

Legal Risks in Non-Fungible Token (NFT) Transactions

Rian Samya Weka Pratama 
Universitas Negeri Semarang, Semarang, Indonesia
riansamyawp13@students.unnes.ac.id

Tri Andari Dahlan 
Universitas Negeri Semarang, Semarang, Indonesia
triandaridahlan@mail.unnes.ac.id

Abstract

The advancement of blockchain technology has introduced Non-Fungible Tokens (NFTs) as digital assets representing ownership of creative works. However, the burgeoning NFT market precipitates significant legal risks, primarily arising from the dichotomy between the ownership of the digital token and the copyright of the underlying work. This research aims to examine the juridical risks inherent in NFT transactions, given the regulatory lacuna within the Indonesian legal system. Although Law No. 28 of 2014 concerning Copyright provides a normative framework, its application within the NFT ecosystem confronts challenges regarding legal certainty and platform accountability. The findings underscore the exigency of statutory harmonization and a more comprehensive legal protection mechanism, including defined liabilities for Electronic System Providers (ESPs), to mitigate risks and ensure equitable legal protection within Indonesia's digital economy.



KEYWORDS

Non-Fungible Tokens (NFTs), Intellectual Property, Legal Certainty, Blockchain Technology, Legal Risks.

Introduction

A sale and purchase is a form of obligation within civil law transactions governed by the Indonesian Civil Code. Often referred to as a sale and purchase transaction, it plays a fundamental role in social and economic life. Normatively, Article 1457 of the Civil Code stipulates that a sale and purchase is an agreement whereby one party binds itself to deliver an item (property), while the other party is obligated to pay the agreed purchase price. This provision emphasizes the consensual nature of the contract, as affirmed in Article 1458 of the Civil Code, which states that a sale and purchase agreement is concluded and becomes binding upon the parties as soon as an agreement is reached regarding the object and the price, notwithstanding that the goods have not been delivered nor the payment been made¹.

Sale and purchase transactions must comply with the validity requirements of an agreement pursuant to Article 1320 of the Civil Code, which encompasses both subjective and objective conditions. In conventional transactions, the subject matter generally consists of tangible or intangible assets, provided that such assets are ascertainable and possess economic value, while remaining in compliance with the requirements of Article 1320. Furthermore, these transactions must adhere to fundamental

¹ Universitas Medan JUNIKAROVIANI, "EFEKTIVITAS TRANSAKSI JUAL BELI BUAH DI POKOK DITINDING DARI HUKUM PERDATA (Studi : Desa Durin Tonggal , Kecamatan Pancur Batu , Kabupaten Deli Serdang) SKRIPSI OLEH : JUNI KAROVIANI BIDA NG HUKUM KEPERDATAAN PROGRAM STUDI ILMU HUKUM FAKULTA," 2024.

legal principles, namely freedom of contract, legal certainty, and good faith as set forth in Article 1338 of the Civil Code. These principles serve as the primary legal basis for the execution of transactions, ensuring that the rights and obligations of the parties receive equitable legal protection.

Concurrent with technological advancements, the framework of contractual obligations under Indonesian civil law, specifically regarding sale and purchase transactions, has undergone a significant transformation. This evolution is marked by the emergence of electronic transactions conducted through marketplaces, websites, and applications. Transactions formerly executed through conventional or physical presence-based methods have evolved into digital formats, offering enhanced accessibility. Digital transactions facilitate not only the trade of tangible property but also intangible digital assets². In this context, Non-Fungible Tokens (NFTs) have emerged as a prominent asset class, representing digital ownership through unique tokens which may encapsulate digital art, music, or other creative content³. Within the digital ecosystem, legal relations are no longer bilateral between seller and buyer; they involve digital platforms as intermediaries, thereby establishing complex multi-party legal relations⁴.

Contractual obligations in the sale and purchase of digital assets, specifically Non-Fungible Tokens (NFTs), entail significant legal risks due to their complex mechanisms. The digital mediums employed—namely websites or applications—must adhere to prevailing regulations, yet the subject matter (tokens representing the works) is not yet explicitly classified as legal objects protected under the Indonesian legal framework, particularly the Civil Code. This creates substantial legal and economic

² ARNA SAFITRI, “PERLINDUNGAN HUKUM BAGI PEMILIK KONTEN NFT (Non-Fungible Token) MENURUT SISTEM HUKUM HAK KEKAYAAN INTELEKTUAL,” *Skripsi*, 2022.

³ Ranti Fauza Mayana et al., “INTELLECTUAL PROPERTY DEVELOPMENT & KOMERSIALISASI NON-FUNGIBLE TOKEN (NFT): PELUANG , TANTANGAN DAN Harga Yang Fantastis Contohnya Video ‘ Charlie Bit My Finger ’ Yang Mendapat View Lebih Dari 885 Juta Karya NFT Pertama Di Indonesia Yang Berjudul “ A P” 5 (2022): 202–20.

