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Effectiveness of Electronic Land Certification Services at the Land Office: A Study at the ATR/BPN Office of Surakarta

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Abstract

This study discusses the effectiveness of electronic land certificate services at the Surakarta City Land Office. The implementation of electronic certificates is intended to improve legal certainty, efficiency, transparency, and land data security. This study aims to analyze the effectiveness of electronic land certificate services and identify factors influencing their implementation. The research method used is empirical juridical with a qualitative descriptive approach, in which data were obtained through interviews, observations, and document studies involving employees of the Surakarta City Land Office, Land Deed Officials (PPAT), and members of the public who use electronic certificate services. The study employs Soerjono Soekanto's theory of legal effectiveness,

prosperity of the people. This constitutional provision is further elaborated in Article 19 of Law Number 5 of 1960 concerning Basic Agrarian Principles (UUPA), which obligates the state to administer land registration in order to provide legal certainty and legal protection for holders of land rights.

The Law constitutes an important milestone in the establishment of the national agrarian legal system, emphasizing the state's obligation to conduct land registration throughout the territory of Indonesia. This mandate is further elaborated in a more technical manner through Government Regulation Number 24 of 1997 concerning Land Registration, which affirms that every parcel of land must be registered so that the rights holder possesses valid, strong, and state-recognized evidence. Thus, land registration essentially serves as a legal instrument that provides legal certainty and legal protection for the community regarding the land rights they possess².

Nevertheless, in practice, the land registration system that has been implemented thus far is still dominated by conventional administrative mechanisms based on physical documents. Over time, this system has begun to demonstrate various weaknesses, both in terms of efficiency and data security. Relatively lengthy service processes, complex bureaucracy, and limited transparency frequently give rise to public complaints. In addition, the documentation system, which remains largely manual, creates opportunities for document forgery, manipulation of land data, and the emergence of duplicate certificates, which ultimately trigger land ownership disputes in various regions.

The phenomenon of land disputes is also clearly reflected in the dynamics of conflicts occurring in Surakarta City up to early 2026, where various land-related issues remain prominent concerns. One of the cases that attracted the greatest public attention was the ownership dispute over

² R. T. P. Dewi dan A. Ramli, "Analisis Terhadap Kepemilikan Hak Atas Tanah yang Mengalami Tumpang Tindih (Studi Kasus di Kelurahan Muktiharjo Kidul Kota Semarang)," dalam *Bookchapter Hukum dan Lingkungan*, vol. 1 (2025), 1595–1632.

government subsequently carried out a digital transformation through the implementation of electronic land certificates as regulated under Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of BPN Number 1 of 2021 concerning Electronic Certificates⁷. This policy represents an innovation in the land registration system aimed at improving data security, service efficiency, and transparency of land ownership information, while also establishing a more integrated land data management system based on information technology.

One of the main advantages of the electronic land certificate system is its ability to provide access to land information in a more open and timely manner. Through the digital system, the public can obtain information regarding the status of a parcel of land more easily without having to go through lengthy administrative procedures. In addition, the use of digital technology enables the land registration and certificate issuance processes to be carried out more efficiently while minimizing the potential for document forgery and data manipulation, which have long been among the primary causes of land disputes. The digital transformation in land administration also carries important implications for legal practitioners, particularly Notaries and Land Deed Officials (hereinafter referred to as PPAT). As public officials authorized to prepare authentic deeds related to the transfer of land rights, Notaries and PPAT have a strategic role in supporting the implementation of the electronic land certificate system. They are not only required to understand the regulatory changes that have occurred but must also be capable of adapting legal service practices to a land administration system that is already based on digital technology. In this regard, deeds prepared by PPAT constitute one of the essential documents in the land registration and land certificate issuance process, including in electronic form.

⁷ Kementerian Agraria dan Tata Ruang/Badan Pertanahan Nasional Republik Indonesia, Peraturan Menteri Agraria dan Tata Ruang/Kepala Badan Pertanahan Nasional Nomor 1 Tahun 2021 tentang Sertipikat Elektronik (Jakarta: Kementerian ATR/BPN, 2021).

human resource capacity, the level of public digital literacy, and public trust in the security and validity of electronic documents. Therefore, a more in-depth study is required to assess the extent to which this system is truly effective in improving the quality of land services and providing legal certainty for the people of Surakarta City¹⁰.

This study is developed using the theory of legal effectiveness proposed by Soerjono Soekanto to comprehensively analyze the effectiveness of electronic land certificate services. The theory forms a conceptual framework that connects normative aspects, implementation, and public services. This theory serves as the primary foundation of the study. Soerjono Soekanto states that legal effectiveness is influenced by five factors, namely legal substance (the quality of laws and regulations), law enforcement officials (the competence and integrity of implementers), facilities and infrastructure (supporting infrastructure for legal implementation), public legal awareness (public understanding and compliance with the law), and legal culture (legal values and practices within society). These five factors are used to measure the extent to which the electronic land certificate policy, as regulated under Regulation of the Minister of ATR/BPN Number 1 of 2021, is effectively implemented in practice.

Figure 1. Research Conceptual Framework

[Electronic Land Certificate Policy: Regulation of the
Minister of ATR/BPN No. 1/2021]



[Analysis of the Effectiveness of Electronic Land
Certificate Services]



Theory of Legal Effectiveness (Soekanto)

¹⁰ M. Fuah, "Efektivitas dan Fungsi Hukum dalam Masyarakat Perspektif Filsafat Hukum," *Desiderata Law Review* 1, no. 2 (2024): 38.

studies of annual reports, Standard Operating Procedures (SOP), and statistics on the issuance of electronic land certificates. Informants were selected using a purposive sampling technique. The criteria included Land Office personnel who had been directly involved in electronic land certificate services for at least the last two years, PPAT who had utilized the Electronic Access Rights System (*Hak Akses Elektronik/ HAE*), and members of the public who had completed the process of obtaining electronic land certificates.

