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DIGITAL ASSET AND PERSONAL DATA PROTECTION IN THE METAVERSE: ANALYZING THE IMPLEMENTATION OF INDONESIAN LAWS IN ADDRESSING CHALLENGES IN THE VIRTUAL ERA

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ABSTRACT

The rapid growth of metaverse technology significantly impacts the security of digital assets and personal data privacy. This qualitative study employs a social legal approach to analyze the implementation of Indonesian law concerning the protection of digital assets and personal data in the metaverse. Emphasizing the analysis of positive legal norms and principles in Indonesia, the research identifies potential barriers and necessary improvements in addressing virtual era challenges. By delving into existing regulations, the study outlines the legal framework governing digital assets and personal data in the metaverse context. The analysis focuses on legal responses to virtual environment dynamics, including data leaks, identity theft, and other cybersecurity threats. The findings aim to provide a profound understanding of Indonesia's legal effectiveness in safeguarding digital assets and personal data in the metaverse, offering practical implications for stakeholders to enhance legal protection in response to evolving metaverse technologies.
Keywords : Metaverse, Digital Assets, Personal Data Protection

A. Introduction

The current technological advancements have had a significantly impacted on various aspects of society. This is evident from the rapid spread of computer technology and the internet, which have connected the entire world without geographical boundaries. The digitalization era has significantly contributed to the emergence of new digital-based assets. This development has garnered attention, particularly in the financial and global trading industries, where asset-backed cryptocurrencies are increasingly being used as hedging instruments based on digital currencies.

The significant advancement in digital transactions is exemplified by the massive development of the Metaverse. Matthew Ball aptly defines the Metaverse as "a massively scaled and interoperable network of real-time rendered 3D virtual worlds, which can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence, and with continuity of data, such as identity, history, entitlements, objects, communications, and payments." The Metaverse enables users to

share experiences in the form of 3D virtual reality, a feat impossible in the physical world. This represents a technological and social evolution that opens a new chapter in human interaction. Various business aspects can be conducted through the Metaverse, including stock investments, blockchain utilization, and asset ownership. The Metaverse also offers convenience for SMEs, digital economies, and copyright protection in unprecedented ways. The digital technology of the Metaverse facilitates a wide range of business activities, such as investing in stocks, utilizing blockchain, and owning assets within the Metaverse. Its ease of use for SMEs, digital economies, and copyright protection allows users to conduct business without the need for physical meetings, offering limitless convenience. [1]

Metaverse and NFTs represent a novel digital platform empowering artists by providing easy access and secure tools and methods for the monetization of their creations in a more efficient manner. However, it is undeniable that Metaverse and NFTs face numerous legal and technical challenges. Potential risks include fraud, virtual business investment losses, the validity of virtual business contract creation, copyright issues concerning content (entertainment, education) in the Metaverse, risks of business disputes and virtual land, and the role of governments in providing comprehensive and detailed protection guidelines, permissions, and restrictions for users or investors in the Metaverse. Indonesia requires modern legal breakthroughs and a comprehensive approach to address the legal vulnerability of the metanarrative in tackling cyberspace challenges.[2]

The progress, however, brings forth new challenges, notably the ease of collecting and transferring someone's personal data without their knowledge and consent. This situation poses a threat to the constitutional rights of individuals regarding their personal data and underscores the importance of personal data protection in response to these challenges.[3]

Human rights encompass a range of universal rights, including political, social, economic, and cultural rights inherent to every individual. When discussing the protection of personal data, several human rights become highly relevant. One of them is the right to privacy, empowering each individual to maintain confidentiality and control the use of their personal data. This right grants authority to everyone to determine whether, how, and to whom their personal data will be disclosed. The essence of personal data protection is to prevent unauthorized or unwanted access, use, and exposure of an individual's personal data. Thus, human rights serve as a crucial foundation in safeguarding the integrity and security of each individual's personal information.[4]

1 Thomas Dragono, Wiwik Sri, and Widiarty Bernard, "Perlindungan Aset Digital Dalam Dunia Metaverse Berdasarkan Hukum Nasional" 7, no. 1 (2023): 742–50.

2 Setyo Utomo, "Tantangan Hukum Modern Di Era Digital," *Jurnal Hukum Media Bhakti*, 2017.

3 Indriani Muin, "Perlindungan Data Pribadi Dalam Platform E-Commerce Guna Peningkatan Pembangunan Ekonomi Digital Indonesia," *MJP Journal Law and Justice (MJPJLJ)* 1, no. 2 (2023): 81–91, https://jurnalilmiah.co.id/index.php/MJPJLJ.

4 Sekaring Ayumeida Kusnadi, "Perlindungan Hukum Data Pribadi Sebagai Hak Privasi," *AL WASATH Jurnal Ilmu Hukum* 2, no. 1 (2021): 9–16.

