Jurnal Humaya: Jurnal Hukum, Humaniora, Masyarakat, dan Budaya
e-ISSN: 2798-950X | ISSN : 2798-9518
Vol. 6, No. 1, June 2026, pp. 17-27

A Critical Review of Land Digitalization Policy: The Legality and Validity of Electronic Land Certificates

Sri Jaya Lesmana*, Widodo Budidarmo
Faculty of Law, Syekh-Yusuf Islamic University, Indonesia
*corresponding author e-mail: sjlesmana@unis.ac.id

Article Info

Keywords:
electronic land certificate;
land digitalization;
legal protection;
legality;
validity.

Article history:
Submitted
December 16, 2025
Revised
April 1, 2026
Accepted
April 1, 2026

Abstract

Digital transformation in the land sector through the implementation of electronic land certificates is part of the Ministry of ATR/BPN's efforts to modernize public services. This policy is regulated in the "Regulation of the Minister of ATR/BPN No. 1 of 2021", which aims to improve efficiency, data security, and transparency in land administration. However, this digitization has raised debates about the legality of its legal basis and the validity of electronic certificates as evidence of ownership of land rights in the Indonesian legal system. This study aims to critically examine the legal basis of land digitization policies, assess the validity of electronic certificates compared to physical certificates, and identify forms of legal protection for land rights holders. The research method used was normative juridical with a legislative approach. The findings showed that normatively, the land digitization policy has a strong legal basis through the "Regulation of the Minister of ATR/BPN No. 1 of 2021" and the "ITE Law", which recognizes the validity of electronic documents as legal evidence. However, in implementation, there are still obstacles, including regulatory synchronization between regulations, limited digital infrastructure, cybersecurity risks, and low public literacy of electronic systems.

Introduction

The development of information technology has encouraged the Indonesian government to carry out digital transformation in various sectors (Latif *et al.*, 2024), including in the land sector. One of the significant steps taken is the implementation of electronic land certificates, as stipulated in the "Regulation of the Minister of Agrarian and Spatial Planning/Head of the National Land Agency No. 1 of 2021 concerning Electronic Certificates" (Permen ATR/BPN No. 1 of 2021). This policy aims to improve efficiency, transparency, and security in land administration, in line with the vision of implementing digital-based governance and integrated public services (Jiang *et al.*, 2024; Wijaya *et al.*, 2024). However, the implementation of land digitization policies, especially related to the

legality and validity of electronic land certificates, raises various juridical problems. Among them are questions about the conformity of the policy with the principles of national agrarian law, the legal basis for its issuance, legal protection for land rights holders, and potential legal conflicts in the transition from physical to digital certificates. In this case, concerns arise regarding the validity of electronic certificates as valid legal evidence (Haspada, 2025), especially in the context of agrarian disputes that still occur frequently in Indonesia.

In addition, various technical and social challenges such as limited digital infrastructure, low levels of digital literacy among the public, risk of personal data leakage, and inequality of access to information technology, further emphasize the importance of critical evaluation of this policy. The transition to an electronic system requires the readiness of the National Land Agency (BPN) apparatus, the strengthening of implementing regulations, and the development of a reliable cybersecurity and supervision system so as not to cause legal problems that harm the community. Thus, this study is relevant to be conducted to comprehensively examine the aspects of legality, legal validity, as well as the juridical and practical impact of the implementation of electronic land certificates in the national land system. A holistic legal approach is needed so that this digitalization policy not only functions as an effort to modernize administration, but is also able to ensure legal certainty, justice, and protection of land ownership rights for all elements of society.

The focus of this study is directed at three main issues interrelated in the context of land digitalization policy: firstly, questioning the legality and validity of electronic land certificates within the framework of land law in Indonesia; secondly, to examine the equality of legal status between electronic land certificates and conventional certificates; and lastly, identify various potential legal issues in the implementation of electronic certificates and examine forms of legal protection for land rights holders. The prior studies indicate that the implementation of electronic land certificates still encounters a number of significant obstacles, both in normative, technical, and social aspects (Hidayah *et al.*, 2024; Sholiha *et al.*, 2024). In terms of regulations, not all laws and regulations in the land sector explicitly provide adequate legal recognition and protection for the existence of electronic certificates (Adinda et al., 2023; Elora, 2024). In addition, the readiness of technological infrastructure that is uneven throughout Indonesia and the limited ability of human resources, including apparatus and the community, to operate the land digital system are challenges in itself.