Data analysis in this study was conducted using a descriptive qualitative approach based on Soerjono Soekanto's theory of legal effectiveness, which consists of five factors: legal substance, law enforcement officials, facilities and infrastructure, public legal awareness, and legal culture. Data collected from interviews, observations, and document studies were reduced by selecting information relevant to the research focus and subsequently presented in the form of descriptive narratives. Conclusions were then drawn inductively. To ensure data validity, this study employed source triangulation by comparing information obtained from different informants (Land Office personnel, PPAT, and service users) and method triangulation by comparing interview findings with the results of direct observations and document studies. Accordingly, the conclusions generated are expected to reflect the actual conditions regarding the effectiveness of electronic land certificate services at the Surakarta City Land Office and the factors influencing them, without compromising the depth and validity of the research findings.

A. Effectiveness of Electronic Land Certificate Services at the Surakarta City Land Office

Electronic Land Certificate Services at the Surakarta City Land Office, as regulated under Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of BPN Number 1 of 2021 concerning Electronic Certificates, represent a form of digital transformation in the land sector

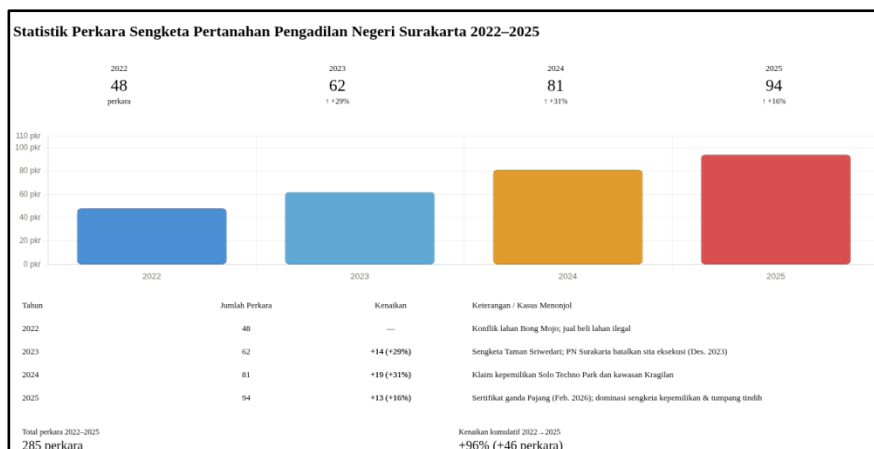
aimed at improving effectiveness, efficiency, transparency, and legal certainty in public services¹¹. This policy serves as the legal basis for the issuance of land certificates in electronic form, which possess the same legal force as conventional certificates, thereby providing clear legitimacy within Indonesia's land law system.

The urgency of implementing this policy in Surakarta City cannot be separated from the fundamental issues that have long characterized conventional land administration. As mandated by Article 19 of Law Number 5 of 1960 concerning Basic Agrarian Principles (UUPA), the state is obligated to administer land registration in order to provide legal certainty and legal protection for holders of land rights. This mandate is further elaborated through Government Regulation Number 24 of 1997 concerning Land Registration, which stipulates that every parcel of land must be registered so that the rights holder possesses valid, strong, and state-recognized evidence¹². However, in practice, the land registration system based on physical documents has proven to retain several fundamental weaknesses, including relatively lengthy service processes, complex bureaucracy, limited information transparency, and the vulnerability of conventional documentation systems to document forgery and manipulation of land data.

¹¹ Sartika Dewi Sularsi dan Irsyadul Ibad, "Analisis Pelayanan Penerbitan sertipikat Elektronik Hak Pakai Atas Tanah Pemerintah Yang Digunakan Sebagai Jalan Lingkungan Pada Kantor ATR/BPN Kota Surakarta," *Economics and Digital Business Review* 6, no. 2 (2025): 1046–1058, <https://doi.org/10.37531/ecotal.v6i2.2374>.

¹² Dwi Kusumo Wardhani, Tohadi, dan Frieda Fania, *Hukum Pendaftaran Tanah* (Yogyakarta: Deepublish, 2020), 32

Figure 2. Statistics of *Perbuatan Melawan Hukum* Disputes and Civil Lawsuits Related to Land Affairs in the Jurisdiction of the Surakarta District Court, 2022–2025



Source: Case Tracking Information System (SIPP), Surakarta District Court.

The weaknesses of the conventional system are clearly reflected in the high number of land disputes in Surakarta City. Data compiled from the Case Tracking Information System (SIPP) of the Surakarta District Court indicate a consistent and concerning upward trend, increasing from 48 cases in 2022 to 62 cases in 2023, rising further to 81 cases in 2024, and reaching 94 cases in 2025, predominantly involving ownership disputes and overlapping certificates. One of the cases that attracted significant public attention was the ownership dispute over the Sriwedari Park area involving the Surakarta City Government and the heirs of the Wiryodiningrat family, which has persisted since 1970 and entered a new phase in December 2023 after the Surakarta District Court annulled the execution seizure of the land.

