

## Digitalization of Civil Transactions and Its Implications for Legal Certainty in the Era of Society 5.0

<sup>1</sup> Anita Mu'min, <sup>2</sup>Muhammad Rafli Chaniago, <sup>3</sup> Suartini

<sup>1-3</sup> Faculty of Law, Universitas Al-Azhar Indonesia

\*Corresponding Author:

suartini@uai.ac.id

### Abstract

*Digital transformation in the Indonesian civil law system is an inevitable necessity in line with the rapid development of information technology in the Society 5.0 era. One aspect that is directly affected is civil transactions, particularly in agreements and contracts that are now largely conducted electronically. This article aims to analyze the impact of the digitalization of civil transactions on legal certainty for the parties involved, as well as to evaluate the suitability of existing regulations, such as the Electronic Information and Transactions Law (ITE Law) and the Civil Code, in addressing this dynamic. By using a normative juridical approach and comparative analysis of legal practices in several countries, this article finds that although Indonesian regulations have begun to recognize the validity of electronic transactions, significant challenges still arise in the aspects of proof, authentication, and legal protection of digital transactions. Therefore, a more comprehensive and integrative reform of civil law is needed to ensure the principle of legal certainty in the digital realm. This update must include the establishment of clear technical guidelines, as well as the strengthening of regulations that support the implementation of safe and legally valid digital transactions, in order to keep up with technological developments and protect the rights of parties in electronic transactions.*

**Keywords:** digitalization, civil transactions, legal certainty, Society 5.0, Indonesian civil law

## 1. INTRODUCTION

The development of digital technology has brought fundamental changes in various aspects of life, including in the field of civil law. (Awwad et al., 2023) The Society 5.0 era demands that society not only adapt to technology but also integrate technology into social and legal life (Leelavathi & Manjunath, 2024). One of the consequences of this change is the shift in civil transaction forms from conventional systems to digital transactions. (Zhumadilova et al., 2023).

Civil transactions, which previously relied on physical meetings and written documents, are now largely conducted online through digital platforms. This change poses various legal challenges, particularly related to legal protection, the validity of electronic documents, and dispute resolution mechanisms (Subagyo et al., 2024). Therefore, the study on the capability of the Indonesian civil law system in ensuring legal certainty in the digital context becomes very relevant and urgent.

The Era of Society 5.0 is a concept of future society developed by Japan and is now widely adopted in various countries, including Indonesia. (Marion & Augtania, 2023) This concept places technology as an integral part of social, economic, and legal life. In the context of civil law, digital transformation has created a new paradigm in the execution of transactions, particularly through the use of electronic contracts and online transactions that are increasingly prevalent in modern society. (Smagina et al., 2020), (Miles et al., 2008).

Before the advent of digital technology, civil transactions were commonly conducted face-to-face, with written documents serving as authentic proof of the agreement between the parties. However, in the last two decades, with the development of information and communication technology, this transaction model has begun to transform into a digital-based one. Agreements no longer have to be made physically, but rather can be done through digital platforms supported by electronic signatures or other authentication systems.

For example, e-commerce practices, ride-sharing services, and booking services through digital applications have become part of people's daily lives. All these activities involve civil legal actions based on digital contracts, the validity of which is recognized by the Electronic Information and Transactions Law (ITE Law). Article 5 paragraph (1) of the ITE Law explicitly states that "Electronic Information and/or Electronic Documents and/or their printed results are valid legal evidence."

This transformation creates extraordinary efficiency in legal interactions, but also poses challenges to the fundamental principles of civil law, particularly regarding the

valid requirements of an agreement as stipulated in Article 1320 of the Civil Code. The article requires the existence of an agreement, capacity, a specific object, and a lawful cause. In digital transactions, the fulfillment of the elements of agreement and competence is often difficult to prove without a strong authentication mechanism.

Statistics from the Indonesian Internet Service Providers Association (APJII) in 2023 recorded that more than 210 million Indonesian residents have connected to the internet, with more than 80% of them having conducted online transactions. This shows that electronic contracts have become the primary method in daily transaction practices of society, especially in the service, trade, and financial sectors.

