The Evolving Role of Notaries in Digital Asset Inheritance Under Indonesian Civil Law

Michael Josef Widijatmoko[1] ✉, Lisza Nurchayatie[2], Radif Khotamir Rusli[3], Ahmet Şensöz[4]

[1]Postgraduate School of Law, Universitas Djuanda, Indonesia
[2]Faculty of Law, Universitas Pembangunan Nasional Jakarta, Indonesia
[3]Islamic Studies, Universitas Djuanda, Indonesia
[4]Faculty of Law, Recep Tayyip Erdoğan Üniversitesi, Türkiye
[1]widijatmoko@unida.ac.id
[2]liszanurchayatie@gmail.com
[3]radif.kr@unida.ac.id
[4]ahmet.sensoz@erdogan.edu.tr

Abstract

The rapid expansion of digital assets, including cryptocurrencies and Non-Fungible Tokens (NFTs), has created significant legal challenges for the Indonesian civil law system, particularly regarding ownership verification, contractual validity, inheritance, and notarial authentication. Existing legal frameworks, including the Indonesian Civil Code (KUHPerdata) and the Notary Law (UUJN), remain insufficient to address the decentralized and pseudonymous characteristics of blockchain-based transactions, resulting in legal uncertainty for digital asset holders and their heirs. This study aims to analyze the legal conflicts surrounding digital asset inheritance and transfer within Indonesian civil law and to formulate a comparative legal framework that strengthens the role of notaries in digital asset transactions. This research employs normative legal research using doctrinal, conceptual, statutory, and comparative approaches through the analysis of primary, secondary, and tertiary legal materials. The comparative analysis refers particularly to the Revised Uniform Fiduciary Access to Digital Assets Act (RUFADAA) in the United States and legal developments within the European Union concerning digital wealth and fiduciary access. The findings reveal a fundamental incompatibility between blockchain systems and conventional civil law principles, especially regarding legal capacity, ownership recognition, fiduciary access, and evidentiary authentication. The study further demonstrates that the absence of procedural mechanisms for digital inheritance has weakened legal certainty and legal protection within Indonesian law. In response to these challenges, this study proposes a reconstructed notarial model that positions notaries as off-chain validators and digital fiduciary facilitators capable of bridging conventional legal systems with blockchain-based transactions. This study concludes that adaptive legal reform is urgently required to strengthen digital asset regulation, inheritance mechanisms, and notarial authentication procedures in Indonesia.

Keywords: *Civil Law; Digital Assets; Inheritance Law; Legal Certainty; Notary Role.*

Introduction

The global financial landscape is undergoing a paradigm shift marked by the exponential growth of digital assets, including cryptocurrencies and Non-Fungible Tokens (NFTs).[1] This transformation is particularly evident in Indonesia, where the number of crypto asset investors has increased significantly, and transaction values have reached hundreds of trillions of rupiah annually.[2] This rapid expansion has shifted the concept of wealth from tangible assets to intangible, blockchain-based ownership structures. However, this transformation has not been accompanied by adequate legal development.[3] The Indonesian civil law system, primarily based on the Indonesian Civil Code (KUHPerdata) of 1848, was designed for conventional property relations and lacks the conceptual and procedural mechanisms to regulate digital assets.[4] As a result, a fundamental legal problem emerges, namely the absence of legal certainty in the ownership, transfer, and inheritance of digital assets, which places investors and their heirs in a vulnerable position.[5]

This legal uncertainty is further exacerbated by regulatory fragmentation. Although digital assets have been recognized as tradable financial instruments under sectoral regulations, including Financial Services Authority Regulation No. 27 of 2024, such recognition is limited to market activities and does not extend to

[1] Muneer M. Alshater et al., "Deciphering the World of NFTs: A Scholarly Review of Trends, Challenges, and Opportunities," *Electronic Commerce Research* 25, no. 5 (October 2025): 4193–4249, https://doi.org/10.1007/s10660-024-09881-y.
[2] Adi Sulistiyono and Dona Budi Kharisma, "Cryptoization and Shadow Currency: Legal Overview of the Importance of Digital Rupiah in Indonesia," *Pena Justisia: Media Komunikasi Dan Kajian Hukum* 23, no. 2 (December 2024): 5759–70, https://doi.org/10.31941/pj.v23i2.4369.
[3] Wawan Gunawan and Debashish Sharma, "Mapping Public Interest in Cryptocurrency in Indonesia (2021–2024): Analyzing Geographical Disparities and Temporal Trends," *Blockchain, Artificial Intelligence, and Future Research* 1, no. 1 (February 2025): 13–22, https://doi.org/10.70211/bafr.v1i1.170.
[4] Aleksandra Nikolova-Marković and Luka Stajić, "Civil Law and Digitalization: Challenges and Opportunities," *Megatrend Revija* 19, no. 3 (2022): 303–12, https://doi.org/10.5937/MegRev2202303N.
[5] Muhammad Santoso and Fuat Hasanudin, "The Concept of Digital Asset Inheritance in the Perspective of Faraid Science (A Study of the Application of Blockchain-Based Crypto)," *Indonesian Journal of Law and Justice* 3, no. 3 (March 2026): 15, https://doi.org/10.47134/ijlj.v3i3.5587.

their status as inheritable property under civil law.[6] Consequently, a legal paradox arises in which digital assets can be legally traded but lack a clear legal framework for inheritance. This regulatory gap creates significant risks, particularly in cases of inter vivos transfers and mortis causa succession. In this context, notaries as public officials mandated under Law No. 2 of 2014 (UUJN) play a crucial role in ensuring legal certainty through authentic deeds. However, the existing notarial framework does not provide specific guidance for handling decentralized and pseudonymous digital assets, thereby weakening the effectiveness of notarial functions in the digital era.[7]

Despite the growing scholarly attention to digital assets, several studies indicate that the legal dimension of inheritance and notarial roles remains underexplored. Recent studies have examined the challenges of digital inheritance from a general legal perspective,[8] the implications of blockchain technology for contract law[9], and the recognition of digital assets within financial regulatory frameworks.[10] Other recent studies have also explored crypto-asset governance and legal classification issues in different jurisdictions.[11] Highlighting regulatory fragmentation and conceptual ambiguity surrounding digital ownership. However, these studies predominantly focus on regulatory classification, technological

[6] Muhammad Al Ikhwan Bintarto, "Cryptocurrency as a Digital Property in Indonesian Law Perspective," *Jurnal Penegakan Hukum Dan Keadilan* 3, no. 2 (September 2022): 104–13, https://doi.org/10.18196/jphk.v3i2.15134.

