

THE FUTURE OF INTELLECTUAL PROPERTY PROTECTION: ISSUES AGAINST THE METAVERSE AND NON-FUNGIBLE TOKENS (NFTs)

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ABSTRACT

Intellectual property protection is a right that must be granted by the state to the holder of a work and the increasing number of intellectual property rights problems such as theft of a work or indirect theft, for example, plagiarism, means that it is very necessary to protect every work produced. This research uses a literature review. This research aims to provide information on the results of analyses related to the protection of intellectual property which has caused many problems related to intellectual property. The results of this research show that the blockchain system must also be utilized by the Indonesian Government to become a central database for virtual intellectual property and public domain collections. Legal protection in Indonesia still needs to be strengthened on the law enforcement side to provide legal certainty for stakeholders so that public confidence arises in registering their intellectual property.

Keywords : Intellectual Property, Public Domain, Legal Certainty, Virtual World

A. Introduction

Intellectual Property is one of the studies that can be studied and reviewed from various scientific scopes, including politics, economics, and law.¹ However, the implementation of applying intellectual property imposes a lot of costs on society as an effort to protect the wealth that exists in society and by law certain limitations will apply as an effort to protect.² The protection provided will be an advantage for creators of intellectual property and the impact will be increased welfare that will be received and prevention of duplication and violations, both minor and significant which can harm all parties, especially owners of intellectual property and eliminate cases of plagiarism that lead to to the benefit of the

1 Rachmad Abduh, "Intellectual Property Rights Protection Function in Resolving Copyright Disputes," *International Journal Reglement & Society (IJRS* 2, no. 3 (2021): 170–78, <https://doi.org/10.55357/ijrs.v2i3.154>.

2 Mario Biagioli, "Weighing Intellectual Property: Can We Balance the Social Costs and Benefits of Patenting?," *History of Science* 57, no. 1 (2019): 140–63, <https://doi.org/10.1177/0073275318797787>.

plagiarists.³ Violation due to irresponsible persons in the context of intellectual property is a complex problem, especially for developed and developing countries.⁴

The development of technological advancements in the future and the presence of virtual worlds that are online or metaverse or in the form of NFTs (Noken Fungible Tokens) are one of the real challenges of today's intellectual property.⁵ Metaverse and NFT are containers for storing digital assets that can be exchanged with other parties because they have Tokens (Certain Numbers) with objects that are almost the same as the real world such as paintings, photography, pictures, videos, tickets, signatures and other objects.⁶ The existence of NFTs in the virtual world is very easy to learn and the digital ecosystem in Metaverse really supports the use of these NFT applications. NFT itself is a virtual world platform that is used to empower and provide great access to its users and allows users who have economic motives to sell their work to be processed in an easier, faster and more profitable way. However, a serious problem is where the legal and technical implementation of NFTs is still low, where is the position of intellectual property.⁷

The weakness in this system, when referring to the results of an analysis conducted by Iyengar and Sarlin in CNN media, states that NFT, which is a platform in a virtual world within the Metaverse digital ecosystem, is unable to protect all forms of copyright recognition for the works of artists in it. According to Iyengar and Sarlin, which explain Infringement and theft of copyrighted works still often occur in NFTs because buyers only have a cash code and all buyers can own it and all of them can claim ownership unilaterally, and attaching transaction data that has been made is difficult to implement due to the lack of transparency and the NFT system's nature blockchain because of the freedom to buy in it.⁸

One of the cases regarding copyright infringement was in 2015, where the Ministry of Communication and Information of the Republic of Indonesia (*Kominfo RI*) and the Ministry of Law and Human Rights of the Republic of Indonesia (*Kemenkumham RI*) blocked as many as 22 internet sites which harmed many parties in Indonesia. This is also contained in

3 Fajar Candra Bagas Pratama, "Legal Protection of Intellectual Property Rights for Copyright Holders in the Perspective of Community Legal Culture," *Journal of Creativity Student* 5, no. 1 (2020): 1–24, <https://doi.org/10.15294/jcs.v7i2.38493>.

