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Navigating Legal Transformation: Challenges and Prospects of Cybernotary in Enhancing Public Service Efficiency in Indonesia

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Abstract: *The concept of cybernotary represents a transformative shift in the notary's role in the digital era, utilizing technology to enhance the efficiency and accessibility of legal services in Indonesia. While cyber notary holds potential for supporting the digitalization of notarial services and meeting the demands of modern society, its implementation in Indonesia encounters significant challenges, particularly in regulatory alignment and limited digital infrastructure. This study aims to provide a deeper understanding of how cyber notary supports the transformation of public services, making them faster, more efficient, and transparent, as well as to identify obstacles that must be overcome to achieve optimal implementation within state institutions. This research employs a qualitative approach, aimed at uncovering an in-depth understanding of e-Notarization's role in strengthening the digitalization process and enhancing the effectiveness of public services by state institutions. From a regulatory perspective, although there is a legal basis permitting electronic transactions, adequate technical and operational guidelines are still lacking to ensure smooth implementation. These challenges are particularly apparent in provisions requiring physical presence for the validation of signatures and fingerprints, which restrict the flexibility of notaries in serving the public digitally. As a result, these regulations constitute a principal barrier to the goals of cyber notary in delivering faster, more efficient, and more accessible legal services.*

Keywords: *Civil; Constitutional; Cyber; Notary.*

1. INTRODUCTION

As a rule-of-law state, as mandated by the Indonesian Constitution in Article 1, paragraph (3) of the 1945 Constitution of the Republic of Indonesia, the law in Indonesia must serve as the supreme force governing society, the state, and the life of the nation.[1] One significant form of legal certainty to protect public rights is embodied

[1]Triadi, I. (2024). Peran Hukum Tata Negara Dalam Sistem Pemerintahan Indonesia Saat Ini. *IJLJ*, 1(4), 7. https://doi.org/10.47134/ijlj.v1i4.2630

in the regulation of legally recognized evidence in civil law. In Indonesia, civil law acknowledges five types of evidence: (1) documentary evidence; (2) witness testimony; (3) presumptions; (4) confessions; and (5) oaths.[2] Documentary evidence is classified into two types: authentic instruments and private instruments. An authentic instrument is a document with a specific format prescribed by law, created by or in the presence of a competent public official, and in a location also designated by law.[3] This structure ensures that the document possesses strong legal force as formal evidence. However, if an authentic instrument is executed by an unauthorized official or fails to meet the legally specified format, it is deemed formally defective and holds the weight of a private instrument only, thus weakening its probative value.[4] Therefore, the role of a competent public official, such as a notary, is essential in the creation of authentic instruments. This guarantees the instrument's formal validity and enhances its evidentiary strength in legal proceedings.[5]

As a legally recognized public official, a notary holds the authority to create authentic instruments that are legally valid and serve as strong evidence in civil legal matters in Indonesia.[6] This authority must be exercised through the provision of high-quality legal services so that the public can experience its benefits and gain satisfaction from these services. The quality of notarial services is not only a professional obligation but also contributes positively to the advancement of the notarial profession as a whole.[7] Furthermore, high-quality service also enhances public satisfaction with notarial services.

In performing their duties, notaries are required to act professionally and responsibly. The duties of a notary are outlined in Article 51, paragraph (1) of the 2014 Indonesian Notary Law, which includes several key authorities.[8] These authorities include the recording of private documents with registration in a special ledger (waarmerking); creating copies of private documents that contain descriptions as written in the original

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[2] Wijaya, S. and Suparno, S. (2022). Legal Strength Of Evidence Photocopy Of Letter Or Written Evidence In Civil Matter, *Proceedings of the 2nd International Conference on Law, Social Science, Economics, and Education, ICL* , ICLSSEE, https://doi.org/10.4108/eai.16-4-2022.2319836

[3] Putu Putri Nugraha, I Nyoman Bagiastra. (2022). Perlindungan Hukum Pegawai Notaris Sebagai
Saksi Akta Otentik Dalam Proses Peradilan Terkait Kerahasiaan Akta Otentik*. Jurnal Kertha Semaya*, Vol. 10 No. 7, 1540-1549, Retrieved from https://ojs.unud.ac.id/index.php/kerthasemaya/article/view/72559/44645

[4] Gladys Natalie Sirai, Benny Djaja.(2023), Pertanggungjawaban Akta Notaris Sebagai Akta Autentik Sesuai Dengan Undang-Undang Jabatan Notaris, Unes Law Review, Volume 5 No 4, June, 3363-3378 Retrieved from: https://review-unes.com/index.php/law/article/download/641/452/

[5] Ibid.

[6] Muhammad Yusfi Arifandy, (2022), Penegakan Hukum Terhadap Pelanggaran Atas Kewenangan Dan Kewajiban Notaris Yang Tidak Diatur Dalam Undang-Undang Jabatan Notaris Oleh Majelis Pengawas Notaris*, OFFICIUM NOTARIUM*, No. 3 Vol. 2, Desember, 557-565 Retrieved From: https://journal.uii.ac.id/JON/article/view/26969/15640

[7] Ibid.

[8] Zakiah Noer; Ahmad Khoirul Khafid,(2021), Tanggungjawab Notaris Pengganti Terhadap Kesalahan Akta Otentik Yang Dibuatnya: Akta Notaris, Kewenangan, Tanggungjawab, *Jurnal Pro Hukum : Jurnal Penelitian Bidang Hukum Universitas Gresik* Vol 10 No 1, DOI: 10.55129/jph.v10i1.1438 Retrieved from: http://journal.unigres.ac.id/index.php/JurnalProHukum/article/download/1438/1071

document; and legalizing copies to certify their conformity with the original document. Additionally, notaries are tasked with providing legal guidance related to the preparation of deeds, drafting auction minutes, and making corrections to deeds concerning land matters.[9] Notaries are also responsible for rectifying any written or typographical errors found in the signed original minutes of a deed by drafting a correction protocol, recording the correction on the original minutes of the deed with the date and protocol number, and sending a copy of the correction to the relevant parties.[10]

In the rapidly evolving digital era, the demand for fast, efficient, and easily accessible public services is increasingly a priority for the public. Digital transformation has become a central agenda across various sectors, including government, aimed at enhancing the effectiveness and efficiency of public services.[11] One innovation supporting this transformation is the implementation of E-Notarization, or electronic notarization, which seeks to modernize the document authentication process by shifting from traditional, manual methods to a digital platform.

Electronic Notarization, or e-Notarization, is a modern approach to document legalization, enabling individuals and organizations to verify document authenticity through a secure digital process, distinct from traditional notarization methods that require in-person interaction.[12] This process utilizes legally recognized electronic signatures, provided by a public notary in digital format. The use of electronic signatures in e-Notarization preserves the integrity of the document and ensures its credibility and validity, similar to notarization conducted in person.

