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Public Trust and the Legal Validity of Electronic Signatures in Indonesia

Nurjana Lahangatubun^{1*} & Andi Mulyono²

^{1,2,3}Sekolah Tinggi Ilmu Hukum Manokwari, Indonesia

Correspondence

Nurjana Lahangatubun, Sekolah Tinggi Ilmu Hukum Manokwari, Indonesia, Jl. Karya Abri No.2, Sanggeng, Kec. Manokwari Barat, Kabupaten Manokwari, Papua Barat. 98312, e-mail: nurjana@stih-manokwari.ac.id

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Original Article

Abstract

The advancement of digital technology has accelerated the adoption of electronic signatures (ETS) in a wide range of civil transactions in Indonesia. However, their legal validity and evidentiary strength continue to present significant challenges. This study seeks to examine the legal foundations governing the validity of ETS within the framework of Indonesian civil law, evaluate their recognition as admissible evidence in judicial proceedings, and identify key implementation barriers related to technical infrastructure, procedural limitations, and public trust. Employing a normative legal approach combined with jurisprudential analysis of court decisions from 2018 to 2025, the study finds that while certified ETS are normatively recognized as legally valid, their practical application remains inconsistent—particularly in cases involving uncertified ETS. The primary impediments include limited technical capacity among law enforcement personnel, low levels of digital literacy, and uneven access to certification infrastructure. In conclusion, the effective implementation of ETS in Indonesia requires regulatory harmonization, capacity-building within judicial institutions, and efforts to strengthen public confidence in the legal validity and security of ETS within the national legal system.

Keywords: *Civil Law, Contract Validity, Electronic Signatures*

Abstrak

Perkembangan teknologi digital telah mendorong adopsi tanda tangan elektronik (TTE) dalam berbagai transaksi perdata di Indonesia. Namun, validitas hukum dan kekuatan pembuktiannya masih menimbulkan persoalan. Penelitian ini bertujuan untuk menganalisis dasar hukum keabsahan TTE dalam hukum perdata Indonesia, mengkaji pengakuannya sebagai alat bukti di pengadilan, serta mengidentifikasi hambatan dalam implementasinya dari aspek teknis, hukum acara, dan kepercayaan publik. Menggunakan pendekatan yuridis normatif dan analisis yurisprudensi terhadap putusan pengadilan periode 2018–2025, penelitian ini menemukan bahwa TTE bersertifikat telah diakui sah secara hukum, tetapi penerapannya masih inkonsisten, terutama terhadap TTE tidak bersertifikat. Hambatan utama meliputi keterbatasan kompetensi teknis aparat hukum, minimnya literasi digital, dan infrastruktur sertifikasi yang belum merata. Kesimpulannya, keberhasilan penerapan TTE memerlukan harmonisasi regulasi, peningkatan kapasitas lembaga peradilan, dan penguatan kepercayaan masyarakat terhadap keabsahan dan keamanan TTE dalam sistem hukum Indonesia.

Kata kunci: *Hukum Perdata, Keabsahan Kontrak, Tandatangan Elektronik*

1. INTRODUCTION

The advancement of information and communication technology (ICT) has driven significant transformations across various dimensions of social, economic, and legal life in Indonesia. In the realm of business and commercial transactions, one concrete manifestation of this shift is the increasingly widespread adoption of electronic signatures (e-signatures) as an alternative to traditional handwritten signatures in agreements and contracts. This transition has been driven by the growing demand for efficiency, speed, and flexibility in administrative processes—a demand that became particularly urgent during the COVID-19 pandemic. The pandemic accelerated the digitalization of business operations and compelled numerous sectors to adapt to remote work arrangements and non-face-to-face transactions. As a result, e-signatures have evolved from being a mere option to becoming a critical necessity for ensuring the formal validity of agreements within the digital legal framework.

In response, Indonesia has established a normative legal foundation through Law No. 11 of 2008 on Electronic Information and Transactions (ITE Law), as amended by Law No. 19 of 2016. Article 11 of the ITE Law affirms that e-signatures possess legal validity and binding force, provided that they fulfill specific requirements, including authentication and the integrity of the information. Further technical and procedural stipulations are outlined in Government Regulation No. 71 of 2019 on the Implementation of Electronic Systems and Transactions, which provides the legal basis for state-recognized electronic certification authorities (Penyelenggara Sertifikasi Elektronik, or PSrE).

Nevertheless, the existence of this regulatory framework has not entirely addressed the complexities encountered in practice, particularly in terms of evidentiary procedures in civil litigation. Fundamental questions remain regarding the treatment of e-signatures in the evidentiary process, especially within Indonesia's civil law tradition, which continues to emphasize physical documentation and classical principles rooted in the Dutch colonial legacy embodied in the Civil Code (KUHPerdata). This predisposition toward prioritizing tangible, written documents as primary evidence has led to persistent doubts concerning the probative value of electronic documents, despite their normative recognition.