Privateness constitutes a highly intricate concept. Coined as the "Right to Privacy" by Samuel Warren and Louis Brandeis, it was initially defined as the right to enjoy life and the right to be alone. The evolution of this legal concept is inevitable, demanding acknowledgment and safeguarding. Legal frameworks to protect privacy emerge as a necessity that can meet these demands. The definition of the right to privacy and the protection of personal data are intertwined, as personal data, belonging to each individual, requires safeguarding and is an integral part of universally recognized human rights, as outlined in international and regional legal instruments such as the UDHR, ICCPR, and ILC.[5]

Protection of individual privacy, although not explicitly mentioned in the 1945 Constitution, is clearly recognized in Article 28G paragraph (1) of the Indonesian Constitution. It is crucial for the government and relevant institutions to implement policies and regulations that ensure adequate protection of personal data. The safeguarding of personal data should be considered an integral part of human rights. Therefore, these efforts aim to achieve the right balance between the advancements in information technology and individual rights, ensuring ethical data management in accordance with prevailing human rights standards.[6]

Personal data is defined as "any information related to an identified or identifiable natural person". According to the EU GDPR, personal data is described as any information concerning an individual ('data subject') that can identify or be identified; whether directly or indirectly, especially by referencing an identifier such as a name, identification number, location data, online identifier, or one or more factors specific to the physical, psychological, genetic, mental, economic, or social identity of that person. Digital personal data is often portrayed as a future resource, even referred to as a "new class of asset" by the World Economic Forum. They argue that the rapidly increasing amount of personal data "creates new opportunities for the generation of economic and social value."[7]

In the context of the digital economic development in Indonesia, the protection of personal data emerges as a highly central issue, particularly as Indonesia currently stands as a promising hub for the digital economy. This is evident from the country's total population of 265.4 million, with 50 percent, or 132.7 million, actively using the internet. Among them, 177.9 million individuals are mobile device users, and 120 million are active mobile social media users. According to a 2018 study by Google and Temasek, the predicted Market Size of Indonesia's Digital Economy is expected to reach USD 100 billion by 2025.[8] In

5 Raphael Haganta, "Legal Protection of Personal Data As Privacy Rights Of E-Commerce Consumers Amid The Covid-19 Pandemic," *Lex Scientia Law Review* 4, no. 2 (2020): 77–90.

6 Muin, "Perlindungan Data Pribadi Dalam Platform E-Commerce Guna Peningkatan Pembangunan Ekonomi Digital Indonesia."

7 Muin.

8 Ananthia Ayu, Titis Anindyajati, and Abdul Ghoffar, "Perlindungan Hak Privasi Atas Data Diri Di Era Ekonomi Digital," *Pusat Penelitian Dan Pengkajian Perkara, Dan Pengelolaan Perpustakaan Kepaniteraan Dan Sekretariat Jenderal Mahkamah Konstitusi* 101 (2019).

April 2021, a substantial 88.1% of internet users in Indonesia utilized e-commerce services to purchase specific products in recent months, marking the highest percentage globally according to We Are Social's survey. E-commerce transactions significantly contributed to Indonesia's digital economy, reaching a value of US$53 billion in 2021, and are anticipated to rise to US$104 billion by 2025, with a growth rate of 18%.[9]

However, on March 26, 2018, The Guardian, a prominent UK media outlet, first disclosed a data breach incident. They suspected that Cambridge Analytica, a data analytics company, had utilized personal information from Facebook without permission to construct a system capable of targeting U.S. voters with politically personalized advertisements based on their psychological profiles. This deviation came to light when former Cambridge Analytica contractor, Christopher Wylie, detailed how the data was used to build algorithms. The privacy and personal data rights violation in the United States serves as a negative example of the consequences of information technology advancements that can set a harmful precedent.[10]

In order to preserve and secure digital assets and personal data, the Indonesian Government has introduced several legal protection measures in the digital economy sector. Notable regulations include the issuance of Law Number 11 of 2020 on Job Creation, Law Number 11 of 2008 (ITE Law) addressing the regulation of digital content handling, Government Regulation Number 71 of 2019 on the implementation of Electronic Transaction Systems, and Minister of Communication and Information Regulation Number 5 of 2021 on Risk-Based Business Licensing, which is a derivative regulation from the Job Creation Law in the communication and information sector covering sub-sectors such as postal services, telecommunications, broadcasting, as well as electronic systems and transactions. Concerning Cryptocurrency assets used by Metaverse users and investors, there are also four regulations from the Commodity Futures Trading Regulatory Agency (BAPPEBTI).

So, if unpacked, it can be understood that the current technological advancements, especially in the era of digitalization, have had a significant impact on various aspects of society. The rapid spread of computer and internet technology without geographical boundaries has given rise to digital assets, particularly in the global financial and trade industries, where cryptocurrencies are increasingly becoming value instruments that need protection. Additionally, the development of the Metaverse opens a new chapter in human interaction, allowing users to share experiences in a 3D virtual reality. The Metaverse not only facilitates various business activities, such as stock investments and asset ownership, but also offers convenience for SMEs, the digital economy, and copyright protection.

9 Muin, "Perlindungan Data Pribadi Dalam Platform E-Commerce Guna Peningkatan Pembangunan Ekonomi Digital Indonesia."

10 Muin.

However, the development of the Metaverse and NFTs also faces significant legal and technical challenges. Risks of fraud, investment losses, copyright issues, virtual business disputes, and the government's role in providing protection are some crucial issues. Indonesia needs to implement modern legal innovations and a comprehensive approach to address legal vulnerabilities in the Metaverse era.