⁴ Lisa Caroline, Emteta Karina Bangun, and Tengku Salsabila, “Lisa Caroline Pakpahan Dkk. Analisis Hukum Perjanjian Jual Beli Melalui E-Commerce Berdasarkan Kitab Undang-Undang Hukum Perdata (KUHPERdata),” 2024, 305–15.

exposure due to the digital, decentralized, and blockchain-based nature of NFTs. Potential legal risks arise from ambiguity regarding the object of the obligation, misinterpretation of the scope of transferred rights, the utilization of smart contracts, and the liability of digital platforms which remains insufficiently regulated. Furthermore, the delineation between the ownership of the NFT and the copyright of the underlying work creates legal uncertainty, potentially triggering intellectual property disputes between creators, holders, and third parties. This condition indicates that such risks are not yet fully subsumed within Indonesia's civil law system.

Under civil law, assets are construed within the framework of 'objects' (*benda*) as stipulated in Article 499 of the Civil Code, which defines them as 'any goods and any rights that may be the subject of ownership.' Furthermore, Article 570 of the Civil Code defines the right of ownership as the right to enjoy the utility of an object in the most absolute manner and to dispose of it freely, provided it does not contravene laws or infringe upon the rights of others. Conventional asset ownership is inherently tied to the clarity of the legal subject matter and the mechanisms of transfer of title, such as through sale and purchase, deeds of gift (*hibah*), or inheritance—each carrying distinct legal consequences.

In the Indonesian context, digital asset ownership is conceptually anchored in the same principles. The broad definition in Article 499 allows for the interpretation that digital assets constitute legal objects, provided they possess economic value and are subject to legal control. Consequently, ownership in the digital realm is no longer predicated on physical possession (detention), but rather on exclusive access, control, and authorization via electronic systems. The legal recognition of digital assets is implied in Law No. 11 of 2008 on Electronic Information and Transactions, as amended by Law No. 19 of 2016, which affirms the admissibility of electronic information and contracts as valid legal evidence. Moreover, Government Regulation No. 71 of 2019 and No. 80 of 2019

provide the regulatory basis for the management of digital assets, mandating the protection of user rights and system security.

In practical application, however, the sale and purchase of digital assets, including Non-Fungible Tokens (NFTs), is more precisely construed as the ownership of a digital representation or specific access rights (*ownership of digital tokens*)⁵. Such ownership does not “*ipso jure*” entail ownership of the copyright subsisting in the underlying work, unless expressly stipulated otherwise in a legal instrument. This condition underscores that digital asset ownership in Indonesia remains subject to normative interpretation and necessitates regulatory fortification to ensure legal certainty, protection, and a clear demarcation of the rights and obligations of the parties. Furthermore, the evolution of NFT transactions presents significant legal risks, particularly regarding certainty of title and the protection of intellectual property, as NFT ownership does not inherently convey copyright ownership pursuant to Law No. 28 of 2014 concerning Copyright.

The dichotomy between the ownership of NFT digital assets and the copyright of the underlying works creates legal uncertainty, potentially inciting intellectual property disputes among creators, NFT holders, and third parties. This situation signifies that existing legal risks remain insufficiently addressed within Indonesia’s civil law and intellectual property regimes. Although the Indonesian Civil Code provides general frameworks for contractual obligations, sales, and property ownership, these provisions remain predicated on conventional legal objects and fail to explicitly accommodate the unique characteristics of blockchain-based assets. Consequently, this creates a normative gap regarding the legal standing of NFTs as objects of contract and the apportionment of liability among the involved parties. Therefore, as the evolution of NFT transactions

⁵ Mayana et al., “INTELLECTUAL PROPERTY DEVELOPMENT & KOMERSIALISASI NON-FUNGIBLE TOKEN (NFT): PELUANG , TANTANGAN DAN Harga Yang Fantastis Contohnya Video ‘ Charlie Bit My Finger ’ Yang Mendapat View Lebih Dari 885 Juta Karya NFT Pertama Di Indonesia Yang Berjudul “ A P.”

has surpassed current regulatory readiness, a comprehensive normative legal study is imperative to analyze the legal risks inherent in NFT sale and purchase mechanisms, aimed at fostering legal certainty, statutory protection, and equitable justice for all parties⁶.

Within the global escalation, this digital transformation constitutes a fundamental element in the realization of **Sustainable Development Goal (SDG) No. 17**, specifically regarding the acceleration of global partnerships for sustainable development through technological integration. The NFT phenomenon possesses significant potential in fostering the inclusivity of the digital economy for domestic creators in Indonesia; however, the optimization of such potential necessitates the existence of robust legal certainty. Based on this premise, this study extends its analysis beyond mere technical risks to examine the urgency of statutory synchronization within national regulations to actualize the pillars of partnership and technological innovation as mandated under the instruments of **SDG No. 17**.