On the other hand, the property sector, legal services, and government are also beginning to adopt electronic contract systems. The Indonesian government, through Government Regulation Number 71 of 2019 on the Implementation of Electronic Systems and Transactions (PP PSTE), clarifies the legal aspects of electronic systems, including the requirement that the system must be reliable and accountable.

However, there is still a regulatory gap in the Civil Code as the basic legal text, which has not yet explicitly regulated the existence of electronic contracts. This creates a dualism between conventional law and relatively new digital-based regulations. Without adequate legal synchronization, there will be potential disputes and legal uncertainties in the implementation of electronic contracts.

Legal certainty is an important element in civil law (Fenwick et al., 2017). In the context of digital transactions, the aspect of legal certainty is greatly influenced by the mechanisms of proof and recognition of electronic evidence (Maurer, 2004). When a contract is created digitally, with an electronic signature as a form of consent, the authentication and validity of that signature become the key elements to proving the agreement between the parties (Dolev & Liber, 2021; Karmakar et al., 2023; Hernandez-Ardieta et al., 2013a; Buccafurri et al., 2008).

The ITE Law has indeed recognized electronic signatures, but its regulations are still quite general. Not all electronic signatures have the same evidentiary power. Only

certified electronic signatures are considered to have the highest evidentiary power. Unfortunately, not all transaction participants are aware of this difference, which could lead to legal losses in the future.

In addition, proving the time of contract creation, the intentions of the parties, and the integrity of the document's content presents unique challenges in digital contract disputes. Therefore, there is a need to strengthen the digital forensics system and credible digital certification service providers in Indonesia.

That this research is not the first to be conducted but has already been carried out by previous researchers, namely Rahardjo (2021) in his study on the legal validity of electronic agreements, stating that although electronic agreements have been recognized in the Indonesian legal system through the ITE Law, there are still normative gaps, particularly related to consumer protection and proof mechanisms in disputes. Sari & Yuliana (2022) in their research on legal certainty in e-commerce transactions found that the elements of contracts as regulated in Article 1320 of the Civil Code remain relevant in the digital context. However, they emphasize the need to strengthen regulations related to identity verification and digital authentication and Nurhidayat (2023) researched the implementation of Online Dispute Resolution (ODR) in the resolution of electronic civil disputes in Indonesia. He highlights the importance of specific regulations and the readiness of legal technology infrastructure to support the effective and efficient resolution of disputes in cyberspace.

That digital transformation in civil transaction practices in Indonesia has brought positive impacts in terms of efficiency, accessibility, and legal inclusivity. However, the success of this digitization highly depends on the legal certainty provided by the legislative system. Therefore, it is necessary to reform conventional civil law and harmonize digital regulations to align with the principles of justice and legal certainty in the Society 5.0 era. Based on the above description, several issues can be formulated to be examined in this research, including:

1. How is the legal regulation of digital-based civil transactions in the current Indonesian legal system?
2. Has the digitization of civil transactions been able to guarantee legal certainty for the parties involved?
3. What are the challenges and policy recommendations for civil law to optimally adapt in the era of Society 5.0?.

## **2. METHOD**

This research uses a normative juridical approach with comparative analysis to examine the legal regulations governing digital-based civil transactions within the Indonesian legal system, particularly related to the Electronic Information and Transactions Law (ITE Law) and the Civil Code (KUHPerdata). This approach focuses on the analysis of applicable legal norms to see to what extent existing regulations accommodate the development of digitalization in civil transactions.

The main objective of this research is to analyze the implications of the digitalization of civil transactions on legal certainty and to evaluate the adequacy of existing regulations. This research will also identify legal challenges arising from digitalization and provide policy recommendations to enhance legal compliance.

The data sources used in this research include legal literature, relevant legislation, previous research findings, and articles related to the digitization of civil law. This research also examines regulations related to digital civil transactions in Indonesia, such as the ITE Law, Government Regulation on PSTE, as well as comparisons with regulations in other countries, including Japan, Europe, and the United States.