Furthermore, technological progress also brings new challenges related to privacy and the protection of personal data and digital assets. Although technology enables easy collection and transfer of data, it poses a threat to individuals' constitutional rights regarding their personal data and digital assets. Human rights, especially the right to privacy, are crucial in preserving the integrity and security of personal information for each individual. Therefore, the protection of personal data should be considered an integral part of human rights, as the evolution of the concept of privacy and the protection of personal data and its closely related digital assets is embedded in the international and regional legal frameworks.

Further analysis of digital assets and personal data scattered across the Metaverse becomes crucial considering the urgency of legal protection. With an understanding of these issues, a thorough evaluation of adaptive legal updates is needed. This is necessary to provide adequate protection for businesses and the community in the continually evolving era of the Metaverse. Taking this background into consideration, the analysis of the issues is focused on legal protection efforts related to digital assets and personal data within the scope of the Metaverse, aligning with the goal of supporting the national digital economy's strength.

B. Research Method

The research method in this this paper using qualitative research with a social legal approach that prioritizes the analysis of the application of positive legal norms or legal principles in Indonesia, as well as utilizing an approach through relevant laws and regulations.[11] The research is conducted conceptually, and the primary reference materials consist of laws related to Digital Assets and Personal Data, along with the implementation of rules stipulated in these laws. The technique for collecting legal materials involves a literature review, where books are examined as references, and previous research is utilized to obtain theoretical foundations related to the issues under investigation.[12] This approach allows for an in-depth exploration of specific provisions within the relevant laws and their practical application in handling cases of digital asset theft, personal data, and other related offenses.[13] By analyzing legal norms and principles, the research aims to identify any gaps

11 David Tan, "Metode Penelitian Hukum: Mengupas Dan Mengulas Metodologi Dalam Menyelenggarakan Penelitian Hukum," *Nusantara: Jurnal Ilmu Pengetahuan Sosial* 8, no. 8 (2021): 2463–78.

12 Celso Fernandes Campilongo, Lucas Fucci Amato, and Marco Antonio Loschiavo Leme de Barros, Luhmann and Socio-Legal Research An Empirical Agenda for Social Systems Theory, 1st ed. (Routledge, 2021).

13 Tan, "Metode Penelitian Hukum: Mengupas Dan Mengulas Metodologi Dalam Menyelenggarakan Penelitian Hukum."

or shortcomings in the existing legal framework and propose potential improvements to enhance the protection of digital assets and personal data in the metaverse.

C. Discussions

1. Digital Assets

Digital assets are described as something represented in a digital form that holds intrinsic or acquisition value. The key lies in whether the file can add value to a company. In general, digital assets encompass everything stored digitally that provides value to individuals or organizations. These assets can include images/photos, text, videos, audio, PDFs, designs/graphics, presentation slides, spreadsheets, and websites. Whenever a new digital file format emerges, it can be added to the pool of digital assets.[14] Digital assets offer visual representations of products or services, enabling individuals to connect with an audience or viewers through internet channels and media anytime and anywhere.[15]

Digital assets are goods or items an electronic system that hold value and can be owned and controlled by legal entities or individuals. Digital assets represent a development of the asset concept, which initially existed solely in the physical world but has expanded into the virtual realm. These digital assets are possessions or items whose ownership is recorded digitally and directly controlled by their owners.[16] Essentially, the Metaverse is a concept of a future virtual world, also known as Web 3.0, intended to complement and potentially replace the current Web 2.0 internet we use daily. The Metaverse provides a virtual space that allows users to do many things, including purchasing digital assets such as virtual land, buildings, and artworks.[17]

The Metaverse enables individuals to interact with each other in a virtual world or space through digital technology.[18] Furthermore, with the current advancements, the Metaverse has also become a means of investment for entrepreneurs. Several large technology companies have spent billions of dollars acquiring global gaming brands, In contrast, others invest billions of dollars in research and development to create technology and infrastructure within the Metaverse. Additionally, entrepreneurial investors spend millions

14 Milan Miric, Kevin J Boudreau, and Lars Bo Jeppesen, "Protecting Their Digital Assets: The Use of Formal & Informal Appropriability Strategies by App Developers," Research Policy 48, no. 8 (2019): 103738.

15 Tobias Glas, Asset Pricing and Investment Styles in Digital Assets A Comparison with Traditional Asset Classes (Switzerland AG: Springer Cham, 2022).

16 Arjun Rachana Harish et al., "Log-Flock: A Blockchain-Enabled Platform for Digital Asset Valuation and Risk Assessment in E-Commerce Logistics Financing," Computers & Industrial Engineering 151 (2021): 107001.

17 Nir Kshetri, "Web 3.0 and the Metaverse Shaping Organizations' Brand and Product Strategies," IT Professional 24, no. 02 (2022): 11–15.

18 Milad Ahmadi Marzaleh, Mahmoudreza Peyravi, and Fatemeh Shaygani, "A Revolution In Health: Opportunities And Challenges Of The Metaverse," *EXCLI Journal* 21 (2022): 791–92, https://doi.org/10.17179/excli2022-5017.

of dollars purchasing digital land in Metaverses to create virtual business spaces where consumers can buy and sell goods, and services and host shows and art exhibitions.[19]

Concerning legal protection for digital assets in the metaverse era, it is related to the security and privacy threats that the metaverse poses, encompassing issues regarding identity, data, privacy, networks, economy, governance, and physical/social effects as follows:[20]

1. Threats Related to User Identity Theft in the Metaverse

   When a user's identity is stolen, digital assets, avatars, social connections, and digital life can be compromised in more dangerous ways than identity theft in the real world. Hackers can obtain personal information through email phishing, compromised devices, and customer data, which can then be used for fraud within the metaverse itself, using the stolen user avatar.

