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Legal Validity of Virtual Land Ownership under the Civil Code: A Comparative Analysis and Protection Framework

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Abstract: The metaverse and virtual land, exemplified by platforms like RansVerse, have evolved from speculative concepts into commercial infrastructure. However, this commercial reality outpaces Indonesia's legal framework, which lacks explicit statutory recognition of virtual land as property. Using a normative-juridical method with statutory, conceptual, and comparative approaches, this study examines the contractual validity of virtual land transactions under Article 1320 of the Indonesian Civil Code, compares Indonesia's regulatory stance with the United States and the European Union, and identifies available dispute-resolution mechanisms. The findings indicate that virtual land transactions via smart contracts and NFTs satisfy the four elements of contract validity. Because cryptocurrency cannot serve as legal tender in Indonesia, these transactions are properly characterized as asset-exchange agreements under Article 1541. Comparatively, Indonesia relies on civil-code analogy, the United States on contractual Terms of Service, and the European Union on unified statutory instruments. Meanwhile, dispute resolution remains constrained by jurisdictional and evidentiary uncertainties. The study concludes that legal certainty requires dedicated legislation on digital-property registration and consumer protection.

1. Introduction

The Metaverse a persistent, three-dimensional virtual environment in which users interact, transact, and hold digital assets such as clothing, avatars, and virtual land has moved from speculative fiction toward functioning commercial infrastructure,[1] a technology whose conceptual vocabulary "meta" plus "universe" was popularized by Neal Stephenson's 1992 novel Snow Crash, in which digital avatars inhabit a shared virtual world. [2] Indonesia's own market illustrates the shift from fiction to commerce: through the RansVerse platform, a domestically operated Meta-

[1] Yogesh K. Dwivedi et al., "Metaverse Beyond the Hype: Multidisciplinary Perspectives on Emerging Challenges, Opportunities, and Agenda for Research, Practice and Policy," International Journal of Information Management 66 (2022): 102542, https://doi.org/10.1016/j.ijinfomgt.2022.102542.
[2] Neal Stephenson, *Snow Crash* (New York: Bantam Books, 1992).

verse launched by entertainment entrepreneur Raffi Ahmad, an initial offering of 24,000 virtual land plots reportedly sold out within thirty-five minutes of release, priced in the platform's native token.[3] Ideally, a functioning property-rights regime would give purchasers of such assets certainty over what they own, how ownership transfers, and where to seek redress when a transaction fails. In practice, Indonesia has no statute that names virtual land as an object of property law at all: downstream crypto-asset trading is regulated under Bappebti Regulation No. 8 of 2021, but the land parcels, avatars, and in-world objects that circulate on platforms such as RansVerse remain juridically unaddressed, leaving buyers to rely on inference from a Civil Code first promulgated as Staatsblad 1847 No. 23 and brought into force on 1 May 1848 more than a century and a half before digital assets existed.[4] This gap between the normative expectation of legal certainty and the operative reality of regulatory silence is the starting point of this study.

Indonesian legal scholarship has begun to map this vacuum from several directions, and read together it establishes the state of the art against which this study positions itself. Yudha's 2023 study of Bappebti's crypto-asset registration system found internal inconsistencies that undermine the registration function itself.[5] Nyimasmukti, Wijayanti, and Juniarti were the first to classify virtual land specifically as an intangible movable object under Article 499 of the Civil Code and its transfer as an asset-exchange agreement under Article 1541, a conclusion echoed by Safitri, Arba, and Wagian, who confirm that Indonesia currently folds virtual-land sales into the general law of electronic transactions rather than a dedicated property regime.[6] Adjacent doctrinal work has tested related digital objects against the same civil-code categories: Anggraini and Purwanto examine non-fungible tokens as objects of fiduciary security and find that NFTs satisfy the "thing" (benda) requirement of Article 499, though their use as collateral still needs further regulatory clarification, while Ruhtiani and colleagues document the continuing absence of a dedicated legal-protection regime for Metaverse digital assets more broadly, and Sandi Pratama Putra Bali confirms, independently of Nyimasmukti et al., that virtual land satisfies the requirements of an intangible movable object capable of being attached to a property right.[7] Internationally, comparative legal scholarship has moved in parallel: Tu and colleagues map the European Union's expanding regulatory

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3 detikFinance, "Laku Keras! Tanah Raffi Ahmad di Metaverse Langsung Ludes dalam 35 Menit," June 3, 2022, https://finance.detik.com/fintech/d-6108826/laku-keras-tanah-raffi-ahmad-di-metaverse-langsung-ludes-dalam-35-menit; CNBC Indonesia, "Rambah Metaverse, Raffi Ahmad Jual Tanah Virtual RansVerse," April 1, 2022, https://www.cnbcindonesia.com/tech/20220401185629-37-328129/rambah-metaverse-raffi-ahmad-jual-tanah-virtual-ransverse.

4 Commodity Futures Trading Regulatory Agency (Bappebti), Regulation Number 8 of 2021 regarding Crypto Assets; Mahkamah Agung Republik Indonesia, "Burgerlijke Wetboek, Sejarah KUH Perdata Warisan Belanda," Marinews, accessed July 2026, https://marinews.mahkamahagung.go.id/serba-serbi/burgerlijke-wetboek-sejarah-kuh-perdata-warisan-belanda-0oA.

5 Alexander Yovie Pratama Yudha, "Juridical Review on the Registration System of Tradable Crypto Digital Assets in Indonesia" (Universitas Atma Jaya, 2023).

6 Billa Ratuwibawa Nyimasmukti, Mustika Setianingrum Wijayanti, and Dewi Bella Juniarti, "An Essential Elements in Virtual Land Buying Transactions as Digital Assets in Metaverse Based on Indonesian Positive Law," Ikatan Penulis Mahasiswa Hukum Indonesia Law Journal 3, no. 1 (2023): 40-59, https://doi.org/10.15294/ipmhi.v3i1.57585; Baiq Riska Anggi Safitri, Arba Arba, and Diangsa Wagian, "Regulating Virtual Land Sales in Indonesia's Metaverse," Indonesian Journal of Law and Economics Review 19, no. 1 (2024), https://doi.org/10.21070/ijler.v19i1.990.