Some studies have also shown that electronic documents have not been fully understood as evidence that has the same legal force as conventional certificates, especially in judicial practice and dispute resolution (Priscilla *et al.*, 2024; Yudistiara & Santoso, 2024). Other concerns that arise are related to the risk of data leakage and manipulation, vulnerability to cyber attacks, and the lack of legal protection guarantees in the event of misuse of land electronic systems (Rosyadi *et al.*, 2021). This condition raises doubts about legal certainty and justice for land rights holders in the digital context. Therefore, critical evaluation and comprehensive law enforcement are needed to ensure that digital transformation in the land sector can truly ensure the protection of people's rights and

support the creation of a safe, transparent, and reliable land administration system (Tiessa *et al.*, 2025).

Research Methods

This study used a normative juridical method, focusing on legal studies sourced from the literature, by examining relevant secondary data. As explained by Soekanto and Mamudji, normative juridical research is legal research that focuses on the analysis of written legal materials to understand applicable legal norms and principles (Soekanto & Mamudji, 2009). It aims to analyze the legality and validity of electronic land certificates based on the existing legal framework and regulations. Therefore, the data used was entirely sourced from secondary data, which consists of primary and secondary legal materials. The primary legal material included various provisions of laws and regulations, including: "Law No. 5 of 1960 concerning Basic Regulations on Agrarian Principles (UUPA)", "Permen of ATR/BPN No. 1 of 2021", and "Law No. 11 of 2008 concerning Information and Electronic Transactions jo. Law No. 19 of 2016 jo. Law No. 1 of 2024 (ITE Law)" and its relevant derivative regulations. Meanwhile, secondary legal materials included various literature, scientific articles, and legal journals related to the issue of land digitization and the legality of electronic documents.

As for the analysis process, this study used deductive logic, which is a method of thinking that starts from a general explanation to a more specific conclusion. Thus, the discussion began with general concepts regarding electronic land certificates, then proceed to the study of more specific legal norms, including comparisons between conventional land certificates and electronic land certificates. This study also used a legislative approach, as the focus of the research lies in how the positive legal provisions governing electronic certificates are applied in land administration practices. It allows for an in-depth analysis of the conformity between written legal norms and their implementation in the field.

The data obtained is presented in the form of a descriptive narrative. The presentation of this narrative was arranged in a systematic, logical, and rational manner, so that each data and argument is interconnected and forms a complete unity. To analyze the data, this study used a qualitative normative analysis method, which is a method based on legal principles, legal theories, and normative concepts related to the subject. Through this method, the findings are expected to provide a comprehensive overview of the legal validity of electronic land certificates in the Indonesian national legal system.

Results and Discussion

The Legality of the Land Digitalization Policy and the Validity of Electronic Land Certificates According to the National Legal System

The land digitalization policy is a strategic step by the Indonesian government in realizing modern, efficient, and transparent land governance (Auliani & Roisah, 2025). This step is in line with the national digital transformation agenda as stated in the "Presidential Regulation No. 95 of 2018 concerning Electronic-Based Government Systems (PP SPBE)" (Mannayong *et al.*, 2024). In the context of land, this policy is realized through the issuance of the Minister of ATR/BPN No. 1 of 2021, which is the main legal basis for the

implementation of electronic land certificates in Indonesia. This regulation marks a paradigm shift in land administration from a manual system based on physical documents to an integrated and electronically documented digital system (Arnowo, 2021).

Juridically, the land digitalization policy has a strong foundation in the national legal system. In Article 19 of the UUPA, it is emphasized that "the government is obliged to organize land registration throughout the territory of the Republic of Indonesia to ensure legal certainty". Electronic land registration is a form of actualization of the mandate by utilizing advances in information technology to accelerate public services in the land sector. Furthermore, "Government Regulation No. 18 of 2021 concerning Management Rights, Land Rights, Flats Units, and Land Registration (PP No. 18 of 2021)" also strengthens the legitimacy of this policy by providing space for the implementation of electronic systems in the process of registration and maintenance of land data.