2. Threats Related to User Identity Impersonation in the Metaverse

   This tactic occurs when hackers impersonate legitimate users to gain access to metaverse services. They can disguise themselves by injecting malicious devices through Bluetooth connections. Hackers may also target user security and wearable devices, as entry points to impersonate users in the metaverse.

3. Threats Related to User Data

   Data collected or generated by users, IoT devices, or avatars are at risk of being exploited, including risks to availability, confidentiality, false data injection, integrity, and tracking of ownership/origin of UGC (User-Generated Content). Moreover, there are attacks aimed at manipulating data by forging, modifying, deleting, or replacing it to disrupt physical entities, users, and their avatars. Hackers can also perform attacks using false data injection, involving injecting false information such as messages and instructions to deceive the metaverse system. For instance, attackers can generate Artificial Intelligence models by injecting adversarial training samples (centralized) or poisoning gradients (decentralized) during training.

4. Privacy Threats

   Users locations, habits, lifestyles, data perceptions, transmissions, processing, governance, and storage can all be detected in the metaverse. Additionally, facial expressions, eye and hand movements, speech, biometric features, and brainwave patterns are all profiled in the creation of users metaverse avatars, which can be targeted by hackers, including users personal data collected by XR (Extended Reality) data like headsets transmitted through both wired and wireless communications.

19 Dai-In Danny Han, Yoy Bergs, and Natasha Moorhouse, "Virtual Reality Consumer Experience Escapes: Preparing for the Metaverse," *Virtual Reality* 26, no. 4 (2022): 1443–58.

20 Tara Annison, "The Future of Financial Crime in the Metaverse" (London, 2022).

Privacy Leakage in data processing from users and their surroundings is necessary for creating and rendering avatars, and this data can be leaked. Users personal data may violate regulations such as protection rules. Attackers can also infer users privacy and preferences from the processing outcomes published on their avatars. Storing users personal information on cloud servers or edge devices increases privacy disclosure concerns. Hackers can determine users privacy information through frequently asked questions using differential attacks or jeopardize cloud storage altogether through DDoS attacks.[21]

In addition to the crimes discussed earlier in the metaverse, another emerging form of crime occurs in the realm of digital assets through "Non-Fungible Tokens" (NFTs). The use of NFTs serves a noble purpose, to prevent violations of digital assets being sold, imitated, or even stolen by unauthorized parties. Through transparency and decentralization, NFTs and blockchain systems can create a community and foster a fairer culture. Moreover, blockchain technology enables tokens to be securely held and traded without the involvement of third parties.[22] Regarding digital assets in the form of Non-Fungible Tokens, they are closely related to protecting intellectual property rights in copyrights, trademarks, and industrial designs, which can be accessed through the internet and enjoyed by the public. The challenge arises not from the accessibility to the public but when that access is utilized for purposes that infringe on those intellectual property rights.[23]

Intellectual property violations related to digital assets are prevalent among Metaverse users. Metaverse refers to a virtual world where users can engage in various activities similar to the real world. The term "Metaverse" is increasingly popular, and within the crypto space, Metaverse has become a promising investment. Metaverse is a virtual community where interconnected worlds are built. Within this community, people can meet, work, play, and even conduct buying and selling transactions, much like in the real world, with the assistance of Augmented Reality (AR) and Virtual Reality (VR) technologies.[24]

However, amidst the convenience and allure of the Metaverse, there has been a rise in intellectual property violations related to digital assets. The challenge lies in striking a balance between the freedom of creativity and expression in the Metaverse and safeguarding the rights of content creators and intellectual property owners. Implementing robust measures to detect and prevent intellectual property infringements in the Metaverse is essential for

21 Vasisht Duddu, Antoine Boutet, and Virat Shejwalkar, "Quantifying Privacy Leakage in Graph Embedding," in MobiQuitous 2020-17th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services, 2020, 76–85.

22 De-Rong Kong and Tse-Chun Lin, "Alternative Investments in the Fintech Era: The Risk and Return of Non-Fungible Token (NFT)," *Available at SSRN 3914085*, 2021.

23 Usman W Chohan, "Non-Fungible Tokens: Blockchains, Scarcity, and Value," *Critical Blockchain Research Initiative (CBRI) Working Papers*, 2021.