The analysis method used is descriptive-analytical. The descriptive stage describes and explains the regulations in force in Indonesia, particularly related to electronic transactions. The analytical stage aims to identify potential gaps in regulations, particularly related to legal certainty, evidence, and consumer protection. This research also includes an analysis of case studies on digital transaction disputes in Indonesia, to

provide an overview of the concrete challenges in the application of the law. With this approach, the research is expected to contribute to the development of a more technology-adaptive Indonesian legal system in the Society 5.0 era

### **3. RESULTS AND DISCUSSION**

#### **A. Basic Concept of Digitalization of Civil Transactions**

Civil transactions are a form of legal acts between two or more parties that create legal relationships based on agreement. In the digital context, these transactions are no longer limited by space and time, but can be conducted online through electronic media. Forms of digitalization of civil transactions include the use of electronic contracts (e-contracts), electronic signatures (e-signatures), and blockchain technology to record and secure transactions.

Digital transformation is part of the technological revolution that has changed the way humans interact, including in legal, economic, and social activities. In the realm of civil law, this transformation introduces the concept of digitalization of civil transactions, which is the change in the form of civil legal transactions that were previously conducted conventionally (face-to-face and based on physical documents) into electronic transactions through digital media.

In general, a civil transaction is defined as a legal act performed by two or more parties, which creates a private legal relationship, such as buying and selling, leasing, granting power of attorney, employment agreements, and other obligations. Basically, this transaction requires an agreement and a specific object as the basis for the validity of the contract according to Article 1320 of the Civil Code. In traditional practice, the validity of an agreement is proven through wet signatures, stamps, and witnesses. However, with the advancement of technology, this form of transaction is beginning to shift to an electronic system that offers speed, efficiency, and wide reach.

Digitalization of civil transactions refers to the application of digital technology in the entire process of civil legal transactions, from negotiation, formation of agreements, execution of contracts, to dispute resolution. This form of digitization includes, among others:

- a. Electronic agreement (e-contract): a contract that is created, approved, and stored electronically.
- b. Electronic signature (e-signature): a digital approval mechanism that replaces manual signatures and has legal force in accordance with the provisions of Articles 11 and 12 of the ITE Law.
- c. Electronic documents: all documents that are compiled and stored in digital form and have legal standing as valid evidence (Article 5 of the ITE Law).
- d. Digital transaction platform: application-based or website-based media that serve as intermediaries for legal agreements, such as marketplaces, service provider applications, or corporate online contract systems.

This concept blurs the boundaries between physical and virtual meetings, and demands legal recognition of all forms of agreements and electronic documents used in transactions.

In Indonesia, the recognition of electronic transactions and digital documents was first introduced through Law Number 11 of 2008 on Electronic Information and Transactions (ITE Law), which was later updated by Law Number 19 of 2016. The ITE Law recognizes that electronic documents and signatures can be used as valid legal evidence as long as they meet technical and legal requirements.

Article 1 number 17 of the ITE Law states that an electronic signature is a signature consisting of electronic information that is attached, associated, or related to other electronic information used as a means of verification and authentication. Meanwhile, Article 5 of the ITE Law equates the status of electronic documents with physical documents as long as they meet authenticity requirements.

In addition, Government Regulation Number 71 of 2019 on the Implementation of Electronic Systems and Transactions (PP PSTE) provides a more detailed legal framework, including principles of system reliability, responsibilities of electronic system organizers, and obligations to maintain the integrity and confidentiality of personal data.

However, it should be noted that the Indonesian Civil Code (KUHPerdata) as the legal basis for obligations in Indonesia has not yet explicitly accommodated digital

transactions, as it is a colonial product of the Netherlands compiled in the 19th century. This necessitates the harmonization between the conventional legal system and more modern digital-based regulations.