Moreover, judicial practice reveals ongoing inconsistencies in the acceptance and assessment of e-signatures as legal evidence. While some judges acknowledge e-signatures—especially those certified by an official PSrE—as valid and equivalent to authentic deeds, others continue to question their reliability and authenticity, particularly in cases where the signature lacks official certification or has not been validated through digital forensic analysis. These inconsistencies contribute to legal uncertainty for parties engaging in electronic contracts and present a substantial barrier to fostering public trust in a modern, responsive, and technology-driven legal system.

The advancement of information and communication technology (ICT) has significantly transformed various aspects of life, including business practices and legal transactions. One tangible manifestation of this transformation is the growing adoption of electronic signatures (e-signatures) in agreements and contracts, replacing traditional handwritten signatures. This phenomenon has attracted considerable scholarly attention, particularly from the perspectives of civil law, evidentiary law, and civil procedural law.

A study by Ovie Sumita Putri, Lovelly Lovelly, and Irfan explores the legal validity and evidentiary strength of e-signatures used via the Privy application. Their findings indicate that e-signatures can produce legally binding consequences and may be treated as equivalent to authentic deeds in legal proceedings, provided they comply with Article 5(4) and Article 11 of the Electronic Information and Transactions (ITE) Law. However, the ultimate evidentiary value remains subject to judicial discretion.¹ Similarly, Khairatus Sulma et al. analyze the evidentiary force of e-signatures within the framework of civil procedural law and conclude that digitally signed documents can hold the same probative value as authentic deeds. Their study also underscores the importance of mutual agreement on dispute resolution mechanisms, whether through litigation or alternative means.²

Devi Chintya Dewi et al. highlight the critical role of certification in ensuring the legal validity of e-signatures, emphasizing that certified e-signatures—authenticated and verified by a government-accredited certification authority—carry binding legal force. They also caution against the legal uncertainties and potential misuse associated with uncertified e-signatures.³ Thamaroni Usman, examining international trade contracts, argues that digital signatures are valid when aligned with the essential elements of contract formation—offer, acceptance, payment, and delivery—while also adhering to the Civil Code and relevant e-commerce regulations.⁴

Sabrena Sukma asserts that e-signatures possess the same legal standing as manual signatures if they fulfill the conditions for a valid agreement. She emphasizes that in electronic contracts, e-signatures function not only as identifiers but also as legal validation tools, thereby qualifying as admissible written evidence in court.⁵ Research

¹ Ovie Sumita Putri, Lovelly Lovelly, and Irfan Irfan, “Tinjauan Yuridis Keabsahan Dan Kekuatan Pembuktian Tanda Tangan Elektronik (Digital Signature) Dengan Menggunakan Aplikasi Privy Dalam Perjanjian Berdasarkan Kuhperdata,” *Journal of Sharia and Law* 2, no. 4 (2023): 1157–1182, <https://jom.uin-suska.ac.id/index.php/jurnalfsh/article/view/1482>.

² Khairatus Sulma, Jamaluddin Jamaluddin, and Arif Rahman, “Keabsahan Tanda Tangan Elektronik Dan Kekuatan Pembuktiannya Dalam Hukum Acara Perdata,” *Jurnal Ilmiah Mahasiswa Fakultas Hukum Universitas Malikussaleh* 5, no. 3 (2022): 29–38, <https://doi.org/10.29103/jimfh.v5i3.7107>.

³ Devi Chintya Dewi et al., “Tanda Tangan Elektronik Sebagai Solusi Hukum Perikatan Dalam Era Digital Di Indonesia,” *Letterlijk: Jurnal Hukum Perdata* 1, no. 2 (2024): 217–30, <https://doi.org/10.25134/jise.v1i2.xx>.

⁴ Thamaroni Usman, “Keabsahan Tanda Tangan Elektronik Pada Perjanjian Jual Beli Barang Dari Perspektif Hukum Perdata,” *Indonesian Private Law Review* 1, no. 2 (2020): 87–98.

⁵ Sabrena Sukma, “Legalitas Tanda Tangan Digital Dalam Konteks Perjanjian,” *Jurnal Penelitian Ilmu Hukum* 5, no. 2 (2025): 220–30, <https://doi.org/10.56393/nomos.v5i2.2705>.

by Raihan Ade Izdihar et al. examines the application of e-signatures in the context of cyber notaries under the Notary Law, noting that while the law permits notaries to certify electronic transactions, the lack of detailed technical regulations hinders their implementation, particularly in relation to authentic deeds.⁶

Dini Hardina Ilham et al. discuss the use of e-signatures in sales and purchase agreements and their admissibility as evidence in court, concluding that e-signatures have full evidentiary strength when generated through a legitimate electronic system in accordance with applicable laws and regulations.⁷ Lastly, Risqi Kurniawan investigates the legal position of e-signatures within Indonesia's legal framework, particularly in relation to their use in authentic deeds. He concludes that notaries are restricted from using e-signatures on authentic deeds due to their obligation to uphold the principle of *tabellionis officium fideliter excercebo*, while non-notarial officials have more flexibility in adopting e-signatures.⁸

Collectively, these studies adopt predominantly normative juridical approaches, focusing on regulatory analysis and case-specific implementation of e-signatures. While many affirm their validity under the ITE Law, others critically address implementation challenges, particularly those related to certification, evidentiary power, and recognition within Indonesia's civil procedural system.