Methods

This study employs a normative legal research method, focusing on the examination of prevailing positive legal norms to analyze legal issues concerning the risks inherent in the sale and purchase of Non-Fungible Tokens (NFTs). This research treats the law as a set of rules or norms as enunciated in legislation, judicial precedents, and legal doctrines or scholarly opinions. The research adopts a statute approach by reviewing provisions within the Civil Code, the Electronic Information and Transactions Law along with its implementing regulations, and the Copyright Law, a conceptual approach by scrutinizing the frameworks of

⁶ Fahrul Pakaya, "Legalitas NFT (Non-Fungible Token) Dalam Sengketa Hak Kekayaan Intelektual Di Indonesia," *Ial & Hukum Al-Zayn: Jurnal Ilmu Sosial & Hukum*, 2025, 3106–15.

contracts, sales, digital assets, and intellectual property rights, and a case approach to examine practices and potential legal disputes arising from NFT transactions. The legal materials comprise primary, secondary, and tertiary sources, which are analyzed qualitatively through deductive legal reasoning to derive systematic, logical, and prescriptive conclusions inherent to the nature of normative legal research.

Result and Discussion

The sale and purchase of NFTs has gained significant traction among digital art enthusiasts, encompassing various creative domains such as visual arts, cinematography, and music. Market participants frequently commit substantial capital to acquire these works, where ownership is construed through the receipt of digital tokens. These tokens function as representations of ownership over intangible assets that embody the underlying creative works. Nonetheless, it is imperative for contracting parties—both vendors and purchasers—to exercise due diligence regarding the inherent risks prior to executing such transactions. This includes evaluating the security of the electronic system, its compliance with the Indonesian regulatory framework, and the legal certainty of individual ownership.

1. Legal Risk

In 2025, according to market data from Indodax Analysis, as cited from CryptoSlam, the number of unique NFT purchasers increased by 53.35%, totaling approximately 277,059 individuals compared to the preceding period. While specific official data for the Indonesian jurisdiction is currently unavailable, this figure reflects an accelerating global market participation trend. Prior to acquiring NFT digital tokens, it is crucial to identify and evaluate the inherent legal risks, which include :

1. Scope Of Ownership

First, it is imperative to determine the precise scope of the transaction regarding the acquisition of digital works. The ambiguity surrounding the scope of rights or title acquired in a Non-Fungible Token (NFT) transaction constitutes a critical legal issue. Legally, an NFT transaction generally only effects a transfer of title over the digital token recorded on the blockchain (*ownership of token*). It does not “*ipso jure*” result in the assignment of intellectual property rights, particularly the copyright subsisting in the underlying work. Pursuant to Law No. 28 of 2014 concerning Copyright, the copyright remains vested in the creator or the original rightsholder, unless there is a written agreement that explicitly stipulates the assignment or licensing of specific economic rights to the purchaser.

In general, blockchain technology is categorized into public and private blockchains, each possessing distinct characteristics regarding accessibility and governance. A public blockchain operates as a permissionless system, enabling broad public participation in decentralized verification and transaction recording a prime example is the Ethereum platform, which facilitates the issuance and management of digital tokens through smart contract mechanisms. These smart contracts enable the automated, transparent, and immutable registration of tokens, calculation of circulating supply, and administration of asset ownership. Conversely, a private blockchain is a permissioned network where access and validation authority are restricted to designated parties, typically managed by institutions or consortiums—such as Hyperledger Fabric or Corda—focusing on stringent control, efficiency, and data confidentiality. The majority of NFT transactions utilize public blockchain systems, leveraging automated protocols to govern minting, transfer of title, royalty distribution, and other pre-programmed conditions.

Transaction descriptions on NFT marketplaces frequently fail to disclose in detail the limitations of rights transferred to the purchaser, specifically regarding exclusive rights such as reproduction, publication, distribution, or commercial exploitation. This lack of clarity results in legal misinterpretation, where purchasers erroneously assume that NFT ownership is synonymous with absolute ownership of the underlying digital work. In fact, normatively, the purchaser only acquires title to the token along with a restricted license to display the work for private use. Such ambiguity is liable to incite copyright infringement disputes among purchasers, creators, and third parties, further reflecting a normative vacuum within Indonesia's regulatory framework. This issue stems from a lack of legal certainty concerning the scope of rights and obligations inherent in the sale and purchase of blockchain-based assets⁷.