[7] Wiji Achmat Efendi and Rusdianto Sesung, "Transformation of the Notary's Role in Electronic Deed Regulations Based on Digital Technology," *Journal of Law, Politic and Humanities* 5, no. 5 (July 2025): 3764–72, https://doi.org/10.38035/jlph.v5i5.1946.

[8] Paweł Szwajdler, "Digital Assets and Inheritance Law: How to Create Fundamental Principles of Digital Succession System?," *International Journal of Law and Information Technology* 31, no. 2 (August 2023): 144–68, https://doi.org/10.1093/ijlit/eaad014.

[9] Ghassan Adhab Atiyah, Ahmed Ismael Ibrahim, and Ahmed Abdulkhudhur Jasim, "Enforcement of Smart Contracts in Cross-Jurisdictional Transactions," *International Journal of Law and Management* 68, no. 2 (February 2026): 319–44, https://doi.org/10.1108/IJLMA-06-2024-0220.

[10] Elissa Dwi Lestari et al., "Empowering Women Entrepreneurs: The Role of Financial Literacy, Inclusion, and Access in Enhancing MSE's Performance and Sustainability via Women Development Program in Indonesia," *Cogent Business & Management* 12, no. 1 (December 2025), https://doi.org/10.1080/23311975.2025.2593078.

[11] Prabin Adhikari et al., "Cryptocurrency Taxation and Regulatory Challenges," *International Journal of Science and Research Archive* 15, no. 3 (June 2025): 778–88, https://doi.org/10.30574/ijsra.2025.15.3.1791.

frameworks, or general legal implications, without addressing the procedural legal mechanisms required to operationalize such assets within formal legal systems. In particular, they do not examine the role of notaries as public officials in authenticating, verifying, and formalizing digital asset transactions and inheritance.

However, none of these studies specifically address the procedural role of notaries in digital asset inheritance within the Indonesian civil law system, particularly in developing an operational and legally grounded framework. To the best of the author's knowledge, no prior study has integrated inheritance law, notarial authority, and blockchain-based digital assets within a single analytical framework in the Indonesian context. This gap highlights the urgent need for a practical legal mechanism to protect digital asset owners and their heirs. The novelty of this study lies in the development of an integrated and operational model for notarial practice in handling digital assets. Unlike prior research that is largely descriptive or fragmented, this study proposes a structured procedural framework that bridges civil law principles with blockchain-based systems. Accordingly, this study aims to analyze the legal conflicts between digital assets and the principles of KUHPerdata and to formulate a framework that strengthens the role of notaries in ensuring legal certainty in digital asset transfer and inheritance.

Methods

This study employs normative legal research, which conceptualizes law as a system of norms, legal principles, doctrines, and statutory regulations governing social relations. The study adopts doctrinal, conceptual, statutory, and comparative legal approaches to examine legal issues concerning digital asset inheritance and the role of notaries within the Indonesian civil law system. The doctrinal approach is utilized to analyze legal norms governing inheritance, legal certainty, and notarial authority, while the conceptual approach is applied to examine legal concepts related to digital ownership, fiduciary access, and blockchain-based

assets. In addition, a comparative legal approach is employed to identify and evaluate legal developments concerning digital asset inheritance in jurisdictions outside Indonesia, particularly within the United States and the European Union.

The legal materials used in this study are categorized into primary, secondary, and tertiary legal materials. Primary legal materials consist of statutory regulations and official legal instruments, including the Indonesian Civil Code (KUHPerdata), Law No. 2 of 2014 concerning the Position of Notary (UUJN), Law No. 11 of 2008 concerning Electronic Information and Transactions (UU ITE) as amended, Law No. 27 of 2022 concerning Personal Data Protection (UU PDP), Financial Services Authority Regulation (POJK) No. 27 of 2024, and regulations issued by the Commodity Futures Trading Regulatory Agency (Bappebti).[12] Secondary legal materials include peer-reviewed journal articles, books, legal commentaries, and scholarly studies related to digital assets, inheritance law, blockchain governance, and notarial law.[13] Meanwhile, tertiary legal materials consist of legal dictionaries, encyclopedias, and indexing databases used to support conceptual clarification and literature identification.[14]

The data collection process was conducted through a comprehensive literature review and document study of relevant legal instruments and academic sources.[15] The analysis of legal materials was carried out qualitatively using several interpretative techniques. A statutory approach was employed to examine the coherence and normative conflicts among Indonesian regulations governing

[12] Bintarto, "Cryptocurrency as a Digital Property in Indonesian Law Perspective."
[13] Efendi and Sesung, "Transformation of the Notary's Role in Electronic Deed Regulations Based on Digital Technology."
[14] Tunggul Ansari Setia Negara, "Normative Legal Research in Indonesia: Its Originis and Approaches," *Audito Comparative Law Journal (ACLJ)* 4, no. 1 (February 2023): 1–9, https://doi.org/10.22219/aclj.v4i1.24855.
[15] Achmad Irwan Hamzani et al., "Legal Research Method: Theoretical and Implementative Review," *International Journal of Membrane Science and Technology* 10, no. 2 (August 2023): 3610–19, https://doi.org/10.15379/ijmst.v10i2.3191.

digital assets and inheritance law.[16] A conceptual analysis was applied to interpret legal concepts such as "property" (benda), legal ownership, and fiduciary authority in relation to blockchain-based assets.[17] Furthermore, systematic and teleological interpretations were used to assess the compatibility of existing legal norms with technological developments in digital asset systems.