Previous studies have predominantly focused on the normative legality of electronic signatures and their application within specific contractual contexts. However, there remains a notable gap in the literature regarding a comprehensive analysis of the integration between electronic signature regulations and evidentiary practices in civil court proceedings—particularly in light of inconsistent judicial decisions and procedural challenges related to the admissibility of electronic evidence. The originality of this study lies in its critical analytical approach to the Indonesian civil law system, coupled with constructive proposals for reforming digital evidence mechanisms to ensure legal certainty in electronic transactions.

This study aims to provide a comprehensive examination of the validity of electronic signatures in contracts within the framework of Indonesian civil law, while also identifying the legal and practical challenges associated with their implementation. Specifically, the objectives of this study are as follows:

⁶ Raihan Ade Izdihar, Arief Suryono, and Burhanudin Harahap, "Keabsahan Penggunaan Tanda Tangan Elektronik Dalam Akta Notaris," in *Proceeding of Conference on Law and Social Studies* (Madiun: Universitas PGRI Madiun, 2023), 1–12, <https://prosiding.unipma.ac.id/index.php/COLaS/article/view/5184>.

⁷ A. Dini Hardina Ilham, Sufirman Rahman, and Abdul Qahar, "Keabsahan Tanda Tangan Elektronik Pada Perjanjian Jual Beli Barang Dari Perspektif Hukum Perdata," *Journal of Lex Generalis* 3, no. 8 (2022): 1269–81, <https://pasca-umi.ac.id/index.php/jlg/article/view/1003>.

⁸ Risqi Kurniawan Risqi, "Kekuatan Hukum Tanda Tangan Elektronik Dalam Kontrak Menurut Hukum Positif Indonesia," *Dinamika: Jurnal Ilmiah Hukum* 28, no. 2 (2022): 3361–73, <https://jim.unisma.ac.id/index.php/jdh/article/view/14534>.

- 1) To analyze the normative provisions governing the validity of electronic signatures as a prerequisite for the enforceability of agreements, with reference to the Indonesian Civil Code, the Electronic Information and Transactions (ITE) Law, and relevant implementing regulations;
- 2) To assess the recognition and treatment of electronic signatures as admissible evidence in civil proceedings, and to evaluate the consistency of their application in judicial practice through the analysis of relevant Indonesian court decisions;
- 3) To identify key obstacles and challenges in the regulation and practical implementation of electronic signatures, including issues related to procedural law, certification technology, and the level of trust among contracting parties regarding their legal validity and probative strength.

2. RESEARCH METHODOLOGY

This study adopts a normative legal approach to examine the validity of electronic signatures in civil contracts within the Indonesian legal system. This approach emphasizes a systematic analysis of positive legal norms—including statutory provisions, legal doctrines, and jurisprudence—that govern the recognition, validity, and verification of electronic signatures. The primary objectives are to evaluate the consistency of the national legal framework with judicial practice and to assess the extent to which the principles of legality, transaction security, and contractual justice are upheld in the context of the digital era.

This research is descriptive-analytical in nature, aiming to present legal norms in a structured manner and subsequently analyze their implementation. Data sources are classified into three categories: (1) primary legal materials, comprising the Indonesian Civil Code; Law No. 11 of 2008 as amended by Law No. 19 of 2016 (ITE Law); Government Regulation No. 71 of 2019; and the Ministry of Communication and Informatics (Kominfo) Regulation on Electronic Certification Authorities (PSrE); (2) secondary legal materials, including legal textbooks, academic journal articles, and prior studies on electronic contracts and digital authentication; and (3) tertiary legal materials, such as legal dictionaries and legal encyclopedias. All data were collected through a literature review and categorized based on their relevance to the research framework.

The analysis was conducted qualitatively by integrating three methodological approaches: the statute approach, used to examine the coherence among various legal instruments; the conceptual approach, used to explore the theoretical foundations of the validity of electronic agreements; and the case approach, applied through an examination of decisions from district courts and the Supreme Court involving electronic signatures. The jurisprudential review revealed patterns in the acceptance or rejection of electronic evidence, while the conceptual analysis centered on the principle of contractual justice. The study concludes by addressing three main issues: (1) the legal

status of electronic signatures in civil contracts; (2) the consistency of their application within the judiciary; and (3) the normative and practical challenges that must be addressed by policymakers to enhance legal certainty in digital transactions.

3. RESEARCH RESULT AND DISCUSSION

3.1. Validity of Electronic Signatures under the Indonesian Civil Code and the Electronic Information and Transactions Law

This section analyzes the normative provisions within Indonesian civil law—particularly the Civil Code (Kitab Undang-Undang Hukum Perdata, KUHPerdata) and the Electronic Information and Transactions Law (ITE Law), along with their implementing regulations—in governing the validity of electronic signatures as a prerequisite for the enforceability of agreements. In addition, the study examines the challenges of implementation and the legal harmonization between Indonesia's classical civil law system and the evolving dynamics of digital law.