2. Ownership Of Works

It is imperative to note that ownership is restricted to the exclusive access to the token representing the work following a transaction within an NFT digital system or marketplace. Although the token itself is non-fungible and immutable due to the cryptographic security of the blockchain, the underlying work remains the property of the original creator. The acquisition of an NFT does not entitle the purchaser to claim authorship or proprietary rights over the work itself. Title to an NFT cannot be equated with copyright ownership unless explicitly stipulated through a valid license agreement or a deed of transfer of rights. Consequently, the purchaser merely acquires the right to private enjoyment and access. Under Indonesian law, the right to publish or assert absolute

⁷ Eureka Inola Kadly, Sinta Dewi Rosadi, and Elisatris Gultom, "Keabsahan Blockchain-Smart Contract Dalam Transaksi Elektronik :," *Jurnal Sains Sosio Humaniora* 5 (2021): 199–212.

ownership over the underlying work remains legally unsubstantiated. Furthermore, the absence of comprehensive and detailed regulations regarding the delineation of digital ownership may lead to legal complications, potentially resulting in normative or ethical sanctions against the token holder.

3. The Principle of Equilibrium is Not Fulfilled in Contracts

In contract law, the acquisition of Non-Fungible Tokens (NFTs) carries complex legal implications, primarily because these transactions are governed by electronic contracts and smart contracts that are standardized, automated, and generally unilaterally drafted by platform operators or vendors. Electronic contracts, in this context, constitute legal relations conducted electronically by integrating computer-based information networks with telecommunication services. The nature of these contracts in NFT transactions is predominantly a contract of adhesion (*take-it-or-leave-it*), providing no opportunity for purchasers to negotiate the terms and conditions. Such conditions potentially create an imbalance in the bargaining power and legal standing of the parties, which conceptually may contravene the principles of equilibrium, fairness, and good faith as enshrined in Article 1338 of the Civil Code⁸.

The principle of equilibrium (*evenwichtigheid*), as articulated by Massier and Termorshuizen-Arts, stipulates that balance serves as the foundation for harmony in written agreements under Article 1320 of the Civil Code; only when such balance exists *in concreto* is a valid consensus between the parties truly achieved. Furthermore, the substantive clauses within smart contracts are predominantly

⁸ JUNIKAROVIANI, "EFEKTIVITAS TRANSAKSI JUAL BELI BUAH DI POKOK DITINJAU DARI HUKUM PERDATA (Studi : Desa Durin Tonggal , Kecamatan Pancur Batu , Kabupaten Deli Serdang) SKRIPSI OLEH : JUNI KARIOVIANI BIDA NG HUKUM KEPERDATAAN PROGRAM STUDI ILMU HUKUM FAKULTA."

expressed in technical code and programming languages, which are often inaccessible to purchasers without expert clarification. This lack of transparency heightens the risk of misinterpreting the rights, obligations, and limitations of liability inherent in the agreement. Consequently, purchasers may be legally deemed to have consented to a contract without an adequate understanding of the contractual benefits or the ensuing legal consequences. This disparity of benefits results in a contractual imbalance, which may constitute legal grounds for the aggrieved party to seek the annulment of the contract.

The automated and inflexible nature of smart contracts poses significant challenges regarding the burden of proof in cases of default, as the agreement is executed algorithmically without direct human intervention. Consequently, identifying the accountable legal entity, establishing fault (negligence), and applying the principle of good faith become increasingly complex during dispute resolution, whether through litigation or Alternative Dispute Resolution (ADR) mechanisms. This condition demonstrates that while electronic and smart contracts in NFT transactions offer technical efficiency, they harbor substantial contractual risks that necessitate rigorous legal scrutiny. Furthermore, the requirement of equilibrium must encompass the contractual content, the conduct of the parties, and the execution of the agreement; the failure to satisfy this element may jeopardize the enforceability and legal binding force of the contract⁹.

4. Intellectual Property Rights Infringement

The risk of Intellectual Property Rights (IPR) infringement constitutes one of the most critical legal challenges in the sale and purchase of Non-Fungible Tokens (NFTs), particularly concerning

⁹ SAFITRI, “PERLINDUNGAN HUKUM BAGI PEMILIK KONTEN NFT (Non- Fungible Token) MENURUT SISTEM HUKUM HAK KEKAYAAN INTELEKTUAL.”

the copyrights subsisting in digital works. While blockchain technology enables the immutable and transparent recording of token ownership, the system essentially only registers the title to the digital token, rather than the ownership or assignment of copyright over the underlying work. This discrepancy often leads to legal misinterpretation, where NFT purchasers erroneously assume that token ownership automatically conveys exclusive rights to the associated digital work, whereas, from a legal standpoint, such a transfer is not inherent.

