

REGULATING THE METAVERSE: ENSURING LEGAL PROTECTION AND INTELLECTUAL PROPERTY RIGHTS IN THE DIGITAL LANDSCAPE

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ABSTRACT

The rapid digital tech growth has led to Non-Fungible Tokens (NFTs) and Metaverse rise. NFTs are blockchain-based certificates for virtual ownership. Metaverse offers 3D virtual reality for shared experiences, shaping new social and interactive norms. Business, like investing and ownership, thrives within it. However, Indonesia lacks comprehensive regulations for its legal aspects, potentially affecting user rights and copyright. The purpose of this research is to conduct an analysis, especially regarding metaverse regulations, especially in relation to intellectual property so that it becomes reference material for the public and policy makers. Research method using qualitative methods. Research results related to copyright protect the creator, transfer of ownership with purchase. Due to the limited regulation of NFTs, legal protection, especially of intellectual property rights, is very important. Registering each NFT artwork under IP rights ensures legal protection for all created works. Research also shows that there is a gap where the existing law only relates to Intellectual Property but does not yet address the metaverse world which in fact is a virtual world, so this study is very important to support the sustainability of intellectual property in the current metaverse world.

Keywords : NFT (Non-Fungible Token), Metaverse, Intellectual property rights

A. Introduction

The rapid development of technology in the digital era is parallel to the increasing human involvement in the virtual world. One of the emerging phenomena is the digital assets in the form of NFT (Non-Fungible Token) within the Metaverse, enabling digital transactions in the virtual realm. NFT, or Non-Fungible Token, is a crypto technology that functions as a digital certificate representing ownership of a photo, video, or other virtual objects. Assets with NFT are recorded on the blockchain, a digital ledger used in Ethereum, Bitcoin, and other cryptocurrency networks. Once encrypted on the blockchain, NFTs cannot be replicated or duplicated. Blockchain itself is a technology that employs a decentralized computer network to record a series of transactions. It also serves as a secure digital data storage or bank protected by cryptography. The use of blockchain is closely associated with Bitcoin

and other cryptocurrencies.¹

The rapid technological advancement in the digital age, particularly in the field of digital trading, is a response to society's preference for practicality, seeking everything to be more accessible and efficient, such as the adoption of NFTs by artists to sell their creations in digital form.² Non-Fungible Tokens, commonly referred to as NFTs, are digital assets stored on a distributed public ledger that records transactions and possesses unique identification codes and metadata, distinguishing one from another, all within the blockchain network. Unlike cryptocurrencies, where each unit is considered interchangeable with another, hence termed fungible tokens, NFTs offer individual value and uniqueness that cannot be replicated or substituted by any other digital asset.³

The presence of NFTs has had a positive impact on the world of digital commerce, especially for artists. NFTs provide a novel way for artists to sell their creations digitally. They can utilize NFTs to create unique pieces of art with clear ownership rights, enhancing transparency and trust in the art industry. These Non-Fungible Tokens store digital assets on a public ledger distributed across the blockchain network, recording each transaction with distinct identification codes and metadata. This allows artists and collectors to easily and accurately trace the ownership history of a piece of art.⁴

The advancement of blockchain technology as the main support for NFTs has brought about significant changes in the digital transaction system. Blockchain operates independently through computer algorithms, without the need for specific regulatory systems. The security of data provided by this technology plays a crucial role in the development of NFTs and other cryptocurrencies. Through cryptography, blockchain ensures secure digital data storage and prevents the risk of data replication or manipulation. Consequently, NFTs and blockchain have made a significant breakthrough in the digital world, elevating the concept of virtual asset ownership to new heights.⁵

The emergence of NFTs in 2014 began with the introduction of a platform called Counterparty, where the first NFT artwork, Quantum, was created and now holds a value of 7 million US dollars. From 2017 until now, NFTs have gained widespread recognition and are predicted to continue growing in popularity due to their convenient method for buying and selling digital artworks. NFT transactions are known to have limited access and possess

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- 1 Dominic Chalmers et al., "Beyond the Bubble: Will NFTs and Digital Proof of Ownership Empower Creative Industry Entrepreneurs?," *Journal of Business Venturing Insights* 17 (2022): 1–8, <https://doi.org/10.1016/j.jbvi.2022.e00309>.
 - 2 Laura Bergamaschi et al., "Longitudinal Analysis Reveals That Delayed Bystander CD8+ T Cell Activation and Early Immune Pathology Distinguish Severe COVID-19 from Mild Disease," *Immunity* 54, no. 6 (2021): 1257–1275.
 - 3 Qin Wang et al., "Non-Fungible Token (NFT): Overview, Evaluation, Opportunities and Challenges," *arXiv preprint arXiv:2105.07447* (2021).
 - 4 Bikramaditya Ghosh et al., "Return and Volatility Properties: Stylized Facts from the Universe of Cryptocurrencies and NFTs," *Research in International Business and Finance* 65 (2023): 101945.
 - 5 Saqib Hakak et al., "Recent Advances in Blockchain Technology: A Survey on Applications and Challenges," *International Journal of Ad Hoc and Ubiquitous Computing* 38, no. 1–3 (2021): 82–100.

unique identification codes distinguishing each NFT from others. Moreover, NFTs come with inherent authentication features that serve as proof of ownership, providing reassurance regarding their authenticity and security. The transactions involved in buying and selling artworks through NFTs can lead to legal implications as they entail the division of rights, namely copyright and ownership rights. However, there are still many misunderstandings and confusions that arise during NFT transactions, particularly regarding the distinction between copyright holders and ownership rights, which can be perplexing for individuals unfamiliar with NFT usage.⁶

The complexities of NFT transactions, involving the allocation of copyright and ownership rights, have legal implications for both artists and buyers. The distinction between copyright holders and ownership rights often creates confusion and raises questions among individuals who are not well-versed in the realm of NFTs.⁷ As NFT transactions become increasingly widespread, there is a growing demand for clear and accessible explanations about the legal aspects concerning the ownership and copyright of the artworks traded through NFTs. Providing comprehensive guidance and educational materials on this matter will help foster a better understanding of NFT transactions, ensuring fair and transparent dealings between artists and collectors in the digital art market.⁸