Analysis of the legality of electronic land certificates needs to be placed within the framework of the national legal system, especially by paying attention to the principle of legality in state administrative law (Lesmana & Latif, 2024) as well as the principles of agrarian law as stipulated in the UUPA. Land certificates are a product of state administrative law that functions as authentic evidence of land ownership rights, so that the change of form from physical to digital certificates must have a firm legal basis and do not conflict with higher legal norms. Therefore, the study of the legality aspects of electronic land certificates needs to include an evaluation of the consistency of implementing regulations (Lesmana *et al.*, 2025), such as Government Regulations and Ministerial Regulations of ATR/BPN with a hierarchy of national norms (1945 Constitution – Laws – Government Regulations – Ministerial Regulations). In addition, it is important to examine whether the implementation of electronic certificates is in accordance with the principles of due process of law and the principle of legal certainty (Wirawan & Komuna, 2021) for rights holders, in order to avoid potential uncertainty and violations of land rights.

The juridical basis for the implementation of electronic land certificates is also strengthened by the ITE Law. The regulation explicitly recognizes that "electronic information, electronic documents, and electronic signatures have legal force and legal consequences, as long as they meet the principles of integrity, authenticity, and trustworthiness of the electronic systems used". Thus, electronic land certificates can be declared legally valid if the process of making, issuance, and storing them is carried out through an electronic system that is certified and officially supervised by BPN as the authorized authority.

The validity of electronic land certificates in the context of the national legal system cannot be separated from the application of the principles of legality and the principle of legal certainty (Afif & Mahfud, 2024). The principle of legality requires that any administrative action of the government, including the issuance of land certificates, must have a clear and valid legal basis. In this case, the Minister of ATR/BPN No. 1 of 2021 has provided comprehensive guidelines related to the procedures for registration, issuance, and management of certificates in digital format. Meanwhile, the principle of legal certainty

requires that every holder of land rights obtain equal legal protection (Lesmana & Samudra, 2025), both for physical and electronic certificates.

Despite having an adequate legal basis, the implementation of the land digitalization policy still raises normative debates. One of the main issues that arises is related to the hierarchy of laws and regulations, because regulations regarding electronic certificates are only at the level of Ministerial Regulations, while the legal basis for land registration still refers to the UUPA and "Government Regulation No. 24 of 1997 concerning Land Registration (PP Land Registration)", which has not fully adapted to the digital system. This situation raises questions about the binding power and juridical legitimacy of electronic certificates if they are used as evidence in legal disputes. Therefore, synchronization and harmonization of regulations at the level of laws and government regulations are needed so that the existence of electronic land certificates has full legitimacy and normative harmony in the national legal system.

Thus, conceptually and normatively, the land digitalization policy has a legal basis and is in line with the direction of Indonesia's national legal development. However, to ensure its effectiveness and validity, it is necessary to strengthen regulations, adjust legal norms, and improve the security of electronic systems to prevent legal uncertainty for land rights holders. Only with these steps, land digitization can function as a legal instrument that is able to realize certainty, protection, and justice for the community as a whole.

Equality of Legal Status Between Electronic Land Certificates and Conventional Certificates

Land certificates are authentic evidence issued by the state through BPN to ensure certainty and legal protection of land ownership rights (Baskara *et al.*, 2021). In the Indonesian agrarian law system, land certificates have a function as strong evidence of land rights as stipulated in Article 19 paragraph (2) c of the UUPA and PP on Land Registration (Dewi & Rahayu, 2024). With the implementation of the land digitalization policy, a new form of ownership documents has emerged, namely electronic land certificates (e-certificates) issued based on the "Minister of ATR/BPN No. 1 of 2021".

Normatively, electronic land certificates have the same legal status as conventional (physical) certificates, because they are issued by the same authority, namely BPN through land administration procedures officially regulated by laws and regulations. The difference between the two lies only in the storage system, the mechanism of issuance, and the way it is proven in the legal system, but not in the substance and force of the law. Conventional certificates are in the form of printed physical documents issued by BPN with wet signatures and stamps and submitted directly to the rights holder. Meanwhile, electronic land certificates are digital documents equipped with certified electronic signatures and information technology-based security systems that are issued, stored, and accessed through BPN's integrated electronic system in accordance with the provisions of the "Minister of ATR/BPN No. 1 of 2021".

Administratively, conventional certificates rely on manual processes and physical records that are prone to damage, loss, or forgery. In contrast, electronic certificates are managed through a digital system that integrates with the national land database, allowing

for fast and efficient tracking, data updates, and verification. This provides advantages in terms of transparency, time efficiency, and administrative costs. However, electronic certificates also have new risks, such as potential data leaks, system hacks, and reliance on digital infrastructure security.