In practice, the minting process of NFTs is frequently executed without adequate copyright verification mechanisms. Technically, any individual may upload and convert a digital work into an NFT, even if the work is not their original creation or is protected by the copyright of a third party. This creates significant opportunities for copyright infringement, specifically when a third party's work is minted without the express consent of the creator or the legitimate rightsholder. From a normative perspective, such unauthorized actions contravene the provisions of Law No. 28 of 2014 concerning Copyright, which mandates that any utilization, reproduction, and publication of a work must be predicated upon the authorization of the copyright holder¹⁰.

Within the framework of the Indonesian legal system, NFTs may be analyzed pursuant to Article 499 of the Civil Code, which stipulates that objects (*benda*) encompass all goods and rights that may become the subject of ownership. Although NFTs are incorporeal, they possess ascertainable economic value, are transferable, and maintain distinctive uniqueness through blockchain technology; thus, they may be classified as intangible

¹⁰ Syahrehan Ibnu Usma, "Implementasi Dan Tantangan Hukum Non Fungitable Token Terhadap Regulasi Di Indonesia: Prespektif Hukum Perdata," *ZAAKEN* 6 (2025): 77–89, <https://doi.org/10.22437/zaaken.v6i1.39340>.

property (benda tidak berwujud). In the context of Intellectual Property Law, NFTs serve as digital representations or identifiers associated with a creative work, such as visual art, music, or cinematography. However, normatively, NFTs do not constitute subject matter of copyright protection as regulated under Law No. 28 of 2014 concerning Copyright; rather, they function solely as instruments for the recordation of title and transactions pertaining to the underlying work.

Copyright over the work remains vested in the original creator as a manifestation of moral and economic rights, unless transferred via a valid instrument of transfer pursuant to prevailing statutory requirements. Consequently, the acquisition of an NFT, in principle, merely grants title to the digital token and does not constitute an assignment of copyright over the underlying work. The blockchain technology underpinning NFTs provides a transparent, permanent, and immutable ledger system, which serves as probative evidence of digital ownership and mitigates the potential for copyright misappropriation. Nevertheless, comprehensive regulatory frameworks remain imperative to ensure absolute legal certainty.

A multitude of academic studies confirm that blockchain technology tends to induce legal distortions regarding the identification of the legal subject entitled to a creation. The party executing the minting process is frequently recorded as the 'creator' within the blockchain ledger, notwithstanding that, de jure, they may not be the original author of the work. This presents grave challenges to copyright protection, as automated technological systems do not inherently harmonize with intellectual property principles that prioritize authenticity, moral rights, and the economic rights of creators. Consequently, NFT purchasers may be exposed to legal liabilities if it is subsequently established that the acquired NFT originated from a work that infringes upon third-party copyrights.

NFTs are inherently linked to copyright regulations, as the technology was conceived to authenticate the identification and provenance of digital objects. The integration of blockchain technology within NFTs provides legal certainty regarding the authenticity of works and the protection of ownership, thereby enhancing the intrinsic value of digital creations. Within the blockchain ecosystem, each NFT is embedded with a unique, exclusive, and non-replicable cryptographic code, enabling transparent traceability as a probative means of establishing rights over the NFT. From a copyright perspective, the underlying work remains vested in the creator as an expression of moral rights, ensuring the creator's recognition as the Author and/or Rightsholder. Furthermore, in the exercise of economic rights, the creator maintains the authority to reproduce and assign or sell digital copies of the NFT, provided that each iteration possesses a distinct and unique cryptographic identifier.

From the purchaser's perspective, the risk of IPR infringement entails not only civil implications in the form of claims for damages but also potential criminal liability if willful infringement is established. Furthermore, NFT purchasers face significant legal uncertainty regarding the long-term economic viability of their assets; NFTs found to be infringing upon copyrights may be delisted from marketplaces or subjected to access blockades, resulting in substantial financial losses. This underscores that NFT ownership is inextricably linked to the legal legitimacy of the underlying work. Consequently, under Indonesian law, purchasers must exercise due diligence and maintain a comprehensive understanding of the legal limitations inherent in such transactions. The regulatory lacuna concerning NFTs within the national legal framework further reinforces the urgency of enacting specific regulations to provide legal certainty and protection for both creators

and purchasers, thereby mitigating the risk of intellectual property violations in the digital economy.

5. Digital Security and Technical Risks

Digital security and technical risks constitute fundamental elements that are inseparable from the sale and purchase of Non-Fungible Tokens (NFTs), given that the entire transfer of title is executed through blockchain-based electronic systems and digital wallets. While blockchain technology is renowned for its robust security, the execution of NFT transactions remains contingent upon ancillary infrastructure, such as marketplace platforms, telecommunication networks, and the security protocols of custodial or non-custodial wallets. This dependency creates a vulnerability to technical disruptions and cybersecurity threats, which may directly jeopardize the certainty of digital asset ownership and the efficacy of legal protections for the parties involved.