This study also applies a comparative legal analysis by examining legal frameworks outside Indonesia, particularly the Revised Uniform Fiduciary Access to Digital Assets Act (RUFADAA) in the United States and regulatory developments within the European Union concerning digital wealth, digital inheritance, and fiduciary access.[18] The selection of these comparative jurisdictions is based on their significant contribution to the contemporary regulation of digital assets and succession law. The United States, through RUFADAA, represents a relatively advanced common law approach in regulating fiduciary access to digital assets after death, while the European Union provides an important supranational regulatory perspective emphasizing data protection, digital ownership, and legal recognition of digital succession rights.[19] These comparative frameworks were selected to identify adaptable legal principles to strengthen the Indonesian legal framework regarding digital asset inheritance and notarial authority. All legal materials were analyzed systematically in accordance with academic standards to ensure objectivity, legal coherence, and analytical rigor.

---

[16] Nur Ali, Adang Djumhur Salikin, and Kosim Kosim, "The Urgency of Harmonizing Civil Inheritance Law with Digital Assets in the Indonesian Legal System," *JURNAL AKTA* 12, no. 4 (December 2025): 1094, https://doi.org/10.30659/akta.v12i4.47286.

[17] Sri Mulyani, Siti Mariyam, and Hieu Hong Trung Le, "Legal Construction of Crypto Assets as Objects of Fiduciary Collateral," *LAW REFORM* 19, no. 1 (April 2023): 25–39, https://doi.org/10.14710/lr.v19i1.52697.

[18] Sirajo Aliyu, Norazlina Abd Wahab, and Nur Syaedah Kamis, "An Analysis of Crypto-Asset Trade, Enforcement, and Estate Planning," *Borsa Istanbul Review* 25, no. 1 (February 2025): 206–26, https://doi.org/10.1016/j.bir.2024.12.008.

[19] José Antonio Castillo Parrilla, "The Legal Regulation of Digital Wealth: Commerce, Ownership and Inheritance of Data," *European Review of Private Law* 29, no. Issue 5 (October 2021): 807–30, https://doi.org/10.54648/ERPL2021042.

Discussion

Legal Classification of Digital Assets under Indonesian Civil Law

The emergence of blockchain-based assets has fundamentally challenged the traditional conception of property within the Indonesian civil law system. Article 499 of the Indonesian Civil Code (KUHPerdata) defines property (benda) broadly as everything and every right that may become an object of ownership.[20] Although this provision theoretically accommodates intangible forms of property, the doctrinal structure of the KUHPerdata remains historically oriented toward tangible and state-recognized assets.[21] Consequently, the classification of cryptocurrencies and other blockchain-based assets as inheritable property remains legally ambiguous.[22] This ambiguity demonstrates that Indonesian private law has not yet fully adapted to the shift in wealth from physical ownership to decentralized digital ownership structures.[23]

The legal uncertainty surrounding digital assets is further reinforced by fragmented sectoral regulation. Indonesian financial regulations issued by Bappebti and the Financial Services Authority (OJK) recognize crypto assets primarily as tradable commodities or financial instruments rather than as objects of civil ownership and inheritance.[24] As a result, a legal paradox emerges in which digital assets may be legally traded and economically valuable but simultaneously lack procedural certainty regarding inheritance and succession. Such

[20] Bintarto, "Cryptocurrency as a Digital Property in Indonesian Law Perspective."
[21] Emy Handayani and Moh. Asadullah Hasan Al Asy'arie, "Decoding the Legal Void: Bridging the Gaps in Indonesian Property Law in the Age of Digital Transformation," *International Journal for the Semiotics of Law - Revue Internationale de Sémiotique Juridique*, March 2026, https://doi.org/10.1007/s11196-026-10475-0.
[22] "The Extended Nature of Trading Norms Between Cryptocurrency and Crypto-Asset: Evidence from Indonesia and Japan," *Lex Scientia Law Review* 8, no. 1 (September 2024), https://doi.org/10.15294/lslr.v8i1.14063.
[23] Bryan Fayyadh Haq Wahyudi and Kholis Roisah, "The Legal Status of Cryptocurrency Assets as Inherited Property from the Perspective of Positive Law and Islamic Law in Indonesia," *Journal Research of Social Science, Economics, and Management* 5, no. 7 (February 2025): 10511–23, https://doi.org/10.59141/jrssem.v5i7.1331.
[24] Soonpeel Edgar Chang, "Legal Status of Cryptocurrency in Indonesia and Legal Analysis of the Business Activities in Terms of Cryptocurrency," *Brawijaya Law Journal* 6, no. 1 (April 2019): 76–93, https://doi.org/10.21776/ub.blj.2019.006.01.06.

fragmentation creates potential jurisdictional conflicts between financial regulators and civil law institutions, particularly in disputes involving the verification of ownership and the transfer of rights after death. This condition weakens the principle of legal certainty because investors and heirs cannot clearly determine the juridical status of digital assets under Indonesian inheritance law.[25]

From the perspective of legal certainty theory, Gustav Radbruch argues that law must provide predictability, clarity, and enforceability in regulating legal relations.[26] However, blockchain technology operates through decentralized and pseudonymous systems that differ substantially from the assumptions underlying conventional civil law.[27] Indonesian inheritance and property law rely heavily on identifiable legal subjects, formal registration, and state-recognized ownership mechanisms. By contrast, blockchain systems recognize control through cryptographic access rather than formal juridical recognition.[28] This structural incompatibility demonstrates that existing legal concepts remain insufficient to address digital ownership within decentralized environments.

Comparative legal developments indicate that several jurisdictions have gradually attempted to accommodate digital ownership within modern legal systems. In the United States, legal discussions surrounding digital assets increasingly recognize cryptocurrencies and NFTs as forms of unique digital property requiring procedural protection.[29] Through the Revised Uniform Fiduciary Access to Digital Assets Act (RUFADAA), fiduciaries and heirs may obtain

---

[25] Ali, Salikin, and Kosim, "The Urgency of Harmonizing Civil Inheritance Law with Digital Assets in the Indonesian Legal System."

[26] Seow Hon Tan, "Radbruch's Formula Revisited: The Lex Injusta Non Est Lex Maxim in Constitutional Democracies," *Canadian Journal of Law & Jurisprudence* 34, no. 2 (August 2021): 461–91, https://doi.org/10.1017/cjlj.2021.12.