From the aspect of legal proof, physical certificates have so far functioned as strong evidence of land ownership rights, as stipulated in Article 32 of the Land Registration PP. Electronic certificates also have the same status, but the proof is carried out through verification of the electronic system and digital signatures of BPN officials, not through physical documents. In other words, authentication is carried out digitally through a system that has been certified by the relevant agency. Meanwhile, in terms of application, conventional certificates are still easier to accept by the wider community because they are visible and have been used for decades. The implementation of electronic certificates still faces challenges in the form of low public digital literacy, limited infrastructure (Latuconsina *et al.*, 2024), and the lack of synchronization of all supporting regulations. Therefore, the transition to an electronic system must be carried out gradually by ensuring the readiness of the law, technology, and human resources within BPN.

Overall, electronic land certificates offer modernization and administrative efficiency, while conventional certificates still excel in terms of trust and social acceptance. Both have the same legal force, but the successful implementation of electronic certificates is highly dependent on system security, regulatory clarity, and legal protection for rights holders.

Table 1. Comparison of Conventional Land Certificates and Electronic Land Certificates

Aspect	Conventional Land Certificate (Physical)	Electronic Land Certificate (Digital)
Form and Media	Physical documents are in the form of paper issued by BPN and submitted directly to rights holders.	Digital documents in electronic format stored in the BPN database system
Legal Basis	▪ "UUPA" ▪ "Government Regulation No. 24 of 1997 concerning Land Registration"	▪ "UUPA" ▪ "Government Regulation No. 24 of 1997 concerning Land Registration" ▪ "Minister of ATR/BPN No. 1 of 2021" ▪ "ITE Law"
Issuance and Validation	It is done manually by the land official, signed wet, and printed on the blank certificate.	It is carried out electronically through the BPN digital land system, using a certified electronic signature.
Legal Functions	Strong evidence of land ownership rights in accordance with Article 32 "PP Land Registration"	It has the same legal force and proof based on the recognition of electronic documents in the ITE Law.
Security and Authenticity	Susceptible to counterfeiting, loss, or physical damage	It is safer than counterfeiting because it comes with encryption and digital signatures, but it is vulnerable to the risk of cyber hacking.
Data Storage	Physical records are kept in the land office and by rights holders.	It is stored in BPN's digital database and can be accessed through an integrated electronic system.

Aspect	Conventional Land Certificate (Physical)	Electronic Land Certificate (Digital)
Efficiency and Service	Manual processes take more time and cost.	The process is faster, more efficient, and can be done online.
Transparency and Access to Information	Information is limited and depends on direct access to the land office.	Information can be accessed electronically with a transparent and accountable system.
Evidence in Court	Using a physical certificate as written evidence	Proof is carried out through digital verification and a valid electronic system.
Risks and Challenges	Physical damage, document forgery, and loss of archives	Data security risks, hacking, system disruptions, and low public digital literacy
Social Acceptance	It is well established and trusted by the community.	It still faces resistance because it is considered new and has not been fully understood by the community.
Key Benefits	It is easy to understand, does not require access to technology, and is widely known.	It is efficient, fast, environmentally friendly, and minimizes the risk of physical counterfeiting.
Main Disadvantages	Inefficient, easily damaged, and prone to manipulation	It depends on the security of digital systems and the readiness of technological infrastructure.

Source: Results processed by researchers

Although the recognition of the validity of electronic documents has also been affirmed in the ITE Law, this equality of legal standing still faces a number of challenges in practice. One of them is the issue of accepting evidence in court, because not all law enforcement officials have a uniform understanding and technical mechanism in assessing the validity of electronic documents as evidence. In addition, differences in public perception regarding the legitimacy of digital certificates also raise concerns about the potential for data manipulation or misuse. Therefore, strengthening regulations, increasing the capacity of BPN and judicial institutions, and public digital literacy are key factors in ensuring legal equality between the two types of certificates runs effectively in the field.

In the end, the equality of legal status between electronic land certificates and conventional certificates is not only a matter of administrative form, but also a test of the consistency of the principles of legal certainty and protection of rights as guaranteed by the UUPA. As long as electronic land certificates are issued based on legal mechanisms that are legally valid and can be digitally verified with high security standards, the state is obliged to recognize them as evidence of legal ownership and have the same legal force as physical certificates.