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

creating a fair and sustainable digital ecosystem. This may involve introducing mechanisms for content creators to claim ownership of their work, enforcing copyright protection, and promoting awareness among Metaverse users about respecting intellectual property rights. As the Metaverse continues to evolve and expand, addressing these challenges will be crucial in ensuring a thriving and respectful virtual environment for all its participants.[25]

One of the activities in the Metaverse allows users to attend virtual concerts and engage in buying and selling art collections. The buying and selling of art in the Metaverse are facilitated through NFTs. Users in the Metaverse can browse and purchase art collections from companies or artists if they find them appealing. In addition to artwork, users can also try on and directly purchase clothing from virtual companies. The clothing purchased can be worn by their avatars or showcased on the buyer's social media accounts, giving rise to the concept of "digital fashion" in the Metaverse.[26] Public policies related to the legal protection of digital assets in the Metaverse are akin to those applied to real-world assets due to their economic value. Violations of digital assets can lead to harm to others, especially concerning breaches of digital assets owned by individuals with valid proof of ownership, such as private digital keys, which serve as a protective measure implemented within the Metaverse itself, along with the secure security provided by blockchain technology, making it difficult to breach or misuse. However, in the event of digital asset theft, appropriate actions can be taken following public policies based on the existing laws in Indonesia, such as the Personal Data Protection Act Number 27 of 2022.[27]

As the Metaverse continues to evolve and expand, it is essential to establish comprehensive regulations and mechanisms to safeguard intellectual property rights, privacy, and security within this virtual realm. This will protect creators and users and foster a fair and vibrant digital ecosystem where creativity can flourish without compromising the rights of individuals and organizations. By addressing these challenges proactively, we can create a sustainable and harmonious virtual world for the global community. Building a robust legal framework and public awareness will ensure that the Metaverse remains a place of innovation, creativity, and responsible use of digital assets.[28]

25 Jaloliddin Abdusatarov, "ISSUES THAT NEED TO BE RESOLVED WHEN DEVELOPING THE LEGAL FRAMEWORK OF INTERNATIONAL PRIVATE LAW RELATIONS IN METAVERSE," *World Bulletin of Management and Law* 21 (2023): 193–204; Okonkwo, "NFT, Copyright and Intellectual Property Commercialization."

26 Swati Tayal, Kannan Rajagopal, and Vaishali Mahajan, "Virtual Reality Based Metaverse of Gamification," in 2022 6th International Conference on Computing Methodologies and Communication (ICCMC) (IEEE, 2022), 1597–1604.

27 "Undang-Undang Nomor 27 Tahun 2022 Tentang Pelindungan Data Pribadi" (n.d.).

28 Janna Anderson and Lee Rainie, "The Metaverse in 2040," Pew Research Centre 30 (2022).

2. Personal Data Protection

The Personal Data Protection Act imposes criminal sanctions for intentional and unlawful actions of obtaining or collecting personal data that does not belong to the perpetrator with the intent to benefit themselves or others, which can result in the subject of the personal data facing a maximum imprisonment of 5 years and/or a fine of up to IDR 5 billion. Additionally, anyone intentionally and unlawfully disclosing personal data that does not belong to them can face a maximum imprisonment of 4 years and/or a fine of up to IDR 4 billion. Moreover, those who intentionally and unlawfully use personal data that does not belong to them can face a maximum imprisonment of 5 years and/or a fine of up to IDR 5 billion.

Furthermore, the act also covers cases of creating false or falsified personal data to benefit themselves or others, causing harm to others. In such instances, the perpetrator can face a maximum imprisonment of 6 years and/or a fine of up to IDR 6 billion. Implementing of these criminal sanctions aims to deter individuals or entities from engaging in unlawful activities related to personal data. By imposing severe penalties for such actions, the law protects individuals' privacy and prevents unauthorized access and misuse of personal information. The Personal Data Protection Act aims to foster a safe and secure environment for personal data usage, both in the digital and physical realms, thus promoting trust in data-driven processes and encouraging responsible data handling practices across various sectors.[29]

Based on the principle of lex specialis, Article 64 paragraph (2) of the Personal Data Protection Act Number 27 of 2022 states that the procedural law applicable in personal data protection proceedings shall be conducted following the provisions of the relevant laws and regulations. Moreover, the trial process shall be conducted in closed sessions when necessary to protect personal data. The admissible evidence under this law includes evidence as referred to in the procedural law and other evidence in the form of electronic information and/or electronic documents in accordance with the provisions of the relevant laws and regulations.

In addition to the specific provisions of the Personal Data Protection Act, protection for digital assets can also be achieved by applying sanctions stipulated in other related laws, particularly those concerning intellectual property, such as the Copyright Law, Trademark Law, and Industrial Design Law, which are commonly used in the Metaverse. These laws further protect digital assets, especially those related to original creative works, brands, and industrial designs. Enforcing these laws in the virtual realm can help safeguard digital creations and prevent unauthorized use or infringement.[30]

29 Erna Priliasari, "Pentingnya Perlindungan Data Pribadi Dalam Transaksi Pinjaman Online," Majalah Hukum Nasional 49, no. 2 (2019): 1–27.

30 Mochammad Tanzil Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens," *Jurnal Politik Dan Pemerintahan Daerah* 4, no. 2 (2022): 293–303, https://doi.org/10.36355/jppd.v4i2.58.