[27] Chen Siqi et al., "Application of Blockchain Technology in Cross-Border Telecommunications Network Fraud to Ensure China's Judicial Justice," *Jurnal IUS Kajian Hukum Dan Keadilan* 12, no. 3 (December 2024): 472–86, https://doi.org/10.29303/ius.v12i3.1554.

[28] Kelvin F. K. Low and Eliza Mik, "Pause The Blockchain Legal Revolution," *International and Comparative Law Quarterly* 69, no. 1 (January 2020): 135–75, https://doi.org/10.1017/S0020589319000502.

[29] Luke Lee, "Examining the Legal Status of Digital Assets as Property: A Comparative Analysis of Jurisdictional Approaches," *SSRN Electronic Journal*, 2024, https://doi.org/10.2139/ssrn.4807135.

regulated access to digital assets after death under specific legal conditions.[30] Similarly, developments within the European Union increasingly recognize digital wealth, digital identity, and data ownership as components of contemporary private law relationships.[31] Compared to these jurisdictions, Indonesian law remains relatively underdeveloped in regulating the inheritance and legal transfer of blockchain-based assets. Therefore, legal reform becomes necessary not only to provide regulatory certainty but also to ensure that Indonesian civil law remains responsive to technological transformation.

Legal Validity and Authentication Challenges in Blockchain Transactions

Another major challenge concerns the legal validity of blockchain-based transactions under Indonesian contract law. Article 1320 of the KUHPerdata requires four essential elements for contractual validity, namely consent, legal capacity, a specific object, and a lawful cause.[32] In conventional transactions, these requirements are generally fulfilled through direct identity verification and formal legal procedures. However, blockchain transactions often use pseudonymous wallet addresses that do not clearly reveal the legal identity or legal capacity of the parties involved.[33] Consequently, substantial uncertainty arises regarding whether blockchain transactions can fully satisfy the requirements of Indonesian contract law.

This issue becomes increasingly complex with the growing use of smart contracts and decentralized transaction systems. Smart contracts are self-executing agreements performed automatically through algorithmic processes

[30] Riaduzzaman Md., Mahmud Md. Arif, and Nazneen Musfek, "A Comparative Study on the Management of Digital Assets in Virtue of Fiduciary Relationship," *DIU Journal of Humanities and Social Science* 6, no. 1 (June 2019): 202–23, https://doi.org/10.36481/diujhss.v.06i1.38bfxv24.

[31] Florent Thouvenin and Aurelia Tamò-Larrieux, "Data Ownership and Data Access Rights: Meaningful Tools for Promoting the European Digital Single Market?," in *Big Data and Global Trade Law* (Cambridge University Press, 2021), 316–39, https://doi.org/10.1017/9781108919234.020.

[32] Jasper Verstappen, *Legal Agreements on Smart Contract Platforms in European Systems of Private Law*, vol. 56, Law, Governance and Technology Series (Cham: Springer International Publishing, 2023), https://doi.org/10.1007/978-3-031-35407-6.

[33] Budi Hermono et al., "Regulating the Protection of Cryptocurrency Exchanges to Prevent Systemic Risks and Consumer Rights Violations in Indonesia," *Indonesia Private Law Review* 7, no. 1 (April 2026): 51–66, https://doi.org/10.25041/iplr.v7i1.4761.

without direct involvement from legal intermediaries.[34] Although this mechanism offers efficiency and transactional automation, it simultaneously reduces the role of conventional legal authentication. In practice, many blockchain transactions rely primarily on platform-specific Terms of Service rather than nationally recognized legal procedures.[35] Such conditions demonstrate that technological legitimacy has begun to replace juridical legitimacy within digital asset ecosystems.

However, from a legal perspective, algorithmic validation alone cannot fully replace formal legal accountability. Indonesian civil law continues to place authentic deeds created by public officials in a privileged evidentiary position.[36] Therefore, the exclusion of notarial functions from blockchain transactions potentially weakens legal protection, particularly in disputes involving fraud, contractual capacity, inheritance conflicts, or unlawful transfer claims. Ferreira argues that smart contract regulation should not merely prioritize technological automation but must also preserve legal accountability and enforceability within broader legal systems.[37] Similarly, Verstappen emphasizes that blockchain-based agreements still require legal interpretative frameworks because automated execution cannot independently resolve disputes concerning consent, mistake, coercion, or legal incapacity.[38]

Comparative legal approaches further demonstrate the importance of integrating blockchain systems with formal legal verification mechanisms. European legal scholarship increasingly supports hybrid regulatory models that

---

[34] Fabio Bassan and Maddalena Rabitti, "From Smart Legal Contracts to Contracts on Blockchain: An Empirical Investigation," *Computer Law & Security Review* 55 (November 2024): 106035, https://doi.org/10.1016/j.clsr.2024.106035.

[35] Atiyah, Ibrahim, and Jasim, "Enforcement of Smart Contracts in Cross-Jurisdictional Transactions."

[36] Fani Martiawan Kumara Putra, "Characteristics of Notary Deeds for Transactions Through Electronic Media," *NORMA* 17, no. 3 (January 2021): 1–14, https://doi.org/10.30742/nlj.v17i3.1091.

[37] Agata Ferreira, "Regulating Smart Contracts: Legal Revolution or Simply Evolution?," *Telecommunications Policy* 45, no. 2 (March 2021): 102081, https://doi.org/10.1016/j.telpol.2020.102081.

[38] Jasper Verstappen, "Private International Law," 2023, 321–89, https://doi.org/10.1007/978-3-031-35407-6_6.

combine technological efficiency with juridical accountability.[39] In this context, the role of notaries becomes increasingly important as off-chain validators who can verify legal identity, authenticate legal intent, and formalize contractual relationships without interfering directly with blockchain execution processes. Such a model enables digital asset transactions to maintain operational efficiency while simultaneously satisfying the procedural requirements of Indonesian contract law.

Comparative Challenges of Digital Asset Inheritance and Fiduciary Access

The legal challenges surrounding digital assets become even more significant in inheritance and succession contexts. Unlike conventional assets, blockchain-based assets are controlled by private keys, passwords, and seed phrases that may become inaccessible after the owner's death.[40] Consequently, inheritance disputes concerning digital assets involve not only legal entitlement but also technical control over cryptographic access systems. Even where heirs possess valid inheritance documents, they may still be unable to obtain practical access to digital assets stored on decentralized platforms or private exchanges.

