition poses a risk of digital exclusion which has a substantive impact on the marginalization of the rights of indigenous peoples in the process of legalizing their land.³

In addition, the electronic certification system is based on the principle of individualization of land rights which is conceptually contrary to the principle of communality that is the basis of land tenure in indigenous peoples. Customary law sees land not as just an economic asset or an individual legal object, but as an integral part of the community's collective identity, spirituality, and cultural sustainability. A digital approach that prioritizes individual registration and administrative mapping without recognition of communal structures can result in the deconstruction of customary legal systems that have existed long before the state was formed.

Furthermore, electronic certification opens up opportunities for the penetration of external actors, both state and private, into customary territories that do not yet have adequate legal protection. Customary lands that are not formally documented are vulnerable to being certified on behalf of other parties who have more access and knowledge of digital systems. Within the framework of agrarian law, the disorder of indigenous peoples' land data can be manipulated through formal-legal mechanisms that ultimately result in systemic dispossession, a form of dispossession that takes place digitally and institutionally.

The absence of specific provisions in national land regulations regarding the integration of customary law principles in electronic certification also deepens legal ambiguity. Law Number 5 of 1960 concerning the Basic Regulation on Agrarian Principles (UUPA) does recognize customary rights and the existence of customary law communities, but its implementation is still weak and fragmentary. Coupled with the Regulation of the Minister of ATR/Head of BPN related to electronic land certificates, which emphasizes technical aspects rather than substantive recognition of indigenous communities, this creates a normative gray space that has the potential to give birth to horizontal and vertical conflicts.

¹ Hidayah, S., Hariyani, E., Mukarromah, L., Niravita, A., & Fikri, M. A. H. (2024). Tantangan dan Peluang Sertifikat Elektronik dalam Reformasi Pendaftaran Tanah di Era Digital. *Jurnal Ilmiah Nusantara*, 1(6), 186-199.

² Puspita, E. F. D., & Supriyo, A. (2025). PERLINDUNGAN HUKUM TERHADAP KEPEMILIKAN SERTIFIKAT TANAH ELEKTRONIK. *Pagaruyuang Law Journal*, 182-207.

³ Shuaib, M., Hassan, N. H., Usman, S., Alam, S., Bhatia, S., Agarwal, P., & Idrees, S. M. (2022). Land registry framework based on self-sovereign identity (SSI) for environmental sustainability. *Sustainability*, 14(9), 5400.



In the context of human rights protection, the digitalization of land administration needs to be studied within the framework of the constitutional rights of indigenous peoples. Article 18B paragraph (2) of the 1945 Constitution explicitly states recognition and respect for customary law communities and their traditional rights, as long as they are still alive and in accordance with the development of society and the principles of the Unitary State of the Republic of Indonesia.⁴ Therefore, any technology-based policy that has an impact on customary rights must go through a constitutional accountability test. Electronic certification, if not designed in an inclusive and participatory manner, is contrary to the principles of non-discrimination and social justice.⁵

Furthermore, digital identity as a prerequisite for electronic certification presents multidimensional issues, ranging from aspects of privacy, data security, to legal validity. In the case of indigenous peoples, digital identity is not only administrative, but also concerns political and existential representation before the state. When their identities are not reflected in the country's digital system, their legal position becomes vulnerable to marginalization. This suggests that electronic certification, if not accompanied by recognition of the diversity of legal identities, can be a new tool for defining who is considered "entitled" to land.⁶

Thus, efforts to integrate digital technology in the national land system must be accompanied by a contextual, interdisciplinary, and social justice-based legal approach. Regulatory reformulation is needed to ensure the active participation of indigenous peoples in the digitalization process, protection of communal structures in customary law, and strengthening the mechanism for recognition of customary rights in the electronic land system. Without it, digital certification can become a hegemonic instrument that deepens structural inequalities and threatens the sustainability of indigenous peoples' rights to land as part of their cultural identity and heritage.

METHOD

This research uses a normative juridical method, which is a legal research approach that relies on the study of applicable positive legal norms. This approach aims to analyze the synchronization and coherence between the laws and regulations governing land, indigenous peoples, and the digitization of land certification in the context of national law. The main focus of this research is to examine how existing legal norms provide legal protection for the rights of indigenous peoples in the face of the process of digitizing land administration through electronic certification.