4 Indirani Wauran-Wicaksono, "Hak Kekayaan Intelektual Sebagai Benda: Penelusuran Dasar Perlindungan Hki Di Indonesia," *Refleksi Hukum: Jurnal Ilmu Hukum* 9, no. 2 (2015): 133–42, <https://doi.org/10.24246/jrh.2015.v9.i2.p133-142>.

5 Teti Tiran, "Hak Cipta Karya Digital Pada NFT Dikaitkan Dengan Hak Akses Yang Memiliki Nilai Ekonomi Sebagai Hak Kebendaan Berdasarkan Peraturan Perundang-Undangan Di Indonesia," *Jurnal Kewarganegaraan* 6, no. 3 (2022): 6006–13.

6 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, <https://doi.org/10.31599/krtha.v16i1.1077>.

7 Sanction Scanner, "What Is a Non-Fungible Token (NFT)?," sanctionscanner.com, 2021.

8 Rishi Iyengar and Jon Sarlin, "NFTs Are Suddenly Everywhere, but They Have Some Big Problems," *CNN Business*, 2021, <https://edition.cnn.com/2021/03/30/tech/nft-hacking-theft-environment-concerns/index.html>.

Law Number 28 of 2014 concerning Copyright (*Undang-Undang Nomor 28 Tentang 2014 tentang Hak Cipta*) and the Joint Ministerial Regulation between the Minister of Law and Human Rights and the Minister of Communication and Information with the issuance of regulations Number 14 of 2015 and number 26 of 2015 concerning the implementation of closing content or rights for user access in violation of rights create. Whereas in that year as many as 25 original films made in the country and the work of the nation's children had been hijacked by these sites.⁹

The closure of sites for copyright infringement also came from the Indonesian Ministry of Law and Human Rights through content letter number HK1.7.HM.O1.O5-264 in 2015 containing recommendations for closing content and user access rights for copyright infringement, many of which came from complaints from Indonesian recording industry associations.¹⁰ A total of 22 pieces of music have caused a lot of losses to several musicians in Indonesia, assuming a loss of 6 billion per month. These losses are not only received by the musicians but also in terms of state tax revenue which of course will not be paid by these elements. After this incident, throughout 2017 there were at least 190 online sites that were blocked by the Indonesian Ministry of Information and Communication, continued in 2018 with 412 sites, then increased in 2019 with 1143 sites that indicated copyright infringement in Indonesia.¹¹

In addition to this case, in 2023 the Ministry of Law and Human Rights through the Directorate General of Intellectual Property has mediated a case of copyright infringement of an electronic book or e-book, namely between the Cipta Karya Concern Association (PPKC) and the Pekanbaru Forestry Vocational High School (*Sekolah Menengah Kejuruan*), where in this case one of the authors from PPKC received a report about an e-book in the online library belonging to the Pekanbaru Kehutanan Vocational School which already has a watermark, which can be printed and downloaded freely by its readers. So it is considered a violation because the authors from PPKC have legal evidence that the activity violated the rules in Law Number 28 of 2014 concerning Copyright.¹²

Referring to the Law on Intellectual Property is certainly one way to protect Intellectual Property in Indonesia. However, in reality there are still many obstacles and shortcomings or prosecution of perpetrators which should be accommodated by various parties, for

9 Kominformo RI, "Kemkominfo Dan Kemkumham Tutup Akses 22 Situs Pembajak Hak Cipta," kominformo.go.id, 2015, https://www.kominformo.go.id/content/detail/5643/kemkominfo-dan-kemkumham-tutup-akses-22-situs-pembajak-hak-cipta/0/berita_satker.

10 Kominformo RI, "Kemkominfo Tutup 22 Situs Musik Ilegal," kominformo.go.id, 2015, https://www.kominformo.go.id/index.php/content/detail/6442/Kemkominfo+Tutup+22+Situs+Musik+Ilegal/0/berita_satker.

11 Kominformo RI, "Kemkominfo Blokir 1.745 Situs Melanggar HKI," kominformo.go.id, 2020, https://www.kominformo.go.id/content/detail/23767/kemkominfo-blokir-1745-situs-melanggar-hki/0/sorotan_media.

