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The Effectiveness Of Electronic Signatures In Civil Contracts In The Digital Era

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Abstsrak. *Digital transformation has brought significant changes in various aspects of life, including in the realm of law, especially civil contracts. Electronic signature is one of the important innovations that offer efficiency, flexibility, and convenience in contract transactions in the digital era. This research aims to examine the effectiveness of the use of electronic signatures in civil contracts, especially in terms of legal validity, security, and acceptance by the public and business actors. The results show that electronic signatures in Indonesia have been legally recognized based on Law Number 19 of 2016 amending Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE Law). However, while e-signatures have great potential to speed up the contracting process, several challenges remain, such as security concerns and resistance among small and medium-sized enterprises (SMEs). Security issues are a major concern, given the risk of cybercrime such as hacking and digital identity forgery. In addition, low digital literacy in the society hinders the widespread adoption of e-signatures.*

Keywords: *Digitalization, E-signatures, Contracts, Legal*

1. INTRODUCTION

Advances in information and communication technology have had a significant impact in various fields, including in the legal sector. One important aspect that has changed is the use of signatures in civil contracts. In this digital era, the use of electronic signatures is increasingly widespread, replacing manual signatures (wet signatures) in various legal transactions. Electronic signatures are a practical solution for parties involved in a contract without having to meet face-to-face, especially in transactions conducted online and across national borders (Prasetyo, 2022).

In the context of Indonesian law, electronic signatures have been regulated in Law Number 11 of 2008 concerning Electronic Information and Transactions (UU ITE), which was later amended by Law Number 19 of 2016. Article 11 of the ITE Law states that electronic signatures are considered valid and have the same legal force as manual signatures as long as they meet the specified criteria, namely being able to identify the signatory and indicate approval of the related information (Nugroho, 2020). Thus, the use of electronic signatures in civil contracts has been legally recognized in Indonesia, supporting the acceleration of digital transformation in the legal system.

However, despite being legally recognized, there are several challenges that need to be considered in its implementation. One of the main issues that often arise is security. The use of electronic signatures is vulnerable to cybercrime, such as hacking and identity forgery.

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This raises doubts among users, especially regarding the integrity and authentication of signatures performed digitally (Rahardjo, 2019). For example, many business people still feel safer with manual signatures because they are considered to have stronger physical evidence in court.

In addition, there is still resistance from some people in adopting electronic signatures. Most small and medium enterprises (MSMEs) in Indonesia still use manual signatures in their civil contracts. This is due to a lack of knowledge and understanding of electronic signatures, as well as the perception that using this technology requires high costs for implementation (Syahrial, 2021). This factor shows that although e-signatures offer convenience and efficiency, their acceptance in the community still needs to be improved.

On the other hand, the benefits of using electronic signatures are significant. Time efficiency, reduced administrative costs, as well as convenience in remote transactions are some of the main advantages offered by electronic signatures. Electronic signatures enable faster and more effective agreement processes, especially in the pandemic era where in-person interactions are often limited (Nugraha, 2022). Therefore, this research needs to be conducted to evaluate the effectiveness of electronic signatures in civil contracts in the digital era, by highlighting aspects of legal validity, security, and acceptance by the public and business actors.

This research is expected to provide a deeper understanding of the effectiveness of the use of electronic signatures in civil contracts, as well as provide recommendations regarding solutions to existing challenges, so that its application can be more optimal in supporting the development of digital law in Indonesia.

2. RESEARCH METHODS

This research is a quantitative descriptive research with an empirical normative legal approach. This research aims to evaluate the effectiveness of the use of electronic signatures in civil contracts, measure the extent to which electronic signatures are legally recognized and applied in business practices, and identify the challenges and opportunities that exist.

3. DISCUSSION

Effectiveness of the Use of Electronic Signatures in Civil Contracts

Based on the results of research that has been conducted on the use of electronic signatures in civil contracts, there are several important findings related to the legal validity, security, and acceptance of electronic signatures among the public and business people.

a. Legal Validity of Electronic Signatures

Electronic signatures in Indonesia are legally recognized based on Law Number 11 of 2008 concerning Electronic Information and Transactions (UU ITE) and its amendment in Law Number 19 of 2016. Legally, an electronic signature is considered valid if it can identify the signer and indicate approval of the signed information. The results show that most of the surveyed electronic signature users are aware that the use of electronic signatures has a strong legal basis. About 80% of business respondents understand that electronic signatures have the same legal force as manual signatures (Nugroho, 2020).