By implementing these legal measures, individuals and businesses can have greater confidence in conducting transactions and creating innovative digital content within the Metaverse. The combination of comprehensive data protection regulations and intellectual property laws ensures a secure and fair environment for creators and users alike. As the Metaverse continues to evolve, the legal framework must adapt accordingly to address emerging challenges and protect the rights and interests of all stakeholders involved in this rapidly expanding digital landscape.[31]

In the context of copyright, NFTs are still controversial among the art community and the wider public. Surprisingly, blockchain technology and NFTs have opened up opportunities for irresponsible parties to exploit artworks. When a system allows anyone to create and sell tokens without verifying the copyright validity of the artwork, it can be easily misused if there is no legal framework to accommodate the various aspects of this technology. A notable case is that of Kendra Ahimsa, an Indonesian artist better known by the moniker "Ardneks".[32]

Kendra Ahimsa faced a predicament when he discovered that some of his artworks had been tokenized and sold as NFTs without his permission or proper credit. These unauthorized NFTs were being traded in the digital market, leaving the artist with no control over his own creations and depriving him of potential earnings from his original works. This incident highlights the need for robust legal measures to protect artists' rights in the rapidly evolving world of NFTs and blockchain technology.[33]

To address the issues surrounding NFTs and copyright, there is a growing call for clearer regulations and authentication mechanisms within the Metaverse. Implementing blockchain technology to verify the ownership and authorship of artworks before tokenization could be a step toward ensuring that NFTs truly represent the original creations and prevent unauthorized exploitation. Additionally, establishing a standard set of guidelines for NFT platforms and marketplaces can help safeguard artists nterests and give them with more control over their digital assets. As the technology advances and the use of NFTs expands, legal frameworks need to keep pace and strike a balance that protects both artists' rights and the potential benefits of this innovative digital ecosystem.[34]

As the popularity of NFTs continues to grow, it becomes crucial to develop a more comprehensive and inclusive framework for NFT ownership and verification. Solutions could involve mechanisms for artists to provide evidence of the authenticity and originality

31 Mukhammadali Turdialiev, "Legal Discussion of Metaverse Law," International Journal of Cyber Law 1, no. 3 (2023).

32 Maya Ruhtiani, "TRANSFERRING COPYRIGHT OWNERSHIP OF NFT ON THE PERSPECTIVE OF POSITIVE LAW IN INDONESIA," *Perspektif* 28, no. 1 (2023): 56–65.

33 Ruhtiani.

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): 1115–26.

of their works before they are tokenized. Additionally, introducing stricter guidelines and validation processes on NFT platforms can help reduce the occurrence of plagiarism and protect artists rights more effectively. Ultimately, a balanced approach that upholds artists creative rights while embracing the potential of blockchain technology in the art world is essential for fostering a fair and thriving digital art ecosystem in the Metaverse.[35]

In theory, NFTs are meant to empower artists and provide them with greater control over their creations, but there have been numerous cases where NFTs have actually facilitated malicious actors in selling someone else's artwork. When considering the implications of intellectual property in the context of NFTs, it is crucial to distinguish between the ownership of NFTs and the ownership of the underlying intellectual property. The rights granted by the NFT seller depend on the rights transferred through the license, and these rights can vary with each NFT.[36]

The confusion around NFT ownership and intellectual property stems from the fact that NFTs represent a form of ownership over a digital asset, but they do not inherently grant ownership of the copyright or intellectual property rights of the artwork itself. While owning an NFT might signify ownership of a unique version of the artwork and provide bragging rights as the official token holder, it does not automatically grant the owner the right to reproduce or profit from the original artistic work. To address these complexities, artists and creators need to be aware of the terms and conditions associated with their NFT sales. They should carefully consider the rights they transfer to the NFT buyers through the smart contracts and licensing agreements. At the same time, buyers must be cautious and verify the rights they are obtaining when purchasing an NFT. Understanding the scope of ownership and usage rights associated with each NFT can help avoid potential legal disputes and ensure fair compensation for digital artists.[37]

In the world of NFTs, the token itself does not inherently imply ownership of the underlying intellectual property rights of the artwork. Instead, it signifies ownership of a unique digital certificate of authenticity or proof of ownership for a specific digital asset, often associated with a piece of art or collectible. [38] To ensure a clear transfer of intellectual property rights, artists and creators must define the terms of use and licensing agreements associated with the NFT sales. These agreements should explicitly state what rights are being transferred to the NFT buyer and what rights are retained by the creator. This transparency is essential in avoiding misunderstandings and legal disputes down the line.

At the same time, NFT buyers should be diligent in understanding the rights they are acquiring when purchasing an NFT. They must be aware that owning an NFT does not

35 Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens."
36 Çağlayan Aksoy and Özkan Üner, "NFTs and Copyright: Challenges and Opportunities."
37 Çağlayan Aksoy and Özkan Üner.
38 Okonkwo, "NFT, Copyright and Intellectual Property Commercialization."

necessarily grant them the ability to reproduce or distribute the original artwork. In some cases, the NFT owner might have certain usage rights, such as displaying the artwork for personal enjoyment, but the artist or origilan rights holder may still retain commercial usage or reprofuction rights.[39]

In conclusion, NFTs provide a new and exciting way to demonstrate ownership and provenance for digital assets, including digital art. However, the ownership of an NFT should not be confused with full ownership of the intellectual property rights associated with the artwork. Artists, creators, and buyers alike should approach NFT transactions with clear agreements and a thorough understanding of the rights being transferred to ensure fair compensation and proper protection of intellectual property in the ever-evolving landscape of digital art and NFTs.