⁴ Sempo, V. (2024). Hak Masyarakat Hukum Adat Di Tengah Modernisasi Di Tinjau Dari Pasal 18b Ayat (2) Undang Undang Dasar 1945. *Lex Privatum*, 13(5).

⁵ Susilowati, I. F. (2024). Tinjauan Yuridis Sertifikat Tanah Elektronik Sebagai Alat Bukti Kepemilikan Tanah Di Indonesia. *Novum: Jurnal Hukum*, 1(1), 57-71.

⁶ Oktavianto, R. (2025). *OPTIMALISASI PELAYANAN PERTANAHAN MELALUI ADOPSI SERTIFIKAT TANAH ELEKTRONIK* (Doctoral dissertation, Universitas Islam Sultan Agung Semarang).



Normative research aims to examine and understand how the law should apply (das sollen), not how the law is practiced in empirical reality (das sein), so that the entire analysis process relies on primary and secondary legal materials that are textual and conceptual.⁷

As explained by Peter Mahmud Marzuki, normative legal research is a method that focuses on the study of legal materials as the main object of study, by interpreting and constructing applicable laws to answer certain legal issues.⁸ According to Marzuki, this approach is prescriptive because it aims not only to describe the law, but also to provide normative arguments for the validity of a legal action or act in the legal system adopted.⁹ Meanwhile, Soerjono Soekanto and Sri Mamudji stated that normative legal research includes research on legal principles, legal systematics, legal synchronization, legal history, and comparative law.¹⁰

In this normative juridical framework, the main data sources come from primary legal materials, which include Law Number 5 of 1960 concerning Basic Regulations on Agrarian Principles (UUPA) and Law Number 19 of 2016 concerning Amendments to Law Number 11 of 2008 concerning Information and Electronic Transactions (ITE Law). The UUPA is a normative basis to examine the recognition of customary rights and the existence of customary law communities in land tenure, as stipulated in Article 3 of the UUPA. This research will explore how these norms are accommodated or even set aside in the practice of electronic land certification developed by the state.

On the other hand, the ITE Law is used as a legal basis to examine the legitimacy and legal force of electronic certificates, including how digital identities and electronic transactions are recognized in the Indonesian legal system. Articles governing electronic signatures, electronic data, and information authentication are of particular concern to see whether these digital instruments pay attention to the principles of justice for vulnerable groups, especially indigenous peoples who have different identity and ownership characteristics than the positive legal system in general.

This research will also utilize secondary legal materials, such as scientific literature, legal journals, technical regulations (Permen ATR/BPN on Electronic Certificates), as well as relevant policy documents. Conceptual approaches are also used to examine concepts such as digital identity, digital exclusion, customary land, and legal pluralism, in order to build a holistic theoretical understanding of the phenomenon being studied. In addition, a comparative analysis of customary land recognition practices in the context of digitalization in several countries was also carried out as a normative and policy comparison.

⁷ Novea Elysa Wardhani, Sepriano, and Reni Sinta Yani, *Metodologi Penelitian Bidang Hukum* (Jambi: PT. Sonpedia Publishing Indonesia., 2025).

⁸ Peter Mahmud Marzuki, *Penelitian Hukum* (Jakarta: Kencana Prenada Media Group, 2011).

⁹ Mahlil Adriaman et al., *Pengantar Metode Penelitian Ilmu Hukum* (Padang: Yayasan Tri Edukasi Ilmiah, 2024).

¹⁰ Rangga Suganda, "Metode Pendekatan Yuridis Dalam Memahami Sistem Penyelesaian Sengketa Ekonomi Syariah," *Jurnal Ilmiah Ekonomi Islam* 8, no. 3 (2022): 2859, <https://doi.org/10.29040/jiei.v8i3.6485>.



The analysis method used is descriptive-analytical, in which each legal norm will be described, interpreted, and evaluated from the perspective of conformity to the principles of social justice and the protection of the constitutional rights of indigenous peoples. Thus, this research is expected to contribute to the formulation of more inclusive and equitable legal policies in the face of the era of land digitalization.