NFT has emerged as a new digital platform that empowers artists by providing easy access and secure tools and methods to monetize their creative works efficiently. This enables artists to capitalize on their creations and streamline the process of generating revenue. However, it cannot be denied that there are still various legal and technical challenges that arise within the realm of NFTs. One of the key issues revolves around the position of NFTs in intellectual property rights, where NFT owners do not directly possess the underlying asset or artwork they purchase. Instead, they only hold a unique token and a record indicating their ownership of the specific digital asset.⁹

NFTs are designed with the purpose of preventing any form of illegal duplication, which would otherwise constitute a violation of an artist's intellectual property rights. However, in practice, NFTs still face challenges in claiming ownership of digital artworks due to a lack of transparency and the anonymity inherent in the blockchain system. This anonymity allows anyone to claim a digital artwork as their own by attaching a token to the piece. As transactions on the blockchain are publicly recorded in a digital ledger and cannot be altered, it becomes more feasible to attach identities to these transactions. However, this

6 Madison Yoder, "An" OpenSea" of Infringement: The Intellectual Property Implications of NFTs," *The University of Cincinnati Intellectual Property and Computer Law Journal* 6, no. 2 (2022): 4.

7 Andrew Park et al., "The Evolution of Nonfungible Tokens: Complexity and Novelty of NFT Use-Cases," *IT Professional* 24, no. 1 (2022): 9–14.

8 Lennart Ante, "Non-Fungible Token (NFT) Markets on the Ethereum Blockchain: Temporal Development, Cointegration and Interrelations," *Economics of Innovation and New Technology* (2022): 1–19.

9 Chalmers et al., "Beyond the Bubble: Will NFTs and Digital Proof of Ownership Empower Creative Industry Entrepreneurs?"

also creates difficulties in identifying and apprehending art thieves in the NFT space.¹⁰

The lack of transparency in the NFT ecosystem can lead to uncertainties and disputes over ownership rights. Since NFT transactions are often executed anonymously, it becomes challenging to verify the true ownership of digital artworks. In the absence of clear identification measures, artists may face difficulties in asserting their rights and proving their authorship. As a result, some artists may find it difficult to protect their creations from unauthorized use and reproduction, undermining the very purpose for which NFTs were intended.¹¹ Implementing improved identity verification processes within the blockchain system can help establish the rightful ownership of digital artworks. By associating the identity of artists with their NFT transactions, the risk of art theft and false claims can be minimized, creating a more secure environment for artists to showcase and monetize their creations. Additionally, fostering collaboration between NFT platforms, artists, and legal experts may lead to the development of standardized practices that uphold the principles of intellectual property rights while ensuring the efficiency and accessibility of NFT transactions.¹²

The Indonesian government has introduced several legal protection products in the digital economy sector, including the enactment of Law Number 11 of 2020 on Job Creation, Law Number 11 of 2008 (ITE Law) concerning digital content regulations, Government Regulation Number 71 of 2019 on the implementation of Electronic Transaction Systems, and Minister of Communication and Informatics Regulation Number 5 of 2021 on Risk-Based Business Licensing, which is a derivative regulation of the Job Creation Law in the communication and informatics sector covering sub-sectors such as postal services, telecommunications, broadcasting, and electronic systems and transactions. Regarding Cryptocurrency assets used by Metaverse users and investors, there are also four regulations issued by the Commodity Futures Trading Regulatory Agency (BAPPEBTI). Based on the preceding explanations, it is essential to further analyze the various activities that can be conducted within the Metaverse and consider the urgency of adaptive legal updates to provide protection for businesses and society in the era of the Metaverse. Therefore, an analysis of the legal protection efforts related to digital assets in the Metaverse is necessary to support the national digital economic strength.¹³

The introduction of the mentioned legal protection products signifies the Indonesian government's commitment to address the challenges and opportunities presented by the

10 Fulya Teomete Yalabik, "Future of NFTs in the Entertainment Industry: No Longer the 'Wild West' of Intellectual Property Law?," *European Journal of Law and Technology* 14, no. 1 (2023).

11 Sangam Bhujel and Yogachandran Rahulamathavan, "A Survey: Security, Transparency, and Scalability Issues of Nft's and Its Marketplaces," *Sensors* 22, no. 22 (2022): 8833; Dipanjan Das et al., "Understanding Security Issues in the NFT Ecosystem," in *Proceedings of the 2022 ACM SIGSAC Conference on Computer and Communications Security*, 2022, 667–681.

12 Kristin Cornelius, "Betraying Blockchain: Accountability, Transparency and Document Standards for Non-Fungible Tokens (Nfts)," *Information* 12, no. 9 (2021): 358.

13 Thomas Dragono, Wiwik Sri, and Widiarty Bernard, "Perlindungan Aset Digital Dalam Dunia Metaverse Berdasarkan Hukum Nasional" 7, no. 1 (2023): 742–750.

digital economy, particularly in the context of the rapidly evolving Metaverse. The Job Creation Law aims to streamline regulations and improve the business climate to encourage investment and economic growth. Additionally, the ITE Law addresses the handling of digital content and cybercrimes, providing a legal framework to tackle issues related to online defamation, hate speech, and other digital offenses.¹⁴ The regulations on electronic transactions and risk-based business licensing aim to promote the growth of e-commerce and digital businesses while ensuring a risk-managed approach to licensing. These legal instruments create a more conducive environment for businesses to thrive in the digital space while safeguarding the interests of users and investors.¹⁵

As Metaverse continues to gain momentum in Indonesia and around the world, it becomes crucial to analyze the legal implications and challenges associated with the use of digital assets within this virtual world. Cryptocurrencies, as one of the primary assets in the Metaverse, have garnered significant attention and interest from both users and investors.¹⁶ BAPPEBTI's regulations on Cryptocurrencies aim to provide a framework for transparent and regulated trading, enhancing consumer protection and market integrity. Analyzing the existing regulations and identifying potential gaps in addressing issues related to digital asset protection will be crucial to developing adaptive and comprehensive legal measures that foster trust, innovation, and economic growth within the Metaverse.¹⁷ A well-crafted legal framework will not only protect the interests of businesses and users but also encourage investment and participation in the digital economy, positioning Indonesia as a leading player in the global digital landscape.