Globally, various countries have developed legal frameworks to regulate electronic transactions more comprehensively. For example, the United Nations Commission on International Trade Law (UNCITRAL) has issued the Model Law on Electronic Commerce (1996) and the Model Law on Electronic Signatures (2001), which are referenced by many countries in forming their domestic regulations.

## **B. Legal Regulations Applicable in Indonesia**

The regulation of electronic transactions in Indonesia is governed by Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE Law), as amended by Law Number 19 of 2016. The ITE Law provides a legal basis for the legality of electronic information and documents, including the recognition of electronic signatures. Meanwhile, the Civil Code remains the primary reference in determining the validity of agreements, as stipulated in Article 1320. However, there has not yet been a comprehensive integration between the two regulations in the context of the digitalization of civil transactions.

### **Applicable Legal Regulations in Indonesia**

The development of digital-based civil transactions in Indonesia has prompted the emergence of various regulations to accommodate the legal dynamics arising from the use of information technology. In this context, the applicable legal regulations are still dualistic, namely between the conventional civil law system (KUHPERDATA) and specific regulations governing electronic transactions. Therefore, an analysis of the existing legal framework becomes important to understand the extent to which the digitization of civil transactions has gained strong legal legitimacy and is able to ensure legal certainty for the parties involved.

#### **Civil Code (KUHPERDATA)**

KUHPERDATA as the main legal source in the realm of civil law in Indonesia was drafted based on the Dutch Burgerlijk Wetboek and has been in effect since the colonial



era of the Dutch East Indies. KUHPerdata does not explicitly recognize the concept of electronic agreements or digital transactions, because at the time of its formulation, there was no development of information technology as we have today.

Article 1320 of the Civil Code regulates the valid conditions of an agreement, namely: (1) the existence of an agreement, (2) the capacity to make an agreement, (3) a certain object, and (4) a lawful cause. These requirements remain relevant in digital agreements, but in practice, issues arise in proving the elements of "agreement" and "capacity," especially when the process is conducted online without direct interaction between the parties.

The absence of norms that explicitly regulate electronic transactions leads to multi-interpretation of the law and opens up space for legal uncertainty, especially in dispute cases. This highlights the importance of updating national civil law to be able to integrate digital transactions into the formal legal system.

### **Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE Law)**

The ITE Law is the initial milestone for the legal recognition of electronic information and transactions in Indonesia. Article 5 paragraph (1) of the ITE Law states that electronic information and/or electronic documents and their printed results are valid legal evidence. This provision provides a legal basis for the validity of digital documents used in civil transactions.

Furthermore, Article 11 of the ITE Law stipulates that electronic signatures have legal force and valid legal consequences as long as they meet certain requirements, namely: (1) the data used to create the signature is only related to the signer; (2) during the signing process, the data is only under the control of the signer; and (3) there is a way to identify the signer and demonstrate that the signer has given consent to the related information.

However, the ITE Law distinguishes between ordinary electronic signatures and certified electronic signatures, where the latter has a higher level of proof because it uses the services of electronic certification providers recognized by the state. Problems arise

when the majority of the public still use ordinary electronic signatures, which are prone to being questioned in their validity during disputes.

### **Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions (PP PSTE)**

PP PSTE is a derivative regulation of the ITE Law that clarifies the mechanisms and obligations in the implementation of electronic systems. Some important points regulated in this Government Regulation include:

- a. Electronic system organizers are required to ensure the confidentiality, integrity, and availability of the information managed;
- b. Organizers are required to use a reliable and secure electronic system;
- c. Electronic contracts created through electronic systems are deemed valid as long as the parties agree and can be accessed by the parties.

This provision strengthens the legality of digital transactions, particularly in relation to the principle of due diligence and legal security. This regulation also mandates the use of reliable technology to prevent losses for the parties involved, including the risk of personal data breaches and identity fraud.

### **Challenges in Regulatory Harmonization**

Although recognition of digital transactions has been granted through the ITE Law and PSTE Regulation, there are still normative gaps because the Civil Code has not adapted to the realities of digital law. This creates the impression of regulatory fragmentation, where conventional law and cyber law operate independently. As a result, in judicial practice, judges often have to perform progressive interpretation to fill legal gaps (*rechtsvinding*), which can create uncertainty for both businesses and the general public.