One of the most prevalent technical risks pertains to security vulnerabilities within the digital wallets utilized in NFT transactions. Phishing, hacking, and the misappropriation of private keys or seed phrases may result in the permanent loss of access to the purchaser's NFTs. In a legal context, the loss of digital assets due to compromised security credentials poses a formidable challenge, as blockchain protocols are inherently irreversible. Consequently, aggrieved purchasers face significant hurdles in effectively vindicating their rights, whether through internal platform dispute mechanisms or conventional legal remedies.

Furthermore, technical risks arise from systemic failures or vulnerabilities within the NFT marketplace infrastructure. System disruptions, smart contract malfunctions, and vulnerabilities in the source code may lead to failed execution or unauthorized transfers of assets. The autonomous nature of smart contracts, which are

executed without human intervention, exacerbates the potential for financial loss should logical errors or security loopholes exist within the programmed code.

Under such circumstances, purchasers are in a vulnerable position due to the inherent difficulty in rescinding or rectifying transactions once they are permanently recorded on the blockchain network. In practice, the efficacy of smart contracts often falls short of theoretical expectations; their rigid and inflexible nature fails to capture the social nuances and mutual intent of the parties. Furthermore, the storage of data on a publicly distributed ledger poses significant threats to the data privacy of the parties involved. Technical vulnerabilities, including unauthorized access and cyber-intrusion, constitute risk factors that cannot be disregarded within this digital ecosystem. These security risks are exacerbated by the absence of standardized consumer protection in the NFT market. The Terms and Conditions stipulated by marketplaces are predominantly standardized contracts that include limitation of liability clauses, absolving platform operators of responsibility for losses arising from technical disruptions or cyberattacks. This creates a significant imbalance in the legal standing between purchasers as consumers and digital service providers, which warrants critical review from the perspectives of preventive and repressive legal protection¹¹.

The absence of effective grievance and redress mechanisms further exacerbates the legal risks for NFT users in Indonesia. Consequently, from a normative legal perspective, the technical and digital security risks inherent in NFT transactions expose a discrepancy between technological advancements and the readiness of the national legal framework. The regulatory lacuna concerning legal liability for electronic system failures and losses arising from

¹¹ Daffa Danendra et al., "Keabsahan Perjanjian Jual Beli Crypto Aset Menggunakan Smart Contract," 2023.

cyber-intrusions in NFT transactions creates legal uncertainty for purchasers. This situation underscores the urgency of enacting more comprehensive regulations, either through the amendment of the Electronic Information and Transactions (ITE) Law or the establishment of specific sectoral regulations.

The correlation between the mitigation of legal risks in NFT transactions and **SDG No. 17** is predicated on the urgency of multisectoral collaboration involving state authorities, Electronic System Providers (ESPs), and the international community in constructing coherent cybersecurity standards. Within this partnership framework, the legal liability of ESPs in safeguarding intellectual property rights transcends mere statutory compliance; it constitutes a manifestation of accountability within the digital ecosystem. Therefore, the harmonization of national civil law with global blockchain practices represents an actualization of the spirit of technological cooperation mandated under **SDG No. 17**, which aims to ensure equity in the exchange of economic value within the cyber domain.

2. Mitigating Legal Risks in NFT Transactions

Risk mitigation efforts in the sale and purchase of Non-Fungible Tokens (NFTs) are paramount, considering their digital, decentralized nature, and the involvement of electronic contracts and intellectual property rights. A critical preventive measure for purchasers is to conduct due diligence regarding the legal standing of the underlying digital work. Due diligence entails a comprehensive scrutiny of asset authenticity, the integrity of the smart contract code, and the proprietary status of intellectual property rights. Essentially, this requires a rigorous verification of the contractual clauses and a validation of whether the work remains the property of a third party. This aligns with Law No. 28 of 2014 concerning Copyright, specifically Article 9 paragraph (1), which grants creators or

rightsholders exclusive economic rights, and Article 16 paragraph (1), which classifies copyright as an intangible movable object. Consequently, it is imperative to understand that the acquisition of a digital token does not inherently constitute an assignment of copyright, unless stipulated in a written agreement that explicitly provides for the transfer of rights pursuant to Article 16 paragraph (2) of the Copyright Law.

Furthermore, risk mitigation must be conducted through a rigorous understanding of the contractual aspects of NFT transactions. Given that these transactions utilize electronic and smart contracts, it is imperative to ensure their legal validity. Such validity must be established pursuant to Article 18 paragraph (1) of Law No. 11 of 2008 concerning Electronic Information and Transactions, as amended by Law No. 19 of 2016, which stipulates that electronic contracts possess the same legally binding force as conventional agreements. However, the use of standardized contracts (contracts of adhesion) that are automated and non-negotiable potentially creates an imbalance in the bargaining power and legal standing of the parties, particularly to the detriment of the purchaser. Therefore, it is essential to scrutinize clauses governing limitations of liability, allocation of risk, and the choice of law and forum for dispute resolution, in order to mitigate the risk of default (*wanprestasi*) as provided for under Article 1243 of the Civil Code.