In light of the growing importance of the Metaverse and the increasing use of digital assets within this virtual world, it is imperative for policymakers and legal experts to engage in continuous dialogue and collaboration with industry stakeholders. This collaborative approach will enable the development of agile and responsive legal frameworks that can adapt to the rapidly changing technological landscape of the Metaverse. By actively involving businesses, users, and investors in the regulatory process, the government can gain valuable insights into the unique challenges and opportunities presented by this emerging digital realm. Furthermore, fostering an open and inclusive ecosystem for discussions and feedback will facilitate the identification of potential risks and the formulation of effective

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- 14 Matt Fortnow and QuHarrison Terry, *The NFT Handbook How to Create, Sell and Buy Non-Fungible Tokens* (Wiley, 2021).
- 15 Rizki Fitri Amalia, "Legal Protection for Virtual Land Trading Investment Transactions in the Metaverse," in *3rd International Conference on Business Law and Local Wisdom in Tourism (ICBLT 2022)* (Atlantis Press, 2023), 488–496; Wukir Prayitno, Totok Tumangkar, and Sri Mulyani, "The Metaverse Symbol of Civilization Transfer in the Middle of Digital Economic Hegemony: Synthesis of Progressive Law of the Post-Modern Era," *Seven Editoria* (2023).
- 16 Cahyoko Edi Tando and Muhammad Arief Adillah, "Legal Development In Technology Investment Metaverse: Case In Indonesia," *Indonesian Law Journal* 15, no. 2 (2022): 42–59.
- 17 Susilowardhani Susilowardhani, Ashinta Sekar Bidari, and Reky Nurviana, "Regulation And The Future Of Cryptocurrency In Indonesia," *International Journal of Economics, Business and Accounting Research (IJEBAR)* 6, no. 3 (2022): 2177–2184.

measures to protect the interests of all parties involved. In the end, this research will of course be more directed towards a review and analysis of how the legal approach, especially the protection of intellectual property in the metaverse world, is to support business actors or intellectual property owners in Indonesia.

B. Research Method

The research employed a qualitative approach, specifically adopting a descriptive-analytical with narrative explain. This approach involved presenting and describing data in a comprehensive, detailed, and systematic manner.¹⁸ The data were then analyzed using legal theories, applicable regulations, and the researcher's own insights. The study primarily utilized a juridical approach to examine and analyze secondary data, which included legal materials, books, and previous research findings.¹⁹ Additionally, it utilized a descriptive-analytical approach through data collection via literature reviews, document analysis, and archival studies related to legal protection for digital assets within the Metaverse.

The use of a qualitative approach allowed the research to explore and provide a deeper understanding of the legal protection landscape in the Metaverse concerning digital assets. By employing a juridical approach, the study could critically analyze legal materials and evaluate the effectiveness and adequacy of existing laws in addressing the complexities and challenges of the Metaverse. Moreover, the study's reliance on secondary data sources, such as books, legal documents, and previous research, ensured a well-informed analysis of the subject matter, enabling the formulation of valuable insights and recommendations for policymakers and stakeholders in the digital economy.

C. Research Results and Discussion

1. Law Number 28 of 2014 concerning Copyright as the basis for Copyright Protection in the Metaverse World

The rapid development of copyright history has been remarkable, especially with the emergence of new challenges such as the internet in the digital era. Responding to these advancements, the World Intellectual Property Organization (WIPO) organized a conference in Geneva in December 1996 to update intellectual property norms in the face of the digital environment. WIPO invited representatives from 160 countries to participate in the conference, focusing on the creation, adoption, transmission, and distribution of works through digital mediums.²⁰

18 John W. Cresswell, *Research Design Pendekatan Kualitatif, Kuantitatif, Dan Mixed*, 3rd ed. (Yogyakarta: Pustaka Pelajar, 2010).

19 David Tan, "Metode Penelitian Hukum: Mengupas Dan Mengulas Metodologi Dalam Menyelenggarakan Penelitian Hukum," *Nusantara: Jurnal Ilmu Pengetahuan Sosial* 8, no. 8 (2021): 2463–2478.

20 Sam Ricketson, *Research Handbook on the World Intellectual Property Organization: The First 50 Years and Beyond* (Edward Elgar Publishing, 2020).

The WIPO conference in 1996 marked a significant milestone in the evolution of copyright laws. With the advent of the internet and the digital environment, traditional copyright norms faced new complexities and challenges. The conference provided an essential platform for participating countries to exchange ideas and seek innovative solutions to protect intellectual property in this rapidly changing landscape. It aimed to foster international cooperation and harmonize legal frameworks to ensure the fair and effective management of digital works.²¹

One of the critical outcomes of the WIPO conference was the recognition of the importance of striking a balance between the rights of creators and the needs of the public in the digital age. The traditional approach to copyright needed adjustments to accommodate the fast-paced digital world without stifling creativity and innovation. The outcome of the conference led to the creation of two significant agreements: the WIPO Copyright Treaty (WCT) and the WIPO Performance and Phonogram Treaty (WPPT). These treaties were designed to address the challenges posed by the digital environment on copyright regulations. Internationally recognized as the "WIPO Internet Treaties," these conventions marked a pivotal moment in the evolution of intellectual property protection in the digital age.²²

The WIPO Performance and Phonogram Treaty (WPPT), on the other hand, addressed the rights of performers and producers of phonograms in the digital environment. With the rise of digital music platforms and online streaming services, the treaty sought to ensure that performers and producers received fair compensation for their contributions to the digital entertainment industry. It laid down provisions for the protection of performances and phonograms in the digital domain and aimed to strike a balance between the interests of artists and the public's access to cultural content.²³

The "WIPO Internet Treaties" played a pivotal role in harmonizing copyright regulations across different countries. By promoting a unified approach to copyright protection in the digital era, these treaties facilitated cross-border collaboration and reduced legal uncertainties for creators and users alike. They also recognized the importance of technological protection measures (TPMs) to secure digital content and prevent unauthorized use and distribution, which further bolstered confidence in the digital marketplace.²⁴

With the establishment of the WIPO Copyright Treaty (WCT) and the WIPO Performance and Phonogram Treaty (WPPT), the international community took significant steps towards adapting copyright laws to the digital landscape. These treaties not only reflected the global

21 Faith O Majekolagbe, "The International Copyright System and Development: The Role of the World Intellectual Property Organization," *Available at SSRN 4349460* (2023); Ricketson, *Research Handbook on the World Intellectual Property Organization: The First 50 Years and Beyond*.