Furthermore, the weakness of digital legal infrastructure, the low level of digital legal literacy among the public and law enforcement officials, and the limited number of certified electronic certification providers add to the burden of implementing adaptive and comprehensive law in the era of Society 5.0.

### **C. Analysis of Legal Certainty in Digital Transactions**

Legal certainty is a fundamental principle in civil law. In the realm of digital transactions, legal certainty heavily relies on the clarity of regulations, document authentication, and the effectiveness of proof. The main issues that often arise are related to the validity of electronic signatures, the evidentiary strength of electronic documents, and the legality of agreements made digitally. In addition, the lack of understanding among the parties regarding digital legal instruments also poses a unique challenge.

Legal certainty is one of the fundamental principles in the civil law system. This principle guarantees that every legal action taken by a legal subject is protected by applicable laws and has predictable legal consequences. In the context of digital transactions, this principle becomes increasingly important given the nature of digitization that demands speed, efficiency, and system openness to various forms of technological innovation.

However, technological advancement is not always accompanied by the readiness of the legal system to provide certainty. This results in the emergence of areas of uncertainty that have the potential to harm parties engaged in electronic transactions.

#### **The Problem of Proof in Electronic Transactions**

One important aspect in ensuring legal certainty in digital transactions is the ability of the legal system to provide a reliable mechanism for proving documents or agreements that occur electronically. In Indonesian civil law, the primary evidence for an agreement is a written document signed by the parties, as stipulated in Article 1866 of the Indonesian Civil Code.

However, in electronic transactions, the evidence used consists of digital documents and electronic signatures. Although Article 5 of the ITE Law has stated that electronic documents have the same legal force as physical documents, its implementation in the field still faces challenges, including:

- a. Not all digital documents have adequate security systems to guarantee the authenticity of their content and creation time;

- b. Uncertified electronic signatures are often questioned for their evidentiary strength in court;
- c. The limited understanding of law enforcement officials, including judges, regarding electronic evidence methods.

This condition makes the parties in a digital contract vulnerable to the risk of abuse or disputes, especially when there is a breach of agreement and no strong authentication system can be presented as evidence.

### **Electronic Signatures and Their Validity**

The ITE Law divides electronic signatures into two categories, namely:

1. Certified electronic signature
2. Uncertified electronic signature

A certified electronic signature is a signature created using a system provided by an Electronic Certification Authority (PSE) that has been recognized by the state. (Dantes et al., 2022) , (Schütze et al., 2006) This signature has high legal and evidentiary power because its authenticity can be guaranteed by an officially recognized authentication system. (Head & Li, 2009), (Hernandez-Ardieta et al., 2013)

Meanwhile, non-certified electronic signatures do not have authentication guarantees from official institutions, so in practice, their evidentiary strength can be debated. (Chen et al., 2018) This raises doubts for business operators and consumers in using digital signatures in general, considering that not everyone understands the types and legal implications of each category of signature. (Chai et al., 2015)

### **Legal Protection for the Parties**

Legal protection is part of legal certainty. In digital transactions, legal protection not only encompasses the recognition of the existence of agreements but also the safeguarding of the rights and obligations of the parties during and after the execution of the contract.

Legal protection is a crucial aspect in ensuring a sense of security and certainty for the parties involved in transactions, including in the context of digital-based civil

transactions. In conventional transactions, legal protection is easier to implement because it involves physical documents and established legal mechanisms. However, in digital transactions, the complexity of legal protection increases due to new challenges that are technical, administrative, and juridical in nature.