The use of Electronic Notarization, or e-Notarization, has experienced significant global growth, particularly driven by the COVID-19 pandemic, which accelerated the demand for remote and digital services.[13] E-Notarization enables online signing and certification of documents, saving time and costs compared to traditional notarization methods. Currently, the e-Notarization market is projected to grow from approximately USD 220 million in 2023 to around USD 481 million by 2032, with an annual growth rate of about 9%.[14] North America leads in e-Notarization adoption, especially in the United States, where local laws in several states already recognize the legality of electronic

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[9] Ibid.

[10] Gladys Natalie Sirai, Op.Cit.

[11] Susilawati, Kurniawati, Et.Al, (2024), Digital-Based Public Services In Public Sector Organizations In Indonesia, *PALLANGGA PRAJA*, Volume 6, No. 1, April, 67-73, Retrieved From: https://ejournal.ipdn.ac.id/jpp/article/download/4357/1833/

[12] David Tan, (2020), Cyber Notaries From A Contemporary Legal Perspective: A Paradox In Indonesian Laws And The Marginal Compromises To Find Equilibrium, Indonesian Law Review, Vol. 10 : No. 2 , August, 113-135, Retrieved from: https://scholarhub.ui.ac.id/ilrev/vol10/iss2/1?utm_source=scholarhub.ui.ac.id%2Filrev%2Fvol10%2Fiss2%2F1&utm_medium=PDF&utm_campaign=PDFCoverPages

[13] Naurah humam Alkatiri, Mohamad Fajri Mekka Putra, Kyle Ongko, (2023), A Legal Perspective Implementing an Electronic Notarization System in Indonesia in the Post-Pandemic Era, Jambura Law Review, Volume 5 Issue 02, July, 332-355, Retrieved From: https://www.researchgate.net/publication/375536477_A_Legal_Perspective_Implementing_an_Electronic_Notarization_System_in_Indonesia_in_the_Post-Pandemic_Era

[14] Guy Pearson, (2023), Electronic Notarization explained, Retrieved From: https://notary.pandadoc.com/blog/how-to-do-an-electronic-notarization/ accessed on 20 October 2024

notarization.[15] This progress is supported by a strong digital infrastructure and regulatory frameworks that facilitate digital transformation, making this process increasingly popular among businesses and individuals seeking secure and efficient document authentication. Additionally, new technologies like blockchain and biometric verification are being developed to enhance the security of e-Notarization services, expanding its reach across sectors such as banking, real estate, and legal services. However, a key challenge in some countries remains the lack of established legal standards for electronic notarization, which hampers its broader adoption in certain regions.

Based on this background, this study will explore the contribution of e-Notarization in the digitalization process and the effectiveness of public services provided by state institutions. This research aims to provide a deeper understanding of how e-Notarization supports the transformation of public services to become faster, more efficient, and transparent, as well as to identify obstacles that must be addressed to achieve optimal implementation of e-Notarization within state institutions.

2. RESEARCH METHODS

This study employs a qualitative method, aimed at gaining an in-depth understanding of the contribution of e-Notarization in strengthening the digitalization process and enhancing the effectiveness of public services by state institutions. This approach allows researchers to conduct a comprehensive analysis of the e-Notarization phenomenon and its impact on public services, focusing not on numerical data but on explanations, interpretations, and insights drawn from relevant literature. The study utilizes a library research approach, where data is obtained through a literature review from various written sources related to e-Notarization, digitalization, and public services.

3. RESULT AND DISCUSSION

3.1. Transforming Public Services for Greater Efficiency through Cybernotary

The role of notaries in public service and law in Indonesia is not explicitly defined with the term "role" in the Notary Law (UUJN) or the Public Notary Law (UUJNP).[16] However, this role is clearly reflected in the authorities granted to notaries by law, designating them as officials authorized to draft authentic instruments with the highest evidentiary power in legal transactions. This authority, represents the rights and formal competencies granted by law to public legal subjects—in this case, notaries—to perform legally valid acts within society.[17] In the context of notaries, this authority encompasses the right to draft authentic instruments as strong and legally valid evidence in the eyes of the law.

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[15] Ibid.

[16] Betty Ivana Prasetyawati, Paramita Prananingtyas, (2022), Peran Kode Etik Notaris Dalam Membangun Integritas Notaris Di Era 4.0, *Notarius*, Volume 15 No. 1, April, 310-323, Retrieved From: https://ejournal.undip.ac.id/index.php/notarius/article/view/46043/21407

[17] Innike Ilena Aprilia, Siti Hamidah, Hariyanto Susilo, Efforts Of Notaries/Ppat In Providing Legal Protection For Parties Through Agreements Made To Prevent Disputes In Debt Transactions Secured By Land Sales Agreements As Collateral*, IBLAM Law Review*, Volume 3, Nomor 3, September, 112-123, Retrieved From: https://ejurnal.iblam.ac.id/IRL/index.php/ILR/article/view/176

Notaries play a vital role in providing public services, such as issuing birth certificates, ID cards, marriage certificates, land certificates, and other documents requiring legal authentication. In a broader sense, public service, as defined under Law No. 25 of 2009, is a series of activities aimed at meeting the administrative needs of citizens in accordance with legal provisions.[18] As public officials, notaries are expected to serve the community fairly and equitably, providing legal certainty for every instrument they draft.

Authentic instruments drafted by notaries possess perfect evidentiary weight, as stipulated in Articles 1868 and 1870 of the Indonesian Civil Code, because they are executed by authorized officials.[19] Thus, the role of the notary in public service also includes providing legal certainty to the public—a significant responsibility encompassing technical, moral, and legal aspects. Notaries must perform their duties with diligence and are accountable for the material truth of the instruments they create. Should any error or negligence occur that causes harm to the client, the notary may incur civil liability based on breach of contract or tort *(onrechtmatige daad)* under Article 1365 of the Civil Code.

This responsibility is closely tied to the notary's duty to provide services that are accurate, impartial, and legally compliant. In the legal relationship between a notary and their client, as governed by Article 1320 of the Civil Code, both parties have rights and obligations that must be fulfilled. If one party fails to meet these obligations, it may result in breach of contract or tort, potentially leading to a claim for damages. Specifically, a notary, as a public official, does not act as a party to the agreement but rather as a certifier who legitimizes the legal acts between the interested parties. Thus, the notary's role extends beyond merely providing administrative services to fulfilling a state mandate to uphold legal certainty and justice for the public.

In fulfilling this role, the notary bears a substantial responsibility intrinsic to their public office, where they are obliged to uphold the trust placed in them by society. A notary's responsibilities encompass trust, honor, and fiduciary duties, which must be executed with integrity.[20] These responsibilities are divided into three primary categories: moral responsibility, technical professional responsibility, and legal responsibility. Within the scope of legal responsibility, a notary has a civil duty to ensure the material truth in every deed they draft or certify. This duty is a logical consequence of the legal profession a notary holds, requiring that every action they take be accountable under the law.