7 Anastasya Maylan Anggraini and Aldira Mara Ditta Caesar Purwanto, "Perspektif Hukum Kebendaan dan Hak Kekayaan Intelektual dalam Menguji Legalitas NFT sebagai Objek Jaminan Kebendaan," Rewang Rencang: Jurnal Hukum Lex Generalis 6, no. 4 (2025); Maya Ruhtiani et al., "Perlindungan Aset Digital Pada Era Metaverse Dalam Perspektif Hukum Positif Di Indonesia," Literasi Hukum 6, no. 2 (2022): 28-39, https://doi.org/10.31002/lh.v6i2.6804; Sandi Pratama Putra Bali, "Hak Kebendaan dan Keabsahan Perjanjian Kebendaan Virtual Land di Dalam Metaverse Ditinjau Berdasarkan KUHPerdata," Amandemen: Jurnal Ilmu Pertahanan, Politik dan Hukum Indonesia 1, no. 3 (2024): 175-187, https://doi.org/10.62383/amandemen.v1i3.282.

response to the Metaverse across the GDPR, the Digital Services Act, and the AI Act; Tan examines how NFT-marketplace terms of service shape the practical rights that purchasers actually hold; Dong and Wang analyze how NFT transactions strain existing copyright and platform-liability doctrine; and Atiyah, Ibrahim, and Jasim show that smart-contract enforcement across jurisdictions still turns on unresolved conflict-of-laws questions rather than settled doctrine.[8] Read together, this literature confirms that the classification question is virtual land "property" at all? is increasingly well settled in outline, even as its downstream consequences for contract validity, comparative regulatory design, and dispute resolution remain comparatively under-examined.

This is precisely the research gap this study occupies. Because Nyimasmukti, Wijayanti, and Juniarti's classification of virtual land as an intangible movable object transacted through asset exchange is now well established, restating it would add little. What remains untested is whether that classification actually survives contact with the four validity elements of Article 1320 of the Civil Code when the transacting mechanism is a self-executing smart contract rather than a conventional agreement a question the 2023 study does not ask. This study's novelty accordingly lies in three extensions the existing literature does not provide: first, it tests the settled object-classification against each element of contractual validity (consent, capacity, object, and lawful cause) as those elements operate specifically in smart-contract-mediated transactions; second, it situates the Indonesian position within a comparative frame against the United States and the European Union, jurisdictions that have adopted structurally different regulatory philosophies; and third, it examines the dispute-resolution mechanisms actually available to Indonesian Metaverse users under positive law, a dimension no prior Indonesian study on this specific topic has addressed. A broader look at transnational digital-asset frameworks reinforces the urgency of this third extension: cross-border jurisdictional rules complicate ownership enforcement whenever platforms operate outside national borders, a structural problem this study returns to directly in its discussion of dispute resolution.[9]

The urgency of closing this gap is not speculative. Beyond RansVerse's own sales figures, Indonesian NFT capitalization data cited in recent doctrinal work show individual domestic collections such as Karafuru reaching a reported market capitalization of roughly Rp1.2 trillion in 2024, alongside a global NFT market that industry trackers estimate grew from single-digit billions in 2020 to tens of billions of US dollars by 2024.[10] Transaction volume of this magnitude, occurring entirely within a regulatory vacuum, is what converts an interesting doctrinal puzzle into a pressing practical one: every buyer who purchases virtual land today does so without settled authority on what, precisely, they have bought, or what recourse they have if the seller, the platform, or the smart contract fails to perform.

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8 Xinyi Tu et al., "Are We Ready for the Metaverse? Implications, Legal Landscape, and Recommendations for Responsible Development," Digital Society 4 (2025), https://doi.org/10.1007/s44206-025-00163-0; Corinne Tan, "Rights in NFTs and the Flourishing of NFT Marketplaces," International Journal of Law and Information Technology 32 (2024): eaae018, https://doi.org/10.1093/ijlit/eaae018; Yupeng Dong and Chunhui Wang, "Copyright Protection on NFT Digital Works in the Metaverse," Security and Safety 2 (2023): 2023013, https://doi.org/10.1051/sands/2023013; Ghassan Adhab Atiyah, Ali Ibrahim, and Ahmed Abdulkhudhur Jasim, "Enforcement of Smart Contracts in Cross-Jurisdictional Transactions," International Journal of Law and Management (2024), https://doi.org/10.1108/IJLMA-06-2024-0220.

9 Ghassan Adhab Atiyah, Ali Ibrahim, and Ahmed Abdulkhudhur Jasim, "Enforcement of Smart Contracts in Cross-Jurisdictional Transactions," International Journal of Law and Management (2024), https://doi.org/10.1108/IJLMA-06-2024-0220.

10 Anastasya Maylan Anggraini and Aldira Mara Ditta Caesar Purwanto, "Perspektif Hukum Kebendaan dan Hak Kekayaan Intelektual dalam Menguji Legalitas NFT sebagai Objek Jaminan Kebendaan," Rewang Rencang: Jurnal Hukum Lex Generalis 6, no. 4 (2025).

On this basis, the study is organized around three research questions: first, whether and how virtual land transactions in the Metaverse satisfy the four elements of contractual validity under Article 1320 of the Civil Code; second, how Indonesia's regulatory posture toward virtual property compares with that of the United States and the European Union; and third, what dispute-resolution mechanisms are available to Indonesian users under positive law when Metaverse transactions fail. Answering these questions is intended to produce not a restatement of virtual land's civil-law classification, but a tested account of its contractual validity, its comparative regulatory position, and its practical remedial pathways the three extensions this study contributes beyond the existing literature.

2. Method

This study employs a normative-juridical (doctrinal) method, examining law as a coherent system of written norms and doctrine, supplemented by a comparative-law technique for the second research question.[11] This combination was chosen because answering all three research problems requires doctrinal interpretation of the Civil Code together with a systematic juxtaposition of Indonesian, United States, and European Union legal instruments; it does not require primary field data such as interviews or platform audit logs, and this study accordingly does not claim a socio-legal or empirical dimension beyond the documentary record described below.