DISCUSSION

1. Tensions between Customary Law and Electronic Certification Systems in a National Agrarian Perspective

The existence of customary law as part of the national legal system faces serious challenges along with the implementation of electronic certification in land administration. The tension between the principle of communal land tenure by customary law communities and the formal legality model based on individual ownership suggests a normative conflict between two different legal systems. Article 3 of Law Number 5 of 1960 concerning the Basic Regulations on Agrarian Principles (UUPA) does recognize customary rights as long as they exist and do not conflict with national interests and other laws and regulations. However, such recognition is declarative and has not been followed by an adequate legal instrument to ensure substantive protection of the collective rights of indigenous peoples.¹¹

The electronic land certification developed by the Ministry of ATR/BPN is designed to support transparency, efficiency, and legal certainty. The system is built on a modern administrative structure that emphasizes the clarity of the legal subject, the legal status of the land object, as well as documentary evidence that can be verified through information technology.¹² These characteristics are contrary to the reality of customary law which is communal, unwritten, and inherited from generation to generation. As a result, many customary territories cannot be incorporated into the digital land system because they do not meet the formal requirements set by the state.

Customary-controlled territories are often overlooked in the national land registration system and have the potential to be categorized as state land. The absence of formal instruments that expressly guarantee the recognition of customary rights increases the risk of marginalization of indigenous peoples. Electronic certification, while bringing administrative benefits, has the potential to accelerate the process of legal exclusion for groups that do not have the capacity to access the system, either due to limited infrastructure, digital literacy, or formal recognition of their legal existence.

Individual-based land certification models and digital technologies create legalistic inequalities that do not accommodate collective tenure structures. Customary law views land as a cultural entity that is closely related to the identity, spirituality, and survival of the community. Meanwhile, the national legal system

¹¹ Lubis, I., Siregar, T., Lubis, D. I. S., Adawiyah, R., & Lubis, A. H. (2025). Integrasi hukum adat dalam sistem hukum agraria nasional: Tantangan dan solusi dalam pengakuan hak ulayat. *Tunas Agraria*, 8(2), 143-158.

¹² Bernanda, Y., Qomariah, I., & Mandasari, E. (2025). Analisis Konflik Tanah dalam Konteks Hukum Adat. *Jejak digital: Jurnal Ilmiah Multidisiplin*, 1(3), 516-523.



treats land as a legal object subject to formal administrative norms. This paradigm difference results in an epistemological gap that widens when digitalization is used as the main instrument of agrarian management.

Indigenous peoples experience double exclusion: structurally because they are not recognized in the country's legal system, and technologically because they are unable to access digital infrastructure.¹³ When customary rights do not have formal legitimacy in the electronic land system, indigenous communities lose their bargaining position against the claims of other parties, including the state and corporations. This situation magnifies the potential for agrarian conflict and weakens the position of indigenous peoples in defending their living areas.

The absence of a recognition mechanism that is responsive to the complexity of customary law makes the electronic certification system structurally discriminatory. Legality is only granted to entities that can prove ownership through formal documents, whereas not all forms of land tenure can be formulated within a positive legal framework that ignores the history, values, and social legitimacy of a community.¹⁴ This model obscures the principle of agrarian justice as mandated by the UUPA.

The government needs to design a land law system that is able to integrate the principles of legal pluralism substantially. A collective certification mechanism based on indigenous communities can be a strategic solution to bridge the gap between the customary law system and state law. In addition, implementing regulations that ensure the recognition and protection of customary rights must be established as part of a national land policy based on social justice.

The transformation of the land system towards the digital era should not only pursue bureaucratic efficiency, but also ensure legal inclusivity.¹⁵ Strengthening the position of customary law communities as subjects of collective law and recognition of distinctive land tenure structures are the main requirements for realizing a digital agrarian system that is fair, democratic, and respectful of the diversity of laws that live in Indonesian society.

2. Digital Identity as a Prerequisite for Access to Land Rights: Opportunities and Risks for Indigenous Peoples

In the era of digitization of land administration, the use of digital identities and electronic certificates has become a key component in the land registration system, especially since the enactment of Law No. 19 of 2016 as an amendment to Law No. 11 of 2008 concerning Electronic Information and Transactions (ITE

¹³ Indrawati, A. (2025). Penegakan Hukum dan Transformasi Agraria Tahun 2024 dalam Upaya Mengatasi Mafia Tanah dan Konflik Pertanahan di Indonesia. *Riwayat: Educational Journal of History and Humanities*, 8(3), 2717-2725.