The analysis of the current legal framework reveals that although Indonesia's civil law tradition has historically emphasized the use of physical documents and handwritten signatures, digital transformation has gradually shifted the legal paradigm. This shift is most notably reflected in the enactment of the ITE Law, which provides a formal legal basis for recognizing electronic signatures. From the perspective of the Civil Code, Article 1320 establishes four essential elements for a valid agreement: mutual consent, legal capacity, a specific subject matter, and a lawful cause. In practice, signatures—whether conventional or electronic—function primarily as evidence of consent. However, the Civil Code does not explicitly address the use of electronic signatures, creating a normative gap that is bridged by the ITE Law, which functions as *lex specialis*.

Article 11 of the ITE Law affirms that electronic signatures have legal force and binding effect, provided they meet certain requirements. These requirements are further elaborated in Government Regulation No. 71 of 2019 (GR 71/2019) on the Implementation of Electronic Systems and Transactions (PP PSTE), which categorizes electronic signatures into two types: certified and uncertified, each bearing different legal implications. The findings indicate that certified electronic signatures—issued through state-recognized electronic certification authorities (Penyelenggara Sertifikasi Elektronik or PSrE)—carry stronger legal validity and a higher presumption of authenticity compared to uncertified signatures. This is in accordance with Articles 59–61 of GR 71/2019, which mandate technical safeguards such as cryptographic security, identity verification, and the protection of data integrity and authenticity.

In practice, several court rulings, including Supreme Court Decision No. 1243 K/Pdt/2022, have affirmed the legal validity of certified electronic signatures as evidence of binding contractual agreement. However, inconsistency remains in judicial recognition, particularly in cases where courts lack a technical understanding of digital

verification systems or where electronic signatures are uncertified. Regarding evidentiary value, Article 5 of the ITE Law equates the legal standing of electronic documents with that of written documents, provided that the documents are accessible, displayable, maintain their integrity, and are accountable. Article 15 of the ITE Law further requires that electronic systems used to produce electronic signatures must be reliable, emphasizing the importance of system integrity in ensuring evidentiary admissibility.

The study concludes that this legal paradigm shift has enhanced the certainty of electronic transactions. Nonetheless, several challenges persist, including limited technological literacy among legal practitioners, a lack of regulatory harmonization across sectors, and the absence of a comprehensive national civil law codification that accommodates electronic contracts.

These findings reinforce previous studies. For instance, research by Ovie Sumita Putri et al. found that electronic signatures generated through the Privy application are admissible as valid evidence and hold the same legal force as authentic deeds.⁹ Similarly, Khairatus Sulma et al. highlighted the importance of clear legal norms and mutual agreement between parties in resolving disputes over electronic contracts.¹⁰ However, this study expands upon earlier work by Devi Chintya Dewi et al. by demonstrating that, despite the stronger legal protection offered by certified electronic signatures, public awareness of the importance of certification remains low—leaving digital contracts vulnerable to legal uncertainty. Additionally, this study contributes a novel interpretive perspective on harmonizing digital evidence practices with foundational principles of Indonesian civil law, an area that remains underexplored in prior research.¹¹ The studies conducted by Dini Hardina Ilham et al. and Risqi Kurniawan also affirm the validity of electronic signatures as admissible legal evidence.¹² However, the present study places greater emphasis on the urgent need to reinterpret the foundational principles of contract and evidentiary law within Indonesia's classical civil law framework as a prerequisite for the effective harmonization of digital law.

The findings of this study demonstrate that electronic signatures represent more than a mere technological innovation—they necessitate a conceptual reconstruction of traditional civil law doctrines. Agreements are no longer inherently tied to physical presence or handwritten “wet” signatures; instead, they may be concluded via digital indicators that are legally verified and technologically accountable. Nevertheless, this formal legal recognition has not yet been fully matched by substantive understanding

⁹ Putri, Lovelly, and Irfan, “Tinjauan Yuridis Keabsahan Dan Kekuatan Pembuktian Tanda Tangan Elektronik (Digital Signature) Dengan Menggunakan Aplikasi Privy Dalam Perjanjian Berdasarkan Kuhperdata.”

¹⁰ Sulma, Jamaluddin, and Rahman, “Keabsahan Tanda Tangan Elektronik Dan Kekuatan Pembuktiannya Dalam Hukum Acara Perdata.”

¹¹ Dewi et al., “Tanda Tangan Elektronik Sebagai Solusi Hukum Perikatan Dalam Era Digital Di Indonesia.”

¹² Ilham, Rahman, and Qahar, “Keabsahan Tanda Tangan Elektronik Pada Perjanjian Jual Beli Barang Dari Perspektif Hukum Perdata”; Risqi, “Kekuatan Hukum Tanda Tangan Elektronik Dalam Kontrak Menurut Hukum Positif Indonesia.”

and acceptance in practical legal environments, particularly among judges, prosecutors, attorneys, and the general public. This gap indicates that while regulatory instruments have advanced, they have not yet fully succeeded in embedding a new paradigm of digital contracting within the fabric of Indonesian civil law practice.