This condition exposes a substantial procedural gap within Indonesian inheritance law. Conventional inheritance systems assume that inherited assets can be formally transferred through state-recognized documentation and registration mechanisms. However, blockchain systems operate through decentralized ledgers detached from national ownership administration structures.[41] As a result, Indonesian inheritance law currently lacks operational mechanisms capable of facilitating lawful access, ownership verification, and transfer procedures for digital assets after death.

---

[39] Carlos Pérez, Isabel López, and Francisco López, "Blockchain-Based Evidence and Legal Validity: Reformulating Norms for Decentralized Justice Systems," *Rechtsnormen: Journal of Law* 3, no. 2 (April 2025): 180–89, https://doi.org/10.70177/rjl.v3i2.2215.

[40] Maria Fernanda Lira et al., "Exploring the Experiences of People Who Inherited Digital Assets from Deceased Users: A Search for Better Computing Solutions," 2023, 491–510, https://doi.org/10.1007/978-3-031-42286-7_28.

[41] Konglin Zhu et al., "Blockchain-Based Digital Asset Circulation: A Survey and Future Challenges," *Symmetry* 16, no. 10 (October 2024): 1287, https://doi.org/10.3390/sym16101287.

The issue also places notaries in a highly complex legal position. On the one hand, notaries are expected to guarantee legal certainty and facilitate inheritance procedures through authentic deeds. On the other hand, the storage or management of sensitive digital credentials, such as private keys, raises serious confidentiality and liability concerns under the Notary Law (UUJN) and the Personal Data Protection Law (UU PDP). Any security breach involving digital credentials may result in irreversible loss of assets and substantial legal liability.[42] Therefore, conventional notarial procedures cannot simply be transplanted directly into blockchain-based inheritance systems without procedural adaptation and technological safeguards.[43]

Comparative legal frameworks provide important guidance for addressing these challenges. The RUFADAA framework in the United States prioritizes user intent while regulating fiduciary access to digital assets after death.[44] This framework demonstrates that digital inheritance regulation requires a balance between privacy protection, fiduciary authority, and legal certainty. Likewise, European legal developments increasingly emphasize digital identity governance and lawful succession rights within digital environments.[45] These comparative approaches indicate that digital inheritance regulation must integrate both legal and technological dimensions rather than relying solely on conventional inheritance principles.

---

[42] M. Riansyah Aksar Tarigan and Patricia Riniwigati, "Comparison of the Republic of Indonesia ITE Law No 19 Of 2016 with PDP Law No 27 of 2022 and the Role of the Police in Handling Cases Of Personal Data Dissemination (Doxing)," *Path of Science* 10, no. 7 (July 2024): 5031–48, https://doi.org/10.22178/pos.106-35.

[43] Naurah Humam Alkatiri, Mohamad Fajri Mekka Putra, and Kyle Ongko, "A Legal Perspective: Implementing an Electronic Notarization System in Indonesia in the Post-Pandemic Era," *Jambura Law Review* 5, no. 2 (June 30, 2023): 332–55, https://doi.org/10.33756/jlr.v5i2.19221.

[44] Maureen Keisha Yolanda, Chintya Lie Paramitha, and Moody Rizqy Syailendra Putra, "Exploring Digital Assets Inheritance: A Comparative Study of Transnational Legal Frameworks and Practices," *AURELIA: Jurnal Penelitian Dan Pengabdian Masyarakat Indonesia* 4, no. 1 (December 2024): 942–51, https://doi.org/10.57235/aurelia.v4i1.4483.

[45] Akmaljon A. Akramov et al., "The Impact of Digitalization in Inheritance Law," *Qubahan Academic Journal* 4, no. 3 (August 2024): 100–134, https://doi.org/10.48161/qaj.v4n3a863.

The structural differences between conventional and blockchain-based systems are further illustrated in Table 1.

Table 1. Comparative Analysis of Notarial Functions: Conventional vs. Digital Assets

Aspect of Function	Conventional System (e.g., Land/Shares)	Digital Asset System (Blockchain/Smart Contract)	Core Challenge for Notary
Object of the Deed	Clearly defined, physical or registered asset	Intangible, volatile, cryptographically-based (Private Key)	Verification of the existence and control over the object
Validity/ Authentication	Authentication by a public official (Notary/PPAT)	Authentication via automated algorithms	Ensuring the off-chain authentic deed is recognized by the on-chain system
Confidentiality Principle	Duty to maintain confidentiality (Notarial Protocol)	Transactional transparency (Public Ledger)	Bridging the confidentiality of identity with the transparency of the transaction
Legal Evidence	Authentic deed as perfect evidence	Electronic information and documents recognized as legal evidence (UU ITE, Art. 5)	Ensuring the digital notarial deed holds the highest legal authority

***Source**: Synthesized by the author*

The comparison demonstrates a fundamental transformation from state-based legal validation toward algorithm-based transactional verification. Blockchain systems rely primarily on cryptographic authentication rather than formal juridical recognition, thereby reducing the traditional authority of notaries. Nevertheless, blockchain technology cannot independently resolve disputes concerning ownership, legal capacity, inheritance rights, or evidentiary

legitimacy.[46] Therefore, notarial institutions continue to play an essential role in maintaining juridical legitimacy, procedural accountability, and evidentiary certainty within digital asset transactions and succession processes.

