■ Submitted: 20 January 2025 ■ Revised: 24 April 2025 ■ Accepted: 21 May 2025

The Legality of Digital Evidence in Land Disputes: A Perspective on Civil Procedure Law Reform in the Telematics Era

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ABSTRACT: The digital transformation of land administration through the implementation of electronic land certificates has significant implications for the evidentiary system in courts. The primary issue arises when conventional civil procedural law is confronted with digital evidence that possesses technical characteristics distinct from physical documents, thereby creating legal uncertainty in the resolution of land disputes. This study aims to analyze the legality and evidentiary strength of electronic land certificates in civil litigation and to formulate an ideal reconstruction of civil procedural law in the digital era. The research employs a normative juridical method with statutory and conceptual approaches. The findings indicate that although electronic land certificates possess legal validity under the Law on Electronic Information and Transactions (ITE Law), their evidentiary strength in court remains fluctuating due to the absence of standardized operational guidelines for judges in verifying the integrity of digital data. The study concludes that civil procedural law reform is necessary to explicitly regulate mechanisms for examining digital evidence, including the obligation to conduct forensic audits and the formal recognition of audit trails. Such reconstruction is essential to ensure substantive legal certainty and to protect landowners from the risk of electronic data manipulation. Through regulatory harmonization between civil law and telematics law, the judicial system can achieve adaptive legal protection in response to the advancement of information technology.

KEYWORDS Digital Evidence, Land Disputes, Telematics Law, Civil Procedural Law, Legal Certainty.

INTRODUCTION

The transition toward digital systems in agrarian administration through the conversion of physical land certificates into electronic certificates represents a significant advancement that has triggered a paradigm shift in Indonesian land law. Previously, land law was grounded in a physical-analog paradigm, where evidentiary strength was fully attached to paper documents bearing wet signatures and official seals as symbols of authenticity (Ahmad Fahrul Rizal et al., 2025). However, the introduction of electronic certificates has dismantled rigid formalistic boundaries and introduced a digital–telematics paradigm (Albaaits & Turisno, 2023). Under this new paradigm, the value of land rights is no longer determined by the physical existence of a paper document, but rather by the integrity of data stored within a centralized database system (Vinothiyalakshmi et al., 2022).

This transformation inevitably gives rise to profound juridical implications, particularly concerning the concept of legal certainty (Damianus Krismantoro, 2023a). In the analog system, legal certainty was achieved through physical possession of documents; in contrast, within the electronic system, legal certainty depends heavily on cybersecurity, the

validity of electronic signatures, and the reliability of the Electronic System Operator (PSE) (Arif et al., 2025a). Such a shift necessitates a redefinition of the precautionary principle for all stakeholders, ranging from Land Deed Officials to judges in court (Damianus Krismantoro, 2023b). Therefore, this transition is not merely a technical reform, but a transformation of legal values that requires civil law to adapt to the realities of information technology in order to safeguard landowners' constitutional rights against the risks of digital manipulation and administrative uncertainty (Dewi Padusi Daeng Muri et al., 2025).

The emergence of electronic land certificates has generated new legal risks that have not yet been fully accommodated within conventional civil law doctrine or civil procedural law (HIR/RBg) (Khasanah, 2021a). One of the primary risks concerns the potential vulnerability of data integrity resulting from cyberattacks or system failures within centralized land databases (He et al., 2022). In the traditional physical system, manipulation of land certificates typically leaves tangible traces that can be examined through forensic laboratory analysis (Deepika Dubey et al., 2024). In contrast, within a digital ecosystem, alterations to data or deletion of land rights may occur within seconds without leaving physical evidence, thereby triggering disputes over the authenticity of electronic documents in court proceedings (Khasanah, 2021b).

Additionally, there exists the risk of digital overlapping rights caused by imperfect synchronization between legacy physical records and newly established electronic databases (Arif et al., 2025b). Such discrepancies may give rise to civil lawsuits based on unlawful acts by authorities if citizens' land rights are deleted due to data entry errors or systemic failures of the administering body (Elora, 2024). In the absence of standardized digital verification guidelines, judges may face uncertainty when assessing digital evidence submitted by the parties (Fernando et al., 2025). These risks demonstrate that land digitalization does not merely enhance administrative efficiency but also expands the spectrum of legal conflicts, thereby necessitating a comprehensive telematics law approach to ensure substantive protection of land ownership rights (Sapardiyono & Pinuji, 2022).