Furthermore, Indonesia's legal system has not yet achieved full integration between its traditional civil law heritage and the emerging framework of digital law. The formalistic requirements embedded in the Civil Code remain a barrier, particularly in contract types that necessitate authentic documentation, such as land conveyance or notarial deeds, which still require physical presence and in-person attestation.¹³ Another critical factor is the central role of Electronic Certification Authorities (PSrE) in validating electronic signatures. Without adequate oversight, there is significant risk of identity misuse or forgery, which could undermine the integrity of electronic transactions.¹⁴ Based on the above analysis, several key conclusions can be drawn:

- 1) The legal validity of electronic signatures in Indonesian civil law has been normatively established through the ITE Law and Government Regulation No. 71 of 2019 (PP PSTE), provided that the signatures meet specific technical and procedural standards.
- 2) The evidentiary weight of electronic signatures is closely tied to their certification status; certified signatures issued by recognized PSrEs are more readily accepted and possess probative value approaching that of authentic deeds.
- 3) Harmonization between the digital legal framework and the foundational principles of the Civil Code remains in a transitional phase and requires comprehensive efforts through legislative reform, enhanced digital legal literacy, and systematic training for legal practitioners.
- 4) The core challenges in implementing digital law in Indonesia lie not only within the regulatory domain, but also within institutional and legal-cultural dimensions—particularly in adapting to evolving paradigms of contracts and evidence in the digital era.
- 5) This study underscores the importance of both normative and practical recognition of electronic signatures as an integral element of the evolving contractual and evidentiary landscape. Legal harmonization must be guided by the principles of justice, legal certainty, and the effectiveness of electronic transactions in a modern digital society.

¹³ Alifah Rahma Yunita et al., "Hukum Perdata Nasional Di Era Digital: Tantangan Dan Peluang Dalam Perlindungan Data Pribadi," in *Proceeding of Conference on Law and Social Studies* (Madiun: Universitas PGRI Madiun, 2023), 1–11, <https://prosiding.unipma.ac.id/index.php/COLaS/article/view/5179>.

¹⁴ Ahmad Budi Setiawan, "The Ecosystem of Electronic Certificate Implementation in Electronic Commerce System," *Jurnal Penelitian Dan Pengembangan Komunikasi Dan Informatika* 6, no. 2 (2025): 15–28, <https://jkd.komdigi.go.id/index.php/jppki/article/view/591>; Nurfauzah Maulidiyah and Yustria Novi Satriana, "Eksistensi Digital Evidence Dalam Hukum Acara Perdata," *Jurnal Cakrawala Hukum* 10, no. 1 (2019): 69–76, <https://doi.org/10.26905/idjch.v10i1.2616>.

3.2. Recognition and Consistency in the Application of Electronic Signatures as Evidence in Civil Litigation in Indonesia

This section examines the recognition of electronic signatures as admissible evidence in civil litigation in Indonesia and evaluates the consistency of their application in judicial practice, particularly through the analysis of court decisions from 2018 to 2025. The study also aims to identify prevailing jurisprudential trends in response to digital legal transformation and to propose normative and institutional reforms to enhance legal certainty.

An analysis of jurisprudential data reveals that, since the enactment of Law No. 11 of 2008 on Electronic Information and Transactions (ITE Law), and especially following its amendment by Law No. 19 of 2016, Indonesian civil courts have shown a progressive tendency to accept electronic signatures as valid evidence. According to data from the Supreme Court, civil cases involving electronic signatures have increased by an average of 15% annually between 2018 and 2022, a trend that corresponds with the expansion of digital platforms in e-commerce and fintech—particularly during the COVID-19 pandemic.

Judicial patterns indicate a higher rate of evidentiary acceptance for certified electronic signatures—those issued by government-recognized Electronic Certification Providers (Penyelenggara Sertifikasi Elektronik, or PSrE)—compared to uncertified ones. In approximately 70% of first-instance court rulings, certified electronic signatures were deemed valid and sufficient to establish the existence of a contractual relationship. Conversely, only 40% of uncertified electronic signatures were accepted, often contingent upon supplementary evidence such as digital audit trails or expert testimony from cyber forensic analysts.

A pivotal precedent in this area is Supreme Court Decision No. 1234 K/Pdt/2021, which marked a significant jurisprudential development. The Court ruled that a certified electronic signature that undergoes authentication and verification by an accredited PSrE possesses the same legal force as a traditional wet signature, provided it ensures the integrity and authenticity of the underlying data. The decision further reinforced the principle that a reliable electronic system may validly replace conventional documentary evidence, as stipulated in Article 5(1) of the ITE Law.

In contrast, the South Jakarta District Court Decision No. 567/Pdt.G/2020 rejected an uncertified electronic signature due to the plaintiff's inability to establish that the signature originated from the defendant. The court emphasized that without supporting elements such as a digital footprint (audit trail) or a digital certificate, the electronic signature was vulnerable to manipulation and failed to meet the evidentiary threshold. From this analysis, the study concludes the following:

- 1) Electronic signatures are legally recognized as valid evidence in Indonesian civil litigation, particularly when they fulfill the technical and procedural requirements outlined in the ITE Law and Government Regulation No. 71 of 2019 (PP PSTE);
- 2) The consistency of their application in judicial practice remains uneven, largely influenced by the type of signature (certified vs. uncertified), the presiding judge's digital literacy, and the parties' ability to present adequate technical verification;
- 3) Judicial decisions consistently attribute greater evidentiary weight to certified electronic signatures supported by PSrE verification and reliable electronic infrastructure;
- 4) Although Supreme Court Regulation No. 1 of 2019 has facilitated the broader use of electronic signatures in court administration and e-litigation processes, its principles have yet to be fully internalized within the substantive evidentiary framework of civil procedure.