In the Indonesian legal system, legal protection for digital transaction actors is regulated by several regulations, such as the ITE Law, PP PSTE, and partially implied in the Civil Code. The ITE Law recognizes the existence and legality of electronic documents and transactions, including the protection of the confidentiality of personal data and information transmitted digitally (Article 26 of the ITE Law). PP PSTE strengthens the aspect of responsibility for electronic system organizers to ensure the reliability and security of the system and to ensure that user information is not misused. However, in practice, legal protection still faces several fundamental issues:

1. The lack of understanding of rights and obligations in digital transactions. Many parties, both consumers and business actors, do not fully understand the legal consequences of the electronic agreements they make, making them prone to rights violations and contract content manipulation.
2. The low security standards of digital systems. Not all digital platforms provide adequate security systems, such as data encryption, layered authentication, or secure digital archive storage. When hacking, data breaches, or contract manipulation occur, the parties often struggle to obtain proportional compensation.
3. Difficulty of proof in violation cases. Many digital law violations are difficult to prove in court due to the absence of reliable digital forensic evidence, or because the perpetrators cannot be definitively identified (anonymity in cyberspace).
4. The unavailability of an effective dispute resolution forum. The resolution of digital civil disputes through conventional courts is often inefficient and not friendly towards electronic evidence. Alternatives such as Online Dispute Resolution (ODR) have not yet been widely adopted and do not have a strong operational legal basis in Indonesia.

To ensure effective legal protection, strengthening is needed in three dimensions: first, more progressive and technical regulations, including the establishment of the Digital Consumer Protection Law and strengthening oversight of digital platforms. Second, the improvement of legal and digital literacy among the public, particularly regarding rights in electronic transactions. Third, the enhancement of the capacity of law enforcement officers and the judiciary, both in terms of technological understanding and the ability to handle electronic evidence professionally.

Issues such as the misuse of personal data, fake identities, system failures, and losses due to information leaks are part of the risks that digital transaction participants must bear. Although the Electronic Information and Transactions Law (ITE Law) and the Government Regulation (PP) on Electronic Systems and Transactions (PSTE) have provided a legal basis for data protection and the responsibilities of electronic system organizers, the implementation in the field is still not optimal. This is caused by several factors, including:

The low level of digital literacy in society (“Digital Literacy and Readership of E-Books in Slovakia,” 2020);

- Lack of supervision over system organizers (Berlo & De Bruijn, 2005);
- The weakness of law enforcement in violation cases (Watney, 2009).

Therefore, to ensure effective legal protection, it is necessary to strengthen the implementing regulations, enhance the role of consumer protection agencies, and expand the reach of dispute resolution institutions specifically for digital transactions (Sari, 2023; Widiarty & Fahim, 2024; Kuncoro et al., 2019).

In the civil law system, judges play an important role in interpreting the law and delivering verdicts on the disputes presented. In the case of digital transactions, the role of judges becomes increasingly complex because they must understand the technical aspects of electronic evidence as well as the legal context of transactions conducted virtually. However, not all judges and judicial officers possess the technical competence to handle digital-based disputes (Wu & Zheng, 2020; Amarini et al., 2024; Tran, 2022; Fach Gómez, 2023). Therefore, intensive training and the preparation of technical

guidelines for electronic litigation (e-litigation) are necessary so that the resulting decisions can reflect justice and provide legal certainty that is adaptive to the times (Drapezo et al., 2022).

Digital platforms make it easier for people to access legal services. Through apps and websites, people can get legal information, advice, and documents without having to spend a lot of money. This technology also helps people in remote areas to get legal services that were once difficult to reach, so that access to justice is more even. (Saharany, 2025 )

In the digital age, consumers have many choices, but they also face greater risks. Civil law plays an important role in protecting consumers, for example with data protection rules, transparent digital contracts, and corporate liability for their products and services. Strong rules can prevent fraud, misleading advertising, and copyright infringement. Consumers also need to know their rights so that they can demand justice if they are harmed. To understand how civil law is adapting in the digital age, we can learn from the legal cases experienced by large tech companies. (Saharany, 2025 )