¹⁴ Padila, S. D. (2025). Tinjauan Yuridis Penerbitan Sertifikat Atas Tanah Berdasarkan Putusan Pengadilan Karena para Pihak Tidak Diketahui Keberadaannya:(Studi Kasus Putusan Nomor: 5/Pdt. G/2024/Pn. Pct). *Jurnal Hukum Lex Generalis*, 6(4).

¹⁵ PURBA, J. D. (2025). *REKONSTRUKSI REGULASI DIGITALISASI AKTA PERTANAHAN YANG DIBUAT OLEH PEJABAT PEMBUAT AKTA TANAH (PPAT) DALAM MEMBERIKAN LAYANAN PUBLIK BERBASIS NILAI KEADILAN* (Doctoral dissertation, Universitas Islam Sultan Agung Semarang).



Law). Digital identity, which is realized through an authentication system based on NIK (Population Identification Number), electronic signatures, and digital certification infrastructure, is now a prerequisite for accessing land services such as land registration, checking the legal status of land, and issuing electronic-based title certificates.¹⁶

The opportunity of this approach is increased efficiency, transparency, and security in land data management. However, on the other hand, there are structural risks for community groups that have not or have difficulty accessing digital infrastructure, such as indigenous peoples. They often do not have the formal citizenship documents needed to form digital identities, thus being pushed out of administrative legal processes that increasingly rely on electronic systems.

This condition creates a gap in access to land rights. When digital identity becomes the only entry point into the electronic land registration system, non-digitized indigenous peoples effectively lose legal access to their customary territories. This is not only a technical issue, but also concerns the inclusivity of law in the state system which should ensure the recognition and protection of the constitutional rights of indigenous peoples as stated in Article 18B paragraph (2) of the 1945 Constitution.

Furthermore, digital systems require strict personal data protection. Indigenous peoples who may not understand data protection frameworks or do not receive legal assistance can become victims of data exploitation.¹⁷ For example, data on the location of their customary land can be commercialized or used for the benefit of other parties through non-transparent schemes. This poses a risk of losing digital sovereignty, which is the ability of an indigenous community to control data and systems concerning their identity and territory.

The issue of digital identity authentication is also important. In a digital-based land system, validation of the applicant's identity is an absolute requirement.¹⁸ Indigenous peoples often do not have formal supporting documents recognized by the state, thus facing challenges in making legitimate land ownership claims. This results in digital exclusion, which is a new form of social exclusion that comes from the inability to access the country's digital system.

In terms of regulations, although the ITE Law and its derivative regulations recognize the validity of electronic documents and signatures, these regulations have not been fully adapted to accommodate the existence of indigenous peoples living in social systems and customary law. The lack of legal recognition

¹⁶ Hidayah, S., Hariyani, E., Mukarromah, L., Niravita, A., & Fikri, M. A. H. (2024). Tantangan dan Peluang Sertifikat Elektronik dalam Reformasi Pendaftaran Tanah di Era Digital. *Jurnal Ilmiah Nusantara*, 1(6), 186-199.

¹⁷ Sumilat, R. R. I. (2024). Implementation of the Regulation of the Minister of ATR/BPN No. 14 of 2024 in the Registration of Customary Land Rights of Customary Law Communities: Implementasi Peraturan Menteri ATR/BPN No. 14 Tahun 2024 dalam Pendaftaran Tanah Hak Ulayat Masyarakat Hukum Adat. *Santhet (Jurnal Sejarah Pendidikan Dan Humaniora)*, 8(2), 1832-1841.

¹⁸ SUJIYANTO, D. A. (2025). *Penggunaan Sidik Jari Sebagai Otentikasi Identitas Penghadap Dalam Minuta Akta Notaris Berbasis Sistem Elektronik* (Doctoral dissertation, Universitas Islam Sultan Agung Semarang).



of collective identities or customary authentication systems exacerbates the digital marginalization they experience.

Therefore, it is important to formulate an interoperability policy between the national legal system and customary law in a digital context. Countries should design digital identity mechanisms that are inclusive, community-based, and respect the principles of indigenous sovereignty. This can be done through the recognition of alternative forms of authentication, digital assistance, and guarantees of legal protection for indigenous peoples' data.