The fundamental dilemma faced by judges in land disputes in the digital era lies in the gap between the availability of electronic evidence and the rigidity of conventional civil procedural instruments (Menon, 2022). As the frontline of law enforcement, judges often encounter uncertainty when assessing the authenticity and evidentiary strength of electronic land certificates (Petryk, 2025a). Normatively, Article 5 of the Electronic Information and Transactions (ITE) Law grants legal recognition to electronic documents as admissible evidence. However, in practice, judges frequently encounter difficulties in independently verifying such documents due to the absence of standardized operational procedures in civil proceedings (Sukmasari et al., 2024a). This situation creates a risk of speculative judgments or decisions that rely merely on formal administrative proof without substantive digital verification (Diah Iswari & Rudy, 2023).

Moreover, this dilemma is exacerbated by limited digital literacy and the absence of mandatory requirements for judges to involve digital forensic experts in examining the integrity of audit trails related to disputed land documents (Ahoen, 2025). Consequently, judges often revert to the traditional paradigm that prioritizes physical documents as the primary source of truth, even though within the electronic certificate system, digital data constitutes the sole authentic legal record (Khasanah, 2021b). The uncertainty surrounding evidentiary assessment methods not only challenges judicial independence but also risks

undermining public confidence in justice (Petryk, 2025b). Without adaptive reform of civil procedural law, judges will continue to navigate between adherence to outdated procedural norms and recognition of technological realities, potentially resulting in a failure to achieve substantive legal certainty in courtroom adjudication (Erwanto & Richard, 2025).

Several previous studies have examined electronic land certificates from various perspectives. Research by Asisadiqi et al. (2025) emphasizes public legal awareness in the implementation of electronic certificates as legally valid proof of ownership, highlighting that their effectiveness largely depends on the level of public understanding and acceptance. Meanwhile, Napitupulu (2024) and Kurniawan et al. (2024) focus on normative legal certainty, referring to the recognition of electronic documents under the Electronic Information and Transactions (ITE) Law and their administrative legitimacy within the national land system. Arrizal and Fauzi (2023) further reinforce the position of electronic certificates as legal instruments within the land registration system aimed at enhancing efficiency and legal protection for rights holders.

On the other hand, Mofu (2023) has examined the process of proving electronic land certificates in civil court proceedings and identified a procedural regulatory gap within civil procedural law. However, the study remains limited to the formal recognition of the evidentiary strength of electronic certificates and does not thoroughly elaborate on issues of digital document authentication, data integrity verification, audit trails, and cybersecurity dimensions in judicial proceedings. Overall, previous studies tend to focus on administrative, normative, and socio-legal acceptance aspects, but have not comprehensively integrated the analysis of the legality of digital evidence, the challenges of proof in land disputes, and the need for reconstruction of civil procedural law in the telematics era.

Based on this mapping, the novelty of this article lies in its integrative approach that connects three interrelated dimensions: the legality and evidentiary strength of electronic land certificates as digital evidence, the issues of authenticity and data integrity within a cybersecurity framework (including audit trails and authentication systems), and the urgency of reconstructing civil procedural law to substantively accommodate the characteristics of digital evidence. Unlike prior studies that predominantly adopt a normative-administrative perspective, this article positions electronic certificates as objects of evidentiary analysis within civil litigation and proposes a telematics-based procedural reform framework to ensure legal certainty and the protection of land rights holders within the modern judicial system.

Based on this background, this article formulates the following research questions: (1) how is the legality and evidentiary strength of electronic land certificates as digital evidence within the Indonesian civil justice system; and (2) how can civil procedural law be ideally reconstructed to accommodate digital evidence in order to ensure legal certainty for land rights holders? In line with these research questions, this study aims to analyze the legal standing and evidentiary strength of electronic land certificates in civil court practice and to formulate an adaptive model of civil procedural law reconstruction in response to technological developments, particularly in ensuring authentication, data integrity, and legal certainty in resolving land disputes in the telematics era.

RESEARCH METHOD

This study employs a normative legal research method (doctrinal research), which emphasizes the analysis of legal principles, doctrines, and positive legal norms applicable in Indonesia concerning land law and information technology. The approaches adopted include a statutory approach to examine the consistency between the Electronic Information and Transactions (ITE) Law, the Personal Data Protection (PDP) Law, and the Ministerial Regulations of the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency (ATR/BPN) concerning electronic land certificates with the Civil Code and the Indonesian civil procedural framework (HIR/RBg). In addition, a conceptual approach is utilized to explore the theory of substantive legal certainty and the doctrine of telematics law in order to formulate an adaptive reconstruction of civil procedural law.