22 Ricketson, *Research Handbook on the World Intellectual Property Organization: The First 50 Years and Beyond*.

23 Cheryl Foong, "Copyright's Making Available Right: Distinguishing Downloads and Streams under the WIPO Internet Treaties," *Singapore Journal of Legal Studies* (2023).

24 *Ibid.*; Majekolagbe, "The International Copyright System and Development: The Role of the World Intellectual Property Organization"; Ricketson, *Research Handbook on the World Intellectual Property Organization: The First 50 Years and Beyond*.

effort to protect intellectual property rights but also highlighted the importance of continuous dialogue and collaboration between nations in addressing the challenges posed by the ever-changing digital environment.²⁵

In Indonesia, the regulation of copyright law has accommodated provisions related to security technology in its articles, which can be found in Law No. 28 of 2014 concerning Copyright. Although the Copyright Law (UUHC) has not explicitly explained the methods and usage of security technology, the concept of Security Technology in Indonesia's positive law has adequately encompassed the protection of creators' exclusive rights, moral rights, and economic rights. The use of security technology as protection for moral rights is governed by Articles 6 and 7 of the Copyright Law. Article 6 of Law No. 28 of 2014 states that to protect moral rights as referred to in Article 5 paragraph (1), the Creator may have: Copyright management information; and/or electronic Copyright information.

The implementation of security technology in Indonesia's copyright law aims to strike a balance between protecting the rights of creators and fostering innovation and creativity. By incorporating security technology provisions in the Copyright Law, Indonesia demonstrates its commitment to adapting to the digital age and ensuring that creators' rights are safeguarded in an increasingly digital and interconnected world.

While the Copyright Law in Indonesia provides a legal basis for the use of security technology, the specific implementation and practical aspects of such measures may still be subject to further development and clarification.²⁶ Furthermore, Article 7 of Law No. 28 of 2014 states the following provisions regarding Copyright Management Information (CMI) and Electronic Copyright Information (ECI):

1. Copyright Management Information, as referred to in Article 6 letter a, includes information about:
 - a. Methods or systems that can identify the originality of the substance of the creation and its creator; and
 - b. Information codes and access codes.
2. Electronic Copyright Information, as referred to in Article 6 letter b, comprises information about:
 - a. A creation, which appears and is electronically attached in connection with the Announcement of the Creation;
 - b. The name of the creator, alias, or pseudonym;
 - c. The creator as the Copyright Holder;
 - d. The period and conditions of the creation's usage;
 - e. The identification number; and

25 Ricketson, *Research Handbook on the World Intellectual Property Organization: The First 50 Years and Beyond*.

26 Dragono, Sri, and Bernard, "Perlindungan Aset Digital Dalam Dunia Metaverse Berdasarkan Hukum Nasional."

- f. Information codes.
3. Any removal, alteration, or destruction of the Copyright Management Information as referred to in paragraph (1) and the Electronic Copyright Information as referred to in paragraph (2) that is possessed by the Creator is prohibited.

The provisions in Article 7 of the Copyright Law emphasize the significance of Copyright Management Information (CMI) and Electronic Copyright Information (ECI) in ensuring the proper identification and protection of copyrighted works. These informational components play a crucial role in establishing the ownership and authenticity of creative works, especially in the digital age where the circulation and dissemination of content happen quickly and on a global scale.

By explicitly stating that the removal, alteration, or destruction of CMI and ECI is prohibited, the law aims to deter potential infringements and preserve the integrity of copyrighted works. These measures not only protect the interests of creators and copyright holders but also contribute to maintaining transparency and accountability in the management of intellectual property rights. The inclusion of detailed guidelines for CMI and ECI in the Copyright Law reflects Indonesia's commitment to embracing digital advancements while upholding the principles of copyright protection. These provisions empower creators and copyright owners with the necessary tools to safeguard their works, promote responsible usage, and combat unauthorized distribution or misuse of copyrighted content in the modern digital landscape.

The utilization of security technology as a means to protect economic rights in copyright is further governed by Articles 52 and 53 of the Copyright Law. Article 52 of Law No. 28 of 2014 states: "Any person is prohibited from damaging, destroying, removing, or disabling technological control measures used as protection for creations or related rights products, as well as copyright or related rights security measures, except for the purposes of national defense and security or other reasons in accordance with the provisions of regulations or other agreements." The inclusion of provisions in Articles 52 and 53 demonstrates Indonesia's commitment to ensuring the effective protection of economic rights associated with copyrighted works. By prohibiting the tampering with or removal of technological control measures, the law aims to create a secure environment for copyright holders and related rights owners, allowing them to enjoy the economic benefits derived from their creative endeavors.²⁷

The Copyright Law's allowance for the use of technological control measures for protection aligns with international efforts to combat copyright infringement and piracy.²⁸ Embracing such measures helps Indonesia conform to global standards of intellectual property protection and contributes to a more vibrant creative industry by encouraging

²⁷ Undang-Undang Nomor 28 Tahun 2014 Tentang Hak Cipta.

²⁸ lcx.com, "Legal Aspects of NFTs," *Lcx.Com*, last modified 2023, accessed November 11, 2023, <https://www.lcx.com/legal-aspects-of-nfts/>.

innovation and investment in copyrighted content.²⁹ Although current legislation in Indonesia does not explicitly and specifically address ownership and legal protection in the digital realm, especially concerning digital art, the regulation of digital creations can be referred to existing laws, one of which is the Copyright Law. In general, the Copyright Law protects various creations, some of which are mentioned in Article 40 paragraph (1), where it states that "compilations of works or data, whether in a format that can be read by a Computer Program or other media" are among the creations protected by copyright. Meanwhile, a Computer Program, as defined in Article 1 number 9 of the Copyright Law, is "a set of instructions expressed in the form of language, code, schema, or in any other form intended to make a computer perform specific functions or achieve specific results."