3. The Urgency of Policy Reformulation and Constitutional Protection of Indigenous Peoples' Rights in the Era of Land Digitalization

Land digitalization through land electronic certification is part of the modernization of public services which is predicted to increase efficiency and accountability. However, this modernization also poses serious risks to the recognition and protection of indigenous peoples' rights, especially to customary lands that are historically and socioculturally not based on individual ownership systems, but communal ones. This creates legal uncertainty because customary land is often not registered in the state land administration system.

In this context, there is an urgency for policy reformulation so that the digitalization process does not actually reinforce structural inequality and accelerate the exclusion of indigenous peoples from their land rights. Digital policies must be aligned with the human rights framework and the constitution, especially Article 18B paragraph (2) of the 1945 Constitution which states that the state recognizes and respects the units of customary law communities and their traditional rights as long as they are alive and in accordance with the development of society and the principles of the unitary state of the Republic of Indonesia.¹⁹

Digital policies that are not based on the principle of substantive justice will become a new form of data-based colonialism, where access and control over land information are only owned by entities with formal technological and legal capacity. This will further marginalize indigenous peoples who do not have access to digital infrastructure or formal legal understanding of electronic certification.²⁰

Within this framework, constitutional protections should be interpreted progressively to guarantee that digital land policies not only de jure guarantee rights, but also de facto protect indigenous peoples from potential deprivation of rights through digital tools. One of the important pillars is the application of the Free, Prior and Informed Consent (FPIC) principle of free, prior, and adequately informed consultation before any digitalization policy or project that impacts customary territories is implemented.

¹⁹ Erfa, R. (2020). Digitalisasi Administrasi Pertanahan Untuk Mewujudkan Percepatan Pembangunan Nasional Perspektif Kebijakan Hukum (Legal Policy). *Jurnal Pertanahan*, 10(1).

²⁰ Nur, A. A., Nawi, S., & Makkuasa, A. (2025). Perlindungan Hukum Bagi Aparatur Sipil Negara Sebagai Subjek Hukum Atas Legalitas Yang Di Terbitkan Oleh Kementerian Agraria Dan Tata Ruang/BPN. *Journal of Lex Theory (JLT)*, 6(1), 192-203.



The application of the FPIC principle must be institutionalized in the implementing regulations for land digitalization, such as the Ministerial Regulation of ATR/BPN, to ensure that indigenous peoples are actively and meaningfully involved in the certification process, rather than just being the object of the modernization process.

Furthermore, it is necessary to harmonize the law between national digital regulations, such as the ITE Law and electronic land policies, with customary laws that are alive and developing in each community. This includes formal recognition of the existence of customary territories in electronic registration systems and the establishment of a participatory-based digital dispute resolution mechanism.

Finally, policy reformulation must be directed at strengthening social justice as the main pillar of digital development. Land digitalization should not be an instrument of asset liberalization and the strengthening of land oligarchy, but should be a restorative means to strengthen the legal position of indigenous peoples and recognize their collective rights as an integral part of the constitutional structure and history of the Indonesian nation.

CONCLUSIONS

The tension between customary law and electronic certification systems in the national agrarian perspective suggests a fundamental conflict between the paradigm of communal land tenure and the individual-based formal legal system. The implementation of electronic certification that prioritizes efficiency and legal certainty often ignores the existence of customary land that is inherited from generation to generation without formal documents. This creates structural inequalities, where indigenous peoples are administratively and digitally marginalized because they do not have access to digital identities which is a major prerequisite in electronic systems. The absence of a legal mechanism that substantively recognizes and protects collective rights further increases the risk of exclusion and deprivation of land rights by interested parties. In this context, digitalization has the potential to be a tool for legitimizing legal exclusion of indigenous communities that are not digitized. For this reason, the reformulation of land policy based on social justice and constitutional protection is very urgent. The state must build a system capable of integrating legal pluralism while respecting the principles of human rights. A collective certification mechanism based on indigenous communities needs to be developed as a form of formal recognition of customary rights. In addition, strengthening an inclusive and responsive digital identity to the diversity of local laws is an absolute requirement for a just digital transformation. The principle of Free, Prior and Informed Consent (FPIC) must be used as a pillar in every digitalization policy that has an impact on indigenous peoples. The harmonization between national and customary law is an important foundation for a democratic and just digital land system. In the end, digital modernization should not make indigenous peoples the victims, but the main subjects in Indonesia's inclusive agrarian system.

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