Regarding legal liability, responsibility for one's actions only gains practical significance if there is conduct that contravenes the law or is considered a tort *(onrechtmatige daad).*[21] If a notary, through intent or negligence, commits an act that harms a party

[18] Betty, Op.Cit.
[19] Rezeky Febrani Sembiring, Made Gde Subha Karma Resen, (2022), Keabsahan Akta Notaris Berbasis Cyber Notary Dalam Pembuatan Akta Otentik, *Kertha Desa*, Vol 10 No 2, January, 58-69. Retrieved From: https://ojs.unud.ac.id/index.php/kerthadesa/article/view/79019/43947
[20] Dahniarti Hasana, (2021), The Importance of Notary Integrity and Commitment in Carrying Out Their Functions, *Pena Justisia*, Volume 20 No 2, 187-197. Retrieved From: https://jurnal.unikal.ac.id/index.php/hk/article/view/3279/pdf20
[21] Andi Anas Chaerul M. (2020), Penerapan Ajudikasi Khusus Oleh Ombudsman Republik Indonesia Terhadap Penyelenggara Negara Yang Maladministrasi, Jurisprudentie, Volume 7 No.

using their services—such as by including incorrect information in a deed or disregarding applicable legal provisions—they may be held legally accountable under Article 1365 of the Civil Code. This liability also applies if a clause in a deed they drafted is found to contravene the law, causing harm to an uninformed third party. In such situations, a notary who acts passively or neglectfully in fulfilling their duties may face legal action on the grounds of unlawful conduct.

Article 1365 of the Civil Code provides a legal basis for parties harmed by a notary's actions to file a claim for damages in court.[22] If a notary fails to perform their duties in accordance with the trust placed in them by the party appearing before them, such as by including information that does not reflect the party's intentions, this action may be considered unlawful, and the notary is required to bear the resulting losses. As a public official authorized to create authentic instruments, a notary is bound by high standards and responsibilities in their profession, both legally and morally.

Article 1365 of the Indonesian Civil Code serves as a legal basis for parties suffering losses to sue a notary for damages incurred. This article stipulates that "any unlawful act causing harm to another person obliges the perpetrator to compensate for that harm.[23] In the notarial context, if a deed contains errors or discrepancies that harm a client or third party, the notary bears responsibility for compensating any resulting losses. As a public official granted special authority to create authentic deeds, a notary is held to high standards of legal duty and obligation. An authentic deed prepared by a notary is not merely an administrative document; it constitutes evidence with perfect probative value, meaning that its contents are presumed accurate and may serve as a reference in legal dispute resolution. Consequently, the moral and professional responsibility of a notary is substantial, given that the public relies on the integrity and accuracy of authentic deeds to safeguard their legal rights and interests.

In carrying out their duties, notaries are also bound by the principle of accountability. This means that errors or omissions in recording or drafting deeds can lead to serious consequences, both for the notary and for parties using their services. Since notaries act as representatives of the state in providing legal certainty through the creation of legal documents, any actions that fall short of professional standards or statutory requirements can result in civil lawsuits. This serves as a form of legal oversight, ensuring that notaries perform their duties with precision, transparency, and integrity.

A notary has a moral responsibility to uphold the public's trust, as individuals rely on notaries to protect their legal interests. Violations or errors in the preparation of deeds have the potential not only to harm clients financially or legally but also to damage the reputation of the notary and the profession as a whole. Thus, the provisions of Article 1365 of the Indonesian Civil Code and other legal standards affirm that a notary's responsibility is to fulfill their mandate professionally, prioritize the legal interests of clients, and ensure that each deed produced accurately reflects the intent and legal validity desired by the parties involved.

The traditional role of the notary has undergone significant transformation with the advent of the cyber notary in the digital era. Traditionally, a notary acts as a public

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1, June, 144-171, Retrieved from: https://journal.uin-alauddin.ac.id/index.php/Jurisprudentie/article/view/14601/8936

[22] Betty, Loc.Cit

[23] Ibid.

official authorized to certify various legal acts directly, with their duties performed physically and in the presence of the parties involved. In this role, the notary serves as a witness and legitimizer of authentic deeds, which carry perfect probative value in the eyes of the law.[24] The deed is created through a process involving a physical meeting between the notary, the client, and witnesses to ensure material accuracy, verify the identities of the parties, and sign documents in physical form. This entire process is manual, including the storage of the deed in a physical protocol, archived by the notary as part of their duty to maintain the authenticity of the document.

In the digital era, this role has evolved significantly through the introduction of the cyber notary, where information technology enables a substantial portion of notarial duties to be conducted electronically. Cyber notary practices allow notarization processes to take place virtually, eliminating the need for parties to be physically present. In this model, identity verification can be accomplished through biometric technology or e-KTP (electronic ID), enabling digital identity validation.[25] The notary retains the authority to certify deeds, but the process now occurs through electronic documents digitally signed using certified electronic signatures in compliance with the Electronic Information and Transactions Law (UU ITE).[26] This replaces manual signatures while providing legal legitimacy equal to that of physical documents. Additionally, electronic deeds can be stored in a national digital database managed by the state, reducing the risk of physical damage and allowing for faster, more secure access.

The primary difference between the traditional role of a notary and that of a cyber notary lies in the mechanisms for document execution and storage. In the traditional model, notaries require physical meetings for the verification and signing of deeds, which is time-consuming, incurs costs, and requires physical space for deed storage. In contrast, the cyber notary model enables the notarization process to occur virtually and efficiently. Meetings can be replaced by video conferencing, and digitally created deeds can be stored and archived electronically, allowing parties easier and faster access. Furthermore, cyber notary practices allow notaries to provide remote services, extending their reach to individuals in remote areas or those with limited mobility.

Although the cyber notary brings convenience and efficiency, this transformation also requires notaries to be more adaptive to new regulations and technologies, such as encryption systems for data security, the use of IP addresses to ensure jurisdictional authority, and the implementation of electronic signatures with high authentication standards. Thus, the cyber notary not only changes the working methods of notaries

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[24] Fatriansyah, (2022), Peran Majelis Pengawas Wilayah Notaris Dan Majelis Kehormatan Notaris Terhadap Pembinaan dan Pengawasan Notaris Dalam Undang-Undang Nomor 2 Tahun 2014 Tentang Perubahan Atas Undang-Undang Nomor 30 Tahun 2004 Tentang Jabatan Notaris, Legalitas: Jurnal Hukum, Vol 14, No, Desember, 291-298, retrieved from: https://legalitas.unbari.ac.id/index.php/Legalitas/article/view/370/255

[25] Resa Eka Nur Fitriasari, (2022), Peran Jabatan Notaris Dalam Penyimpanan Protokol Notaris Yang Disimpan Dalam Bentuk Elektronik Arsip, Jurnal Hukum dan Kenotariatan, Volume 6 No 2, May, 1052-1071. Retrieved From: https://riset.unisma.ac.id/index.php/hukeno/article/view/17797/pdf

[26] Ahmad Zaenul Islam, Et. Al, Keabsahan Akta Notaris yang Menggunakan Cyber Notary Sebagai
Akta Otentik, *Unes Law Review*, Vol. 6, No. 2, Desember, 4524-4532, Retrieved From: https://review-unes.com/index.php/law/article/download/1206/992/

but also establishes new standards in legal services that are more responsive to the needs of modern society, without diminishing the legal force of the authentic deeds produced.