The primary data source of this research consists of secondary data, including primary legal materials in the form of legislation, secondary legal materials such as scholarly literature and reputable academic journals, and tertiary legal materials including legal dictionaries and encyclopedias. The legal materials were collected through library research and analyzed using a prescriptive-qualitative method. Through this approach, the study aims not only to describe existing legal issues but also to provide normative prescriptions regarding standards for digital evidence verification in future land dispute litigation.

ANALYSIS AND DISCUSSION

The Legality and Evidentiary Strength of Electronic Land Certificates as Digital Evidence

Within the framework of conventional civil law, written evidence or documentary proof as stipulated in Article 1866 of the Indonesian Civil Code (KUHPerdata) has traditionally occupied a privileged position, with its validity often closely associated with the physical existence of the document itself (Fauzi et al., 2024). However, the emergence of the telematics era compels a redefinition of the very meaning of "document." Electronic land certificates should not be perceived as foreign entities within the legal system, but rather as a transformation or extension of the authentic documents long recognized in civil law. This expanded interpretation becomes particularly crucial when the rigidity of traditional procedural law confronts the flexibility and technological realities of contemporary information systems.

From a juridical standpoint, the bridge between the analog and digital realms is reinforced by Article 5 paragraph (1) of the Electronic Information and Transactions (ITE) Law. This provision does more than merely grant legitimacy; it affirms that electronic information possesses legal standing equivalent to other lawful forms of evidence (Sukmasari et al., 2024b). In the context of land law, this signifies that the characteristic of "authenticity," previously attached to wet signatures and physical seals, has migrated into cryptographic systems and certified electronic signatures. Authenticity is no longer assessed through the tactile examination of paper, but through the integrity of data stored within the Electronic System Operator (PSE) in the agrarian sector.

Nevertheless, it must be emphasized that this extension introduces a new evidentiary burden. Whereas authentic documents traditionally carried perfect evidentiary strength due to their issuance by public officials, their digital counterparts now depend heavily on the reliability and security of the technological systems that sustain them. Electronic certificates represent a manifestation of data sovereignty; they constitute documentary evidence that

transcends physical limitations (Zulki Zulkifli Noor, 2024a). Consequently, judges must no longer remain confined within methodological hesitation when confronted with digital evidence. Recognizing electronic certificates as an extension of Article 1866 of the Civil Code entails acknowledging that legal truth is no longer confined to what appears on paper, but to what can be digitally accounted for within a non-repudiable system record (S. et al., 2022).

Formal and Substantive Requirements of Electronic Land Certificates

When discussing the legality of electronic land certificates, it becomes necessary to abandon the traditional perspective that focuses solely on wet stamps and manual signatures. Within a digital ecosystem, the validity of a legal document no longer relies on visible physical attributes, but rather on a rigorous combination of formal and substantive requirements grounded in the reliability of information technology systems (Lallouche, 2023). This is the juncture at which civil law must closely integrate with telematics technical standards in order to establish absolute legal certainty of rights.

Formally, the validity of an electronic land certificate (Sertipikat-el) is determined by the use of a certified electronic signature issued by a recognized Electronic Certification Authority (PSrE) (Rizqi Robi Ali Sodiqin, 2024). This is not merely an administrative technicality, but the very core of digital authenticity. A certified electronic signature functions as a "digital seal," ensuring that the document is issued by a legally authorized authority. Without certification from a recognized PSrE, an electronic document is reduced to a mere sequence of digital bits, stripped of its legal standing as a public document possessing enforceable evidentiary power (Nowak & Smoleński, 2025).

Substantively, the legality of electronic land certificates rests upon two principal pillars: data integrity and non-repudiation (Wardana et al., 2023). Integrity guarantees that from the moment the document is issued until it is presented in court, not a single character or data element has been altered unlawfully (Sun et al., 2018). In the analog system, suspicious erasures or corrections could be visually detected; in the digital realm, data integrity is safeguarded through cryptographic algorithms capable of detecting even the slightest unauthorized modification (Yu et al., 2023). If the data is altered, its integrity collapses, and its evidentiary strength correspondingly weakens.