International collaboration and learning from global best practices can also play a crucial role in shaping Indonesia's approach to digital copyright. By engaging in dialogues with other countries and international organizations, Indonesia can gain insights into effective measures and strategies implemented in digital art and creative sectors worldwide. Such collaborations can foster harmonization of copyright laws and facilitate cross-border cooperation in addressing the challenges posed by the digital landscape.³⁰

Additionally, encouraging the adoption of digital watermarking and digital rights management (DRM) technologies can enhance the protection of digital creations in Indonesia. Watermarking enables artists to embed copyright information directly into their digital works, acting as a visible deterrent against unauthorized use. Simultaneously, DRM technologies help control access to digital content and prevent unauthorized copying, ensuring the rights of creators are respected in the digital space. Integrating these technologies into the legal framework and promoting their use among creators can be steps towards strengthening copyright protection in the digital era.³¹

Based on the given paragraph, it is evident that Computer Programs essentially consist of instructions created to make computers perform specific functions or achieve certain outcomes. When connected to the digital world, it becomes apparent that the digital realm exists due to computer systems. Therefore, the digital world and computer programs are closely linked, and the digital world cannot be separated from computer programs. Considering this connection and referring to Article 40 paragraph (1) point p, digital data compilations that can be read by Computer Programs are essentially protected under Copyright Law. As virtual structures are "constructed" through electronic codes read by Computer Programs, the protected elements are the arrangements of these electronic

29 Mochammad Tanzil Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens," *Jurnal Politik dan Pemerintahan Daerah* 4, no. 2 (2022): 293–303.

30 Edy Santoso, "Opportunities and Challenges: E-Commerce in Indonesia from a Legal Perspective," *Jurnal Penelitian Hukum De Jure* 22, no. 3 (2022): 395–410.

31 Agung Kurniawan Sihombing, Rika Ratna Permata, and Tasya Safiranita Ramli, "Comparison of Digital Copyright Protection on Over the Top (OTT) Streaming Content Media in Indonesia and the United States," *PADJADJARAN Jurnal Ilmu Hukum (Journal of Law)* 8, no. 2 (2021): 183–212.

codes. Thus, if another "structure" is found with the same arrangement of electronic codes, it can be deemed a copyright infringement against the arrangement of electronic codes. Since the arrangement of codes forming virtual structures is a copyrighted object, the creators of such arrangements hold economic rights as regulated in Article 9 of the Copyright Law.

Recognizing the inseparable relationship between computer programs and the digital world highlights the need for comprehensive and up-to-date copyright laws in Indonesia. Protecting the arrangements of electronic codes that form virtual structures ensures that creators' intellectual property rights are respected and encourages continued innovation and creativity in the digital landscape. A combination of robust legal frameworks, public awareness, and international cooperation is crucial in establishing a sustainable and equitable copyright ecosystem for digital creations.

2. Copyright and Property Rights in NFT works

The trading of artworks within NFTs can create confusion among the general public regarding the division of rights that occur after completing a transaction on NFT platforms. The distinction between copyright and ownership rights is sometimes misunderstood or even misconstrued, leading to uncertainty about which party holds which rights. Here, we will clarify the differences between copyright and ownership rights in the context of NFTs.³²

Ownership rights, on the other hand, pertain to the physical or digital possession of an asset. To avoid confusion and ensure clarity in NFT transactions, it is crucial for both creators and buyers to have a clear understanding of copyright and ownership rights. Creators should consider how they want to license their works and specify the terms of use for buyers in the NFT smart contract. On the other hand, buyers should be aware of what they are acquiring when purchasing an NFT and ensure they are not infringing on the creator's copyright.³³

As the NFT market continues to grow and evolve, educating creators and buyers about copyright and ownership rights will be vital to fostering a fair and transparent ecosystem. By promoting awareness and providing clear guidelines, the NFT community can create a more inclusive and mutually beneficial environment for all stakeholders involved in the creation and trading of digital assets.

a. Copyright

Copyright is a special right granted to creators and copyright holders to publicly display, reproduce, and grant permissions for their works, subject to legal restrictions. The term "special right" implies that only the creator or the authorized copyright holder can exercise

32 Ninne Zahara Silviani and Seela Anwar Sya'adah, "Non-Fungible Token (NFTs) Copyrights Towards Indonesia Digital Economy Development 2030: Polemic and Challenges," *Syiah Kuala Law Journal* 7, no. 1 (2023).

33 Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens."

these rights, including the right to sell, duplicate, and derive benefits from the creative work, as long as the creator does not provide permission or limitations. NFTs have the potential to enforce copyright through the transparent mechanisms provided by the blockchain.³⁴

Through the use of smart contracts, creators can embed specific terms and conditions related to copyright and licensing directly into the NFT. For example, they can specify whether the NFT owner has the right to display the artwork publicly, create derivative works, or commercialize the artwork. These predefined conditions ensure that copyright holders retain control over how their works are used, protecting their interests and maintaining the integrity of their creations.³⁵

NFTs hold significant potential for upholding copyright protections in the digital age. By leveraging blockchain technology and smart contracts, NFTs offer creators enhanced control, visibility, and security over their intellectual property. As the NFT ecosystem continues to evolve, it will be essential to promote awareness and adherence to copyright laws and ethical practices to foster a sustainable and equitable environment for both creators and NFT enthusiasts.³⁶

The ledger, a fundamental mechanism in blockchain, allows the transaction history to be transparent and traceable by the public. This transparency enables the inclusion of code in blockchain features to create contracts that govern the buying and selling process in NFTs. Consequently, digital artists can retain their economic rights over the artworks they sell, even if the works are repeatedly transferred. The combination of smart contracts and blockchain technology empowers small artists who may struggle to be accommodated through conventional means, as it enables them to control both their moral and economic rights, which are inherent in copyright law.³⁷

Through the use of NFTs, artists can leverage the benefits of blockchain to maintain control over their creations, even as ownership changes hands over time. The decentralized and immutable nature of blockchain ensures that every transaction involving the NFT is recorded and cannot be altered, providing a secure and tamper-proof mechanism to enforce artists' rights. This approach safeguards the economic interests of artists, as they can receive a percentage of each subsequent sale or transfer of their NFTs, known as royalties, as specified in the smart contract.³⁸

In addition to financial benefits, NFTs also empower artists to maintain their moral rights over their creations. Moral rights include the right to be identified as the creator of the work

34 Pınar Çağlayan Aksoy and Zehra Özkan Üner, "NFTs and Copyright: Challenges and Opportunities," *Journal Of Intellectual Property Law and Practice* 16, no. 10 (2021): 1115–1126.