Reconstruction of Notarial Authority in Digital Asset Transactions and Inheritance

The findings of this study demonstrate that the role of notaries should not be viewed as obsolete within blockchain-based systems. Instead, technological transformation requires a reconstruction of notarial authority that integrates conventional civil law principles with decentralized digital transactions. From the perspective of progressive legal theory, Satjipto Rahardjo argues that law must remain adaptive to social and technological developments rather than rigidly preserving outdated legal structures.[47] Accordingly, the absence of formal registration mechanisms for digital assets should not be interpreted as justification for excluding legal institutions from blockchain transactions.[48]

In this context, this study proposes a notarial model that positions notaries as off-chain validators and digital fiduciary facilitators. Through this model, notaries function to verify legal identity, validate legal intent, formalize succession arrangements, and authenticate supporting legal documentation without directly interfering with blockchain execution mechanisms. Such an approach enables digital asset transactions to satisfy Indonesian legal requirements concerning

[46] Dadang Herli Saputra and Fardana Kusumah, "Blockchain Forensics and the Evidentiary Challenges of Crypto-Based Corruption in Developing Countries," *IJCLS (Indonesian Journal of Criminal Law Studies)* 10, no. 2 (November 2025), https://doi.org/10.15294/ijcls.v10i2.28795.
[47] Syinta Amelia, "Progressive Legal Approach to Modern Community Law Enforcement in Indonesia," *Pancasila and Law Review* 4, no. 1 (March 2023): 1–14, https://doi.org/10.25041/plr.v4i1.2729.
[48] Andi Dimah Laila Nurfaiqah and Tjempaka Tjempaka, "Legal Protection for Buyers of Joint Assets Sold Without Wife's Consent," *Substantive Justice International Journal of Law* 6, no. 2 (October 4, 2023), https://doi.org/10.56087/substantivejustice.v6i2.256.

consent, legal capacity, and evidentiary authenticity while preserving the efficiency and decentralized structure of blockchain systems.[49]

This study also introduces the concept of a Digital Estate Plan as a procedural mechanism for digital asset inheritance. Under this approach, notaries may formalize inheritance instructions and fiduciary authorizations without directly storing private keys or sensitive digital credentials.[50] This mechanism reduces liability risks while simultaneously strengthening legal protection for heirs and digital asset owners. Furthermore, the integration of digital signatures, timestamping technologies, and electronic authentication mechanisms under the UU ITE may strengthen the evidentiary authority of digital notarial deeds within future digital inheritance systems.

The novelty of this study lies in the formulation of an operational and comparative legal framework integrating inheritance law, notarial authority, and blockchain governance within a single analytical structure. Unlike previous studies that focus primarily on technological regulation or financial governance, this study develops a practical procedural model grounded in Indonesian civil law principles while incorporating comparative legal developments from the United States and the European Union. Accordingly, this study contributes not only to the development of digital asset regulation but also to broader discussions concerning the transformation of legal institutions in the digital era.

Conclusion

The rapid expansion of digital assets has exposed significant limitations within the Indonesian civil law system, particularly regarding ownership verification, contractual validity, and inheritance mechanisms for blockchain-

[49] Irsyad Noeri and Salsa Nur Ramadhani Hermandasari, "Regulatory Compliance of Indonesian Smart Contracts," *Journal of Law, Society and Living Norms* 1, no. 1 (August 2025): 15–25, https://doi.org/10.66111/jar3zy98.

[50] Ibrahem Ali Hammadi et al., "Compensation for Loss of Opportunity in Electronic Transactions: A Comparative Analytical Study in Light of Contemporary Digital Developments," *Nusantara: Journal of Law Studies* 5, no. 2 (2026): 966-991., https://doi.org/https://doi.org/10.66325/nusantaralaw.v5i2.324.

based assets. This study demonstrates that existing legal frameworks, including the Indonesian Civil Code (KUHPerdata) and the Notary Law (UUJN), remain insufficient to address the decentralized and pseudonymous characteristics of digital asset transactions. As a result, substantial legal uncertainty persists concerning the classification, transfer, and succession of digital assets within Indonesian law. In this context, the study argues that notaries continue to play an essential role in maintaining legal certainty, evidentiary legitimacy, and procedural accountability in digital transactions and inheritance processes.

This study further proposes a reconstructed notarial model that positions notaries as off-chain validators and digital fiduciary facilitators capable of bridging conventional civil law principles with blockchain-based systems. Through a comparative analysis of Indonesian law, the RUFADAA framework in the United States, and legal developments within the European Union, this study highlights the importance of integrating technological innovation with formal legal protection mechanisms. Accordingly, future legal reform in Indonesia should focus on developing adaptive regulatory frameworks that recognize digital assets as inheritable property, while strengthening procedural mechanisms for digital inheritance and notarial authentication in the digital era.

Acknowledgement

None.

References

A. Akramov, Akmaljon, Nilufar Kh. Rakhmonkulova, Odilbek T. Khazratkulov, Elnora E. Inamdjanova, Diyora I. Imamalieva, Shakhzoda R. Tuychieva, Sayidkomil B. Ibodullaev, Azamat E. Ergashev, Shokhrukh Khamidov, and Nodira R. Rustamova. "The Impact of Digitalization in Inheritance Law." *Qubahan Academic Journal* 4, no. 3 (August 2024): 100–134. https://doi.org/10.48161/qaj.v4n3a863.

Ali, Nur, Adang Djumhur Salikin, and Kosim Kosim. "The Urgency of Harmonizing Civil Inheritance Law with Digital Assets in the Indonesian Legal System." *JURNAL AKTA* 12, no. 4 (December 2025): 1094. https://doi.org/10.30659/akta.v12i4.47286.

Aliyu, Sirajo, Norazlina Abd Wahab, and Nur Syaedah Kamis. "An Analysis of Crypto-Asset Trade, Enforcement, and Estate Planning." *Borsa Istanbul Review* 25, no. 1 (February 2025): 206–26. https://doi.org/10.1016/j.bir.2024.12.008.

Alkatiri, Naurah Humam, Mohamad Fajri Mekka Putra, and Kyle Ongko. "A Legal Perspective: Implementing an Electronic Notarization System in Indonesia in the Post-Pandemic Era." *Jambura Law Review* 5, no. 2 (June 30, 2023): 332–55. https://doi.org/10.33756/jlr.v5i2.19221.

Alshater, Muneer M., Nohade Nasrallah, Rim Khoury, and Mayank Joshipura. "Deciphering the World of NFTs: A Scholarly Review of Trends, Challenges, and Opportunities." *Electronic Commerce Research* 25, no. 5 (October 2025): 4193–4249. https://doi.org/10.1007/s10660-024-09881-y.

Amelia, Syinta. "Progressive Legal Approach to Modern Community Law Enforcement in Indonesia." *Pancasila and Law Review* 4, no. 1 (March 2023): 1–14. https://doi.org/10.25041/plr.v4i1.2729.