Mitigation efforts must encompass the security of electronic systems and the protection of personal data. Article 15 paragraph (1) of the EIT Law mandates that every Electronic System Provider (ESP) must operate a reliable and secure system and maintain accountability for its performance. This obligation is further reinforced by Articles 3 and 14 of Government Regulation No. 71 of 2019 (PP PSTE), which emphasize the principles of prudence, security, and accountability in electronic transactions. In this context, NFT purchasers must exercise selectivity by utilizing marketplaces and digital wallets that adhere to stringent security standards to mitigate the risks of cyber-attacks, loss of access, or the misappropriation of digital

assets. Selecting a platform that ensures legal and technical certainty is paramount to facilitate secure transactions. Consequently, such measures ensure that in the event of unforeseen contingencies, the purchaser has access to enforceable legal protections and clear mechanisms for seeking restitution or indemnification.

Beyond technical safeguards, risk mitigation necessitates an understanding of the legal liabilities of digital platforms as Electronic System Providers (ESPs). Under PP PSTE, ESPs are mandated to provide transparent, accurate, and comprehensive information regarding their services. Nevertheless, in NFT transactions, platforms frequently act as intermediaries that limit their liability through exculpatory clauses, thereby placing purchasers in a disadvantaged legal position. Consequently, purchasers must maintain an acute awareness of the constraints of available legal protections and evaluate these risks prior to executing transactions. Ultimately, risk mitigation in NFT sales must be conducted through a comprehensive preventive legal approach, encompassing copyright verification, a rigorous understanding of electronic contracts, the enforcement of system security, and an awareness of the limitations of platform liability. Such an approach aligns with the fundamental legal objectives of achieving legal certainty, legal protection, and equity for the parties involved in digital asset transactions in Indonesia, particularly in mitigating potential intellectual property disputes arising from NFT trading practices.

Normatively, legal protection for NFT transactions in Indonesia remains indirect and fragmented across various statutes and regulations. Law No. 11 of 2008 concerning Electronic Information and Transactions, as amended by Law No. 19 of 2016 (EIT Law), serves as the primary legislative framework recognizing the validity of electronic transactions and contracts. Article 18 paragraph (1) of the EIT Law underscores that electronic contracts possess the same legally binding force as conventional agreements; thus, the state implicitly recognizes NFT transactions as legally cognizable acts,

provided they fulfill the essential requirements for a valid agreement as stipulated under Article 1320 of the Civil Code. However, the EIT Law fails to specifically address the unique characteristics of NFTs as objects of an agreement, thereby creating broad interpretative ambiguity in practice. This absence of a definitive *lex specialis* to govern NFT transactions results in significant legal uncertainty, as the rights and obligations of the parties cannot be comprehensively protected under the existing legal regime.

The role of the state is manifested through the technical provisions of Government Regulation No. 71 of 2019 concerning the Implementation of Electronic Systems and Transactions (PP PSTE). This regulation positions the state as a regulator that mandates the obligations of Electronic System Providers (ESPs) to ensure the security, reliability, and accountability of electronic systems, as stipulated under Articles 3 and 15 of PP PSTE. In the context of NFT transactions, these provisions serve as the normative basis for holding NFT marketplaces liable as ESPs in the event of systemic failures, data breaches, or financial losses resulting from operational negligence. Nevertheless, the regulatory lacuna regarding the apportionment of liability between platforms, creators, and purchasers demonstrates the constraints of the state's role in providing optimal legal protection.

Beyond the systematics of electronic transactions, the role of the state is paramount in safeguarding the intellectual property rights inherent in the digital works represented by NFTs. Law No. 28 of 2014 concerning Copyright provides legal protection for the moral and economic rights of creators, as stipulated under Articles 4 and 9. Through this legislation, the state affirms that copyright is not automatically assigned by virtue of an NFT transaction alone, unless there is an express and written instrument of transfer. However, in current NFT practices, there is an absence of statutory obligations requiring a clear disclosure of the scope of copyright being transferred, which frequently leads to intellectual property disputes. Consequently, purchasers must exercise due diligence to ascertain that the

underlying work remains subject to the pre-existing copyrights of the author; in most instances, the purchaser merely acquires a license for private enjoyment within the digital ecosystem, specifically pertaining to that NFT.