35 Maya Ruhtiani, "Transferring Copyright Ownership of NFT on The Perspective of Positive Law In Indonesia," *Perspektif* 28, no. 1 (2023): 56–65.

36 Das et al., "Understanding Security Issues in the NFT Ecosystem."

37 Ifeanyi E Okonkwo, "NFT, Copyright and Intellectual Property Commercialization," *International Journal of Law and Information Technology* 29, no. 4 (2021): 296–304.

38 Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens"; Okonkwo, "NFT, Copyright and Intellectual Property Commercialization."

and the right to object to any modifications or derogatory use of the work. With blockchain technology and NFTs, artists can assert and protect these moral rights, ensuring that their works are attributed correctly and that they have a say in how their creations are presented and used.³⁹

The platform sets out specific terms and conditions that outline the buyer's rights to the NFT artwork, akin to a limited license. Buyers are allowed to display the artwork publicly and make copies for personal use, but they are restricted from using it for commercial purposes. To ensure clarity and adherence to policies, it is preferable to incorporate the platform's privacy policy and terms of service into the NFT sales process. By doing so, buyers are made aware that they do not have the right to license, exploit, or create derivative works from the artwork on the NFT, except for public display, personal use, and non-commercial copying. However, buyers retain the right to resell the NFT.⁴⁰

As a result, all copyrights and other artistic rights within an artwork on an NFT automatically belong to the original creator of that NFT. The creator retains full ownership and control over the intellectual property, even after the NFT is sold to a buyer. This arrangement ensures that the creator's creative rights are protected, and they maintain authority over how their artwork is used and distributed. By preserving the creator's rights, the NFT ecosystem fosters a fair and respectful environment for artists, encouraging them to continue producing valuable and innovative digital art.

The terms and conditions established by NFT platforms play a critical role in defining the rights and limitations of buyers and creators within the NFT ecosystem. By clearly outlining the rights and responsibilities of all parties involved, NFT platforms can foster a sustainable and equitable marketplace for digital art, where artists retain control over their creations, and collectors can enjoy ownership and display rights within the specified boundaries.

b. Property Rights

NFTs can be linked to digital texts when accompanied by a legal contract specifying the type of rights and ownership over a particular work, theoretically speaking. For instance, Michael Arrington, the founder of TechCrunch media company, successfully sold his residence in Kyiv in June 2021 through an NFT. The Ukrainian government even approved the platform used for the property transaction, and the sale of the NFT was registered as a property deed transfer. Hence, NFTs can be clarified as securities since they can be used as evidence of ownership, demonstrating the authenticity of the property and facilitating secondary market trading.⁴¹

39 Balázs Bodó et al., "The Rise of NFTs: These Aren't the Droids You're Looking For" (2022).

40 Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens."

41 S H Alexander Sugiharto et al., *NFT & Metaverse: Blockchain, Dunia Virtual & Regulasi*, vol. 1 (Indonesian Legal Study for Crypto Asset and Blockchain, 2022).

In the context of NFTs, digital texts can be integrated into smart contracts to provide a clear and legally binding record of ownership rights and terms of use for the digital assets. By combining digital texts with NFTs and smart contracts, creators and buyers can establish a transparent and immutable record of transactions, ensuring proper attribution and provenance of the artworks. This integration enhances trust and transparency in the NFT market, bolstering confidence among creators, collectors, and investors.⁴²

Moreover, NFTs offer a novel approach to digitizing and securing intellectual property rights, allowing creators to tokenize their digital works and establish verifiable ownership on the blockchain. This innovative use of NFTs in conjunction with digital texts provides a new level of control and protection for creators, as the immutable nature of the blockchain ensures that the rights associated with the NFTs cannot be altered or disputed.⁴³

The concept of NFTs revolutionizes the way ownership and intellectual property rights are managed in the digital world. By tokenizing digital assets and recording ownership on the blockchain, NFTs provide a transparent and secure mechanism for creators and buyers to validate ownership and establish provenance. This innovation empowers creators to retain control over their works and ensures they receive recognition and compensation for their artistic contributions.⁴⁴

Furthermore, NFTs offer new opportunities for artists and content creators to monetize their digital creations in unprecedented ways. With the rise of decentralized marketplaces and the growing acceptance of NFTs across various industries, creators can directly connect with collectors and buyers, bypassing traditional intermediaries and retaining more of the value generated by their works.⁴⁵

NFTs represent a groundbreaking development in the world of digital ownership and intellectual property rights. With their decentralized and secure nature, NFTs offer creators a new level of control, while enabling buyers to engage in unique digital assets with verified provenance. As the NFT market continues to evolve, it is essential to embrace these advancements responsibly and establish clear legal frameworks that safeguard the interests of all parties involved.

3. NFT within the perspective of Intellectual Property Rights

Intellectual Property (IP) refers to the wealth or assets that are born from human intellectual abilities, including works in the fields of arts and literature, science, and technology. These creations are produced through time, effort, ideas, and creativity, setting them apart from other forms of wealth that may be owned by humans but are not products of intellectual endeavors. For instance, natural resources like land and plants can be owned

42 Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens."