Legal Protection for Land Rights Holders in the Electronic Certificate System

Legal protection for land rights holders in the electronic certificate system is a fundamental aspect in ensuring that the land digitization process does not reduce civil rights and guarantees of legal certainty that have been regulated in the conventional system (Anjarwati *et al.*, 2023). Land certificates, both in physical and electronic form, serve as authentic evidence that provides legal guarantees for the ownership, control, and use of

land by individuals and legal entities. Therefore, changing the form of certificates to digital must still guarantee that rights holders obtain equal and even stronger legal protection.

Normatively, legal protection for electronic land certificate holders can be categorized into two forms, namely preventive legal protection and repressive legal protection. Preventive legal protection aims to prevent legal disputes or losses before a violation occurs. In this context, BPN has a great responsibility to ensure that the electronic land certificate system is managed based on the principles of data security, system integrity, and administrative accountability. The implementation of preventive protection is carried out through various steps, including the use of certified electronic signatures, the implementation of a data encryption system, and a layered authentication mechanism to ensure the authenticity and integrity of information in the electronic land system. In addition, a clear legal basis as stated in the "Minister of ATR/BPN No. 1 of 2021" is also an important part of this preventive effort. BPN is also required to carry out strict internal supervision (Lesmana, 2019) over the access, processing, and use of land data to avoid misuse or leakage of information.

Meanwhile, repressive legal protection is provided if there has been a violation or legal dispute that causes losses to land rights holders. This form of protection includes the right for e-land certificate holders to file a lawsuit in court, either through the general court or the state administrative court, depending on the type of violation that occurred, such as data manipulation, system hacking, or the issuance of double certificates. In addition, the "ITE Law" provides an additional legal basis in the form of criminal sanctions against parties who deliberately and without the right to access, alter, or damage electronic data containing land information. Thus, this repressive legal protection serves as the last guarantee for the community to obtain justice if the electronic land certificate system causes adverse legal consequences.

Legal protection in the electronic certificate system also cannot be separated from the principle of legal certainty (Puspita & Supriyo, 2025) as stipulated in Article 28D paragraph (1) "The 1945 Constitution (1945 Constitution)", which states that everyone has the right to fair legal recognition, guarantee, protection, and certainty. Thus, the state through BPN must ensure that the electronic systems used meet the principles of transparency, reliability, and can be legally accounted for. In addition to formal legal protection, the cybersecurity aspect is an important factor in ensuring substantive legal protection. System failures, data leaks, or cyberattacks can have implications for the loss of people's rights to their land. Therefore, it is necessary to implement national digital security standards, system certification, and cooperation with cybersecurity institutions such as the State Cyber and Cryptography Agency (BSSN) to maintain the confidentiality and integrity of electronic land data.

In the context of implementation in the field, people's digital literacy is also part of indirect legal protection. The public needs to be provided with education and assistance (Fikri *et al.*, 2025) in understanding the procedures for accessing, storing, and protecting electronic certificates in order to be able to protect their rights independently. Thus, legal protection for land rights holders in the electronic certificate system is not only the

responsibility of BPN as the land administration provider, but also the responsibility of the state as a whole to guarantee the constitutional rights of citizens to land ownership. Effective legal protection must include regulative, technological, and educational aspects, so that land digitalization is truly able to realize its main goal, which is to provide legal certainty, justice, and ease of service for the community in the era of digital transformation.

Conclusions

The land digitization policy through electronic land certificates is a strategic step by the government to realize modern, efficient, and transparent land governance in line with the national digital transformation agenda. This policy has a strong legal basis through the "Minister of ATR/BPN No. 1 of 2021" and the ITE Law, which recognizes the validity of electronic documents and information as valid legal evidence. In principle, the application of electronic certificates does not contradict the UUPA or the principles of state administrative law, as long as its implementation is carried out by authorized officials by ensuring the authenticity and integrity of data. However, its implementation still faces a number of obstacles, including the insynchronization of regulations between regulations, the lack of digital infrastructure, low legal and technological literacy of the community, and potential threats to cybersecurity. To overcome these various obstacles, concrete steps are needed in the form of revision and harmonization of laws and regulations, especially synchronization between the UUPA, the Land Registration PP, and the Minister of ATR/BPN No. 1 of 2021 so that there is uniformity of norms and legal certainty. In addition, it is necessary to improve cybersecurity and certification of BPN's electronic system to ensure the validity and protection of land data. On the other hand, national training and dissemination for the community and land apparatus is also important to improve digital literacy and legal understanding. With these steps, the land digitalization policy can run more optimally, provide legal certainty, and create a fair, safe, and reliable land system for all citizens.