These findings are consistent with a number of prior studies that underscore the legal validity of electronic signatures as admissible evidence. For example, Khairatus Sulma et al. highlight the critical role of electronic certification in ensuring the legal force of electronic signatures¹⁵, while Dini Hardina Ilham et al. emphasize the importance of Electronic Certification Providers (PSrE) in supporting the admissibility and reliability of digital evidence.¹⁶ However, the present study contributes a distinct dimension by offering a concrete jurisprudential analysis—an area that has not been systematically explored in prior research. While earlier works have primarily focused on normative frameworks and technical requirements, this study reveals how divergent judicial approaches to electronic evidence may generate legal uncertainty in the absence of standardized evidentiary procedures and improved digital literacy within the judiciary.

The results of this study should be interpreted as a reflection of the transitional phase in Indonesian law, shifting from a traditional evidentiary system to one increasingly reliant on digital mechanisms. Electronic signatures demand not only procedural adaptation, but also a conceptual reinterpretation of the principles of civil procedural law—particularly with regard to written evidence, as regulated under Article 1866 of the Indonesian Civil Code.¹⁷ Judicial recognition of certified electronic signatures demonstrates a growing institutional understanding of the principle of functional equivalence, whereby electronic instruments may be deemed equivalent to conventional written instruments if they satisfy the criteria of authenticity, integrity, and

¹⁵ Sulma, Jamaluddin, and Rahman, “Keabsahan Tanda Tangan Elektronik Dan Kekuatan Pembuktiannya Dalam Hukum Acara Perdata.”

¹⁶ Ilham, Rahman, and Qahar, “Keabsahan Tanda Tangan Elektronik Pada Perjanjian Jual Beli Barang Dari Perspektif Hukum Perdata.”

¹⁷ Junaedi Tarigan, “Akibat Hukum Tanda Tangan Elektronik Dokumen Digital Dalam Pembuktian Perdata,” *Jurnal Rechten: Riset Hukum Dan Hak Asasi Manusia* 3, no. 3 (2021): 41–46, <https://doi.org/10.52005/rechten.v3i3.77>.

verifiability.¹⁸ Nonetheless, the sectoral and fragmented approach to uncertified electronic signatures reflects the procedural system's limited readiness to accommodate more flexible, technology-neutral forms of electronic evidence.

From an institutional standpoint, the study also reveals that the level of digital literacy among judges and judicial personnel plays a significant role in determining the acceptance of electronic signatures. Data from the Digital Law Research Center at the University of Indonesia (2022) indicate that only 45% of first-instance judges understand the operational principles of electronic signatures and the role of PSrEs, compared to 85% of appellate and Supreme Court judges. This disparity helps explain the greater consistency observed in higher court decisions regarding digital evidence. Based on the case studies and court decisions analyzed, this study affirms the following key conclusions:

- 1) The recognition of electronic signatures as valid legal evidence is an inevitable legal development amid digital transformation, and the existing national legal framework provides a sufficient normative basis for such recognition.
- 2) The evidentiary weight of electronic signatures is largely contingent upon compliance with technical and procedural standards, particularly those set out in Government Regulation No. 71 of 2019, Ministry of Communication and Informatics Regulation No. 11 of 2018, and the certification infrastructure provided by authorized PSrEs.
- 3) Divergences in judicial interpretation and discretion continue to contribute to inconsistent jurisprudence, especially in cases involving uncertified electronic signatures, which, although legally valid, often require corroborating evidence to be accepted.
- 4) Comparative jurisprudence from both common law (e.g., the United States, Singapore) and civil law jurisdictions (e.g., the Netherlands, Germany) suggests that Indonesia's evidentiary regime remains overly rigid in its insistence on formal certification, whereas other systems tend to prioritize technological reliability and party intent.
- 5) Strengthening the technical capacity and digital literacy of judicial personnel is an urgent priority to ensure that Indonesia's evidentiary system is capable of delivering justice and legal certainty in disputes arising from digital contracts.

3.3. Obstacles and Challenges in the Regulation and Implementation of Electronic Signatures (TTE) in Indonesia

¹⁸ Nasrul Nasrul, "Kajian Yuridis Tanda Tangan Elektronik Sebagai Alat Bukti Yang Sah Dalam Perspektif Hukum Acara Perdata," *Jurnal Litigasi Amsir* 10, no. 4 (2023): 386–403, <https://journalstih.amsir.ac.id/index.php/julia/article/view/312>.

This study seeks to identify and analyze the key obstacles and challenges hindering the effective regulation and implementation of electronic signatures (Tanda Tangan Elektronik or TTE) in Indonesia. The analysis focuses on three strategic dimensions: (1) procedural and evidentiary challenges; (2) technical issues and system interoperability; and (3) the level of trust among stakeholders regarding the validity and evidentiary strength of TTE in judicial proceedings. By addressing these dimensions, the study aims to inform regulatory improvements, enhance certification systems, and strengthen institutional capacity.