Meanwhile, the principle of non-repudiation ensures that the issuing authority or transacting party cannot later deny their involvement in actions conducted through the electronic certificate (Meng, 2010). Every digital activity is permanently recorded within the system log. For judges, this substantive assurance provides confidence that what appears on the screen faithfully reflects what is stored within the state's database. Therefore, synergy between compliance with technological requirements and adherence to land law regulations is indispensable. Only when both formal and substantive requirements are fulfilled can electronic land certificates stand firmly as evidentiary instruments capable of providing substantive legal protection for their holders amid ongoing technological disruption

Degree of Evidentiary Strength

Discussing the degree of evidentiary strength of electronic land certificates requires an examination of the extent to which a sequence of digital data can replace the authority traditionally attributed to physical documents within Indonesian land law. In civil law, a hierarchy of evidentiary strength is recognized, ranging from private documents to authentic

instruments possessing full and binding evidentiary force. Ideally constructed, electronic land certificates are intended to occupy this highest tier. As public documents issued by competent authorities, they are designed to carry complete evidentiary value (*volledig bewijskracht*) and binding force (*bindende bewijskracht*).

However, a fundamental prerequisite must be emphasized: this complete evidentiary strength is not automatically conferred, but rather contingent upon the integrity of the electronic ecosystem in which the data is stored and managed. As long as the system underlying the certificate is not proven defective or malfunctioning, judges are obliged to accept the information contained therein as legally authoritative. This marks a significant shift in the burden of proof; the party challenging the validity of an electronic land certificate must demonstrate the existence of systemic failure or digital manipulation occurring within the system infrastructure.

A critical concern arises when the digital procedures underlying the issuance or transfer of rights are not properly fulfilled. For instance, if identity validation processes—such as national identification number (NIK) verification or biometric authentication—are improperly executed or bypassed due to technical issues, the evidentiary status of the certificate may be instantly downgraded. What was initially presumed to possess perfect evidentiary force may be reduced to the level of a private document or even lose its probative value altogether. This occurs because the formal requirements of an authentic digital instrument depend on strict compliance with security protocols and identification standards established under telematics regulations.

If the digital identity of the rights holder is questionable, the entire legal structure built upon the electronic certificate becomes unstable. Therefore, the binding force of an electronic land certificate cannot be viewed as static; it is dynamic and inherently dependent on the reliability of the state's technological infrastructure. From an academic standpoint, it is essential to caution that without rigorous digital verification mechanisms, the transformation from paper-based documentation to electronic systems risks weakening, rather than strengthening, the substantive protection of citizens' property rights. Judges must look beyond the surface appearance of digital documents and ensure that all procedural and technological safeguards have been duly satisfied before rendering judicial decisions.

Risk Analysis of Manipulation within the Digital Land Administration Ecosystem

Discussing land digitalization without addressing the risks of data manipulation would constitute intellectual naïveté. Behind the efficiency and speed offered by electronic land certificates (Sertipikat-el), there exists a latent threat far more complex than the forgery of paper-based certificates (Zulki Zulkifli Noor, 2024b). In the analog system, land mafias were required to falsify physical forms, signatures, and official seals elements that could be examined through forensic laboratories. In contrast, within the digital regime, the threat migrates to an invisible domain: the integrity of centralized land databases (Maulana et al., 2024). Manipulation in the telematics era is no longer about erasing ink, but about altering algorithms or modifying database entries through unauthorized access (Alfiantiko & Widiatno, 2024).

The most significant risk facing rights holders is what may be termed "digital identity theft" or the hacking of administrative accounts within the land registration system (Hassan & Liu, 2021). In the event of credential leakage, unauthorized actors may alter ownership

status or delete land rights records with only a few clicks (Agbesi & Tahiru, 2020). Complex legal issues arise when the system is unable to distinguish between legitimate commands issued by authorized officials and malicious instructions executed by hackers who have breached security barriers (Wynnie Yusi Feng, 2025). At this juncture, substantive legal certainty is directly threatened: when the data displayed on a monitor diverges from the historical reality of ownership, who ultimately bears responsibility?

Furthermore, there exists the risk of internal manipulation or insider threats. The centralization of land databases within a single governmental institution creates a single point of failure. Individuals with administrative access may unilaterally alter data variables without adhering to proper procedural documentation requirements. In civil litigation, proving this type of manipulation poses extraordinary challenges for judges and practitioners. Digital evidence often appears visually flawless, while substantively, data corruption may have occurred at the server level.