Similar conditions were also evident in the conflict in the Bong Mojo area resulting from illegal land transactions, the dispute concerning duplicate certificates in the Pajang area that was reported again in February 2026, and land ownership claims in the Solo Techno Park and Kragilan areas during the 2024–2025 period. The increase in the number of disputes is further confirmed by data from ATR/BPN indicating that most disputes arise from unclear historical

Processing Speed	Faster in terms of procedures (if the system is stable)	Slower, with lengthy bureaucracy
Information Transparency	Can be verified at any time through the <i>Sentuh Tanahku</i> application	Difficult to access without visiting the Land Office
Main Challenges	Server disruptions, system maintenance, lengthy data validation, spatial data inconsistencies	Duplicate certificates, ownership disputes, data manipulation
Public Acceptance	Some public doubts remain (psychological factors); requires further education	More trusted due to its physical form
Legal Force	Equivalent to conventional certificates (recognized under the Electronic Information and Transactions Law and ATR/BPN Regulation)	Equivalent to electronic certificates

Source: Researcher's Analysis, 2026.

At the national level, the Minister of Agrarian Affairs and Spatial Planning/National Land Agency, Nusron Wahid, has emphasized that concerns regarding the insecurity of electronic land certificates constitute inaccurate information, stating that the security system implemented is highly robust through a layered backup mechanism across five different data centers¹⁴. This statement, although intended to build public trust, indirectly confirms that concerns regarding the security and validity of electronic documents still exist within society. This situation presents a particular challenge for the

¹⁴ "Tanda Tangan Elektronik...", *Jurnal Lex Specialis* 3, no. 1 (2022): 40.

Surakarta City Land Office in fostering public confidence in the new system, considering that public acceptance is a fundamental prerequisite for the successful implementation of this digital transformation policy. In this study, the effectiveness of electronic land certificate services is measured through several key indicators, namely service speed, ease of access to services, information transparency, land data security, and the level of public satisfaction as service users. These indicators were assessed based on the results of interviews, field observations, and document studies conducted over approximately two months, from April to May 2026, at the Surakarta City Land Office.

Based on these indicators, electronic land certificate services in Surakarta City can be categorized as reasonably effective. This is reflected in the increasing number of electronic land certificates issued each year, the availability of information access through the *Sentuh Tanahku* application, the use of electronic signatures and QR codes as verification instruments, and the existence of integrated data systems that facilitate land administration processes. The effectiveness of these services provides several benefits, including accelerating service processes, enhancing transparency in land administration, reducing the risk of document loss and forgery, facilitating the tracing of land ownership history, and strengthening legal certainty for holders of land rights. Conversely, if electronic land certificate services are not implemented effectively, the objectives of land administration digitalization will be difficult to achieve. Ineffective service delivery may be characterized by frequent system disruptions, slow data validation processes, low public understanding of the use of electronic land certificates, and insufficient integration among service systems. Such conditions have the potential to cause service delays, reduce public trust in electronic systems, increase processing costs and time, and hinder the realization of legal certainty and protection of land rights. Therefore, the effectiveness of electronic land certificate services at the Surakarta City Land Office is not solely determined by the existence of supportive regulations but is also strongly influenced by four key factors,

the readiness of information technology infrastructure, the capacity and competence of human resources, both within the Land Office and among PPAT¹⁵, the level of public digital literacy; and public trust in the security and validity of electronic documents as instruments of legal certainty in land ownership¹⁶. These four factors are interdependent and must be managed simultaneously to ensure that digital transformation in land administration can effectively address the practical challenges faced by the people of Surakarta City while realizing the primary objective of land registration as mandated by Basic Agrarian Principles (UUPA), namely the establishment of legal certainty and effective legal protection for all holders of land rights¹⁷.

¹⁵ Ahmad Nashih Luthfi dan Any Wahyuni, *Digitalisasi Administrasi Pertanahan: Antara Kepastian Hukum dan Realitas Sosial* (Yogyakarta: STPN Press, 2021), 88–92.

¹⁶ Rana Tatsbita Noer, "Transformasi Digital Pendaftaran Tanah: Tantangan dan Efektivitas Implementasi Aplikasi Sentuh Tanahku dalam Era Society 5.0," *JINU* 1, no. 6 (November 2024): 258–260.

¹⁷ Boedi Harsono, *Hukum Agraria Indonesia: Sejarah Pembentukan Undang-Undang Pokok Agraria, Isi dan Pelaksanaannya*, Jilid 1 (Jakarta: Djambatan, 2008), 72.

different requirements; therefore, applicants must ensure that all required documents are complete before submitting their application. For example, in the transfer of land rights through sale and purchase, applicants are required to submit a Sale and Purchase Deed (*Akta Jual Beli* / AJB) prepared by PPAT, identification documents of the parties in the form of Identity Cards (*Kartu Tanda Penduduk* / KTP) and Family Cards (*Kartu Keluarga* / KK), as well as the original certificate serving as the object of transfer¹⁹. In addition, tax obligations must also be fulfilled, namely Income Tax (PPh) for the seller and Duty on the Acquisition of Land and Building Rights (BPHTB) for the buyer, the calculation of which is based on the transaction value or the Sales Value of Tax Objects (NJOP)²⁰.