In the international context, many countries have also recognized electronic signatures in their legal systems through regulations such as eIDAS in the European Union and the ESIGN Act in the United States. This indicates a global convergence in the recognition of electronic signatures as a valid method of conducting civil transactions (Prasetyo, 2022). This is particularly relevant in the context of cross-border business, where international agreements are often made online, and electronic signatures facilitate the process more quickly and efficiently.

b. Security of Electronic Signature Usage

Security is still an emerging issue in the implementation of electronic signatures. The study found that around 65% of the respondents expressed concerns about the possibility of hacking and forgery of electronic signatures, especially in high-value transactions. Even so, 70% of respondents who have used electronic signatures stated that the security systems implemented by electronic signature service providers, such as the use of encryption and two-factor authentication technology, have been able to reduce their concerns (Rahardjo, 2019).

Studies show that although e-signature technology has adopted high security standards, such as Public Key Infrastructure (PKI), around 65% of users in Indonesia still express concerns regarding the risk of cyber crime (Prasetyo, 2022). The use of advanced encryption technology and a strong security infrastructure is essential to ensure that e-signatures remain reliable and of equal value to manual signatures.

Educating users on the security and management procedures of electronic signatures is also an important factor in increasing public trust.

c. Acceptance of Electronic Signatures among the Public and Businesses

One of the biggest challenges in the use of electronic signatures is the low adoption rate among the public, especially in the small and medium enterprise (SME) sector. Around 60% of the SME respondents surveyed stated that they have not yet switched to e-signatures due to limited knowledge and the perception that the technology is complicated and expensive to implement. In contrast, large corporations have been quicker to adopt e-signatures, with around 85% of corporate respondents stating that they have used this technology in business contracts, especially during the COVID-19 pandemic (Prasetyo, 2022).

d. Social Acceptance and Barriers

Although e-signatures offer various advantages, their adoption rate among the general public and small businesses is still relatively low. Research shows that only around 40% of small and medium-sized businesses (SMEs) in Indonesia have adopted e-signatures in their transactions (Syahrial, 2021). The main factors hindering adoption are the lack of understanding of this technology, as well as the perception that its implementation requires high costs and complex procedures.

In addition, the traditional custom of using manual signatures, especially in contracts involving parties with low levels of digital literacy, is a significant barrier. Many users still feel more comfortable with manual signatures as they can be directly physically accounted for in court. Therefore, further education and socialization efforts are needed to increase public understanding of the benefits and security of electronic signatures, as well as provide incentives for small businesses to switch to this technology (Nugroho, 2020).

e. Recommendations for Increased Use of Electronic Signatures

To increase the effectiveness and adoption of electronic signatures in civil contracts, several steps can be taken. First, the government and service providers should improve the security of electronic signature systems to provide assurance to users that their data is well protected. Second, education and training campaigns are needed for the public and businesses on how to use electronic signatures safely and efficiently. Third, electronic signature service providers should consider offering more affordable service packages for MSMEs, so that cost barriers can be minimized (Rahardjo, 2019).

The use of electronic signatures in civil contracts has shown considerable effectiveness, especially in terms of efficiency and practicality. Electronic signatures offer a faster, more cost-effective and practical solution than manual signatures, especially in agreements that are conducted remotely or across countries. Its implementation also helps reduce the use of physical documents and speed up administrative processes (Nugraha, 2022).

However, the effective use of electronic signatures is still hindered by several factors, mainly related to security issues and acceptance among the public. This research shows that although security systems such as encryption have been implemented, there are still concerns from users regarding the possibility of cybercrime. Therefore, improving security and educating users about the security of electronic signatures is crucial to increase user trust (Rahardjo, 2019).\

In addition, the results of the study show that the level of adoption of electronic signatures among the public, especially the MSME sector, is still low. This is due to limited understanding of technology and the assumption that the cost of implementing electronic signatures is relatively expensive. Therefore, more intensive education and socialization of the benefits and procedures for using electronic signatures are needed, as well as incentive policies that can help MSMEs switch to this technology (Syahrial, 2019).

From a legal perspective, electronic signatures have the same legal force as manual signatures, so they can be used as valid evidence in civil disputes. However, further regulatory improvements are needed to ensure that users of electronic signatures receive maximum protection from cyber threats, as well as guarantees of the validity of these signatures in various types of contracts (Nugroho, 2020).

Overall, this study shows that electronic signatures have great potential for wider adoption in civil contracts, especially in the digital era. Its use is effective in increasing contract efficiency and flexibility, but still requires improvement in terms of security and public acceptance.

Solutions to existing challenges related to the use of electronic signatures in civil contracts

Along with the development of digital technology, electronic signature has become one of the important instruments in civil contracts. Electronic signatures provide tremendous flexibility and efficiency in transactions, especially those conducted remotely or across national borders. However, while electronic signatures are legally recognized in many jurisdictions, including Indonesia, there are still a number of challenges that hinder their

adoption and effective use in civil contract practice. These challenges include security concerns, low public understanding, and resistance to acceptance in the small and medium business sector. Therefore, it is important to formulate concrete recommendations to overcome these obstacles.

a. Improved Electronic Signature Security System

Security is one of the most critical issues faced in the use of electronic signatures. Despite the existence of technologies involving encryption and public key infrastructure (PKI), many users are still concerned about the threat of cybercrime, such as hacking and signature forgery. This threat becomes more significant in civil contracts involving large transaction values or confidential documents (Susanto & Wibowo, 2020).