References

Adinda, A., Tira, A., & Juliati. (2023). Kedudukan hukum sertifikat elektronik sebagai bukti kepemilikan hak milik atas tanah [Legal position of electronic certificate as proof of ownership of land ownership rights]. *CLAVIA: Jurnal of Law*, *21*(3), 411–419. https://doi.org/10.56326/clavia.v21i3.4006

Afif, Y., & Mahfud, M. A. (2024). Kepastian hukum terhadap sertifikat elektronik hak milik atas tanah. *Unes Law Review*, *6*(2), 7605–7611. https://doi.org/10.31933/unesrev.v6i2

Anjarwati, N., Lesmana, S. J., & Lestari, T. A. (2023). Analisis yuridis tentang perlindungan hukum terhadap anak jalanan di kabupaten tangerang. *Jurnal Crepido*, *05*(02), 161–173. https://doi.org/10.14710/crepido.5.2.161-173

Arnowo, H. (2021). *Administrasi pertanahan di Indonesia*. Puslitbang ATR/BPN Press Kementerian.

Auliani, I. R., & Roisah, K. (2025). Peranan pejabat pembuat akta tanah dalam pelaksanaan transformasi digital layanan pertanahan melalui sertipikat tanah elektronik. *Legal*

Standing: Jurnal Ilmu Hukum, *9*(2), 394–407. https://doi.org/10.24269/ls.v9i2.11571

Baskara, C. H., Raharjo, P. S., & Nugroho, A. (2021). Perlindungan hukum pemegang hak atas tanah terhadap terbitnya sertifikat ganda di kabupaten sukoharjo. *Jurnal Discretie*, *2*(2), 80–90. https://doi.org/10.20961/jd.v2i2.55592

Dewi, R. M., & Rahayu, M. I. F. (2024). Legality of ownership rights through land certificates issued by the village head. *Journal of Law, Politic and Humanities (JLPH)*, *4*(4), 695–700. https://doi.org/10.38035/jlph.v4i4

Elora, D. (2024). Sertifikat elektronik dalam perspektif hukum pertanahan di Indonesia: Kajian yuridis terhadap implementasi digitalisasi hak milik. *CESSIE: Jurnal Ilmiah Hukum*, *3*(2), 72–81. https://doi.org/10.55904/cessie.v3i2.1509

Fikri, F., Fahmi, A., Firdiyani, P. F., & Lesmana, S. J. (2025). Pendidikan karakter dalam mewujudkan pendidikan yang berkualitas sesuai dengan SDGs di SMAS Syekh-Yusuf Kota Tangerang. *BERDAYA: Jurnal Pendidikan dan Pengabdian Kepada Masyarakat*, *7*(2), 283–296. https://doi.org/10.36407/berdaya.v7i2.1652

Haspada, D. (2025). The legal validity of electronic certificates as evidence of legitimate land ownership. *European Journal of Law and Political Science*, *4*(2), 22–27. https://doi.org/10.24018/ejpolitics.2025.4.2.169

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. *Kampus Akademik Publishing: Jurnal Ilmiah Nusantara (JNU)*, *1*(6), 186–199. https://doi.org/10.61722/jinu.v1i6.2793

Jiang, Y., Yang, L., Wei, X., & Zhang, X. (2024). The impact of government digital transformation on land use efficiency: Evidence from China. *Land*, *13*(12), 1–26. https://doi.org/10.3390/land13122080

Latif, I. S., Latuconsina, H., & Lesmana, S. J. (2024). Digitalisasi UMKM di Kelurahan Selapajang Jaya: Strategi social media marketing dalam menyongsong era modern [Digitalization of SMEs in Selapajang Jaya Village: Social media marketing strategy in welcoming the modern era]. *Yumary: Jurnal Pengabdian epada Masyarakat*, *5*(1), 45–55. https://doi.org/10.35912/yumary.v5i1.2939

Latuconsina, H., Khusaini, & Lesmana, S. J. (2024). Pendidikan dan penggunaan internet menurunkan kemiskinan di Banten. *JEPI: Jurnal Ekonomi dan Pembangunan Indonesia*, *24*(2). https://doi.org/10.21002/jepi.2024.12

Lesmana, S. J. (2019). Kajian yuridis atas pelaksanaan pengawasan terhadap jabatan notaris menurut Undang-Undang Nomor 2 Tahun 2014 di Kota Tangerang. *Supremasi Hukum*, *15*(1), 32–39. https://doi.org/10.33592/jsh.v15i1.244

Lesmana, S. J., & Latif, I. S. (2024). *Pengantar ilmu hukum (Inleiding tot de rechtwetenschap)*. Tangerang Selatan: Berkah Aksara Cipta Karya.