Unlike sale and purchase transactions, grants (*hibah*) are subject to different tax treatments depending on the relationship between the grantor and the recipient. Grants between parents and their biological children may qualify for Income Tax exemption upon submission of a Tax Exemption Certificate, while BPHTB remains payable based on the NJOP. For testamentary grants (*hibah wasiat*), a testamentary grant deed and the death certificate of the deceased are required. Meanwhile, transfers through inheritance require more complex documentation, including a certificate of heirs, inheritance deeds, and identification documents of the heirs. In addition to documents relating to the transfer of rights, applicants for land registration generally must also provide evidence of land possession or land history, such as *girik*, *letter C*, *petok D*, or certificates issued by the *kelurahan*²¹.

These documents are no longer regarded as evidence of ownership but rather as the basis for the examination of juridical data by the Land Office. If written evidence is

Nasional Nomor 1 Tahun 2021 tentang Sertipikat Elektronik (Jakarta: Kementerian ATR/BPN, 2021).

¹⁹ Urip Santoso, *Pendaftaran Tanah dan Peralihan Hak atas Tanah* (Jakarta: Kencana, 2021), 220.

²⁰ Urip Santoso, *Pendaftaran Tanah dan Peralihan Hak atas Tanah* (Jakarta: Kencana, 2021), 242.

²¹ Urip Santoso, *Pendaftaran Tanah dan Peralihan Hak atas Tanah* (Jakarta: Kencana, 2021), 407.

incomplete, proof may be established through continuous physical possession of the land for twenty years or more in good faith and supported by testimony from members of the surrounding community. In addition, the land registration process also involves the collection of physical data through land parcel measurement, during which applicants are required to install boundary markers and ensure agreement with owners of adjacent land parcels.

After all physical and juridical data have been verified, the Land Office records the information in the land book and issues a certificate, including in electronic form, which possesses the same legal force as a conventional certificate. Procedurally, electronic land certificate services at the Surakarta City Land Office may be obtained through two primary channels: new registration and media conversion from conventional certificates to electronic certificates²². Under the new registration channel, the process begins with the submission of an application at the service counter by attaching an application form, personal identification documents, proof of land ownership, the Land and Building Tax Due Notification Letter (SPPT PBB), and proof of tax payment according to the type of land rights acquisition. Once the documents are declared complete, applicants receive a document receipt and a payment order for Non-Tax State Revenue (PNBP) fees²³.

The next stage involves scheduling land measurement by Land Office personnel. Applicants may subsequently monitor the progress of their applications through the *Sentuh Tanahku* application²⁴. Upon completion of all procedures, the electronic land certificate may be collected from the Land Office upon presentation of proof of document submission. Meanwhile, the media conversion

²² Lukman Hakim dkk., "Implementasi Peraturan Menteri ATR/BPN Nomor 1 Tahun 2021 tentang Alih Media sertifikat Elektronik," *Mandira Cendekia Law Journal* 3, no. 2 (2026): 8.

²³ Salma Marjoni dkk., "Pendaftaran Tanah Secara Elektronik di Kantor Pertanahan Kota Padang," *Jurnal SIBATIK*, Vol. 4, No. 1, 2025, hlm. 4129.

²⁴ A. A. A. I. Puspawati, "Pendaftaran Tanah Secara Elektronik: Kajian atas sertipikat Elektronik," *Acta Comitas* 10, no. 1 (2025): 531

channel is intended for individuals who already possess conventional certificates and wish to convert them into electronic certificates. This process begins with the submission of the original certificate together with supporting documents such as the Identity Card (KTP), Family Card (KK), and an application form. During this process, the previous certificate is withdrawn and retained as an archive by the Land Office and is declared invalid once the electronic certificate has been issued²⁵. The resulting electronic certificate is equipped with a QR code that can be verified through the *Sentuh Tanahku* application, enabling the authenticity of the document to be confirmed digitally²⁶. Although the media conversion process is generally free of charge, applicants remain responsible for blank certificate replacement fees and additional costs if remeasurement is required due to discrepancies between the existing survey document and current field conditions²⁷.

The issuance of electronic land certificates in Surakarta City forms part of the national land administration digital transformation program implemented gradually by ATR/BPN following the enactment of Regulation of the Minister of ATR/BPN Number 1 of 2021 concerning Electronic Certificates. The designation of Surakarta as one of the initial pilot cities for implementation reflects the readiness of its land administration infrastructure and the commitment of the Surakarta City Government to supporting the modernization of digital-based public services. The first implementation of electronic land certificates in Surakarta took place on 4 March 2024, when the Surakarta City Land Office officially launched Electronic Services and the Distribution of Electronic Land Certificates. The launch event was attended by the Deputy Mayor of Surakarta, Teguh Prakosa; the Head of the Central Java Regional Office of BPN,

²⁵ Dian Aries Mujiburohman, "Telaah Yuridis dan Teknis Sertipikat Tanah Elektronik," BHUMI: Jurnal Agraria dan Pertanahan 7, no. 1 (2021): 62.

²⁶ AMR A. M. R. Yusuf, "Pelaksanaan Pendaftaran Tanah Secara Elektronik," Acta Diurnal Jurnal Hukum Kenotariatan 7, no. 2 (2024): 279.

²⁷ Mariana, "Problematika Pembaharuan Blanko Sertipikat Bagi Pemegang Hak Atas Tanah," Jurnal Premise Law 5, no. 2: 13–14.