43 Yoder, "An "OpenSea" of Infringement: The Intellectual Property Implications of NFTs."

44 Lorena Lucia Gonzalez, "Digital Art, NFTs and the Protection of Intellectual Property Rights" (2023).

45 Ruhtiani, "Transferring Copyright Ownership of NFT on The Perspective of Positive Law In Indonesia."

by humans, but they are not results of human intellectual activities. Intellectual property encompasses works that are the outcome of human thought and intelligence, possessing economic value and utility in human life, thus making them commercial assets. As such, it is crucial to protect and develop a legal framework to safeguard intellectual property, known as Intellectual Property Rights (IPR).⁴⁶

The concept of Intellectual Property Rights is rooted in the recognition that creators' efforts in producing intellectual works deserve legal protection and recognition. By granting IPR, society incentivizes innovation and creativity while ensuring that creators can enjoy the economic benefits derived from their creations. These rights provide creators with the exclusive control over the use, reproduction, and distribution of their works, fostering a conducive environment for creativity and knowledge dissemination.⁴⁷

To promote the development of innovative and creative industries, governments and international organizations play an essential role in establishing robust legal frameworks for intellectual property protection. By encouraging research and development, fostering intellectual property literacy, and collaborating on global intellectual property standards, nations can create a balanced and harmonious environment that fosters creativity, respects the rights of creators, and fuels economic growth through the commercialization of intellectual assets.⁴⁸

The technology of NFTs (Non-Fungible Tokens) is still relatively new, and as a result, there are many aspects of NFTs that lack comprehensive regulations. From an Intellectual Property perspective, NFTs can be viewed as a simplification tool, while in the realm of Intellectual Property ownership, NFTs are seen as intangible personal property. This means that while the NFT itself cannot be physically held or touched, it possesses a certain value level that is assigned to the underlying asset. It is essential to clarify that owning an NFT does not grant the owner unlimited rights over the associated creative work. If an artist intends to transfer their ownership rights or exclusive rights to a collector, it must be done through a smart contract. However, it should be noted that the use of smart contracts on the blockchain is still relatively immature both in technical and legal aspects.⁴⁹

One of the significant advantages of NFTs lies in their ability to provide provenance and traceability for digital art and other creative works. Blockchain technology, which underpins

46 I Putu Wisnu Karma and I Ketut Artadi, "Arbitration As a Description of Settlement Distribution Outside the Court in the Disposal," *Kertha Wicara Journal* 2 7 (2022).

47 Taufik H Simatupang, "Hak Asasi Manusia Dan Perlindungan Kekayaan Intelektual Dalam Perspektif Negara Hukum," *Jurnal Ham* 12, no. 1 (2021): 111–122.

48 Dewi Sulistianingsih, Yuli Prasetyo Adhi, and Pujiono Pujiono, "Digitalisasi Kekayaan Intelektual Komunal Di Indonesia: Digitalization of Communal Intellectual Property in Indonesia," in *Seminar Nasional Hukum Universitas Negeri Semarang*, vol. 7, 2021, 645–656.

49 Bio Bintang Gidete, Muhammad Amirulloh, and Tasya Safiranita Ramli, "Pelindungan Hukum Atas Pelanggaran Hak Cipta Pada Karya Seni Yang Dijadikan Karya Non Fungible Token (NFT) Pada Era Ekonomi Digital," *Jurnal Fundamental Justice* (2022): 1–18; Arna Safitri, "Perlindungan Hukum Bagi Pemilik Konten NFT (Non-Fungible Token) Menurut Sistem Hukum Hak Kekayaan Intelektual" (Universitas Jambi, 2022).

NFTs, allows for a transparent and immutable record of ownership and transaction history. This feature can be leveraged to authenticate the provenance of digital artworks, preventing issues such as art forgery and copyright infringement. Ensuring a reliable and secure system of provenance can boost confidence in the NFT market and encourage further adoption by artists and collectors.⁵⁰

Smart contracts are computerized transaction protocols that automatically handle contract requirements when pre-defined conditions agreed upon by parties are met. The primary objective of smart contracts is to minimize the occurrence of misconduct by irresponsible parties, thereby reducing administrative costs and services. By leveraging decentralized blockchain systems, smart contracts can be automatically executed, ensuring a more secure and efficient process for various transactions. One of the key advantages of smart contracts is their ability to provide a trustless environment for transactions. By eliminating the need for intermediaries or third-party validators, smart contracts reduce the potential for fraud and manipulation in contractual agreements. This trustless nature enhances transparency and accountability, making smart contracts an attractive option for conducting business transactions in the digital era.⁵¹

The automation offered by smart contracts significantly streamlines business operations, particularly in finance and trade. With automated financial settlement mechanisms, companies can expedite payment processing, reduce transactional delays, and optimize overall operational efficiency. One of the drawbacks of smart contracts lies in their intention to replace traditional contracts. While this innovation offers several advantages, it also introduces new challenges. One notable concern is the permanence of smart contracts once they are deployed on the blockchain system. Any errors or mistakes that occur in the smart contract code become irreversible, making it challenging to rectify issues or mitigate potential risks post-deployment. This characteristic of blockchain technology could lead to significant repercussions in case of contract violations or operational errors.⁵²

To overcome the challenges associated with smart contracts, it is essential for all parties involved to possess a comprehensive understanding of the technical and legal aspects. Designing and implementing smart contracts require expertise in both fields, and adequate precautions must be taken to ensure that the smart contract accurately reflects the intended terms and conditions. Moreover, a clear and precise description of the contract's rules and obligations should be outlined to avoid misunderstandings or misinterpretations.

Collaboration among different stakeholders, including legal experts, software developers, and end-users, is vital in addressing the challenges and complexities of smart

50 Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens."

51 Alexander Sugiharto et al., *NFT & Metaverse: Blockchain, Dunia Virtual & Regulasi*, vol. 1, p. ; Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens."

52 Alexander Sugiharto et al., *NFT & Metaverse: Blockchain, Dunia Virtual & Regulasi*, vol. 1, p. ; Recca Ayu Hapsari, Aprinisa Aprinisa, and Rachel Anzani Putri, "Perlindungan Hukum Terhadap Teknologi Non-Fungible Token (NFT) Sebagai Identitas Karya Intelektual," *Amsir Law Journal* 4, no. 2 (2023): 236–245.

contracts. By promoting cross-disciplinary cooperation and knowledge exchange, the blockchain community can collectively work towards developing robust and secure smart contract solutions that align with legal requirements and the needs of diverse user groups. This collaborative approach can pave the way for more widespread adoption of smart contracts and, ultimately, the realization of their full potential in revolutionizing various industries.