Moreover, platforms and marketplaces that facilitate NFT transactions can play a vital role in enforcing copyright protection. They can implement verification processes to ensure that the NFTs listed for sale have legitimate ownership and that thesellers have lawfully acquired or licensed the corresponding intellectual property rights. Implementing robust content moderation and takedown procedures can also help prevent the circulation of unauthorized NFTs that infringe on copyrighted works.[40]

According to the Copyright Law, offenders can be subject to sanctions as stated in Article 118 of the Copyright Law. This article stipulates that anyone who intentionally and without authorization infringes economic rights for commercial use may be sentenced to a maximum imprisonment of 4 (four) years and/or fined up to Rp. 1,000,000,000.00 (one billion Indonesian Rupiah). Additionally, those involved in piracy can face a maximum imprisonment of 10 (ten) years and/or a fine of up to Rp. 4,000,000,000.00 (four billion Indonesian Rupiah).

The penalties mentioned above are meant to deter and punish individuals or entities involved in copyright infringement, including cases related to NFTs and digital art in the metaverse. Beyond the legal sanctions, fostering awareness and education about copyright and intellectual property rights is equally crucial. Many NFT platforms and marketplaces are taking measures to educate users on the importance of respecting copyright and obtaining proper licenses for digital assets.[41]

As discussed earlier, theft can occur in the form of NFT-based creative works and in the replication of trademarks displayed in the metaverse. Trademarks present in the metaverse can be imitated in the real world, making it crucial to protect them with appropriate measures as specified in the Law Number 20 of 2016 concerning Trademarks

39 Sanction Scanner, "What Is a Non-Fungible Token (NFT)?," sanctionscanner.com, 2021.
40 Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens."
41 Multazam.

and Geographical Indications. In the metaverse, where virtual representations of products and services can closely resemble their real-world counterparts, trademark infringement poses a significant concern for businesses and brand owners. By applying the provisions set forth in the Trademark Law, companies can take legal actions against any unauthorized use or imitation of their trademarks within the metaverse.[42]

The protection of trademarks in the Metaverse depends on future business models and product strategies. Companies must adopt a proactive approach to update their overall trademark protection strategies, particularly for well-known brands. As more brands choose to operate in the Metaverse, monitoring for any fraudulent or unauthorized use of trademarks becomes increasingly crucial. However, it is still too early to predict how trademark protection, management, and enforcement will evolve in the Metaverse.

E-commerce in the Metaverse or virtual environment involves the use of trademarks by unauthorized third parties in a manner that is identical or similar. If a company is already operating in the Metaverse or plans to do so, it must anticipate the potential risks by registering its trademarks for use in the virtual world. By doing so, businesses will have a better grasp of their brand's presence in virtual trade transactions.[43] Registering trademarks in the Metaverse not only helps protect a company's brand identity but also enables them to establish a stronger online presence. With a registered trademark, businesses can assert their ownership rights and take legal action against any infringement or misuse of their brand in the virtual space. This proactive approach can act as a deterrent to potential infringers and safeguard the company's reputation and consumer trust in the Metaverse.[44]

Criminal sanctions for unauthorized use of identical or similar trademarks to registered trademarks can be imposed under Article 100 paragraphs (1) and (2) of the Trademark Law. The law stipulates that anyone who uses an identical trademark in its entirety to a registered trademark owned by another party for similar goods and/or services that are produced and/or traded may be sentenced to a maximum of 5 years in prison and/or a fine of up to Rp 2 billion. Similarly, anyone who uses a trademark that has substantial similarity to a registered trademark owned by another party for similar goods and/or services that are produced and/or traded may face a maximum sentence of 4 years in prison and/or a fine of up to Rp 2 billion.

These criminal sanctions are designed to protect the intellectual property rights of trademark owners and prevent unauthorized use or infringement of their brands. Intellectual

42 Vincent Delmas et al., "From Anatomical to Digital Dissection: A Historical Perspective since Antiquity towards the Twenty-First Century," in *Digital Anatomy: Applications of Virtual, Mixed and Augmented Reality* (Springer, 2021), 11–39.

43 Heejeong Jeong, Youkyoung Yi, and Dongsoo Kim, "An Innovative E-Commerce Platform Incorporating Metaverse to Live Commerce," *International Journal of Innovative Computing, Information and Control* 18, no. 1 (2022): 221–29.

44 Marta Staudt, "Legal Challanges Related to the Registration of Trademarks and Designs Connected with the NFTs and the Metaverse," 2023.

property infringement in the metaverse is not limited to trademarks; it can also extend to industrial designs. This is particularly relevant to industrial designs that are traded for avatars used in the virtual world of the metaverse. An industrial design is a creation related to the shape, configuration, or composition of lines or colors, or a combination of both, whether in three-dimensional or two-dimensional form, that gives an aesthetic impression and can be embodied in a three-dimensional or two-dimensional pattern. These designs can be used to produce various products, goods, commodities, industries, or crafts.[45]

In the metaverse, the trading and utilization of digital designs for avatars have become increasingly common. Users seek unique and aesthetically appealing avatar designs to represent themselves in virtual environments. However, the increasing popularity of these designs also raises concerns about potential intellectual property infringements. Unauthorized use or replication of original industrial designs can harm the rights of the rightful creators and lead to disputes within the metaverse community.[46] To address these issues, designers and creators need to protect their intellectual property rights in the metaverse. Registering industrial designs can offer legal protection and ensure that others cannot exploit or reproduce their creations without authorization. Additionally, platforms operating within the metaverse should implement measures to prevent the trading of infringing designs and promote the use of original and authorized content.[47]