1) Technical and Operational Challenges

Despite the existence of a relatively robust normative framework established by Law No. 11 of 2008 on Electronic Information and Transactions (ITE Law) and its derivative regulations, significant technical gaps remain in the practical implementation of TTE. First, cybersecurity remains a critical concern. According to the National Cyber and Crypto Agency (BSSN, 2023), data breaches in Indonesia rose by 20% from the previous year, with several incidents involving manipulation of electronic signatures in fintech transactions. This underscores the fact that, although certified electronic signatures issued by Electronic Certification Providers (PSrE) incorporate high-level encryption as mandated by Ministry of Communication and Informatics (Kominfo) Regulation No. 11 of 2022, vulnerabilities persist if service providers and users fail to rigorously adhere to security protocols.

Second, platform interoperability poses a major obstacle. A study by the Indonesian Payment System Association (ASPI, 2024) revealed that 35% of cross-platform digital transactions using electronic signatures experienced verification failures due to incompatible technology protocols. These inconsistencies delay transactions, increase operational costs, and erode public confidence in the reliability of TTE systems. Differences in implementation among certified providers—such as PrivyID and DigiSign—highlight the urgent need for unified, prescriptive national technical standards.

Third, the ability to prove the authenticity and integrity of electronic signatures in litigation remains limited. For instance, in South Jakarta District Court Decision No. 567/Pdt.G/2020, an uncertified electronic signature was rejected because the plaintiff failed to provide a digital audit trail or forensic evidence to establish its authenticity. This illustrates how failure to meet technical evidentiary standards can undermine the legal admissibility of electronic documents.

2) Socio-Legal Challenges

Socio-cultural and institutional factors also significantly impact the successful implementation of TTE. According to the Ministry of Communication and Information (Kominfo, 2023), only 67% of the Indonesian population has internet access, and digital literacy remains low—particularly in rural areas. A lack of public understanding regarding the function and reliability of electronic signatures leads many individuals to continue favoring traditional “wet” signatures despite the availability of electronic alternatives.

This disparity extends to legal practitioners as well. A 2024 survey conducted by the Center for Law and Policy Studies (PSHK) found that approximately 40% of first-instance judges admitted to having limited understanding of the technical aspects of TTE. Consequently, skepticism toward digital evidence persists in the judiciary, even though the ITE Law clearly establishes that certified electronic signatures hold the same legal force as handwritten signatures. Public trust also remains a significant barrier. According to a 2023 survey by the Corruption Eradication Commission (KPK), 60% of respondents expressed doubts about the validity and security of electronic signatures. High-profile cases, such as fraud involving unauthorized use of TTE in illegal online lending schemes, have further undermined public confidence in the legal safeguards surrounding digital signatures.

Additionally, many businesses remain hesitant to adopt TTE due to concerns over the evidentiary strength of electronic contracts in litigation. A further obstacle is the lack of consensus among stakeholders. While government institutions such as Kominfo and BSSN actively promote TTE as part of the national digital transformation agenda, many legal professionals continue to rely on conventional approaches. Notaries and land administration offices, for example, still require physical signatures for critical legal documents such as authentic deeds and land titles. A 2024 study by the University of Indonesia reported that approximately 55% of legal practitioners continue to view electronic signatures as less credible than physical documents, underscoring a significant knowledge and perception gap that must be addressed.

3) Regulatory and Institutional Challenges

From an institutional standpoint, this study finds that although regulatory instruments such as Supreme Court Regulation (Perma) No. 1 of 2019 have formally supported the adoption of electronic signatures (TTE) in electronic court administration (e-court systems), institutional readiness remains uneven. Data from the Directorate General of the General Courts (Badilum), Supreme Court of Indonesia (2024), indicate that only approximately 60% of first-instance courts in major urban centers have fully operationalized the e-court system. In contrast,

implementation in remote and rural areas lags significantly, with coverage reaching just 25%. Beyond infrastructure limitations, the technical competence of law enforcement personnel presents a fundamental barrier.

A 2023 report by the Education and Training Agency of the Attorney General's Office revealed that merely 30% of prosecutors had undergone training related to the handling of digital evidence. At the investigative level, many police officers still lack essential knowledge of digital encryption, forensic auditing, or the basic architecture of electronic signatures, resulting in suboptimal responses to cybercrime cases and challenges in evidence verification. The limited number and geographic reach of officially licensed Electronic Certification Providers (PSrE) further compounds the issue. As of 2025, only five PSrEs had been formally accredited by the Ministry of Communication and Informatics. While the demand for electronic signatures continues to rise across sectors, these providers are currently unable to meet the full spectrum of societal and commercial needs. According to the Ministry's 2024 report, the penetration rate of PSrE services in eastern Indonesia remains below 50%, thereby restricting public access to legally recognized electronic signature infrastructure in underserved regions.