The main challenges faced in the digitalization of civil transactions include: the absence of detailed regulations in the Civil Code regarding digital transactions, the weakness of supporting infrastructure, such as independent and reliable digital signature authorization institutions, and the gap in understanding between legal practitioners and technology (Weber, 2019; Ponomareva, 2023; Lukita et al., 2023; Refat et al., 2023). The solutions that can be offered in this research are the reformulation of the Civil Code to be more accommodating to the development of digital technology, strengthening the implementing regulations of the ITE Law related to digital proof and authentication, the development of online dispute resolution (ODR) institutions, and technology-based legal education and training for law enforcement officers and the public (Martinho, 2024; Braga Da Silva, 2021; Lozada & Talero, 2024; Bhatt et al., 2024)

#### 4. CONCLUSION

Based on the description and analysis that have been conducted, it can be concluded as follows:

1. The legal regulation of digital-based civil transactions in Indonesia has undergone significant development, marked by the enactment of Law Number 11 of 2008 on Information and Electronic Transactions (ITE Law) and Government Regulation Number 71 of 2019 on the Implementation of Electronic Systems and Transactions (PP PSTE). Both of these regulations provide legal recognition for electronic documents, digital contracts, and electronic signatures. However, there is still a gap in the Civil Code that explicitly regulates electronic transactions.
2. The digitization of civil transactions has not yet fully guaranteed legal certainty. Although there is legal recognition of electronic contracts and evidence, significant challenges arise in terms of proof, authentication, and the validity of electronic signatures, especially those that are not certified. Moreover, the low understanding of digital law among the public and law enforcement officers exacerbates this issue.
3. The main challenges in adapting civil law to the Society 5.0 era 5.0 includes the absence of norms in the Civil Code, weak digital authentication infrastructure, low digital legal literacy, and minimal effective digital dispute resolution mechanisms. Therefore, there is a need for a more accommodative civil law reform towards the digitalization of transactions, strengthening the electronic signature certification system, and developing a more efficient and technology-friendly online dispute resolution (ODR) institution.

#### Suggestions

Based on the above conclusion, several policy recommendations are needed, including:

1. Reformulation of national civil law to be more accommodating to digital transactions.



2. The formulation or strengthening of electronic contract regulations as *lex specialis*.
3. Development of a credible electronic signature certification system.
4. Technical training for judges and law enforcement on digital evidence.
5. Empowerment and development of technology-friendly and efficient online dispute resolution (ODR) institutions.

Thus, the success of digital transformation in civil law heavily depends on the harmonization between positive law, legal technology infrastructure, and the readiness of human resources involved in the judicial system. These steps are necessary to ensure that the principle of legal certainty is maintained and that Indonesian civil law can meet the challenges of society in the Society 5.0 era

## References

- Awwad, A., Omar, A., Alshurman, S. Y., & Angawi, M. (2023). The Impact of Digital Transformation on Civil Action Procedures. In B. A. M. Alareeni & I. Elgedawy (Eds.), *Artificial Intelligence (AI) and Finance* (Vol. 488, pp. 368–376). Springer Nature Switzerland. [https://doi.org/10.1007/978-3-031-39158-3\\_35](https://doi.org/10.1007/978-3-031-39158-3_35)
- Chai, S.-W., Min, K.-S., & Lee, J.-H. (2015). A study of issues about accredited certification methods in Korea. *International Journal of Security and its Applications*, 9(3), 77–84. <https://doi.org/10.14257/ijisia.2015.9.3.08>
- Chen, C., Tseng, K. K., & Zhang, X. (2018). A real-world online signature verification system based on correlation algorithm. *International Journal of Computer Applications in Technology*, 58(4), 321. <https://doi.org/10.1504/IJCAT.2018.095943>
- Dantes, K. F., Mangku, D. G. S., & Yuliartini, N. P. R. (2022). The future impact of electronic signature (e-signature) in the E-GMS of limited liability companies. 030017. <https://doi.org/10.1063/5.0104125>
- Head, M. M., & Li, E. Y. (Eds.). (2009). *Mobile and Ubiquitous Commerce: Advanced E-Business Methods*. IGI Global. <https://doi.org/10.4018/978-1-60566-366-1>
- Hernandez-Ardieta, J. L., Gonzalez-Tablas, A. I., De Fuentes, J. M., & Ramos, B. (2013). A taxonomy and survey of attacks on digital signatures. *Computers & Security*, 34, 67–112. <https://doi.org/10.1016/j.cose.2012.11.009>
- Leelavathi, R., & Manjunath, S. (2024). Grasping Society 5.0: Keys for Ameliorate Human Life. In B. Alareeni & A. Hamdan (Eds.), *Technology and Business Model Innovation: Challenges and Opportunities* (Vol. 923, pp. 158–168). Springer Nature Switzerland. [https://doi.org/10.1007/978-3-031-55911-2\\_15](https://doi.org/10.1007/978-3-031-55911-2_15)
- Marion, E. C., & Augtania, A. Y. (2023). Comparison of Technology Transformation in Digital Leadership Indonesia and Malaysia in Era Society 5.0. In M. T.N, N. null, U. D.N, & A. S.A (Eds.), *E3S Web of Conferences* (Vol. 426). EDP Sciences. <https://doi.org/10.1051/e3sconf/202342602077>
- Miles, S., Groth, P., & Luck, M. (2008). Handling mitigating circumstances for electronic contracts. In *AISB 2008 Convention: Communication, Interaction and Social*