Accordingly, the law must not confine itself to the electronic output generated by the system, but must scrutinize deeper layers such as audit trails and system logs. The risk of manipulation demands synchronization between telematics law and civil law to ensure that every data modification is supported by non-repudiable encryption mechanisms (Devita Candra, 2025). If the state fails to guarantee cybersecurity within the land administration system, digitalization—initially intended to combat land mafias—may instead become fertile ground for more sophisticated and elusive forms of crime. Legal protection for citizens must not be sacrificed in pursuit of technological efficiency alone

The Failure of Conventional Procedures in Confronting Digital Realities

The unpreparedness of Indonesia's judicial system in confronting the era of electronic land certificates is rooted in its deep attachment to colonial procedural legacies, namely the HIR and RBg. For centuries, the core of civil evidentiary practice has revolved around the doctrine of the "original document." Judges have been trained to believe that ultimate legal truth resides in a tangible sheet of paper—one that can be touched, examined for its fibers, and verified through wet signatures. However, as land administration migrates into cyberspace, this method of "physical originality" immediately loses relevance and transforms into a legal anomaly that generates confusion rather than certainty (Widyawati, 2024).

In digital land disputes, we are confronted with the uncomfortable reality that the "original document," in its physical sense, no longer exists. What is now considered "original" is not the printed certificate held by a citizen, but a sequence of encrypted binary codes stored within the centralized servers of the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency (Pascasarjana Fakultas Hukum Universitas Sebelas Maret, Surakarta et al., 2023). This is precisely where conventional procedural law fails: HIR and RBg do not equip judges with the methodology to examine authenticity beyond what appears on a screen. Requiring judges to search for wet signatures on a product generated by digital algorithms represents a logical fallacy that risks undermining substantive justice.

This procedural vacuum creates methodological deadlock in courtrooms. When a party challenges the validity of an electronic land certificate, conventional procedures tend to limit verification to a superficial comparison between electronic copies and on-screen data, without probing whether the underlying data is genuinely authentic or has been

subjected to unlawful interference. Maintaining physical evidentiary standards for digital objects is akin to attempting to measure the weight of light using a rice scale—the instrument exists, but the object being measured exceeds its capacity.

Accordingly, reliance on the paper-based paradigm must be brought to an end. In the telematics era, the source of legal truth has shifted from the texture of paper to the integrity of systems. If civil procedural law continues to adhere rigidly to outdated procedures that glorify physical documents, courts risk becoming arenas of formalism incapable of capturing the essence of truth in the digital age. This shift demands intellectual courage from legal practitioners and judges alike to recognize that in the era of electronic land certificates, the most reliable evidence is not what can be physically held, but what can be digitally verified within transparent and non-repudiable systems

Procedural Reconstruction: The Mandatory Examination of Audit Trails in Court Proceedings

In order to address the fragility of conventional procedural law in confronting electronic land certificates, it is necessary to introduce a new evidentiary instrument namely, the mandatory audit trail examination. This refers to a process of verifying digital records to ensure the authenticity and integrity of an electronic document that becomes the object of dispute. Whereas judges have traditionally focused only on the "final output," such as a screen display or printed certificate, future judicial practice must grant judges not only the authority but also the obligation to dissect the digital history underlying the contested document (Sucika Wibawa et al., 2022). An audit trail is not merely a technical appendix; it represents the chronological life record of digital data. It documents who entered the data, when modifications were made, through which device access occurred, and how biometric verification was conducted at the relevant time (Vallejo, 2021).

In practical terms, this procedure transforms the very understanding of "material truth." In ownership disputes, judges must move beyond the superficial question of whether a certificate is formally registered and instead inquire more deeply into whether the digital registration process complied with legitimate security protocols. Through audit trail examination, courts can detect anomalies, such as data alterations outside official working hours or system access originating from suspicious Internet Protocol (IP) addresses (Alagha & Özçelik, 2025). These digital traces function as a form of "digital fingerprint," far more resistant to falsification than traditional wet signatures on paper (Shang et al., 2023).

Integrating this procedure into civil procedural law would significantly strengthen legal certainty for rights holders. It is therefore necessary to conceptualize audit trail examination as a digital equivalent of on-site judicial inspection. Just as judges physically inspect land to verify its boundaries, a "digital inspection" would require judicial access to system logs and server records to ensure that telematics procedures were lawfully conducted. Such a mechanism would effectively close loopholes exploited by digital land mafias operating within the shadows of centralized databases.