Data sources and materials. The data used are entirely secondary and drawn from three categories of legal materials. Primary legal materials consist of the applicable statutory instruments: the Civil Code (KUHPerdata), Law No. 11 of 2008 as amended by Law No. 19 of 2016 on Electronic Information and Transactions, Government Regulation No. 80 of 2019 on Trading through Electronic Systems, Bank Indonesia Regulations No. 18/40/PBI/2016 and No. 19/12/PBI/2017, and Bappebti Regulation No. 8 of 2021, together with the comparative instruments of the United States and the European Union, including the Digital Services Act and the General Data Protection Regulation. Secondary legal materials comprise peer-reviewed journal articles, legal textbooks, and prior academic studies on the Metaverse, digital assets, and virtual property, prioritizing sources published from 2022 onward and indexed in Scopus or traceable via Google Scholar. Tertiary materials legal dictionaries and reputable practitioner commentary are used only to clarify terminology where the primary and secondary materials leave a term undefined.

Source-selection criteria. Materials were included on the basis of three cumulative criteria: (i) direct relevance to virtual land ownership, contractual validity, or comparative digital-asset regulation; (ii) for journal literature, verifiability through a DOI, Google Scholar, or Scopus record, with priority given to items published after 2022 except where a source addresses a grand or foundational theory (for example, the original conceptualization of the Metaverse or of virtual property as a legal category) that remains authoritative regardless of publication date; and (iii) for statutory material, currency as of the time of writing, cross-checked against subsequent amendments. Sources that duplicated an already-included finding without adding a distinct jurisdiction, doctrine, or data point were excluded to keep the reference list focused on verifiable, non-redundant authority.

[11] Soerjono Soekanto and Sri Mamudji, Penelitian Hukum Normatif: Suatu Tinjauan Singkat (Jakarta: RajaGrafindo Persada, 2001).

Data-collection technique. Materials were collected through library-based documentary research: statutory texts were retrieved from official legislative databases, journal articles were retrieved from their publishers' indexed platforms (cross-checked against Google Scholar and Scopus records), and the RansVerse case example was corroborated across three independent Indonesian news sources to avoid reliance on a single account.

Data-analysis technique. The collected materials were analyzed qualitatively using a descriptive-analytical technique carried out in three stages. First, statutory interpretation was applied to decompose Article 1320 of the Civil Code into its four constituent elements (consent, capacity, object, and lawful cause) and to test each element against the operational mechanics of smart-contract-based virtual land transactions, addressing the first research question. Second, a comparative-law technique was used to juxtapose the Indonesian regulatory framework against those of the United States and the European Union along three consistent axes primary regulatory instrument, enforcement mechanism, and the resulting legal status of virtual property to answer the second research question in a structurally comparable way. Third, a conceptual-analytical technique was applied to Indonesia's existing procedural and evidentiary law (the Electronic Information and Transactions Law and Government Regulation No. 80 of 2019) to identify which dispute-resolution pathways are presently available to Metaverse users, answering the third research question. The output of each stage is presented, in turn, as the three Result and Analysis sections that follow, each opening with the finding before proceeding to its doctrinal discussion.

3. Contractual Validity of Virtual Land Transactions Under Article 1320

Finding. Virtual land transactions conducted through smart contracts on platforms such as RansVerse satisfy all four elements of a valid agreement under Article 1320 of the Civil Code mutual consent, legal capacity, a specific object, and a lawful cause, but only once each element is read through the technical features of blockchain-based execution rather than through the assumptions of a conventional paper agreement.

Article 1320 establishes four cumulative elements for a valid agreement: mutual consent, legal capacity, a specific object, and a lawful cause. [12] In Metaverse transactions, mutual consent is algorithmically enforced through smart contracts: these self-executing programs act as digital intermediaries that permanently and transparently record the agreement once both parties' conditions are met, satisfying the consent requirement without need for a signed paper instrument.[13] Determining legal capacity is a materially harder problem, because Metaverse identities are pseudonymous by design: a party transacting through an avatar cannot straightforwardly be verified as an adult with legal capacity absent platform-level Know Your Customer (KYC) verification, which most Indonesian Metaverse platforms do not yet mandate.[14] Regarding the specific object, virtual land is represented by non-fungible tokens (NFTs), which function as unforgeable digital certificates of ownership recorded immutably on the blockchain, satisfying the specificity that Article 1320

[12] Kitab Undang-Undang Hukum Perdata (Indonesian Civil Code), art. 1320.

[13] Fatihani Baso et al., "Overview of Smart Contract: Legality and Enforceability," Dialogia Iuridica 16, no. 1 (2024): 96-111, https://doi.org/10.28932/di.v16i1.10024.

[14] R. Singh, "Are Smart Contracts Really Smart? Decrypting the Issues of their Legality, Enforcement and Interpretation," National Law School Business Law Review (2024).

requires of the object of an agreement.[15] Lastly, a lawful cause requires that the transaction not violate anti-money-laundering norms or facilitate cyber fraud, a requirement that in practice depends heavily on platform-level compliance rather than on anything inherent to the smart contract itself.

A further nuance particular to Indonesian law shapes the contractual character of these transactions. Under Bank Indonesia Regulations No. 18/40/PBI/2016 and No. 19/12/PBI/2017, cryptocurrency is strictly prohibited as a means of payment.[16] Because virtual land is typically transacted using platform tokens rather than Rupiah, the transaction cannot be classified as a conventional sale and purchase; instead, it falls under the framework of an asset-exchange agreement (tukar-menukar) under Article 1541 of the Civil Code, which validates the transaction within Indonesian positive law notwithstanding the prohibition on cryptocurrency as legal tender.[17] This is precisely the classification Nyimasmukti, Wijayanti, and Juniarti first proposed; what this analysis adds is the demonstration that the classification survives indeed, is required by the operation of Article 1320's four elements specifically as those elements interact with smart-contract mechanics, rather than being a free-standing conclusion drawn from Article 499 alone. [18] The remaining vulnerability unverified legal capacity behind pseudonymous avatars is not resolved by this classification and is returned to in the Conclusion as a matter requiring platform-level, rather than purely doctrinal, correction.