Dwi Purnama; the Head of the Surakarta City Land Office, Tensa Nurdiani; the Regional Secretary of Surakarta City, Budi Murtono, as well as various government officials, community leaders, and relevant stakeholders. At the national level, the issuance of electronic land certificates has demonstrated a highly significant upward trend. By September 2024, a total of 865.646 electronic land certificates had been issued by 445 Land Offices across 31 provinces throughout Indonesia, exceeding the established target. This figure continued to increase rapidly. As of 4 November 2024, the number of electronic land certificates issued nationally had reached 1.952.868 certificates, and by the end of 2024, the Minister of ATR/BPN, Nusron Wahid, announced that the total number of electronic land certificates issued had reached 3.192.600 certificates, with all Land Offices throughout Indonesia providing electronic land certificate services. ATR/BPN has targeted the conversion of all land certificates in Indonesia to electronic format by 2026.

Table 2: Development of Electronic Land Certificate Issuance in Surakarta

Year	Number of Electronic Land Certificates Issued	Description
2023	4	Pilot and trial phase
2024	3.000	Acceleration following the official launch (4 March 2024)
2025	6.314	Highest number of certificates issued
2026 (up to mid-year)	2.420	Ongoing implementation
Cumulative Total	11.738	Has covered all sub-districts in Surakarta

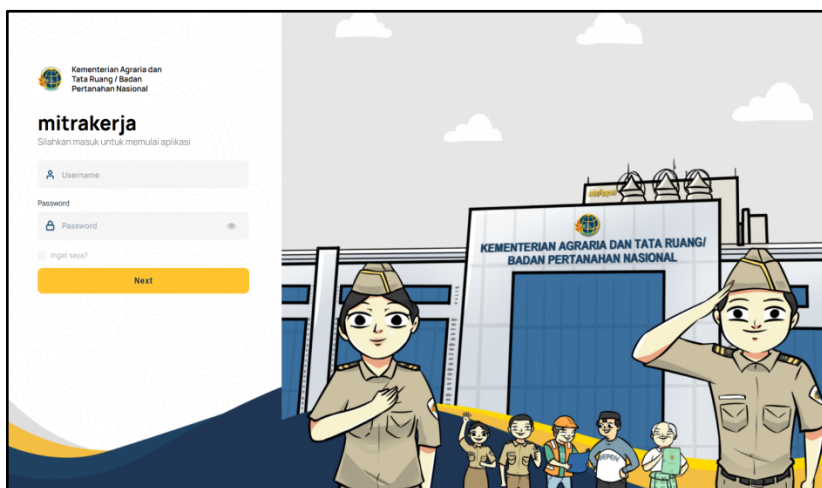
Source: ATR/BPN Surakarta City Land Office.

In Surakarta City, the issuance of electronic land certificates by the Surakarta City Land Office officially commenced in 2023. However, during the initial stage, the number of certificates issued remained very limited, with only four electronic land certificates successfully issued throughout the year. This figure reflects that 2023 constituted the pilot and trial phase of the system prior to its full implementation. The acceleration phase began following the official launch on 4 March 2024, when the issuance of electronic land certificates increased significantly to 3,000 certificates throughout 2024. This growth continued substantially in 2025, with a total of 6,314 electronic land certificates issued, making it the year with the highest issuance rate since the program was introduced. By mid-2026, the Surakarta City Land Office had issued 2,420 electronic land certificates, bringing the cumulative total of electronic land certificates issued in Surakarta City from 2023 to mid-2026 to 11,738 certificates. From the perspective of regional distribution, all sub-districts in Surakarta City have been included in the electronic land certificate issuance program, although the level of implementation has not yet reached one hundred percent in every urban village (*kelurahan*). This condition indicates that the implementation of electronic land certificates in Surakarta City is not partial or limited to specific areas but has extended evenly across all administrative areas of the city. Furthermore, the conversion process from conventional certificates to electronic certificates remains ongoing alongside every land transaction and land registration application submitted to the Surakarta City Land Office.

With regard to the dynamics of land disputes in Surakarta City, data compiled from the Case Tracking Information System (SIPP) of the Surakarta District Court indicate a consistent increase in the number of land-related cases in recent years. Land dispute cases classified as *Perbuatan Melawan Hukum* and civil lawsuits related to land amounted to 48 cases in 2022, increased to 62 cases in 2023,

PPAT, the digital transformation of the land administration system places PPAT not merely as technical implementers but also as key actors who bridge the interests of the parties involved with a land administration system that is now fully based on digital technology³⁰.

Figure 4. Electronic Certificate Registration System



Source: <https://mitra.trbnpn.go.id/>

In the implementation of the electronic land administration system, PPAT also utilizes a digital application provided by ATR/BPN as the primary means of accessing electronic land services, as illustrated in the figure above. The application functions as an access portal for ATR/BPN partners, including PPAT, to enter the digital land service system. Through this application, PPAT can log in using a registered account to access various electronic services, including certificate verification, land data validation, document uploading, and Electronic Mortgage Rights (*Hak*

³⁰ Kadek Fransisca Dantes dan I. G. A. Hadi, "Kekuatan Hukum Akta Jual Beli yang Dibuat oleh Camat dalam Kedudukannya sebagai Pejabat Pembuat Akta Tanah Sementara (PPATS) Ditinjau dari Peraturan Pemerintah Nomor 24 Tahun 2016 tentang Peraturan Jabatan PPAT," *Jurnal Pendidikan Kewarganegaraan Undiksha* 9, no. 3 (2021): 907.

Notary/PPAT practicing in the Surakarta area. In an interview conducted on 17 April 2026 at his office, he stated:

"Procedurally, the document requirements requested from the parties are not significantly different from those in conventional transactions. However, the fundamental difference lies in the final output, where the certificate issued is now in the form of an electronic document equipped with a barcode as an instrument for authenticity verification, rather than a physical certificate book handed directly to the rights holder."