In essence, the artworks that have been auctioned or sold as NFTs are closely related to Intellectual Property Rights (IPR). Therefore, the role of IPR in NFTs is crucial as it serves as the legal mechanism to protect a work (NFT digital assets). NFTs can be better described as licensing mechanisms or supporting evidence for the transfer of ownership of a work, but they are not the primary proof since the primary evidence requires registration with a public agency. Therefore, NFTs only serve as a reinforcement of IPR, not a replacement, as IPR possesses unique attributes that NFTs lack. IPR prohibits others from using and commercializing a creation without permission and without paying royalties.⁵³ As NFTs gain traction in various creative industries, the integration of IPR principles into the NFT ecosystem becomes increasingly critical to safeguard the interests of creators and rights holders.⁵⁴

Despite the benefits that NFTs bring to the protection of digital assets, it is essential to recognize their limitations. While NFTs provide a strong proof of ownership, they do not replace the legal foundation of IPR. Formal registration of intellectual property with relevant public authorities remains a vital step in obtaining comprehensive legal protection. Additionally, understanding the nuanced relationship between NFTs and IPR is necessary to navigate the legal landscape effectively and ensure creators' rights are adequately safeguarded.⁵⁵

To harness the full potential of NFTs and IPR, collaborations between legal experts, blockchain developers, and creative professionals are essential. Together, these stakeholders can work to establish guidelines and best practices for utilizing NFTs in conjunction with IPR to create a robust and secure environment for the digital creative economy. By fostering an inclusive and cooperative approach, the convergence of NFTs and IPR can pave the way for a thriving ecosystem that empowers creators, protects their rights, and fosters innovation in the rapidly evolving digital world.⁵⁶ Additionally, this

53 Hapsari, Aprinisa, and Putri, "Perlindungan Hukum Terhadap Teknologi Non-Fungible Token (NFT) Sebagai Identitas Karya Intelektual."

54 Dewi Sulistianingsih and Apriliana Khomsa Kinanti, "Hak Karya Cipta Non-Fungible Token (NFT) Dalam Sudut Pandang Hukum Hak Kekayaan Intelektual," *Krtha Bhayangkara* 16, no. 1 (2022): 197-206.

55 Alexander Sugiharto et al., *NFT & Metaverse: Blockchain, Dunia Virtual & Regulasi*, vol. 1, p. ; Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens."

56 Hapsari, Aprinisa, and Putri, "Perlindungan Hukum Terhadap Teknologi Non-Fungible Token (NFT) Sebagai Identitas Karya Intelektual"; Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens"; Sulistianingsih and Khomsa Kinanti, "Hak Karya Cipta Non-Fungible Token (NFT) Dalam Sudut Pandang Hukum Hak Kekayaan Intelektual."

integration could enable automatic royalty payments for creators whenever their NFTs are resold in secondary markets, ensuring fair compensation for their work and fostering a sustainable creative ecosystem.

In summary, NFTs and IPR complement each other in the realm of digital assets, and their convergence offers promising opportunities for creators and the creative industry as a whole. By harnessing the advantages of both NFTs and IPR, creators can assert greater control over their works while enjoying broader exposure and commercial possibilities. The development of clear legal guidelines and collaborative efforts between blockchain experts and legal professionals will be instrumental in shaping a future where NFTs and IPR coexist harmoniously, fostering innovation, creativity, and equitable reward for creators.

D. Conclusion

Protection of Copyright in the Virtual World (Metaverse) based on Law Number 28 of 2014 concerning Copyright has accommodated the use of security technology as a means of protecting copyright in the digital environment. Although the method and implementation of this technology have not been explicitly specified, the Law provides safeguards for the moral and economic rights of creators through the use of security technology. However, the legal regulations have not specifically addressed ownership and legal protection in the digital world, including digital artworks.

The emergence of the Metaverse has posed new challenges and opportunities for copyright protection. Even though there is already a law that regulates the types of punishment given to people who violate intellectual property, it is still weak. Apart from that, this research also calls for continued corrections in the law on intellectual property so that it can be revised further and in line with interests in the metaverse world. Besides that as the virtual landscape expands, creators face the risk of unauthorized use and distribution of their works. To address this issue, lawmakers are actively discussing potential amendments to the existing Copyright Law. These amendments aim to address the unique aspects of the digital realm, including the ownership and protection of digital art.

By clearly defining the roles and responsibilities of creators, users, and platforms within the Metaverse, the proposed changes seek to strike a balance between promoting creativity and innovation while safeguarding the rights of copyright holders in this rapidly evolving digital era. As the discussions continue, stakeholders are eagerly awaiting a comprehensive and robust legal framework that can effectively safeguard creative expression and ensure fair compensation for creators in the virtual world.

The distinction between copyright and ownership in NFT works can lead to separate individuals holding these rights. Copyright holders have the option to trade their creations with others, subsequently transferring ownership rights to the new acquirer. As a result, copyright and ownership are distinct entities in NFTs. Copyright is exclusively granted to

the creator of the work, while ownership can be bestowed upon any party that purchases the artwork. From an intellectual property perspective, the NFT technology is relatively new, and there is a significant scope of NFTs that lack comprehensive regulations or are susceptible to unforeseen actions. In this context, intellectual property rights (IPR) become the legal safeguard for NFT assets (artworks). NFTs can be regarded as licensing mechanisms or supporting evidence in the transfer of ownership, but they cannot serve as primary evidence since official registration with public authorities is crucial. Thus, NFTs act as reinforcement for IPR protection rather than replacing it, as IPR plays a fundamental role in safeguarding NFTs. Each artwork within the NFT ecosystem should be registered and documented under IPR to ensure legal protection for every creation.

The implementation of NFT technology has prompted discussions and considerations for its broader implications beyond the realm of digital art. In addition to artwork, NFTs have found applications in various industries, such as music, gaming, and real estate. However, as these applications expand, the legal landscape surrounding NFTs remains relatively uncharted. To address this, legal experts and policymakers are actively examining the potential need for new laws or amendments to existing ones to better govern NFTs and provide a robust legal framework for their ownership, licensing, and dispute resolution. Ensuring that NFT creators' rights are adequately protected and that ownership transactions are transparent and legally binding is of paramount importance. By establishing clear and comprehensive regulations, the legal community seeks to strike a balance between encouraging innovation and creativity in the NFT space while safeguarding the rights and interests of all stakeholders involved.

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