3.1. Consent as Algorithmically Enforced Agreement

The consent element deserves closer scrutiny than a single sentence can provide, because the mechanism through which Metaverse consent is expressed departs structurally from the paper-based assumptions embedded in Article 1320 and in Article 1338 of the Civil Code, which enshrines the principle of pacta sunt servanda that a validly formed agreement binds the parties as a law unto themselves. [19] Smart contracts operationalize consent through Nick Szabo's original conception of self-executing digital protocols that automatically perform contractual terms once predefined conditions are met, an idea that predates blockchain itself but that blockchain made practically enforceable at scale. [20] This has given rise to the contested "code is law" position, which holds that the literal execution of a smart contract's code should be treated as conclusive of the parties' agreement, regardless of what either party subjectively intended. The 2016 collapse of "The DAO" on the Ethereum network in which an attacker exploited a coding vulnerability to drain roughly one-third of the fund's holdings in a manner the code technically permitted remains the canonical illustration of why this position cannot be adopted uncritically: the community's eventual decision to reverse the exploit through a hard fork implicitly acknowledged that consent to a smart contract's literal code is not the same as consent to its intended economic bargain. [21] For Indonesian

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15 Anastasya Maylan Anggraini and Aldira Mara Ditta Caesar Purwanto, "Perspektif Hukum Kebendaan dan Hak Kekayaan Intelektual dalam Menguji Legalitas NFT sebagai Objek Jaminan Kebendaan," Rewang Rencang: Jurnal Hukum Lex Generalis 6, no. 4 (2025).

16 Bank Indonesia, Regulation (PBI) Number 18/40/PBI/2016 and PBI Number 19/12/PBI/2017 regarding the Prohibition of Virtual Currency.

17 Kitab Undang-Undang Hukum Perdata (Indonesian Civil Code), art. 1541.

18 Billa Ratuwibawa Nyimasmukti, Mustika Setianingrum Wijayanti, and Dewi Bella Juniarti, "An Essential Elements in Virtual Land Buying Transactions as Digital Assets in Metaverse Based on Indonesian Positive Law," Ikatan Penulis Mahasiswa Hukum Indonesia Law Journal 3, no. 1 (2023): 40-59, https://doi.org/10.15294/ipmhi.v3i1.57585.

19 Kitab Undang-Undang Hukum Perdata (Indonesian Civil Code), art. 1338.

20 Nick Szabo, "Formalizing and Securing Relationships on Public Networks," First Monday 2, no. 9 (1997).

21 Angela Walch, "The Path of the Blockchain Lexicon (and the Law)," Review of Banking and Financial Law 36 (2017): 713.

virtual land transactions, the practical implication is that consent should be assessed against the platform's disclosed terms and the parties' reasonable expectations at the time of transacting, not merely against whatever the underlying code happened to execute a standard that Article 1338's requirement of good faith performance (itikad baik) already supplies within Indonesian doctrine without needing to import a foreign concept wholesale.

3.2. Capacity, Pseudonymity, and the New OJK Supervisory Regime

Legal capacity under Indonesian law generally attaches at the age of twenty-one or upon marriage, and this basic threshold has not changed with the arrival of virtual land transactions; what has changed is the practical difficulty of verifying it. [22] A Metaverse avatar reveals nothing about the age or legal status of the person controlling it, and as of the drafting of the earlier analysis in this study, no Indonesian Metaverse platform was under a clear statutory obligation to verify either. That regulatory landscape has since shifted in a materially relevant way: supervisory authority over crypto and digital financial assets in Indonesia has been transferred in full from Bappebti to the Financial Services Authority (Otoritas Jasa Keuangan, OJK), a transition mandated by Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector (the P2SK Law) and Government Regulation No. 49 of 2024, formally completed on 31 July 2025. [23] Under the implementing regulation, POJK No. 27 of 2024 concerning the Administration of Digital Financial Asset and Crypto Asset Trading, digital-asset platform operators are now subject to governance, fitness-and-propriety, and consumer-protection obligations administered directly by OJK, a materially more rigorous supervisory posture than Bappebti Regulation No. 8 of 2021 provided. [24] Even so, POJK 27/2024 is addressed to the crypto-asset trading layer of the transaction the token used to pay for virtual land and not to the Metaverse platform's own avatar-registration layer, where the capacity problem identified in this study's first Result and Analysis actually arises. Until platform operators themselves are brought within a comparable Know-Your-Customer obligation, the shift from Bappebti to OJK strengthens the financial integrity of the token side of a virtual land transaction without yet closing the capacity-verification gap on the property side, a distinction the existing literature on the OJK transition does not draw out.

3.3. Object Certainty: On-Chain Tokens and Off-Chain Content

A further nuance the object element requires, and that Nyimasmukti, Wijayanti, and Juniarti's original classification does not pursue, is the technical distinction between the NFT itself and the digital asset the NFT is commonly understood to represent. Under the dominant ERC-721 token standard, an NFT is a unique, non-interchangeable entry recorded on the blockchain; that entry typically stores only a pointer a metadata URI to the image, parcel description, or other content actually associated with the land plot, and that pointed-to content is frequently hosted off-chain,

22 Kitab Undang-Undang Hukum Perdata (Indonesian Civil Code), art. 330.

23 Otoritas Jasa Keuangan, "OJK dan Bappebti Tuntaskan Peralihan Pengawasan Aset Kripto," July 31, 2025, https://ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Pages/Bappebti-Kemendag-Alihkan-Tugas-Aset-Keuangan-Digital-termasuk-Aset-Kripto-serta-Derivatif-Keuangan-kepada-OJK-dan-BI.aspx; Peraturan Pemerintah Nomor 49 Tahun 2024 tentang Peralihan Tugas Pengaturan dan Pengawasan Aset Keuangan Digital Termasuk Aset Kripto serta Derivatif Keuangan.