He provided an example of a problem that frequently occurred in the past, namely when an individual applied for a bank loan using property as collateral and claimed that the property was located in a strategic front-area location, while the certificate submitted actually corresponded to a building located at the rear and accessible only through a narrow alley, resulting in a collateral value far below that claimed. Such situations occurred because the conventional system lacked a mechanism for the accurate and instant verification of land parcel coordinates³⁵. With the introduction of the electronic certificate system, which integrates spatial data in the form of coordinates for each land parcel into a digital system, the potential for such irregularities can be significantly reduced because all parties, including banks and financial institutions, are able to verify the location and boundaries of land parcels online before a transaction is carried out³⁶.

In every transfer-of-rights transaction resulting in the issuance of a new electronic certificate, PPAT performs an important function in ensuring compliance with applicable tax obligations by the parties involved. PPAT may only sign a deed of transfer of land and/or building rights after the taxpayer has submitted proof of payment of the taxes

³⁵ "Telaah Yuridis dan Teknis Sertipikat Tanah Elektronik," BHUMI: Jurnal Agraria dan Pertanahan 7, no. 1 (2021): 61.

³⁶ Danang Bagus Prasetyo dan Arif Saefudin, "Digitalisasi Inovasi Layanan Pertanahan: Pengecekan Sertipikat Online di Kantor Pertanahan Kabupaten Purbalingga," Jurnal Pertanahan 13, no. 1 (2023): 20–24.

required for the sale and purchase transaction. These tax obligations include Income Tax (PPH), which is borne by the seller, and Duty on the Acquisition of Land and Building Rights (BPHTB), which is the responsibility of the buyer³⁷.

Through this mechanism, PPAT essentially functions as the final filter ensuring that no transfer-of-rights transaction enters the electronic certificate system without first fulfilling the required tax obligations. This supervisory function is active rather than merely passive acceptance of documents submitted by the parties. PPAT is also obligated to verify the conformity between the amount of tax paid and the amount that should be payable under applicable regulations. If errors or underpayments are identified, PPAT must ensure that corrections are made before the deed is signed and before the registration process within the electronic certificate system begins. In addition, PPAT is required to submit monthly reports to the Tax Service Office (KPP) concerning all deeds of transfer of rights that have been issued no later than twenty days after the month in which the transfer occurred, as stipulated in Minister of Finance Regulation Number 261/PMK.03/2016. To support the efficiency of this obligation in the digital era, the Directorate General of Taxes has developed the e-PHTB Notary/PPAT application, which enables digital validation of Tax Payment Slips (SSP) and the submission of formal reviews of Income Tax (PPh) payment evidence. Consequently, the tax verification process that serves as a prerequisite for the issuance of new electronic certificates can be carried out more quickly and in a more standardized manner³⁸.

One of the roles of PPAT that has become increasingly prominent in the era of electronic land certificates is its function as the frontline of public education.

³⁷ Nurul Huda dan Amin Purnawan, "Peran PPAT dalam Pemungutan Bea Perolehan Hak atas Tanah dan Bangunan (BPHTB) pada Peralihan Hak atas Tanah," *Jurnal Akta* 10, no. 2 (2023): 271–272.

³⁸ "Peran PPAT dalam Pemungutan Bea Perolehan Hak atas Tanah dan Bangunan (BPHTB) pada Peralihan Hak atas Tanah," Jurnal Akta 10, no. 2 (2023): 275.

Given the position of PPAT as the party that interacts directly with the public as users of land services, PPAT becomes the first party responsible for addressing public concerns, confusion, and distrust regarding the new fully digital certificate format³⁹. Based on the practical experience of Eret Hartanto, S.H., M.Kn., challenges arise not from the technical aspects of the system but rather from psychological factors and public trust in the validity of digital documents.

To date, most members of the public still demonstrate a much stronger tendency to trust physical documents than digital ones. The concerns most frequently expressed by the public relate to the possibility that electronic certificates may be duplicated by irresponsible parties, as well as psychological discomfort arising from the perceived loss of a physical document that has traditionally been represented by a certificate book. For individuals who have been accustomed for decades to holding a land certificate book as tangible proof of ownership, transitioning to a digital document equipped with an electronic signature and barcode feels unfamiliar and often gives rise to doubts, despite the fact that both forms possess equivalent evidentiary value under the law. Furthermore, the circulation of misconceptions suggesting that conventional certificates not immediately converted into electronic certificates will be withdrawn or confiscated by the state has contributed to unnecessary anxiety among rights holders⁴⁰.

In response to these conditions, PPAT performs an educational role by providing direct explanations to every client receiving services. The approach adopted by Eret Hartanto, S.H., M.Kn. involves providing comprehensive explanations at the time of the issuance of electronic certificates, particularly regarding the function of the barcode as an authenticity verification instrument that can be scanned

³⁹ Siti Hidayah, Emy Hariyani, Lailatul Mukarromah, Anita Niravita, dan M. A. H. Fikri, "Tantangan dan Peluang sertipikat Elektronik dalam Reformasi Pendaftaran Tanah di Era Digital," *Jurnal Ilmiah Nusantara* 1, no. 6 (2024): 186–199.

⁴⁰ Mochammad Abyan Jagadhita, "Transformasi Digital sertipikat Tanah dan Respons Masyarakat Terhadap Penerapannya," *Jurnal USM Law Review* 8, no. 3 (2025): 1612–1615.

processes. Furthermore, Eret Hartanto, S.H., M.Kn. emphasized that the access granted to PPAT within the system remains limited and does not yet encompass all features required in practice. As a result, some tasks that should technically be completed independently by PPAT must instead be carried out through additional coordination with the Land Office.