The concept of regulating cyber notaries in Indonesia is a response to technological advancements that have transformed various aspects of life, including the legal field. In this context, the role of the notary is increasingly required to accommodate fast and efficient services, particularly to support the growing volume of electronic transactions in the Industry 4.0 era.[27] Essentially, cyber notary refers to the utilization of information technology by notaries to provide electronic services, such as recording or certifying electronic transactions.

The inclusion of cyber notary provisions in Article 15 paragraph (3) of Law No. 2 of 2014 on Notary Positions (UU JN) reflects an initial acknowledgment of electronic notarization within Indonesia's legal framework. This article grants notaries the authority to certify transactions carried out electronically, marking a significant step toward integrating notarial services into the digital landscape. However, despite this initial recognition, the law lacks a clear, normative definition of what constitutes a cyber notary or the full scope of its powers and functions.

Without a precise definition or comprehensive guidelines, the role of cyber notary in Indonesia remains somewhat restricted. Currently, the law enables notaries to certify the legality of electronic transactions, essentially validating the digital execution of certain documents. However, this falls short of fully embracing the potential of cyber notary services, which, in many jurisdictions, includes a broad array of digital functions, such as the electronic authentication of documents, remote identity verification, and the secure digital storage of notarial records.

In addition, Article 77 of Law No. 40 of 2007 on Limited Liability Companies permits the holding of General Meetings of Shareholders (GMS) via teleconference or video conference, which can involve a notary to record the meeting results in the form of an authentic deed.[28] This represents a significant breakthrough, demonstrating legislative adaptation to technology-based notarial practices. However, practical challenges remain, particularly regarding the electronic verification of attendees' identities and the signing of deeds. Currently, the Notary Law (UU JN) still requires notaries to meet physically with the parties and witnesses and to manually sign the deed. Consequently, in the future, the concept of cyber notary will necessitate more detailed regulation, including recognition of identity verification through third parties or Internet Protocol (IP)-based technology to uphold the notary's territorial authority in accordance with their jurisdiction.

The importance of these additional regulations lies in ensuring that the use of electronic signatures and electronic media in the creation of authentic deeds carries legal force equivalent to that of traditional manual deeds. Furthermore, regarding record-keeping, future regulations on notarial protocols may incorporate electronic

[27] Resa Eka, Op.Cit.

[28] Jeva Fitri Fadilla, Daly Erni, (2023), Kepastian Hukum Terkait Kewenangan Notaris Dalam Mengesahkan Akta
Risalah Rups Yang Diselenggarakan Secara Elektronik, Jurnal Ilmu Sosial dan Pendidikan (JISIP) Vol. 7 No. 1 Januari, 49-63, Retrieved From: https://ejournal.mandalanursa.org/index.php/JISIP/article/download/3996/3156

archiving to safeguard the security and integrity of critical documents classified as state archives.

The full implementation of cyber notary in Indonesia requires critical strategic steps, particularly in identity verification, document authentication, and the integration of electronic archives as part of notarial protocols.[29] In terms of verifying the identity of parties, which has traditionally been conducted through physical identification by the notary or witnesses, the shift towards digitalization allows for the involvement of third parties with access to population data. This process could incorporate biometric technology or the use of electronic ID (e-KTP) integrated with official government data, as regulated under Minister of Home Affairs Regulation No. 102 of 2019.[30] Such a system enables notaries to verify identities electronically, reducing the risk of forged documents and enhancing both the efficiency and accuracy of the verification process.

Additionally, document authentication and the application of certified electronic signatures are critical to ensuring the validity and integrity of documents. Under Law No. 19 of 2016 on Electronic Information and Transactions (UU ITE), electronic signatures must meet stringent authentication and verification requirements, covering both the signer's identity and the integrity of the signed document. Notaries must be granted the authority to verify electronic signatures and conduct legally recognized digital identity checks.[31] Moreover, secure electronic archiving must be developed as part of notarial protocols. Currently, notarial archives are physical documents that serve as state records, and digitalization could support safer, more accessible, and disaster-resistant record management. Although the current Notary Law (UU JN) does not fully support digital archives, developing a national database managed by the state could offer a secure solution to protect the security and integrity of notarial archives.

In the context of jurisdictional regulation, the use of IP addresses and other digital systems can help ensure that notaries operate within their appropriate legal jurisdictions. Each notary could register their IP address with the Ministry of Law and Human Rights, thereby minimizing the risk of authority misuse and enhancing the transparency and validity of online transactions. One major challenge that also needs to be addressed is the electronic reading and signing of deeds. Currently, the Notary Law (UU JN) still mandates physical meetings for the reading and signing of deeds; however, if regulations are updated to allow these processes to be conducted digitally, strict security and oversight measures must be implemented.[32] This includes the use of certified electronic signatures and secure video conferencing platforms to ensure the authenticity and integrity of the notarial process.

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[29] Wiradharma Sampurna Putra, (2024), Penerapan Penyimpanan Protokol Notaris dengan Metode Cloud Computing System, *Swara Justisia*, Vol. 8 No. 1, April, 113-132 Retrieved From: https://swarajustisia.unespadang.ac.id/index.php/UJSJ/article/view/482/357

[30] Permendagri Nomor 76 Tahun 2020, Accessed on 20 October 2024 https://peraturan.bpk.go.id/Home/Download/156013/Permendagri%20Nomor%2076%20Tahun%202020.pdf

[31] Act Number 19 of 2016 concerning Amendments to Law Number 11 of 2008 concerning Electronic Information and Transactions, https://jdih.kominfo.go.id/produk_hukum/view/id/555/t/undangundang+nomor+19+tahun+2016 Accessed on 20 October 2024.

[32] Act of the Republic of Indonesia Number 2 of 2014 concerning Amendments to Law Number 30 of 2004 concerning the Position of Notary, https://www.kemhan.go.id/ppid/wp-content/uploads/sites/2/2016/11/UU-2-Tahun-2014.pdf Accessed on 20 October 2024.

By fulfilling these various requirements, the cyber notary system in Indonesia can enhance the speed and efficiency of notarial services while simultaneously strengthening legal security for the public. This digital notarial service also provides easier access to legal services, particularly for long-distance transactions. The success of the cyber notary concept will largely depend on a clear legal framework, continuous training for notaries, and adequate digital infrastructure support. Collaboration between the government, judicial institutions, and the technology sector will play a vital role in creating a modern, efficient, and digitally capable notarial system.