Atiyah, Ghassan Adhab, Ahmed Ismael Ibrahim, and Ahmed Abdulkhudhur Jasim. "Enforcement of Smart Contracts in Cross-Jurisdictional Transactions." *International Journal of Law and Management* 68, no. 2 (February 2026): 319–44. https://doi.org/10.1108/IJLMA-06-2024-0220.

Bassan, Fabio, and Maddalena Rabitti. "From Smart Legal Contracts to Contracts on Blockchain: An Empirical Investigation." *Computer Law & Security Review* 55 (November 2024): 106035. https://doi.org/10.1016/j.clsr.2024.106035.

Bintarto, Muhammad Al Ikhwan. "Cryptocurrency as a Digital Property in Indonesian Law Perspective." *Jurnal Penegakan Hukum Dan Keadilan* 3, no. 2 (September 2022): 104–13. https://doi.org/10.18196/jphk.v3i2.15134.

Chang, Soonpeel Edgar. "Legal Status of Cryptocurrency in Indonesia and Legal Analysis of the Business Activities in Terms of Cryptocurrency." *Brawijaya Law Journal* 6, no. 1 (April 2019): 76–93. https://doi.org/10.21776/ub.blj.2019.006.01.06.

Chen Siqi, Ramalinggam Rajamanickam, Nazura Abdul Manap, and Zamre Mohd Zahir. "Application of Blockchain Technology in Cross-Border Telecommunications Network Fraud to Ensure China's Judicial Justice." *Jurnal IUS Kajian Hukum Dan Keadilan* 12, no. 3 (December 2024): 472–86. https://doi.org/10.29303/ius.v12i3.1554.

Efendi, Wiji Achmat, and Rusdianto Sesung. "Transformation of the Notary's Role in Electronic Deed Regulations Based on Digital Technology." *Journal of Law, Politic and Humanities* 5, no. 5 (July 2025): 3764–72. https://doi.org/10.38035/jlph.v5i5.1946.

Fayyadh Haq Wahyudi, Bryan, and Kholis Roisah. "The Legal Status of

Cryptocurrency Assets as Inherited Property from the Perspective of Positive Law and Islamic Law in Indonesia." *Journal Research of Social Science, Economics, and Management* 5, no. 7 (February 2025): 10511–23. https://doi.org/10.59141/jrssem.v5i7.1331.

Ferreira, Agata. "Regulating Smart Contracts: Legal Revolution or Simply Evolution?" *Telecommunications Policy* 45, no. 2 (March 2021): 102081. https://doi.org/10.1016/j.telpol.2020.102081.

Gunawan, Wawan, and Debashish Sharma. "Mapping Public Interest in Cryptocurrency in Indonesia (2021–2024): Analyzing Geographical Disparities and Temporal Trends." *Blockchain, Artificial Intelligence, and Future Research* 1, no. 1 (February 2025): 13–22. https://doi.org/10.70211/bafr.v1i1.170.

Hammadi, Ibrahem Ali, Salman Ali Humadi, Husham Hamed, Sameer Aboud Farhan, and Kamil Sulaiman. "Compensation for Loss of Opportunity in Electronic Transactions: A Comparative Analytical Study in Light of Contemporary Digital Developments." *Nusantara: Journal of Law Studies* 5, no. 2 (2026): 966-991. https://doi.org/https://doi.org/10.66325/nusantaralaw.v5i2.324.

Hamzani, Achmad Irwan, Tiyas Vika Widyastuti, Nur Khasanah, and Mohd Hazmi Mohd Rusli. "Legal Research Method: Theoretical and Implementative Review." *International Journal of Membrane Science and Technology* 10, no. 2 (August 2023): 3610–19. https://doi.org/10.15379/ijmst.v10i2.3191.

Handayani, Emy, and Moh. Asadullah Hasan Al Asy'arie. "Decoding the Legal Void: Bridging the Gaps in Indonesian Property Law in the Age of Digital Transformation." *International Journal for the Semiotics of Law - Revue Internationale de Sémiotique Juridique*, March 2026. https://doi.org/10.1007/s11196-026-10475-0.

Hermono, Budi, Ellectrananda Anugerah Ash-sidiqqi, Rindia Fanny Kusumaningtyas, and Mutiara Dwi Sari. "Regulating the Protection of Cryptocurrency Exchanges to Prevent Systemic Risks and Consumer Rights Violations in Indonesia." *Indonesia Private Law Review* 7, no. 1 (April 2026): 51–66. https://doi.org/10.25041/iplr.v7i1.4761.

Irsyad Noeri, and Salsa Nur Ramadhani Hermandasari. "Regulatory Compliance of Indonesian Smart Contracts." *Journal of Law, Society and Living Norms* 1, no. 1 (August 2025): 15–25. https://doi.org/10.66111/jar3zy98.

Kumara Putra, Fani Martiawan. "Characteristics of Notary Deeds for Transactions Through Electronic Media." *NORMA* 17, no. 3 (January 2021): 1–14. https://doi.org/10.30742/nlj.v17i3.1091.

Lee, Luke. "Examining the Legal Status of Digital Assets as Property: A Comparative

Analysis of Jurisdictional Approaches." *SSRN Electronic Journal*, 2024. https://doi.org/10.2139/ssrn.4807135.

Lestari, Elissa Dwi, Florentina Kurniasari, Putu Yani Pratiwi, S. Thilaga, and Bee Wah Ooi. "Empowering Women Entrepreneurs: The Role of Financial Literacy, Inclusion, and Access in Enhancing MSE's Performance and Sustainability via Women Development Program in Indonesia." *Cogent Business & Management* 12, no. 1 (December 2025). https://doi.org/10.1080/23311975.2025.2593078.

Lira, Maria Fernanda, Cristiano Maciel, Daniele Trevisan, Vinicius Carvalho Pereira, Simone Barbosa, and Flavia Beppu. "Exploring the Experiences of People Who Inherited Digital Assets from Deceased Users: A Search for Better Computing Solutions," 491–510, 2023. https://doi.org/10.1007/978-3-031-42286-7_28.

Low, Kelvin F. K., and Eliza Mik. "Pause The Blockchain Legal Revolution." *International and Comparative Law Quarterly* 69, no. 1 (January 2020): 135–75. https://doi.org/10.1017/S0020589319000502.