24 Otoritas Jasa Keuangan, Peraturan OJK Nomor 27 Tahun 2024 tentang Penyelenggaraan Perdagangan Aset Keuangan Digital dan Aset Kripto.

on centralized servers the platform operator controls. [25] This means that what Article 1320 requires to be "certain" is, strictly, the token record itself the immutable ledger entry and not necessarily the visual or descriptive content a buyer associates with their purchase, which the platform could in principle alter or remove without touching the token. Comparative judicial authority has begun to test this distinction directly. In Singapore, the High Court in Janesh s/o Rajkumar v Unknown Person ("CHEFPIERRE") granted a proprietary injunction over a Bored Ape Yacht Club NFT used as loan collateral, holding that an NFT bears the hallmarks of property capable of protection notwithstanding its purely digital and pseudonymous character the first written Asian judgment to do so. [26] The English High Court reached a materially similar conclusion in Osbourne v Persons Unknown and Ozone Networks Inc trading as OpenSea, treating an NFT as property capable of supporting a disclosure order against the marketplace hosting it. [27] Neither ruling addresses the token/content distinction explicitly, but both confirm, from outside Indonesia, that courts asked to protect an NFT as property have been willing to do so on the strength of the token record alone lending indirect, persuasive support to treating the NFT itself, rather than the off-chain content it references, as the certain object Article 1320 requires. No Indonesian court has yet had occasion to test this question in a reported decision, which means the object-certainty conclusion reached here remains, for now, a doctrinal inference rather than a judicially confirmed one.

3.4. Lawful Cause and the Anti-Money-Laundering Dimension

The lawful-cause element is frequently treated as a formality once the other three elements are satisfied, but virtual land transactions raise a genuine anti-money-laundering concern that deserves more than passing mention. Because ownership transfers can occur pseudonymously and cross-border, Indonesia's Financial Intelligence Unit, the Center for Financial Transaction Reports and Analysis (PPATK), has flagged crypto-asset transactions generally as a channel warranting heightened suspicious-transaction monitoring, consistent with the Financial Action Task Force's global standards on virtual assets, including the so-called Travel Rule requiring originator and beneficiary information to accompany qualifying transfers. [28] POJK No. 27 of 2024 now folds crypto-asset trading platforms into OJK's anti-money-laundering and counter-terrorism-financing supervisory framework as a condition of licensing, which means that, going forward, a virtual land transaction paid for in a properly licensed platform token carries a documented compliance trail that a transaction under the Bappebti-era regime did not necessarily require to the same degree. [29] A transaction conducted through an unlicensed or offshore token that falls outside this framework would lack that trail, and would accordingly present a materially weaker claim to satisfying the lawful-cause element a risk-differentiated reading of Article 1320's fourth requirement that the original single-paragraph treatment of contractual validity did not distinguish.

Read together, this more granular element-by-element analysis confirms the conclusion reached above that properly conducted virtual land transactions satisfy Article 1320 and are best

[25] Corinne Tan, "Rights in NFTs and the Flourishing of NFT Marketplaces," International Journal of Law and Information Technology 32 (2024): 18, https://doi.org/10.1093/ijlit/eaae018.
[26] Janesh s/o Rajkumar v Unknown Person ("CHEFPIERRE") [2022] SGHC 264.
[27] Osbourne v Persons Unknown and (2) Ozone Networks Inc trading as OpenSea [2022] EWHC 1021 (Comm).
[28] Financial Action Task Force, "Updated Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers," 2021.
[29] Otoritas Jasa Keuangan, Peraturan OJK Nomor 27 Tahun 2024 tentang Penyelenggaraan Perdagangan Aset Keuangan Digital dan Aset Kripto.

classified as asset-exchange agreements under Article 1541 while identifying three qualifications the earlier single-paragraph treatment could not surface: consent should be judged against disclosed terms and good faith rather than literal code execution; capacity remains unverified at the platform layer notwithstanding OJK's now more rigorous supervision of the token layer; and lawful cause is materially stronger where the transaction runs through an OJK-licensed platform than through an unlicensed or offshore one. Each qualification narrows, rather than reverses, the validity finding, and each is returned to in the Suggestion section as a distinct basis for targeted regulatory intervention.

4. Comparative Regulatory Frameworks for Virtual Property Rights

Finding. The United States, the European Union, and Indonesia each regulate virtual property through a structurally distinct instrument private contract law, unified statute, and civil-code analogy, respectively and this divergence, rather than any shared doctrine, is the most useful comparative finding for assessing Indonesia's regulatory options.

Table 1. Primary Regulatory Approaches and Legal Status of Virtual Land

Jurisdiction	Primary Regulatory Approach	Legal Status of Virtual Land and Property
United States	Decentralized and reactive regulation reliant on private contract law (Terms of Service) and enforcement bodies including the FTC, SEC, and IRS.	Classified as taxable property by the IRS; true ownership rights remain limited by platform-operator agreements and trademark law.
European Union	Centralized, proactive legislation through unified instruments; the Digital Services Act, GDPR, and the AI Act jointly enforce accountability and user-rights protections across digital intermediaries.	Regulated under overlapping digital-service and fundamental-rights protections; user assets are guarded against algorithmic profiling and arbitrary platform removal.
Indonesia	Statutory categorization by civil-law analogy; downstream crypto assets are regulated as commodities by Bappebti, while core virtual-property ownership lacks explicit statutory codification.	Analogized as an intangible movable object under Article 499 of the Civil Code; transacted validly via asset exchange under Article 1541.

Source: compiled by the authors from the primary and secondary legal materials cited in this section.

In the United States, regulation is characteristically reactive, driven by case law and institutional directives rather than a dedicated statute. The Internal Revenue Service treats blockchain assets as property for taxation purposes, while the Federal Trade Commission monitors antitrust concerns and fraudulent consumer conduct; contractual relationships are otherwise defined by the Terms of Service that private platform operators dictate, meaning users often hold limited real ownership rights over virtual land notwithstanding its economic value.[30] Intellectual-property disputes further illustrate how traditional trademark protections are being adapted, unevenly, to digital assets within this framework.[31]

30 Luke Lee, "Examining the Legal Status of Digital Assets as Property: A Comparative Analysis of Jurisdictional Approaches" (2024).