Cybernotary emerges as a relevant and practical solution in the midst of evolving legal dynamics and the growing demands of the digital public.[33] In the digital era, electronic transactions are increasingly essential for both corporate and individual sectors. E-Notary enables notarial services to operate electronically, allowing for faster and more efficient transaction certification without the need for constant physical meetings. This reduces time and costs for notary service users. The legal strength of the e-Notary is maintained through an integrated digital security system, where certified electronic signatures, as stipulated in the Electronic Information and Transactions Law (UU ITE), ensure the validity of signatories' identities and the integrity of electronic documents, rendering them as legally valid as conventional deeds.

Moreover, cybernotary broadens legal access for the public, particularly those in remote areas, abroad, or with limited mobility, allowing them to obtain legal services without physical presence. With the support of biometric technology and access to a national database, identity verification can also be conducted electronically by the notary through authorized third parties, providing greater accuracy and reducing the risk of identity fraud.

Digital archiving becomes a crucial element in the e-Notary system, where deed originals (minuta) and other protocols are stored in a national database managed by the state. This reduces the risk of physical damage from disasters and enables secure backups. Such a system promotes transparency and jurisdictional oversight by tracking IP addresses, ensuring that notaries operate only within their designated legal territories, with oversight by the Ministry of Law and Human Rights to prevent misuse of authority. The use of certified electronic signatures in e-Notary also reinforces document validity, instilling public confidence that electronically signed documents have high levels of authentication and verification, equivalent to conventional authentic deeds.

Furthermore, e-Notary supports Indonesia's adaptation to international cyber notary standards that have been implemented in various countries. For instance, policies in Government Regulation No. 71 of 2019 provide a foundation for developing more specific regulations for cyber notaries, enhancing the quality of technology-based notarial services and encouraging notaries to become more adaptable to the digital era.

With a careful integration of speed, efficiency, and legal strength, e-Notary has great potential to become a primary solution for creating notarial services that are more accessible, cost-effective, and technologically current. The success of e-Notary requires

[33] Amanah Ikrasari, Budimah, (2023), Opportunities And Challenges Of Cyber Notary Implementation In Indonesia, *Tadulako Law Review*, Vol. 8 No. 2, December, 139-155, Retrieved From: https://jurnal.fakum.untad.ac.id/index.php/TLR/article/view/924/12

a strong legal foundation, reliable digital security assurances, and government support to expand progressive regulations that can realize a notarial service truly responsive to the needs of modern society.

3.2. Challenges to Overcome for Achieving Optimal Implementation of E-Notarization within State Institutions

Several countries have successfully implemented cyber notary or e-notary systems as an adaptation to the demand for legal services in the digital era. These systems enable notarial services to be conducted digitally while preserving the validity and legal force of the documents produced. The United States, for example, has developed a Remote Online Notarization (RON) system, allowing notaries to verify and legalize documents online in several states, including Virginia, Texas, and Florida.[34] In this system, notaries witness the signing of documents through video conferencing equipped with high-security authentication. The identity of the signatory is verified using Knowledge-Based Authentication (KBA) and digital ID scanning.[35] Certified electronic signatures grant the same legal authority as physical signatures, and the process is recorded to ensure transparency and accountability.

Estonia serves as an exemplary country in the digitalization of public services, including the notary system, through its e-Residency program.[36] This program enables Estonian citizens and residents to access legal services, including notarial services, entirely digitally. Using electronic identification, individuals can securely sign documents digitally. This is accomplished with certified digital signatures that meet international standards, ensuring that the resulting documents are not only legally valid within Estonia but also usable for international transactions. Estonia's advanced security system further allows for secure document archiving and access through an integrated national database

Spain has also adopted cyber notary practices for specific transactions, particularly for business agreements and financial transactions.[37] In this system, notaries can digitally certify documents for certain types of transactions using certified electronic signatures. Spain features an integrated electronic archiving system, allowing certified documents to be accessed more quickly with high security assurance. This process not only speeds up document legalization services but also reduces reliance on physical storage.

Italy has implemented cyber notary practices for property transactions and financial agreements, enabling notaries to remotely authenticate documents via encrypted video conferencing. Certified electronic signatures are used as an authentication tool to ensure that documents retain their legal force. The video conferencing sessions are

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[34] https://www.nationalnotary.org/notary-bulletin/blog/2018/06/remote-notarization-what-you-need-to-know?srsltid=AfmBOoqIEh0dJFYEX0Zh9g5gkfLoeUYCCFvy9ssDIgbBW1AW4Z1rnQ8F accessed on October 22nd 2024.

[35] Aiste Joksaite, (2024), Digital Identity: The New Age of Identity Verification, Ondato, https://ondato.com/blog/digital-identity/ accessed on October 22nd 2024.

[36] https://www.oecd-ilibrary.org/docserver/510a82b5-en.pdf?expires=1731076893&id=id&accname=guest&checksum=D58ACB703588164D429177BCC0989BCB accessed on October 22nd 2024.

[37] Retno Catur Kusuma Dewi, (2023), Comparison Of Legal System Related To Implementation Of Cyber Notary In Indonesia With Common Law And Civil Law System, Jurnal Hukum Bisnis Bonum Commune, Volume 6 Nomor 1, Februari, 41-52, Retrieved From: https://jurnal.untag-sby.ac.id/index.php/bonumcommune/article/view/7108/5459

recorded as evidence that the notarization process complies with legal procedures. Additionally, Italy has integrated blockchain technology for certain types of transactions to enhance data security and document validity through an immutable digital trail.

In France, cyber notary services are used for property transactions and the management of inheritance agreements.[38] Through an integrated government platform, notaries in France can authenticate documents online without the need for physical meetings. The identities of parties are verified through a secure digital system, and certified electronic signatures are used to authenticate documents in accordance with legal standards. France also applies strict security standards regarding encryption and authentication to ensure that documents are legally valid and protected from tampering.

The Netherlands has similarly adopted a cyber notary system for certain sectors, including property transactions and business agreements.[39] Notaries in the Netherlands use electronic signatures compliant with EIDAS (Electronic Identification, Authentication, and Trust Services) standards, allowing documents to be digitally authenticated with the same validity as physical documents. Identity verification is conducted digitally, and virtual meetings via video conferencing are held to confirm the presence of involved parties, ensuring that the notarization process is legally sound and secure.[40]

Overall, each country that has adopted cyber notary practices implements a different approach tailored to domestic regulations and needs; however, there are common elements in the core components of these systems. Typically, these countries use video conferencing technology for virtual meetings, certified electronic signatures for document authentication, and digital archiving systems to ensure document security and accessibility. The cyber notary innovations in these countries not only facilitate remote notarization for the public but also enhance the efficiency and speed of legal services, all while maintaining the same level of legal integrity as traditional notarial services. This transformation demonstrates that integrating digital technology into notarial systems enables higher standards of public service that are responsive to modern needs, without compromising the legality and security of documents.

The global adoption of cyber notary systems illustrates how digital notarial services can provide critical solutions for the challenges posed by globalization and the rapidly changing needs of society. In many countries, traditional notarial processes—requiring physical presence, manual document handling, and in-person authentication—are increasingly impractical for individuals and businesses engaged in frequent, cross-border transactions. Cyber notary systems offer a solution by shifting these processes into the digital sphere, allowing for remote verification, electronic document handling, and secure storage. This transition does not only offer convenience; it also addresses pressing demands for efficiency, accessibility, and global compatibility.