Lesmana, S. J., Lesmana, R. A., Indayatun, R., & Mofea, S. (2025). Evaluating surveillance measures at airports in responding to airline negligence and lost baggage. *Media of Law and Sharia*, *6*(3), 228–247. https://doi.org/10.18196/mls.v6i3.368

Lesmana, S. J., & Samudra, M. M. (2025). Legal protection of gig economy workers: A comparative study in Indonesia, Malaysia, and Singapore. *SASI*, *31*(3), 201–218.

https://doi.org/10.47268/sasi.v31i3.3006

Mannayong, J., S, M. R., & Faisal, M. (2024). Transformasi digital dan partisipasi masyarakat: Mewujudkan keterlibatan publik yang lebih aktif [Digital transformation and community participation: Realizing more active public engagement]. *Jurnal Administrasi Publik*, *20*(1), 51–72. https://doi.org/10.52316/jap.v20i1.260

Priscilla, M., Nova, D. L., & Fajriah, S. N. (2024). The legal validity of issuing electronic land certificates as evidence of ownership of land rights in court. *UIR Law Review*, *8*(2), 68–84. https://doi.org/10.25299/uirlrev.2024.vol8(2).17888

Puspita, E. F. D., & Supriyo, A. (2025). Perlindungan hukum terhadap kepemilikan sertifikat tanah elektronik. *Pagaruyuang Law Journal*, *8*(2), 182–207. https://doi.org/10.31869/plj.v0i0.6219

Rosyadi, S., Nugroho, R. A., Yusuf, M., & Yuniningsih, T. (2021). *Administrasi publik di era disrupsi dan big data*. SIP Publishing.

Sholiha, A. A., Istijab, & Mashuri, M. (2024). Analisis hukum terhadap keabsahan pendaftaran tanah secara elektronik dalam menjamin kepemilikan tanah yang sah. *Yurijaya: Jurnal Ilmiah Hukum*, *6*(3), 257–272. https://doi.org/10.51213/yurijaya.v6i3.120

Soekanto, S., & Mamudji, S. (2009). *Penelitian hukum normatif: Suatu tinjauan singkat*. Rajawali Pers.

Tiessa, A. N., Lesmana, S. J., & Indayatun, R. (2025). Analisis efektivitas Electronic Traffic Law Enforcement (ETLE) dalam sistem penegakan hukum di Kabupaten Tangerang. *SOSCIED: Journal Social, Science, and Education*, *8*(1), 1–11. https://doi.org/10.32531/jsoscied.v8i1.829

Wijaya, S., Alfitri, Thamrin, M. H., & Salya, D. H. (2024). The impact of electronic government policy on transparency and accountability in public services. *International Journal of Science and Society*, *6*(2), 411–421. https://doi.org/10.54783/ijsoc.v6i2.1157

Wirawan, A. R., & Komuna, A. P. (2021). Pengampunan pidana dalam mewujudkan keadilan, kepastian, dan kemanfaatan. *Humaya: Jurnal Hukum, Humaniora, Masyarakat, Dan Budaya*, *1*(1), 10–15. https://doi.org/10.33830/humaya.v1i1.1863.2021

Yudistiara, D., & Santoso, B. (2024). Kekuatan hukum sertipikat tanah elektronik sebagai pembuktian di pengadilan. *NOTARIUS*, *17*(19), 2173–2190. https://doi.org/10.14710/nts.v17i3.52340

Perundang-Undangan

Undang-Undang Dasar Negara Republik Indonesia Tahun 1945

Undang-Undang Nomor 5 Tahun 1960 tentang Peraturan Dasar Pokok-Pokok Agraria (UUPA)

Undang-Undang Nomor 11 Tahun 2008 tentang Informasi dan Transaksi Elektronik, sebagaimana diubah dengan Undang-Undang Nomor 19 Tahun 2016

Peraturan Pemerintah Nomor 24 Tahun 1997 tentang Pendaftaran Tanah

Peraturan Pemerintah Nomor 18 Tahun 2021

Peraturan Menteri ATR/BPN Nomor 1 Tahun 2021 tentang Sertipikat Elektronik