To overcome this problem, electronic signature service providers must continue to develop stronger security technologies. One solution that can be implemented is the use of blockchain technology to ensure the integrity of signed documents. Blockchain, known for its decentralized security and transparency, can create an immutable record of every signing that occurs, thereby reducing the risk of document manipulation (Rahardian & Putri, 2021).

In addition, biometric verification such as face or fingerprint recognition can be applied as an additional layer of authentication in the e-signing process. With biometric-based verification, the risk of identity forgery can be minimized, as biometrics are difficult to fake compared to traditional verification methods (Kurniawan, 2021). This technology also provides convenience for users, especially in terms of ease of access and reliability.

b. Increasing Digital Literacy and Socializing the Use of Electronic Signatures

The lack of public and business understanding of electronic signatures is one of the main barriers to the adoption of this technology. Many small and medium-sized enterprises (SMEs) are still hesitant to use electronic signatures due to a lack of information regarding legal validity, security, and how to use this technology. They tend to be more comfortable using manual signatures that are familiar and considered more accessible (Wijayanto, 2021).

To overcome this problem, the government and related institutions need to increase socialization and education efforts about electronic signatures. Digital education programs should target small and medium businesses, as well as the wider community, so that they can understand the advantages and reliability of this technology. Public campaigns through social media, online seminars, and training for

SMEs can help increase public understanding and trust in electronic signatures (Santoso, 2020).

In addition, cooperation between the government, service providers and educational institutions also needs to be enhanced to strengthen digital literacy at the school and university levels. With good digital literacy, future generations will be better equipped to adopt new technologies, including e-signatures, in their daily business and legal practices.

c. Development of More Comprehensive Regulations and International Harmonization

Although Law Number 11/2008 on Electronic Information and Transactions (UU ITE) has recognized the validity of electronic signatures, more comprehensive regulations are needed to address the rapid development of technology. The development of clearer regulations regarding security standards, governance, and the use of electronic signatures in various types of civil contracts will provide stronger guarantees for users (Nasution, 2021).

In addition, harmonization of regulations between Indonesia and other countries is very important, especially for cross-border transactions. Many civil contracts, especially in the business and trade sectors, involve parties from different countries. By adopting international standards such as eIDAS (electronic IDentification, Authentication and trust Services) in the European Union, Indonesia can ensure that electronic signatures are recognized across borders and have the same legal force in various jurisdictions (Santoso & Irawan, 2021).

This regulatory harmonization will facilitate the international dispute resolution process and strengthen Indonesia's position in an increasingly integrated global market.

d. Cost Reduction and Provision of Incentives for Small Business Actors

One of the biggest barriers to the adoption of e-signatures is the perceived high cost of implementation, especially for small and medium enterprises. Many SMEs feel that this technology is expensive and difficult to access, so they prefer conventional methods of drafting contracts (Wijayanto, 2021).

To address this issue, governments and service providers should collaborate to lower the cost of access to e-signature services, especially for SMEs. Service providers can offer service packages that are more affordable and accessible to small businesses, while the government can provide subsidies or tax incentives for SMEs that switch to e-signatures (Nasution, 2021).

In addition, the government can also support SMEs by providing free or subsidized e-signature platforms that can be used for basic contracts. With this support, small businesses will be more encouraged to switch to a more efficient digital system, thereby increasing their competitiveness in the digital economy.

e. Development of Technology Infrastructure and More Equitable Internet Access

Limited technological infrastructure in some areas is also a major challenge in the implementation of electronic signatures. In many remote areas, internet access is still limited, which hinders the use of digital technology, including electronic signatures (Kurniawan, 2021).

To overcome this problem, the government needs to accelerate the development of telecommunications infrastructure, especially in areas that are not yet covered by the internet. With more equitable internet access, people in all parts of Indonesia will have the same opportunity to utilize electronic signature technology, both for personal and business purposes.

In addition, wider mobile technology support can also help overcome infrastructure challenges. Mobile-based electronic signature services can be a practical alternative for people in areas with limited internet access, as they are more accessible and do not require sophisticated hardware.

4. CONCLUSIONS

Electronic signatures in civil contracts in the digital era have proven effective in increasing the efficiency and flexibility of transactions, especially for remote agreements. Legally recognized by Law No. 11/2008 on Electronic Information and Transactions (UU ITE) and its amendment in Law No. 19/2016, electronic signatures provide a strong legal foundation. However, challenges such as cybersecurity concerns and low digital literacy hinder its wider adoption. To increase its effectiveness, improved security, public education, as well as government support through more comprehensive regulations and incentives are needed.

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