[38] Notary and Digital, https://www.csn.notaires.fr/en/notary-and-digital accessed on October 22nd 2024.
[39] Netherlands: legal requirements and validity of electronic signatures https://juro.com/esignature-legality/netherlands#exit accessed on October 22nd 2024.
[40] Ibid.

One of the primary pillars of cyber notary systems is rigorous security and authentication. These systems rely on certified electronic signatures and advanced encryption technologies to ensure that digital documents are both secure and legally valid. Certified electronic signatures, which are often supported by Public Key Infrastructure and blockchain technology, provide a high level of authentication.[41] They verify the identity of signatories and protect against tampering, ensuring that a document's contents remain unchanged after signing. These electronic signatures are typically legally equivalent to physical signatures in many jurisdictions, satisfying legal requirements for notarized documents while reducing the need for in-person interactions.

Encryption technology further enhances document integrity by encoding data in a way that can only be accessed by authorized parties, protecting sensitive information from unauthorized access or cyberattacks. In cases where documents must be stored for long periods or transferred across borders, encryption ensures that confidentiality is maintained, meeting international security standards and supporting the admissibility of such documents in various legal systems.On a practical level, cyber notary technology also offers greater accessibility to the public, particularly for those in remote areas or those unable to attend in person. In the United States, for example, the Remote Online Notarization (RON) system enables citizens across multiple states to complete document legalization processes without visiting a notary's office. Similarly, in Estonia, citizens and e-residents can access notarial services from abroad using electronic ID cards. This approach supports inclusivity in access to public services and aligns with the goals of globalization, which aim to create equal opportunities for all, regardless of location.

The use of video conferencing technology for remote meetings also adds a layer of transparency to the cyber notary process. Each virtual meeting between the notary and the parties involved is typically recorded and stored as documentation, ensuring that legal procedures are correctly followed and that all parties consciously and voluntarily consent to the document's contents. This recording can also serve as authentic evidence in the event of future disputes, providing additional legal protection for all involved.

Cyber notary systems offer more than just operational efficiency and accessibility; they represent a shift towards a sustainable legal ecosystem by reducing reliance on physical resources and decreasing environmental impact. Traditional notarial processes typically require extensive use of paper, physical storage facilities, and significant energy consumption for document storage and retrieval. By transitioning to digital document handling and archiving, cyber notary systems address these environmental challenges, contributing to greener legal operations.

The shift to digital documents reduces the demand for paper, one of the most resource-intensive materials in office environments. Producing paper involves not only logging and water-intensive processing but also energy and chemicals that contribute to deforestation, water pollution, and greenhouse gas emissions. Additionally, reducing paper consumption in notarial services means lowering the frequency of document

[41] Zhonghao Zhai, et.Al.(2022), BPKI: A secure and scalable blockchain-based public key infrastructure system for web services, Journal of Information Security and Applications, Volume 68, August, https://doi.org/10.1016/j.jisa.2022.103226 Retrieved From: https://www.sciencedirect.com/science/article/abs/pii/S2214212622000990

transportation and the associated fuel costs, which are especially significant in large-scale legal practices that frequently transfer documents between offices or storage facilities.

Digital archiving systems further diminish the need for physical storage, which can be both costly and resource-intensive[42]. Traditional archives require large amounts of space, climate control to prevent document degradation, and ongoing maintenance to ensure accessibility and security. As documents are increasingly stored in secure digital databases, countries like Spain and the Netherlands leverage centralized electronic archives that allow notarial documents to be accessed instantly, streamlining document retrieval and reducing costs associated with maintaining and protecting physical records. This digital shift is not only more economical but also protects records from physical damage due to fires, floods, or natural disasters, ensuring that critical documents remain intact and accessible indefinitely.

The reduction in physical storage also alleviates some of the financial burdens on government institutions and private notary firms, as digital archives eliminate the need for large-scale facilities and intensive maintenance. Instead, resources can be redirected towards technological improvements in security and accessibility, such as employing robust encryption, blockchain-based traceability, and cloud backup solutions that are both secure and scalable.

By integrating sustainability with operational improvements, cyber notary systems support global efforts to reduce carbon footprints and meet environmental goals. The shift to digital workflows aligns with the United Nations' Sustainable Development Goals (SDGs), particularly SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action), both of which encourage industries to adopt sustainable practices and reduce waste.[43] As businesses and governments face increasing pressure to address climate change, the adoption of cyber notary systems presents a practical way to reduce environmental impacts within the legal sector without compromising service quality.

Furthermore, centralized, secure digital databases have the added benefit of supporting collaborative efforts among international legal bodies. By enabling cross-border access to documents in standardized, secure formats, cyber notary systems also contribute to more streamlined international cooperation, allowing for shared resources and reducing redundant documentation processes. This cross-border accessibility reduces unnecessary travel and transportation of physical records, further decreasing the carbon footprint associated with legal procedures.

In essence, cyber notary systems contribute to the development of a legal ecosystem that is not only more efficient and accessible but also sustainable and environmentally responsible.[44] By reducing reliance on physical resources and minimizing energy-

[42] Ghifari Aminudin Fad'li, Marsofiyati, Suherdi, (2023), Implementasi Arsip Digital Untuk Penyimpanan Dokumen Digital, Jurnal Manuhara :Pusat Penelitian Ilmu Manajemen dan Bisnis, Vol.1, No.4 October, 1-10, Retrieved From https://journal.arimbi.or.id/index.php/Manuhara/article/download/115/107/349

[43] https://sdgs.un.org/sites/default/files/2023-01/pbl-2021-climate-change-measures-and-sustainable-development-goals_4639.pdf accessed on October 21st 2024.

[44] Stefan Koos, (2023), "The Digitization of Notarial Tasks - A Comparative Overview and Outlook of 'Cyber

intensive operations, these systems align with global environmental goals and encourage legal practices to become active participants in climate action. This evolution in notarial services highlights how digital transformation can support ecological well-being while delivering practical, scalable solutions for a more sustainable future in the legal sector.However, the implementation of cyber notary is not without its challenges. Each country adopting this system must ensure that regulations on data security, identity authentication, and notarial authority are aligned with domestic requirements and international standards. Strict data security measures, such as advanced encryption and protection against hacking, are essential to mitigate the risk of personal information misuse. Additionally, this technology requires clear legal recognition and regulation to ensure that digitally notarized documents are legally accepted by third parties, both domestically and internationally.

Beyond technical issues, the adoption of cyber notary also demands a cultural shift among notaries and the public. Traditional notaries, accustomed to face-to-face meetings and manual processes, must adapt to digital technology, which may involve specialized training and adjustments to existing workflows. On the other hand, the public, accustomed to traditional approaches, may still have reservations about the legality and security of cyber notary services. Therefore, governments in countries adopting cyber notary need to conduct effective outreach and education to build public trust in the digital notary system.