Accordingly, procedural reform must explicitly mandate that courts be granted transparent access to relevant ministerial system logs within the framework of law enforcement. Without mandatory audit trail examination, civil litigation risks remaining trapped in superficial formalism. By elevating digital traces to the status of a gold standard in land dispute adjudication, the legal system can construct a stronger protective barrier for

citizens while simultaneously compelling administrative institutions to maintain system integrity. Public trust in electronic land certificates will only flourish when citizens are assured that every data modification is subject to scrutiny by a judiciary capable of understanding the language of technology

The Best Evidence Rule in the Digital Era

Discussing the best evidence rule within the sphere of digital land law requires the courage to dismantle traditional paradigms overly fixated on physical objects. Historically, legal doctrine has positioned printed land certificates as the highest embodiment of truth. However, in the telematics era, it must be acknowledged that a sheet of paper even one bearing official seals is merely a visual representation or "outer layer" of a legal reality that now resides within electronic systems. Accordingly, a fundamental shift must be proposed: in digital land disputes, the best evidence is no longer the printed certificate held by a citizen, but the absolute conformity between system data and encrypted digital identity.

This paradigm rests upon the logic that in an electronic land registration system, the authority of truth is no longer decentralized across scattered physical documents but centralized within the integrity of a database. Insisting on physical copies as primary evidence paradoxically opens avenues for manipulation. Printed copies may be forged through increasingly sophisticated graphic technologies, yet the correspondence between system-generated hash data and the cryptographic key held by the legitimate rights holder is extraordinarily difficult to replicate fraudulently. Here, the law must evolve from merely examining "what is written" to determining "who possesses lawful digital access" to the data.

Reconstructing the best evidence rule in this manner requires judges to move beyond superficial reliance on the physical appearance of documents. The best evidence should be understood as the result of cross-validation between the civil registry system (such as national identification numbers and biometric authentication) and the land registration system, both digitally interconnected and mutually reinforcing. Substantive legal truth is achieved when the digital identity of the rights holder successfully unlocks the encrypted land registration record. This represents the most advanced form of legal protection, one in which ownership cannot be transferred merely because a physical document is stolen or forged, but only through procedurally valid use of an authorized digital key.

By establishing encrypted data conformity as the gold standard of proof, land law can restore its integrity against the emerging threat of digital land mafias. Legal certainty no longer depends on the visual authenticity of a stamp, but on the transparency and accountability of a secure system. This approach ensures that law does not lag behind technological advancement, but instead harnesses technological sophistication to realize genuine justice. Such a shift is inevitable for those who seek legal certainty that is not confined to paper, but firmly embedded within non-repudiable digital systems

CONCLUSION AND RECOMMENDATIONS

Conclusion

Based on a comprehensive examination of land disputes in this digital dawn, two principal conclusions may be drawn. First, from a normative standpoint, the legality of electronic land certificates has found its legal foundation through the expanded interpretation of evidentiary instruments under the Electronic Information and Transactions

(ITE) Law, integrated with Article 1866 of the Indonesian Civil Code. However, their evidentiary strength is not independently absolute. Rather, it occupies a dynamic position: it functions as a fully authentic instrument when all telematics procedures are properly fulfilled, yet risks degradation in evidentiary value if failures occur in digital identity validation or system integrity. In this context, legal certainty is no longer determined merely by the existence of a document, but by the validity of the digital process underlying that document.

Second, the current civil justice system is experiencing functional inadequacy, as it continues to rely on outdated procedural frameworks, namely the HIR and RBg to adjudicate sophisticated digital realities. Consequently, the reconstruction of civil procedural law becomes an urgent necessity. Reform must shift from a paradigm centered on the veneration of physical documents toward one grounded in system verification. In digital land disputes, the best evidence is no longer a printed certificate, but the digital trace (audit trail) and encrypted data capable of demonstrating ownership history in a non-repudiable manner.

Recommendations

As a matter of policy, the Government and the House of Representatives should promptly amend civil procedural law to incorporate standardized mechanisms for examining digital evidence, including mandatory involvement of digital forensic experts in land dispute litigation. Furthermore, the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency must ensure audit trail transparency for law enforcement purposes in order to close opportunities for both internal and external data manipulation. Judges, in turn, must exercise intellectual courage by moving beyond reliance on formalistic wet signatures and embracing digital logic in the pursuit of material truth.

The digital transformation of land administration will only provide meaningful legal protection if the judicial system is capable of speaking the same technological language as the state's administrative apparatus. Without such synergy, digitalization risks becoming merely a change of medium, one that may inadvertently generate new forms of injustice within the courtroom.

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