Md., Riaduzzaman, Mahmud Md. Arif, and Nazneen Musfek. "A Comparative Study on the Management of Digital Assets in Virtue of Fiduciary Relationship." *DIU Journal of Humanities and Social Science* 6, no. 1 (June 2019): 202–23. https://doi.org/10.36481/diujhss.v.06i1.38bfxv24.

Mulyani, Sri, Siti Mariyam, and Hieu Hong Trung Le. "Legal Construction of Crypto Assets as Objects of Fiduciary Collateral." *LAW REFORM* 19, no. 1 (April 2023): 25–39. https://doi.org/10.14710/lr.v19i1.52697.

Negara, Tunggul Ansari Setia. "Normative Legal Research in Indonesia: Its Originis and Approaches." *Audito Comparative Law Journal (ACLJ)* 4, no. 1 (February 2023): 1–9. https://doi.org/10.22219/aclj.v4i1.24855.

Nikolova-Marković, Aleksandra, and Luka Stajić. "Civil Law and Digitalization: Challenges and Opportunities." *Megatrend Revija* 19, no. 3 (2022): 303–12. https://doi.org/10.5937/MegRev2202303N.

Nurfaiqah, Andi Dimah Laila, and Tjempaka Tjempaka. "Legal Protection for Buyers of Joint Assets Sold Without Wife's Consent." *Substantive Justice International Journal of Law* 6, no. 2 (October 4, 2023). https://doi.org/10.56087/substantivejustice.v6i2.256.

Parrilla, José Antonio Castillo. "The Legal Regulation of Digital Wealth: Commerce, Ownership and Inheritance of Data." *European Review of Private Law* 29, no. Issue 5 (October 2021): 807–30. https://doi.org/10.54648/ERPL2021042.

Pérez, Carlos, Isabel López, and Francisco López. "Blockchain-Based Evidence and Legal Validity: Reformulating Norms for Decentralized Justice Systems." *Rechtsnormen: Journal of Law* 3, no. 2 (April 2025): 180–89.

https://doi.org/10.70177/rjl.v3i2.2215.

Prabin Adhikari, Prashamsa Hamal, Biplob Adhikari, and Nirmal Kumar Maskey. "Cryptocurrency Taxation and Regulatory Challenges." *International Journal of Science and Research Archive* 15, no. 3 (June 2025): 778–88. https://doi.org/10.30574/ijsra.2025.15.3.1791.

Santoso, Muhammad, and Fuat Hasanudin. "The Concept of Digital Asset Inheritance in the Perspective of Faraid Science (A Study of the Application of Blockchain-Based Crypto)." *Indonesian Journal of Law and Justice* 3, no. 3 (March 2026): 15. https://doi.org/10.47134/ijlj.v3i3.5587.

Saputra, Dadang Herli, and Fardana Kusumah. "Blockchain Forensics and the Evidentiary Challenges of Crypto-Based Corruption in Developing Countries." *IJCLS (Indonesian Journal of Criminal Law Studies)* 10, no. 2 (November 2025). https://doi.org/10.15294/ijcls.v10i2.28795.

Sulistiyono, Adi, and Dona Budi Kharisma. "Cryptoization and Shadow Currency: Legal Overview of the Importance of Digital Rupiah in Indonesia." *Pena Justisia: Media Komunikasi Dan Kajian Hukum* 23, no. 2 (December 2024): 5759–70. https://doi.org/10.31941/pj.v23i2.4369.

Szwajdler, Paweł. "Digital Assets and Inheritance Law: How to Create Fundamental Principles of Digital Succession System?" *International Journal of Law and Information Technology* 31, no. 2 (August 2023): 144–68. https://doi.org/10.1093/ijlit/eaad014.

Tan, Seow Hon. "Radbruch's Formula Revisited: The Lex Injusta Non Est Lex Maxim in Constitutional Democracies." *Canadian Journal of Law & Jurisprudence* 34, no. 2 (August 2021): 461–91. https://doi.org/10.1017/cjlj.2021.12.

Tarigan, M. Riansyah Aksar, and Patricia Riniwigati. "Comparison of the Republic of Indonesia ITE Law No 19 Of 2016 with PDP Law No 27 of 2022 and the Role of the Police in Handling Cases Of Personal Data Dissemination (Doxing)." *Path of Science* 10, no. 7 (July 2024): 5031–48. https://doi.org/10.22178/pos.106-35.

"The Extended Nature of Trading Norms Between Cryptocurrency and Crypto-Asset: Evidence from Indonesia and Japan." *Lex Scientia Law Review* 8, no. 1 (September 2024). https://doi.org/10.15294/lslr.v8i1.14063.

Thouvenin, Florent, and Aurelia Tamò-Larrieux. "Data Ownership and Data Access Rights: Meaningful Tools for Promoting the European Digital Single Market?" In *Big Data and Global Trade Law*, 316–39. Cambridge University Press, 2021. https://doi.org/10.1017/9781108919234.020.

Verstappen, Jasper. *Legal Agreements on Smart Contract Platforms in European Systems of Private Law*. Vol. 56. Law, Governance and Technology Series. Cham: Springer International Publishing, 2023.

https://doi.org/10.1007/978-3-031-35407-6.

———. “Private International Law,” 321–89, 2023. https://doi.org/10.1007/978-3-031-35407-6_6.

Yolanda, Maureen Keisha, Chintya Lie Paramitha, and Moody Rizqy Syailendra Putra. “Exploring Digital Assets Inheritance: A Comparative Study of Transnational Legal Frameworks and Practices.” *AURELIA: Jurnal Penelitian Dan Pengabdian Masyarakat Indonesia* 4, no. 1 (December 2024): 942–51. https://doi.org/10.57235/aurelia.v4i1.4483.

Zhu, Konglin, Fengjuan Wu, Fei Wang, Tingda Shen, Hao Wu, Bowei Xue, and Yu Liu. “Blockchain-Based Digital Asset Circulation: A Survey and Future Challenges.” *Symmetry* 16, no. 10 (October 2024): 1287. https://doi.org/10.3390/sym16101287.

Article History
Received : February 4, 2026
Revised : May 17, 2026
Accepted : May 18, 2026