Overall, cyber notary represents a significant step forward, offering an innovative solution to provide more inclusive, efficient, and environmentally friendly legal services. By combining the power of information technology with traditional legal principles, cyber notary creates a notarial system that is more responsive to the needs of modern society. This transformation demonstrates that the legal field can continue to evolve and adapt to changing times without compromising the principles of legal validity that are core to notarial services. In the future, it is hoped that more countries will adopt cyber notary, enabling legal services to be easily accessible to a global audience in line with technological advancements and the demand for efficient, secure legal solutions.

Implementing cyber notary in Indonesia presents a range of challenges, particularly in regulatory and technical areas. Although a legal framework exists through the Electronic Information and Transactions Law (UU ITE) and related regulations recognizing electronic transactions, these laws do not yet offer full legal certainty for the practices required in cyber notary services. The current laws, while progressive in recognizing electronic signatures and transactions, do not specifically address the unique requirements and complexities involved in digital notarization. This legal ambiguity creates hesitation among notaries and the public in adopting cyber notary services, as there is limited assurance that these practices would hold up as legally sound in all cases.

A key regulatory challenge is the overlap between existing regulations governing traditional notary practices and those enabling electronic transactions.[45] For instance, the Notary Law (UUJN) mandates the physical presence of parties, witnesses, and

Notary' In Indonesia and Germany, *The Indonesian Journal of Socio-Legal Studies*: Vol. 2: No. 2, Retrieved From: https://scholarhub.ui.ac.id/cgi/viewcontent.cgi?article=1032&context=ijsls

[45] Thea Farina, Elin Sudiarti, (2023), Analisis Yuridis Penyimpanan Minuta Akta Notaris Secara Elektronik, *Unes Law Review*, Vol. 6, No. 1, September, 1217-1223, Retrieved from: https://review-unes.com/index.php/law/article/download/914/673/

notaries for signing deeds, which is a fundamental principle designed to ensure authentication and accountability in notarial acts. This requirement remains in place despite the potential for secure electronic alternatives. The obligation for physical presence, while rooted in traditional standards of verification, restricts the ability of notaries to offer fully digital services. This limitation directly affects the core purpose of cyber notary, which is to increase accessibility, efficiency, and convenience in legal services.

The need for specific implementing regulations is also crucial. Currently, there are no detailed procedural guidelines on how cyber notary services should operate, including standards for digital identity verification, the use of electronic signatures, and document security measures. For example, without standardized protocols, notaries may struggle with questions around how to validate identities remotely, how to securely archive digital documents, or what level of authentication is necessary for electronic signatures to be considered legally binding. In jurisdictions where cyber notary is already well-integrated, such as the United States and Estonia, specific laws outline these aspects in detail, ensuring that digital notarization services meet both domestic and international standards for reliability and security. In Indonesia, a similar level of regulatory clarity would enable notaries to confidently provide digital services while ensuring that these services carry the same legal force as traditional notarization.

From a technical standpoint, Indonesia also faces limitations in digital infrastructure, particularly in rural and remote areas where internet access may be inconsistent or entirely unavailable.[46] Cyber notary relies heavily on robust digital systems that support secure video conferencing, electronic signature verification, and online document storage. In regions lacking reliable internet connectivity, implementing such a system poses considerable challenges, as these services require high-speed and stable connections to ensure uninterrupted access and secure document handling. Without nationwide infrastructure support, cyber notary services risk being accessible only in urban areas, thereby limiting inclusivity and undermining one of the primary benefits of digital notarization—broad, equitable access to legal services.

Moreover, advanced technologies such as Public Key Infrastructure and blockchain, which can provide high levels of security and integrity for digital documents, are not yet widely available or implemented in Indonesia. Public Key Infrastructure, for instance, is fundamental for enabling secure electronic signatures and ensuring that digital documents are tamper-proof. Similarly, blockchain offers an additional layer of security and traceability by creating a permanent, verifiable record of transactions, which is invaluable in the context of legal documents. However, without adequate technical infrastructure and regulatory backing, adopting these technologies widely remains a challenge.

There is also a need for technical support systems and capacity-building initiatives that equip notaries and their staff with the skills needed to operate these digital platforms effectively and securely. Digital literacy programs and cybersecurity training are essential to minimize risks associated with data breaches and identity fraud, both of

[46] Cindy Mutia Annur, (2024), Penetrasi Internet Indonesia Belum Merata, Terendah di Sulawesi, Databoks, https://databoks.katadata.co.id/teknologi-telekomunikasi/statistik/167db22a8f43474/penetrasi-internet-indonesia-belum-merata-terendah-di-sulawesi accessed on October 24th 2024

which could compromise the integrity of digital notarization processes.[47] Additionally, public outreach and education are necessary to build trust in cyber notary services, as the general public may still be wary of using online systems for sensitive legal matters. Many people, especially those accustomed to traditional face-to-face notary processes, may question the security and authenticity of digital services.

The success of cyber notary in Indonesia ultimately depends on a concerted effort to update regulations in a way that aligns digital services with traditional legal standards while providing notaries with the flexibility to operate in a digital environment. Regulatory adjustments must address the need for secure digital identity verification, electronic signature standards, and protocols for virtual meetings that carry the same evidentiary weight as in-person interactions. At the same time, substantial investments in digital infrastructure and training are required to make cyber notary accessible across all regions and to equip notaries and the public with the necessary digital skills.

The effectiveness in implementation of cyber notary in Indonesia will require a multi-faceted approach, including detailed regulatory reforms, comprehensive technical support, and robust public education efforts. By addressing these challenges, cyber notary can become a transformative solution that meets the legal needs of a digital-era society while ensuring legal certainty, security, and inclusivity.To comprehensively address the challenges of implementing cyber notary in Indonesia, strategic steps are needed in regulatory formulation, infrastructure development, and digital literacy improvement. From a regulatory perspective, the greatest challenge is the lack of alignment between laws governing notarial services and those that allow electronic transactions to be legally recognized. For instance, although Article 15(3) of the Notary Law mentions the potential for notarizing electronic transactions, this provision is not yet supported by clear technical details or implementation standards. Furthermore, regulations requiring physical presence for validating signatures and fingerprints in notarial deeds add complexity to the application of cyber notary, as they mandate in-person meetings for verification, thereby reducing notarial flexibility in digital services. To overcome these issues, coordinated updates to existing laws and specific regulations for cyber notary processes are essential. This includes providing detailed technical guidelines, establishing remote identity verification standards, and setting secure digital signature protocols to facilitate a legally robust digital notarization process.

To comprehensively address the challenges of cyber notary implementation in Indonesia, strategic measures are needed, encompassing regulatory harmonization, technological infrastructure development, and improved digital literacy among notaries and the general public. From a regulatory perspective, one primary challenge is the lack of harmonization between relevant legal frameworks, particularly the Notary Law (UUJN), the Electronic Information and Transactions Law (UU ITE), and the Civil Code. Article 15(3) of the UUJN explicitly mentions the possibility of notarizing electronic transactions, yet this provision lacks detailed implementing regulations.[48] As a result, existing normative provisions are less operational and do not provide legal certainty (*rechtszekerheid*) for notaries seeking to integrate technology into their practice.