In conclusion, the role of the state and the current regulatory framework in providing legal protection for NFT transactions in Indonesia confront substantial hurdles. These challenges arise primarily from the regulatory lacuna concerning the legal status of NFTs as digital assets, the complexity of multi-party contractual structures, and the lack of robust intellectual property protection mechanisms within the blockchain ecosystem¹². Consequently, the state must adopt a more proactive role by enacting adaptive and responsive regulations that keep pace with technological advancements. This may be achieved through civil law reforms, the enhancement of electronic transaction frameworks, or the harmonization of intellectual property statutes. Such measures are imperative to realize the fundamental legal objectives of legal certainty, legal protection, and equity within the landscape of NFT digital asset transactions in Indonesia.

The legal risk mitigation strategy in NFT transactions serves as a tangible implementation of **SDG No. 17**, which emphasizes strengthening the means of implementation through global partnerships. To minimize legal uncertainty regarding the status of digital assets and potential intellectual property infringements, a collaborative mitigation mechanism is necessitated, involving synergy between regulators, Electronic System Providers (ESPs), and international bodies. This collaboration aims to formulate uniform and cross-jurisdictional due diligence protocols, as mandated under **SDG No. 17** targets concerning technology transfer and capacity building. By integrating the principles of transparency and accountability into smart contracts through multisectoral cooperation, risk

¹² Muhammad Alief, Bayu Syahputra, and Rahandy Rizki Prananda, "Aturan Non Fungible Token (NFT) Dalam Hukum Di Indonesia" 6, no. 1 (2023): 1799–1806.

mitigation transcends a defensive-individualistic approach, evolving into an inclusive legal protection system. This ensures that blockchain innovation progresses in alignment with global governance, thereby guaranteeing digital market stability and equity for all stakeholders.

Conclusion

Based on the findings of this normative legal study regarding the risks of Non-Fungible Token (NFT) transactions within the landscape of intellectual property disputes in Indonesia, it is concluded that NFT transactions constitute valid and binding juridical acts, provided they satisfy the essential requirements for a valid agreement as stipulated under Article 1320 of the Civil Code. Furthermore, such transactions are executed through electronic contracts, the validity of which is recognized pursuant to Article 18 paragraph (1) of the EIT Law. Nevertheless, the distinct characteristics of NFTs as blockchain-based digital assets engender legal complexities that are not yet fully accommodated within the Indonesian civil law system, particularly concerning the juridical status of NFTs as the subject matter of agreements and the establishment of legal title.

The primary risk of NFT transactions resides in the ambiguity regarding the scope of rights acquired by the purchaser, as the ownership of a digital token does not inherently constitute ownership of the copyright to the underlying work. Pursuant to Law No. 28 of 2014 concerning Copyright, copyright remains vested in the creator or rightsholder unless it is expressly assigned via a written instrument. This discrepancy creates a significant potential for intellectual property disputes, including copyright infringement, unauthorized exploitation, and legal misconceptions among creators, NFT holders, and third parties. This risk is further compounded by the utilization of smart contracts and electronic agreements which are standardized and automated; such frameworks may lead to a disparity in bargaining power, a limited comprehension of contractual terms, and

evidentiary hurdles in establishing a breach of contract. Furthermore, the involvement of digital platforms as Electronic System Providers (ESPs) introduces a complex multi-party legal nexus, while their specific legal liability regarding intellectual property disputes remains inadequately regulated.

In conclusion, the reinforcement of the regulatory framework for NFT transactions in Indonesia constitutes a tangible implementation of **SDG No. 17**, particularly in facilitating access to technology and innovation within a legally protected domain. It is recommended that the Government of Indonesia intensify strategic partnerships with technological stakeholders, both domestically and internationally, to formulate standardized electronic contract templates that are adaptive to technological shifts. Through these efforts, the resulting legal certainty serves not only as a risk mitigation instrument for individual legal subjects but also fundamentally solidifies Indonesia's position within a sustainable, secure, and equitable global digital partnership.

In light of these conditions, legal protection for NFT transactions in Indonesia remains fragmented and indirect, failing to provide comprehensive legal certainty. Consequently, it is recommended that the government and legislative bodies formulate specific regulations defining the juridical status of NFTs as digital assets. This should include provisions on ownership title, the delineation of transferred rights, and the apportionment of liability among creators, NFT holders, and digital platforms. Furthermore, it is essential to strengthen the intellectual property framework by mandating explicit disclosure regarding the specific copyrights assigned or retained during a transaction to minimize potential disputes. Marketplace operators must also enhance the transparency of electronic contracts and establish effective dispute resolution mechanisms. Concurrently, the public and prospective purchasers should improve their legal and digital literacy before executing transactions, while further academic research is encouraged to enrich the development of national

jurisprudence in the fields of digital assets and intellectual property.

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