From the perspective of human resources, Eret Hartanto, S.H., M.Kn. acknowledged that he had never participated in any formal training specifically related to the electronic certificate system. Most of his understanding regarding the operational procedures of the system was acquired independently and through seminars organized by the Indonesian Association of Land Deed Officials (IPPAT), featuring speakers from BPN, academia, and senior PPAT practitioners. This condition reflects that the technological transition within the PPAT profession has occurred without systematic and structured training support from the regulatory authorities, resulting in uneven adaptation to the new system among PPAT offices. This issue becomes increasingly relevant considering that the conversion process from conventional certificates to electronic certificates requires an average of approximately six months, a duration that frequently becomes the subject of complaints from clients. In such situations, PPAT stands at the forefront and must provide explanations regarding the lengthy process to parties who are unwilling to wait.

Based on his direct experience in practice, Eret Hartanto, S.H., M.Kn., during an interview conducted on 17 April 2026, expressed several expectations and concrete recommendations for the future development of the electronic certificate system. First, he hoped that the conversion process from conventional certificates to electronic certificates could be significantly accelerated, considering that the current average duration of six months is viewed as excessively long and creates uncertainty for parties involved in ongoing transactions. Second, the electronic certificate system should ideally be integrated with the

Factor		
Legal Substance	Clarity of regulations, legal certainty	ATR/BPN Regulation No. 1 of 2021 is clear and does not create difficulties; the legal basis is strong.
Law Enforcement Officials	Understanding of procedures, quality of service	Personnel have been trained, are communicative and courteous; however, periodic technical capacity improvement is still necessary.
Facilities and Infrastructure	Availability and stability of digital systems	Facilities are adequate, but server errors and maintenance frequently occur; data validation is often delayed due to inconsistencies in spatial data.
Public Legal Awareness	Understanding, acceptance, and trust in electronic certificates	Initially, the public was hesitant because of the digital format; after using the system, many found it practical due to the QR code feature. Concerns regarding potential data misuse nevertheless remain.
Legal Culture	Habit of using physical versus digital documents	The public places greater trust in physical certificates; continuous public outreach is needed to encourage a shift in mindset.

Source: Researcher's Analysis, 2026

These five factors are closely interconnected;

The existence of clear regulations provides legal certainty for both the public and implementing officials in the administration of electronic land services. From the perspective of administrative law, a policy can function effectively if it possesses a clear legal basis and provides adequate guidance for both service providers and service recipients⁴⁴. In practice, the provisions concerning electronic certificates are further strengthened by the recognition of electronic documents as legally valid evidence under the Electronic Information and Transactions Law (UU ITE). Accordingly, from a normative perspective, there is no difference in legal force between electronic certificates and conventional certificates, as both serve as evidence of land rights.

Based on an interview with Yayuk Kusumorini, S.SiT, Coordinator of the Data Maintenance and Transfer Subsection of BPN Surakarta, conducted on 16 April 2026 at the Surakarta Land Office, she explained:

"The regulations concerning electronic certificates are, in principle, sufficiently clear and do not create difficulties in daily service delivery. On the contrary, the applicable regulations help accelerate services because most administrative procedures have already been carried out digitally."

This statement indicates that, from the perspective of legal norms, the electronic certificate policy has fulfilled the requirements of legal effectiveness because it possesses a clear legal foundation, provides legal certainty, and can be implemented in the practice of land services. The next factor is law enforcement officials, namely the employees and officials of the Surakarta City Land Office responsible for administering electronic certificate services. Within the legal effectiveness theory, implementing officials play a crucial role because the success of a legal regulation largely depends on the quality of the human resources responsible for its

Sertipikat Elektronik di Indonesia," *RIO Law Jurnal* 6, no. 1 (2025): 501–502.

⁴⁴ Peter Mahmud Marzuki, *Penelitian Hukum*, (Jakarta: Kencana, 2022), 137.

implementation. A well-designed regulation cannot be effectively implemented if the implementing officials do not understand the mechanisms and objectives of the regulation. Therefore, the readiness of human resources constitutes one of the key indicators in assessing the effectiveness of electronic land certificate services⁴⁵.

Based on observations conducted at the ATR/BPN Surakarta Office on 16 April 2026, employees at the Surakarta City Land Office generally understood the procedures for electronic land services and the use of the digital system implemented by the Ministry of ATR/BPN. During the initial stage of electronic certificate implementation, the Regional Office of BPN organized specialized training for service administrators and operators regarding the use of applications and the management of electronic documents. After receiving training from the central government, these administrators subsequently provided internal guidance to other employees so that all officers possessed the same level of competence in operating digital services. This effort to enhance the capacity of government personnel demonstrates bureaucratic readiness in responding to the transformation of electronic land services. In addition to technical competence, the quality of service provided by officials can also be assessed through the manner in which they serve the public.