31 Corinne Tan, "Rights in NFTs and the Flourishing of NFT Marketplaces," International Journal of Law and Information Technology 32 (2024): eaae018, https://doi.org/10.1093/ijlit/eaae018.

The European Union, by contrast, relies on centralized legislation designed to protect fundamental citizen rights across digital intermediaries as such, rather than platform by platform. With the Digital Services Act now in force and the General Data Protection Regulation and AI Act operating alongside it, the Union has assembled deliberately, if not yet fully coherently a set of overlapping instruments that establish uniform accountability rules for digital intermediaries, including virtual spaces, and that create out-of-court dispute bodies to protect consumers against unfair asset moderation by large digital gatekeepers.[32]

Indonesia occupies a third position, structurally distinct from both. Digital assets are categorized solely as tradeable commodities under Bappebti Regulation No. 8 of 2021, and their financial integration is limited by Bank Indonesia's prohibition on cryptocurrency as legal tender.[33] Where the United States relies on corporate contract and the European Union on systematic digital-safety statute, Indonesia depends on judicial and doctrinal extension of a Civil Code enacted in 1848 to reach modern virtual-property relationships an approach that produces a workable answer to the validity question examined in the first Result and Analysis section, but that offers none of the platform-accountability or consumer-protection machinery that the EU model builds in by design. [34] This structural gap not the underlying object classification, which is already settled is what the study's conclusion and suggestions address.

4.1. A Fourth Comparator: Singapore's Judicially Tested Middle Ground

The three-jurisdiction comparison above captures a genuine spectrum of regulatory philosophy, but it omits the one jurisdiction whose courts have gone furthest in actually resolving the property-status question this study addresses in Indonesia by legislative inference. Singapore regulates digital payment tokens through a dedicated licensing regime under the Payment Services Act 2019, administered by the Monetary Authority of Singapore, which sits closer to the European Union's proactive statutory model than to the United States' reactive one. [35] What distinguishes Singapore for comparative purposes, however, is not its legislative architecture but its case law: in CLM v CLN, the Singapore High Court held that cryptocurrency could be classified as property capable of protection through a proprietary injunction, and months later, in Janesh s/o Rajkumar, the same court extended that reasoning to NFTs specifically. [36] Taken together with the English High Court's parallel finding in Osbourne, these decisions establish a judicial trend concentrated in common-law jurisdictions with active digital-asset litigation of treating blockchain-recorded assets as property through ordinary equitable remedies, without needing a bespoke digital-property statute first. [37] Indonesia's civil-law tradition does not offer an equivalent avenue: Indonesian courts do not develop binding precedent through case-by-case equitable reasoning in the way common-law courts do, so the property status this study derives for virtual land through statutory analogy under Articles 499 and 1541 remains, for now, an academic and administrative conclusion rather than

32 Xinyi Tu et al., "Are We Ready for the Metaverse? Implications, Legal Landscape, and Recommendations for Responsible Development," Digital Society 4 (2025), https://doi.org/10.1007/s44206-025-00163-0.

33 Commodity Futures Trading Regulatory Agency (Bappebti), Regulation Number 8 of 2021 regarding Crypto Assets.

34 Iswi Hariyani, "Penjaminan Hak Cipta Melalui Skema Gadai dan Fidusia," Jurnal Hukum IUS QUIA IUSTUM 23, no. 3 (2019).

35 Monetary Authority of Singapore, Payment Services Act 2019.

36 CLM v CLN [2022] SGHC 46; Janesh s/o Rajkumar v Unknown Person ("CHEFPIERRE") [2022] SGHC 264.

37 Osbourne v Persons Unknown and (2) Ozone Networks Inc trading as OpenSea [2022] EWHC 1021 (Comm).

one any Indonesian court has been asked to confirm. This is a structural limitation Singapore and England do not share, and it means that Bank Indonesia's cryptocurrency prohibition and OJK's new supervisory regime notwithstanding an Indonesian virtual-land purchaser has meaningfully less assurance that a court would recognize their claim than a similarly situated purchaser in Singapore or England would.

Table 2. Judicial Recognition of Digital Assets as Property, by Jurisdiction

Jurisdiction	Judicial Recognition of Digital Assets as Property	Institutional Anchor
Singapore	Yes CLM v CLN [2022] SGHC 46 (cryptocurrency); Janesh s/o Rajkumar v Unknown Person [2022] SGHC 264 (NFT), both via proprietary injunction.	Payment Services Act 2019; Monetary Authority of Singapore licensing.
United Kingdom	Yes Osbourne v Persons Unknown and Ozone Networks Inc (OpenSea) [2022] EWHC 1021 (Comm) (NFT via disclosure order).	Common-law equitable remedies; UK Jurisdiction Taskforce statement on cryptoassets as property.
United States	Partial and fragmented property status recognized principally for taxation (IRS) rather than through a unifying civil property doctrine.	IRS guidance; SEC/FTC enforcement actions; state-level variation.
European Union	Not yet judicially tested at the Union level; property status addressed indirectly through consumer-protection and platform-accountability statute.	Digital Services Act; GDPR; forthcoming AI Act obligations.
Indonesia	Untested no reported judgment on virtual land, NFTs, or crypto assets as objects of property; status inferred by this study from Articles 499 and 1541 of the Civil Code.	Civil Code analogy; POJK No. 27/2024 (OJK) for the token-trading layer only.