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[47] Dwi Fajar Saputra, (2023), Literasi Digital Untuk Perlindungan Data Pribadi, *Jurnal Ilmu Kepolisian*, Volume 17 No 3, Desember, 1-8, Retrieved From: https://mail.jurnalptik.id/index.php/JIK/article/download/454/198/1053

[48] Retno Catur, Loc.Cit.

The regulatory requirement for physical presence in validating signatures and fingerprints in notarial deeds also poses a serious obstacle. This requirement is based on the principle that the physical presence of the parties involved is essential to ensure authentic identity and the formal validity of the deed. Physical presence acts as a form of due process necessary for a deed to be considered an authentic document, as mandated by Article 1868 of the Civil Code, which defines an authentic deed as one made by or before an authorized official in the form specified by law.

In the context of cyber notary, this requirement conflicts with the characteristics of electronic transactions, which prioritize speed, efficiency, and convenience in digital legal processes. For example, electronic transactions often require certified electronic signatures, as recognized by the UU ITE, which can effectively replace physical signatures as legal proof. However, the UUJN's physical verification requirement limits notarial flexibility in providing digital services, counteracting the goal of modernizing technology-based public services.

Moreover, Indonesia's legal infrastructure to support cyber notary is not yet fully developed. Successful implementations in other countries rely on a robust Public Key Infrastructure and state-recognized digital certificates to ensure the integrity, authentication, and non-repudiation of electronic transactions. PKI is central to maintaining the validity of electronic signatures and ensuring that documents remain unaltered after signing. However, PKI implementation in Indonesia is still in the early stages and requires enhancements in accessibility and security.

Beyond technical aspects, boosting digital literacy among notaries is critical to reducing legal risks and ethical violations. Notaries involved in cyber notary must understand how to use digital technology while upholding the legal standards and professionalism required by the notarial code of ethics. Without adequate training, notaries may be vulnerable to fraud, privacy violations, or data misuse, potentially leading to severe legal consequences. Training should cover cybersecurity, authentication techniques, and the application of digital signatures and identity verification.

For broader acceptance of cyber notary adoption in Indonesia, the roles of both the government and notary associations are crucial. The government can issue specific regulations that support the digitalization of notarial services, such as drafting detailed implementing regulations based on the Electronic Information and Transactions Law (UU ITE) and the Notary Law (UUJN). Article 15(3) of the UUJN acknowledges the potential for cyber notary to authenticate electronic transactions, but without clear implementation standards, this provision is challenging to operationalize. Detailed regulations for cyber notary could include security procedure standards, certified electronic signature guidelines, and the technological infrastructure required for notaries who wish to offer digital services.

Additionally, Article 44(1) of the UUJN, which mandates that deeds be signed in person by the involved parties, witnesses, and the notary, remains a hurdle in developing cyber notary services.[49] This regulation aims to ensure authentication and formal validity of documents created by notaries, which is a crucial requirement for authentic deeds as defined in Article 1868 of the Civil Code. However, in a digital context, a more

[49] Puteri Chintami Oktavianti, (2024), Hambatan Regulasi Dan Teknis Terkait Implementasi Cyber Notary Di Indonesia, *Jurnal Pembangunan Hukum Indonesia*, Volume 6, No 2, 243-259, Retrieved From: https://ejournal2.undip.ac.id/index.php/jphi/article/download/20946/11122

flexible approach is needed while still maintaining stringent authentication standards through technologies such as Public Key Infrastructure based digital signatures.[50] Recognizing it would enable certified digital signatures to carry the same evidentiary weight as physical signatures, consistent with Article 11 of the UU ITE, which affirms that electronic signatures have the same legal force as manual signatures, provided they meet authentication and document integrity requirements.

The government, in collaboration with notary associations such as the Indonesian Notary Association (INI), could facilitate training and certification programs to enhance digital skills among notaries. This training could focus on digital workflows, certified electronic signature use, digital identity verification methods, and secure digital document procedures. For the general public, outreach efforts regarding cyber notary should emphasize security and legal validity, helping them understand that digital services offer the same level of protection as conventional notarial services.

Educational and training initiatives for both the public and notaries should also highlight the technical provisions of the UU ITE, particularly Article 5, which recognizes electronic documents as valid evidence in court

Low levels of digital literacy among the public also hinder the potential for widespread adoption of cyber notary. Many users of notarial services in Indonesia may still feel more comfortable or familiar with traditional notary procedures, which can slow adaptation to digital services. In this regard, education and outreach on the security and benefits of cyber notary are essential, as the public needs to understand and trust the validity of digital services. The government and notary associations in Indonesia can play an active role in providing training and outreach to notaries on the digital workflows, security procedures, and operational standards related to cyber notary services.

Data security and privacy challenges also emerge as critical issues in implementing cyber notary. The use of personal data and electronic signatures in digital transactions must be safeguarded in compliance with data protection regulations. Clear guidelines on data protection and recovery mechanisms in the event of data breaches within cyber notary practices are essential. Establishing a strong audit trail, along with secure data backup and storage provisions, can further enhance security assurances. For effective implementation of cyber notary in Indonesia, several key steps are necessary, including revising relevant laws to clarify notaries' authority and responsibilities in electronic services, developing more inclusive digital infrastructure, and enhancing digital literacy among both notaries and the public. Collaboration among the government, notary associations, and the technology sector is crucial to ensure that cyber notary regulations and infrastructure align with public needs and global technological advancements.

4. CONCLUSION

The implementation of cyber notary in Indonesia faces several challenges, particularly in regulatory and technical aspects. On the regulatory side, although there is a legal

[50] Fajar Tri Laksana, Et.Al. (2022), Implementasi Perancangan Infrastruktur Kunci Publik Pada Pembuatan Surat Organisasi Digital Menggunakan Digital Signature, *TRIPLE A: Jurnal Pendidikan Teknologi Informasi*, Volume 1 No.2, Desember, 91-96, Retrieved From: https://jurnal.umj.ac.id/index.php/TripleA/article/download/15064/8584

basis that allows for electronic transactions, such as Article 15(3) of the Notary Law (UUJN) and the Electronic Information and Transactions Law (UU ITE), there are no adequate technical and operational guidelines to ensure smooth implementation. These obstacles are especially evident in requirements for physical presence to validate signatures and fingerprints, which limits notaries' flexibility to serve the public digitally. As a result, these regulations pose significant barriers to achieving the objectives of cyber notary, namely to provide faster, more efficient, and accessible legal services. On the technical side, limited digital infrastructure in certain regions and low levels of digital literacy in the population further complicate the implementation of cyber notary. Solutions involving technologies such as Public Key Infrastructure (PKI) and blockchain can enhance the security and integrity of electronic documents, but they require stronger policy support and infrastructure.

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