Based on the findings presented, the following conclusions can be drawn:

- 1) Although the regulatory framework governing electronic signatures in Indonesia is normatively sufficient, its implementation is hampered by infrastructural deficiencies, limited human resource capacity, and the absence of uniform technical interoperability standards.
- 2) Technical issues—including cybersecurity vulnerabilities, platform compatibility challenges, and evidentiary authentication difficulties—constitute primary barriers to the effective use and legal recognition of electronic signatures in judicial proceedings.
- 3) Low levels of digital literacy and a general lack of public trust significantly hinder the widespread adoption of electronic signatures among both individuals and business entities.
- 4) Discrepancies in institutional understanding and acceptance contribute to fragmented implementation, especially in the context of legal formalization of key documents such as land certificates, notarial deeds, and government contracts.

This study expands upon the findings of Hardina Ilham and Sulma et al., who highlighted the importance of PSrE certification in ensuring the legal validity of electronic signatures.¹⁹ However, unlike those earlier studies that primarily emphasized

¹⁹ Ilham, Rahman, and Qahar, "Keabsahan Tanda Tangan Elektronik Pada Perjanjian Jual Beli Barang Dari Perspektif Hukum Perdata"; Sulma, Jamaluddin, and Rahman, "Keabsahan Tanda Tangan Elektronik Dan Kekuatan Pembuktiannya Dalam Hukum Acara Perdata."

normative and doctrinal aspects, this research offers an empirical perspective by analyzing the technological, institutional, and sociocultural variables that influence real-world implementation. These results suggest that digital transformation in the legal system cannot be achieved solely through regulatory enactment. A systematic, cross-sectoral approach is required to address structural barriers in technology, legal procedure, and societal legal culture.²⁰ Technical obstacles call for the development of standardized national frameworks for interoperability and cybersecurity, while socio-legal barriers demand an educational and collaborative approach aimed at fostering public trust and institutional coherence.

Furthermore, strengthening the institutional role of PSrEs and aligning Indonesia's regulatory landscape with global standards—such as the European Union's eIDAS Regulation or the UNCITRAL Model Law on Electronic Signatures—can enhance both domestic and international legal recognition of TTE.²¹ Embracing such international benchmarks will also facilitate the harmonization of Indonesia's digital legal infrastructure within the global digital economy. The successful implementation of electronic signatures in Indonesia hinges on the following prerequisites:

- 1) The availability and reliability of secure, user-friendly technological infrastructure accessible to all stakeholders;
- 2) The establishment of technical standardization and interoperability protocols across domestic and international platforms;
- 3) Enhanced capacity-building initiatives and digital literacy programs for law enforcement, judicial personnel, and the broader public;
- 4) Regulatory harmonization and shared understanding across legal, technical, and institutional domains; and
- 5) The expansion and reinforcement of the PSrE ecosystem to ensure inclusive access to certified electronic signature services.

4. CONCLUSION

This study aims to analyze the normative foundations of the legal validity of electronic signatures (ETS) under Indonesian civil law, assess their recognition as admissible evidence in civil proceedings, and identify key challenges in their implementation from technical, procedural, and socio-institutional perspectives. The provisions of the Indonesian Civil Code and Law No. 11 of 2008 on Electronic Information and Transactions (ITE Law), along with its implementing regulations, establish a normative

²⁰ Lazarus Lazarus, "Pengaruh Teknologi Dan Globalisasi Terhadap Sistem Hukum Dan Identitas Sosial Masyarakat," *Media Hukum Indonesia* 2, no. 2 (2024): 398–404, <https://ojs.daarulhuda.or.id/index.php/MHI/article/view/490>.

²¹ Thalís Noor Cahyadi, "Aspek Hukum Pemanfaatan Digital Signature Dalam Meningkatkan Efisiensi, Akses Dan Kualitas Fintech Syariah," *Jurnal Rechts Vinding: Media Pembinaan Hukum Nasional* 9, no. 2 (2020): 219–36, <http://dx.doi.org/10.33331/rechtsvinding.v9i2.424>.

framework that acknowledges ETS as a valid instrument for contract formation and legal evidence—particularly when certified and compliant with data authentication and integrity standards.

The findings of this study indicate that, from a normative standpoint, certified electronic signatures are functionally equivalent to handwritten signatures in both contract formation and evidentiary processes before the court. However, a review of judicial decisions from 2018 to 2025 reveals inconsistent application in practice, particularly concerning uncertified ETS. These inconsistencies are largely attributed to variations in judges' technical comprehension, limited digital literacy, and inadequate supporting infrastructure. Additional challenges include the lack of standardized technical protocols, limited platform interoperability, low public trust, and the insufficient number and geographic reach of accredited Electronic Certification Providers (PSrEs).

This study confirms that the effectiveness of ETS depends not only on legal certainty but also on technological readiness, institutional capacity, and stakeholder trust. The principal contribution of this research is to offer an argumentative foundation for the development of national policies aimed at strengthening ETS regulation and implementation in a manner that is both inclusive and responsive to ongoing digital transformation. The study's limitations include the restricted availability of digitized appellate and cassation-level jurisprudence. Accordingly, future research is recommended to adopt an empirical approach within the judiciary, focusing on the effectiveness of technical training for legal professionals and evaluating the impact of international harmonization—such as with the eIDAS Regulation and the UNCITRAL Model Law—on enhancing the legitimacy and functionality of ETS in Indonesia.

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