Source: *compiled by the authors from the case law and statutory materials cited in this section.*

4.2. Indonesia's Regulatory Transition and Its Comparative Significance

Indonesia's own comparative position has itself shifted materially since Bappebti Regulation No. 8 of 2021 was the only relevant instrument. The transfer of crypto-asset supervisory authority to OJK, finalized on 31 July 2025 under the P2SK Law and POJK No. 27 of 2024, moves Indonesia a step closer to the European Union's centralized-regulator model and a step away from the purely commodity-trading framework Bappebti previously administered, since OJK is Indonesia's principal financial-sector conduct regulator and now applies governance, licensing, and consumer-protection requirements to digital-asset platforms as a matter of course rather than as an afterthought. [38] This is a genuine convergence with the EU's institutional philosophy, but it is a convergence of supervisory architecture, not of substantive property doctrine: OJK's mandate under POJK 27/2024 governs the licensing and conduct of digital-asset trading platforms, not the underlying question of whether a virtual land parcel is an object of property law, which remains governed by the unamended nineteenth-century Civil Code. Indonesia therefore now occupies a genuinely hybrid comparative position: EU-style institutional centralization for the financial layer of the transaction, paired with US-style judicial silence indeed, a stronger silence, since Indonesia lacks even the fragmented case law the United States has produced for the property layer. Closing that second gap is not something OJK's mandate can accomplish on its own, since it would require

[38] Otoritas Jasa Keuangan, "OJK dan Bappebti Tuntaskan Peralihan Pengawasan Aset Kripto," July 31, 2025, https://ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Pages/Bappebti-Kemendag-Alihkan-Tugas-Aset-Keuangan-Digital-termasuk-Aset-Kripto-serta-Derivatif-Keuangan-kepada-OJK-dan-BI.aspx.

either new property legislation or, eventually, a reported judicial decision of the kind Singapore and England have already produced.

5. Dispute Resolution Mechanisms Under Indonesian Positive Law

Finding. Indonesian positive law recognizes electronic contracts and blockchain-based evidence in principle, but the mechanisms actually available to Metaverse users in practice online Alternative Dispute Resolution and conventional litigation alike remain constrained by unresolved questions of jurisdiction, evidentiary formality, and cross-border enforcement.

Disputes in virtual land transfers typically revolve around breach of contract or the invalidation of a smart contract due to a coding error, an oracle failure, or a disputed condition. Given the cross-border and decentralized character of the Metaverse, Alternative Dispute Resolution mechanisms including blockchain-based mediation and arbitration are the most structurally appropriate first-line option, since they can operate without requiring a single national court to assert jurisdiction over a platform that may be domiciled elsewhere.[39] Yet this appropriateness in principle does not translate automatically into effectiveness in practice: even specialized commercial-law scholarship on smart-contract enforcement across jurisdictions finds that fundamental questions of applicable law and enforcing court remain unresolved for want of a uniform international framework, a finding that applies with equal force to Indonesian users transacting on platforms whose operators, servers, or governing terms may sit outside Indonesian territory.

Should a dispute escalate into a conventional Indonesian court, the Electronic Information and Transactions Law together with Government Regulation No. 80 of 2019 on Trading through Electronic Systems provides the foundational basis for recognizing electronic contracts and digital signatures as valid evidence.[40] However, Indonesian courts continue to face systemic challenges in this domain: jurisdiction over foreign-domiciled platform operators is often unsettled, the formal acceptance of a blockchain ledger as authentic electronic evidence has not been tested in reported Indonesian case law, and the practical execution of a judgment against a purely digital asset one that may exist only as an entry on a distributed ledger with no custodian inside Indonesian jurisdiction remains procedurally undeveloped.[41] Taken together, these three gaps jurisdiction, evidentiary recognition, and execution constitute the concrete, verifiable answer to the third research question: Indonesian positive law supplies the doctrinal categories needed to recognize a Metaverse dispute, but not yet the procedural infrastructure needed to resolve one predictably.

5.1. Institutional Arbitration as a Concrete First-Line Pathway

The Alternative Dispute Resolution pathway identified above is not merely theoretical: Indonesia already possesses a functioning institutional arbitration framework in the National Arbitration Board of Indonesia (Badan Arbitrase Nasional Indonesia, BANI), operating under Law No. 30 of 1999 on Arbitration and Alternative Dispute Resolution, itself broadly consistent with the

39 Ghassan Adhab Atiyah, Ali Ibrahim, and Ahmed Abdulkhudhur Jasim, "Enforcement of Smart Contracts in Cross-Jurisdictional Transactions," International Journal of Law and Management (2024), https://doi.org/10.1108/IJLMA-06-2024-0220.

40 Undang-Undang Nomor 11 Tahun 2008 tentang Informasi dan Transaksi Elektronik; Peraturan Pemerintah Nomor 80 Tahun 2019 tentang Perdagangan Melalui Sistem Elektronik.

41 Undang-Undang Nomor 11 Tahun 2008 tentang Informasi dan Transaksi Elektronik (Law No. 11 of 2008 concerning Electronic Information and Transactions).

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UNCITRAL Model Law on International Commercial Arbitration that many of Indonesia's trading partners also follow. [42] In principle, a dispute over a virtual land transaction could be referred to BANI provided the parties' smart contract or platform terms include a valid arbitration clause, and an award BANI renders would in principle be enforceable through the same channels available to any other commercial arbitral award. In practice, however, BANI's rules were not drafted with self-executing smart contracts or blockchain-recorded assets in mind, and neither BANI nor any other Indonesian arbitral institution has yet published rules addressing how a tribunal should treat an on-chain record as evidence, how it should identify a pseudonymous respondent, or how it should enforce an award against an asset that exists only as a ledger entry. This is not a uniquely Indonesian gap the international commercial arbitration community as a whole is still developing best practice for blockchain disputes but it means that, for now, referring a Metaverse dispute to BANI would require the parties to adapt a general-purpose commercial arbitration framework to a fact pattern its drafters did not contemplate, rather than invoking rules built for that purpose.

5.2. Consumer-Complaint Channels Under the New OJK Regime

A more immediately practical development lies in the consumer-protection provisions POJK No. 27 of 2024 introduces for the token-trading layer of a virtual land transaction. The regulation obliges licensed digital-asset platforms to maintain consumer-protection and complaint-handling mechanisms as a condition of their OJK license, giving a user who purchased platform tokens for a virtual land transaction a formal complaint channel through OJK's supervisory apparatus that did not exist in comparable form under Bappebti's commodity-trading framework. [43] This channel, however, addresses only the financial transaction through which land was purchased a failed or fraudulent token transfer and not a dispute over the land parcel itself, such as a platform's unilateral revocation of an NFT or a smart contract's failure to transfer title as represented. For that second category of dispute, which is the one most directly relevant to virtual land ownership as such, a user must still fall back on either BANI arbitration or conventional litigation, neither of which OJK's new mandate reaches.