Based on the definition provided, digital fashion displayed in the metaverse falls under the category of industrial designs as it fulfills the elements stated in Law Number 31 of 2000 Concerning Industrial Designs. Therefore, all digital fashion displayed should be protected, and the enforcement of criminal sanctions for industrial design infringement should be implemented in accordance with Article 54, which states that intentionally and without authority, conducting acts as referred to in Article 9, is punishable by imprisonment for a maximum of 4 (four) years and/or a fine of up to IDR 300,000,000 (three hundred million rupiah). Additionally, anyone who intentionally violates the provisions as referred to in Article 8, Article 23, or Article 32, is subject to imprisonment for a maximum of 1 (one) year and/or a fine of up to IDR 45,000,000 (forty-five million rupiah).

Digital fashion in the metaverse involves creatin and trading unique avatar clothing designs, which have gained popularity in virtual environments. Users highly seek these designs to customize and enhance their virtual representations. However, the ease of access and sharing within the metaverse also opens up possibilities for unauthorized use and exploitation of these digital fashion designs. This situation poses a challenge for creators to protect their original works and ensures that their efforts are not misused or

45 Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens."
46 Georg David Ritterbusch and Malte Rolf Teichmann, "Defining the Metaverse: A Systematic Literature Review," *IEEE Access*, 2023.
47 Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens"; Ruhtiani, "TRANSFERRING COPYRIGHT OWNERSHIP OF NFT ON THE PERSPECTIVE OF POSITIVE LAW IN INDONESIA."

copied without permission. [48] To address these issues and promote a fair environment in the metaverse, a robust enforcement of the intellectual property laws, particularly concerning industrial designs, is crucial. Creators should consider registering their digital fashion designs to gain legal protection and enforce their rights if infringement occurs. Article 9, as referred to in Article 54 paragraph (1), stipulates that the holder of an industrial design right has an exclusive right to exercise their industrial design rights and to prohibit others from making, using, selling, importing, exporting, and/or distributing goods that are covered by the industrial design right without their consent.

D. Closing

Criminal activities involving digital assets in the metaverse are becoming increasingly prevalent, with data theft by hackers, identity impersonation of metaverse users, and the destruction and dissemination of personal data being common occurrences. Additionally, crimes in the metaverse extend to Non-Fungible Tokens (NFTs), which are closely related to the protection of intellectual property rights such as copyrights, trademarks, and industrial designs. Regarding NFTs, their rising popularity and potential for lucrative profits have attracted both legitimate creators and malicious actors seeking to exploit the system. The uniqueness and irreplaceability of NFTs make them susceptible to plagiarism and unauthorized replication, leading to disputes over intellectual property rights. Additionally, counterfeit NFTs can deceive collectors and investors, resulting in significant financial losses and reputational damage. The absence of a robust and harmonized legal framework for NFTs globally further complicates the enforcement of intellectual property rights, leaving creators vulnerable to exploitation and infringement.

The legal protection for digital assets in the metaverse can be effectively pursued in the real world by implementing the existing laws and regulations under Indonesia's positive legal framework. One crucial aspect is to enforce penalties for violations in the metaverse by adhering to the provisions outlined in the Data Protection Law Number 27 of 2022, specifically in Article 64. This law safeguards personal data and can be instrumental in prosecuting offenders engaging in data breaches, identity impersonation, or disseminating private information within the metaverse.

Another area that requires legal protection is the Non-Fungible Tokens (NFTs) used extensively in the metaverse. To address violations or theft related to NFTs, existing laws like the Copyright Law, as stated in Article 118, can be utilized to prosecute those who commit copyright infringements within the metaverse. Additionally, the Trademark and Geographical Indications Law, outlined in Article 100, can be applied to combat counterfeit trademarks or well-known brands within the virtual world. Furthermore, protection for digital

48 Abu Sadat Muhammad Sayem, "Digital Fashion Innovations for the Real World and Metaverse," International Journal of Fashion Design, Technology and Education (Taylor & Francis, 2022).

fashion, which falls under industrial designs, can be enforced using the provisions from the Industrial Design Law, specified in Article 54.

In conclusion, the legal protection for digital assets in the metaverse can be effectively pursued by implementing existing laws and regulations under Indonesia's positive legal framework. Key aspects include enforcing penalties for violations related to personal data, NFTs, trademarks, and industrial designs. The Data Protection Law Number 27 of 2022, Copyright Law, Trademark and Geographical Indications Law, and Industrial Design Law provide essential tools to prosecute offenders engaging in various forms of intellectual property violations within the virtual world.

As the metaverse continues to evolve, lawmakers and regulatory bodies must adapt and modernize these laws continually to address new challenges that may arise. Furthermore, international collaboration and coordination among legal systems can strengthen the legal protection of digital assets, transcending geographical boundaries and providing a more holistic approach to safeguarding creators rights and intellectual property in the metaverse. By implementing a harmonized legal approach and ensuring robust enforcement mechanisms, the metaverse can become a safer and more conducive environment for digital creators and users alike, fostering innovation and creativity while discouraging unlawful activities.

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