- Intelligence—Proceedings of the AISB 2008 Symposium on Behaviour Regulation in Multi-Agent Systems (pp. 37–42).  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-78650046048&partnerID=40&md5=e86ef1ce7ca9fc1016285e008daa218b>
- Nurhidayat, R. (2023). Implementasi Online Dispute Resolution dalam Penyelesaian Sengketa Perdata Elektronik di Indonesia. *Jurnal Hukum Siber Indonesia*, 3(1), 88–101.
- Rahardjo, S. (2021). Validitas Hukum Perjanjian Elektronik dalam Transaksi Digital di Indonesia. *Jurnal Hukum dan Teknologi*, 5(2), 112–124
- Schütze, B., Kämmerer, M., Klos, G., & Mildemberger, P. (2006). The Public-Key-Infrastructure of the Radiological Society of Germany. *European Journal of Radiology*, 57(3), 323–328. <https://doi.org/10.1016/j.ejrad.2005.10.006>
- Sari, M., & Yuliana, T. (2022). Kepastian Hukum dalam E-Commerce: Tinjauan Yuridis terhadap Pasal 1320 KUHPerdata di Era Digital. *Jurnal Hukum Ekonomi*, 4(1), 55–70.
- Smagina, E. S., Golysheva, A., Pit'ko, E. V., Riazanov, E., & Zinkovsky, S. (2020). Principles of digitalization of legal proceedings in civil cases and economic disputes. In *Journal of Advanced Research in Dynamical and Control Systems* (Vol. 12, Issue 5 Special Issue, pp. 387–392). Institute of Advanced Scientific Research, Inc. <https://doi.org/10.5373/JARDCS/V12SP5/20201771>
- Subagyono, B. S. A., Romadhona, M. K., Chumaida, Z. V., Suheryadi, B., & Elkhatab, N. S. (2024). Can Indonesia's Laws Keep Up? Protecting Consumer Rights in Digital Transactions. *Journal of Law and Legal Reform*, 5(3), 869–890. <https://doi.org/10.15294/jllr.v5i3.4202>
- Zhumadilova, M. A., Dussipov, Y. Sh., Arginbekova, G. I., Aitimov, B. Zh., & Milova, Y. V. (2023). Civil Legal Handling of Electronic Transactions: The Essence and Modern Realities. *Law, State and Telecommunications Review*, 15(1), 160–176. <https://doi.org/10.26512/lstr.v15i1.43829>
- Undang-Undang Republik Indonesia Nomor 11 Tahun 2008 tentang Informasi dan Transaksi Elektronik sebagaimana telah diubah dengan Undang-Undang Nomor 19 Tahun 2016.

Alisa Novelita Saharany, HUKUM PERDATA DI ERA DIGITAL: ADAPTASO,  
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