5.3. Persuasive Value of Foreign Judicial Precedent

Should a virtual land dispute reach an Indonesian court rather than an arbitral tribunal, the judge would have no binding domestic precedent to draw on, but the comparative case law discussed in the second Result and Analysis section is not without relevance even in a civil-law setting. Indonesian courts may, and in practice sometimes do, consider foreign judicial reasoning as persuasive authority when interpreting how an established civil-law category should apply to a genuinely novel fact pattern, particularly where, as here, the reasoning turns on functional characteristics of the asset exclusivity, transferability, and identifiability rather than on common-law doctrines with no civil-law equivalent. [44] The Singapore and English courts' shared emphasis on

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[42] Undang-Undang Nomor 30 Tahun 1999 tentang Arbitrase dan Alternatif Penyelesaian Sengketa; UNCITRAL Model Law on International Commercial Arbitration (1985, as amended 2006).

[43] Otoritas Jasa Keuangan, Peraturan OJK Nomor 27 Tahun 2024 tentang Penyelenggaraan Perdagangan Aset Keuangan Digital dan Aset Kripto.

[44] Janesh s/o Rajkumar v Unknown Person ("CHEFPIERRE") [2022] SGHC 264; Osbourne v Persons Unknown and (2) Ozone Networks Inc trading as OpenSea [2022] EWHC 1021 (Comm).

whether an NFT is definable, identifiable by third parties, capable of assumption by third parties, and possesses some degree of permanence criteria drawn from the classic National Provincial Bank v Ainsworth test for property generally maps comfortably onto the Indonesian requirement that an object of a contract be tertentu (specific and determinate) under Article 1320, giving an Indonesian court a workable analytical bridge even without any obligation to follow the foreign authority. [45] This bridge does not solve the enforcement problem identified earlier a domestic judgment still cannot compel a foreign-domiciled platform to act, and execution against a purely on-chain asset remains procedurally undeveloped in Indonesia but it meaningfully reduces the interpretive uncertainty a first-instance Indonesian judge would otherwise face in classifying the asset itself.

Taken together, the three pathways examined here institutional arbitration through BANI, the narrower consumer-complaint channel OJK's new mandate provides, and conventional litigation informed by persuasive foreign precedent confirm the finding stated at the outset of this section: Indonesian positive law supplies the doctrinal categories needed to recognize a Metaverse dispute, and recent regulatory reform has strengthened the financial-conduct dimension of that recognition, but no single existing mechanism yet resolves the jurisdiction, evidentiary, and execution gaps this study identifies in full. Each gap corresponds to a distinct actor BANI for arbitral rules, OJK for platform-level consumer protection, and the judiciary for property-status confirmation which is precisely why the Suggestion section that follows addresses them separately rather than proposing a single omnibus fix.

6. Conclusion

Answering the three research questions in turn, this study concludes, first, that virtual land transactions in the Metaverse are legally valid under the Civil Code provided they satisfy the four elements of Article 1320 consent, capacity, object, and lawful cause as those elements operate through smart-contract execution, and that because national regulation prohibits cryptocurrency as a means of payment, such transactions are properly classified as asset-exchange agreements under Article 1541 rather than conventional sales; second, that comparative analysis shows the United States relying on reactive judicial precedent and corporate platform contracts, the European Union enforcing proactive consumer protection through unified statutes such as the Digital Services Act, and Indonesia addressing the same phenomenon through civil-code analogy and commodity-trading regulation alone, without the platform-accountability machinery the EU model supplies; and third, that resolving Metaverse disputes is best pursued through blockchain-based Alternative Dispute Resolution given the sector's cross-border and decentralized character, while conventional Indonesian courts, though able to rely on the Electronic Information and Transactions Law and Government Regulation No. 80 of 2019 to recognize electronic evidence, still lack a developed procedural framework for questions of jurisdiction, evidentiary weight for blockchain records, and execution against purely digital assets. Read together, these three findings show that Indonesia's regulatory gap is not primarily a classification problem virtual land's status as an intangible movable object is now well established across multiple independent studies but a protective and procedural one: the Civil Code can validate a transaction after the fact, but it cannot, on its

[45] National Provincial Bank v Ainsworth [1965] AC 1175 (HL).

own, verify a transacting party's capacity, hold a foreign platform accountable, or guarantee that a domestic court can enforce a judgment against a digital asset. Closing that gap requires the Indonesian government to enact dedicated legislation on digital-property registration and to establish consumer-protection and dispute-resolution mechanisms purpose-built for the Metaverse, rather than continuing to rely on inference from instruments that predate the technology by more than a century.

7. Suggestion

Practical recommendations. The Indonesian government, through the Ministry of Communication and Digital Affairs and Bappebti acting jointly, should draft a dedicated regulation that (i) explicitly names virtual land and comparable in-world objects as objects of property law rather than leaving them to inference from Article 499; (ii) mandates minimum Know Your Customer verification for parties to Metaverse smart contracts, addressing the capacity gap identified in the first Result and Analysis section; and (iii) establishes a registration mechanism for high-value digital assets analogous to the fiduciary-security registration already available for other intangible property, building on the collateral-eligibility groundwork Anggraini and Purwanto have laid for NFTs specifically.

Theoretical recommendations. Future doctrinal work should test whether Indonesia's asset-exchange characterization under Article 1541 remains stable as platforms increasingly accept rupiah-denominated stablecoins or other instruments that blur the line between currency and commodity, since the classification adopted here depends specifically on the current prohibition of cryptocurrency as legal tender and could require revisiting if that prohibition changes.

Recommendations for future research. Because this study is doctrinal and does not draw on platform-level empirical data, future research combining this study's normative framework with socio-legal fieldwork interviews with Indonesian Metaverse platform operators, analysis of actual Terms of Service, or a documented sample of disputed transactions would test whether the validity and comparative findings reached here hold when confronted with how these platforms operate in practice, and would substantiate the urgency argument advanced in the Introduction with primary transaction data rather than secondary market reporting alone.

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