This can be seen from an interview with Yudha Tiara Chita Asha Mukthi, AMD.M., one of the users of electronic certificate services, conducted on 18 April 2026. She described her experience as follows:

“I first learned about electronic certificates through a notary when processing the transfer of ownership of a land certificate. The issuance process took

⁴⁵ F. Ilham, *Problematika Infrastruktur Hukum dan Sumber Daya Manusia dalam Penerapan sertifikat Tanah Elektronik (Studi terhadap Kantor Pertanahan Kabupaten Kuantan Singingi)* (Tesis, Universitas Islam Indonesia, 2025), 64–66; lihat juga Reyza Aurelia Triana, Dachran S. Bustami, dan Muhammad Fachri Said, “Efektivitas Pelaksanaan Pendaftaran Tanah Sistematis Lengkap di Kabupaten Gowa,” *Jurnal Dialogica* 1, no. 1 (2025): 8–10.

approximately three to four months, mainly because the certificate I owned was an old certificate that required remeasurement and data revalidation. However, the Land Office officers were very helpful and explained the procedures in detail. I find electronic certificates more practical because they are equipped with a QR Code that can be checked through the *Sentuh Tanahku* application.”

Thus, the factor of law enforcement officials in the implementation of electronic certificates in Surakarta City can be considered to have functioned quite well, although further enhancement of technical capabilities remains necessary in line with developments in digital land technology. The next factor is facilities and infrastructure, which also have a significant influence on the effectiveness of electronic certificate services⁴⁶. In a digital land service system, the availability of supporting facilities such as computers, internet networks, document scanners, servers, and electronic service applications constitutes a primary requirement because all administrative processes are conducted electronically and connected to a national database.

Based on observations conducted at the ATR/BPN Surakarta Office on 16 April 2026, the Surakarta City Land Office possessed relatively adequate facilities to support electronic certificate services. The available digital infrastructure enables land administration processes to be carried out more quickly and efficiently compared to the conventional system. Nevertheless, the greatest challenge lies in the stability of the electronic system, which still frequently experiences disruptions. Based on an interview with Mr. Suryo Febrian Adha, S.H., as an administrator at BPN Surakarta, conducted on 16 April 2026, he stated that the electronic service system occasionally experiences errors and maintenance periods, causing delays in public services.

⁴⁶ Mochammad Abyan Jagadhita, "Transformasi Digital sertipikat Tanah dan Respons Masyarakat Terhadap Penerapannya," *Jurnal USM Law Review* 8, no. 3 (2025): 11.

members of the public remained hesitant about electronic certificates because they were no longer issued in the form of physical books as in conventional certificates. Such hesitation stemmed from concerns that electronic documents might be more vulnerable to loss, hacking, or misuse. Nevertheless, public acceptance of electronic certificates has gradually increased through direct experience with the service. This was reflected in an interview with Mrs. Yudha Tiara Chita Asha Mukthi, AMD.M., on 18 April 2026 as a user of electronic certificate services. During the interview, Mrs. Chita explained that she first became aware of electronic certificates through a notary while processing the transfer of ownership of a land certificate. According to her, the issuance process required approximately three to four months, particularly when the certificate involved was an old certificate requiring remeasurement and data revalidation. Yudha also stated that she had encountered obstacles during the service process; however, these difficulties were not particularly burdensome because Land Office officers provided direct assistance throughout the process.

Furthermore, she considered the service to be satisfactory because the officers explained the requirements and service procedures clearly and comprehensively. According to her, electronic certificates possess the same legal force as physical certificates and are considered more practical because of their simpler format and the inclusion of a QR Code that can be verified through the *Sentuh Tanahku* application. She even expressed a preference for electronic certificates over conventional certificates because they are more concise and the service process is faster. Nevertheless, she still expressed some concern regarding the potential misuse of electronic data.

This indicates that public legal awareness regarding the digital land system has begun to develop, although greater understanding of electronic data security remains necessary. Based on her experience using electronic certificate services, Yudha assigned a satisfaction score of 8,5 out of 10 and stated that she would recommend the use

strengthening of land service applications, which still frequently experience errors and maintenance interruptions. System stability is a crucial factor because the entire electronic certificate service process depends on a digital system connected to the national database of the Ministry of ATR/BPN. In addition, the enhancement of human resource capacity among officers must continue through technical training and ongoing professional development so that employees of the Land Office are able to keep pace with developments in digital land technology and provide prompt and accurate services to the public. Public outreach and education should also be strengthened to improve understanding of the legality, security, and benefits of electronic certificates, as some members of society still place greater trust in physical certificates than in electronic documents.

Strengthening coordination with PPAT and notaries is also important because PPAT serves as the party that interacts directly with the public during the process of transferring land rights, enabling them to provide education while ensuring that electronic administrative requirements are completed in accordance with applicable procedures. Furthermore, the government should provide emergency services or temporary manual mechanisms whenever the electronic system experiences disruptions so that land services can continue to operate and are not completely halted due to technical problems. Therefore, through these efforts, the issuance of electronic land certificates in Surakarta City is expected to be implemented effectively and efficiently.

C. Conclusion

The implementation of electronic land certificate services at the Surakarta City Land Office has demonstrated a relatively good level of effectiveness, as indicated by the increasing number of electronic certificates issued, the availability of information access through the *Sentuh Tanahku* application, the use of electronic signatures and QR Codes as verification instruments, and the integration of data

that facilitates land administration processes. These developments have provided several benefits, including faster service delivery, greater transparency, reduced risks of document forgery, and strengthened legal certainty for land rights holders. Nevertheless, its implementation still faces several challenges, including frequent system disruptions and maintenance periods, lengthy data validation processes, and persistent public hesitation among individuals who are accustomed to using conventional certificates. Therefore, improvements in infrastructure at both the central and regional levels are necessary, along with the provision of alternative authority for the Surakarta City Land Office in addressing disruptions to the central system, as well as intensified public outreach regarding the advantages of electronic certificates in order to achieve more optimal and reliable land services.

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