12 DJKI, "Mediasi Pelanggaran Hak Cipta Buku PPKC Berujung Damai," Direktorat Jenderal Kekayaan Intelektual, 2023, <https://www.dgip.go.id/artikel/detail-artikel/mediasi-pelanggaran-hak-cipta-buku-ppkc-berujung-damai?kategori=Berita Resmi Indikasi Geografis>.

example police agencies or other authorities, including the Ministry of Law and Human Rights as the agency that has an Intellectual Property work unit.

Based on the problems above, in this study the researchers will be focus about how to protect intellectual property, especially in relation to the metaverse and NFTs which have indications of intellectual property infringement. Researchers in this study will focus more on research on the protection of intellectual property in Indonesia both from a legal perspective and from a policy perspective owned by the Government. The purpose of this research is to produce an analysis from the academic side of the academic community in viewing the phenomenon of intellectual property violations in Indonesia so that input and suggestions will be given to stakeholders through this research later.

B. Research Method

Research Method will use systematic literature review approach. As for this research, it will prioritize the results of studies on scientific sources in the form of scientific journals found by applying several protocols in accordance with the rules of literature review research.¹³ The scientific sources is Taylor and Francis Group database and the ScienceDirect database. As for the protocol applied to this study, there are 4 stages, namely referring to the opinion of Price in 2017, namely the first step is to develop a topic, the second is to search for literature, then narrow the scope and the fourth step is synthesis.¹⁴ The four steps are as follows:

The first step, using the relevant keywords namely “intellectual property protection” and “NFTs” and also use location research in “Indonesia” as keywords for this step (*see pictures 1 and 2*). The function of keywords is intended to provide information about relevant articles and the scope of the discussion so that if no relevant articles are found, the researcher can make a decision to use other, more relevant keywords.¹⁵

13 Yu Xiao and Maria Watson, “Guidance on Conducting a Systematic Literature Review,” *Journal of Planning Education and Research* 39, no. 1 (2019): 93–112, <https://doi.org/10.1177/0739456X17723971>.

14 Rebecca H. Price, “The Four-Part Literature Review Process: Breaking It down for Students,” *College Teaching* 65, no. 2 (2017): 88–91, <https://doi.org/10.1080/87567555.2016.1276042>.

15 Barbara Kitchenham et al., “Systematic Literature Reviews in Software Engineering – A Tertiary Study,” *Information and Software Technology* 52, no. 8 (2010): 792–805, <https://doi.org/10.1016/j.infsof.2010.03.006>.



Figure 1. Taylor and Francis Group database article search

The second step is to search for relevant articles by filtering by eliminating articles to focus more on the topic of discussion, where filtering will be applied including eliminating articles that were not published in the 2015-2022 period, eliminating articles in the form of book reviews, article reviews, conference results in the form of proceedings and others that are similar. Eliminate articles that do not clearly state the research method. Eliminate articles whose publications fall into the predatory category. Eliminate articles that do not discuss the abstract in accordance with the keywords. Also, eliminate articles that are not open access.¹⁶

The third step is narrowing the scope of scientific articles by exploring and understanding every existing reading so that later they can categorize according to the themes determined by the researcher based on the results of these categories. The last is the synthesis of the article which will be matched with other articles that are equally relevant to answer the research question that has been determined previously by the researcher. In the explanation section of this research, it will also be more directed at qualitative analysis in narrative form by connecting the research results along with grounded argumentative analysis later.

C. Discussions

The results of this study will be divided into several sub-discussions, while the first is the result of searching articles with using these four steps which will be presented in this below :

1. Article Search Results

Based on the search results for articles using databases and keywords that are relevant to the following problem topics, they will be presented in table form below:

16 Tracy Hall et al., "A Systematic Literature Review on Fault Prediction Performance in Software Engineering," IEEE TRANSACTIONS ON SOFTWARE ENGINEERING 38, no. 6 (2012): 1276-1304.

Table 1. Search results for scientific articles

No	Databases	Step 1	Step 2	Step 3	Step 4
1	Taylor and Francis Group	66	9	7	7
2	ScienceDirect	162	26	20	13
total					20

Source: processed data (2023)

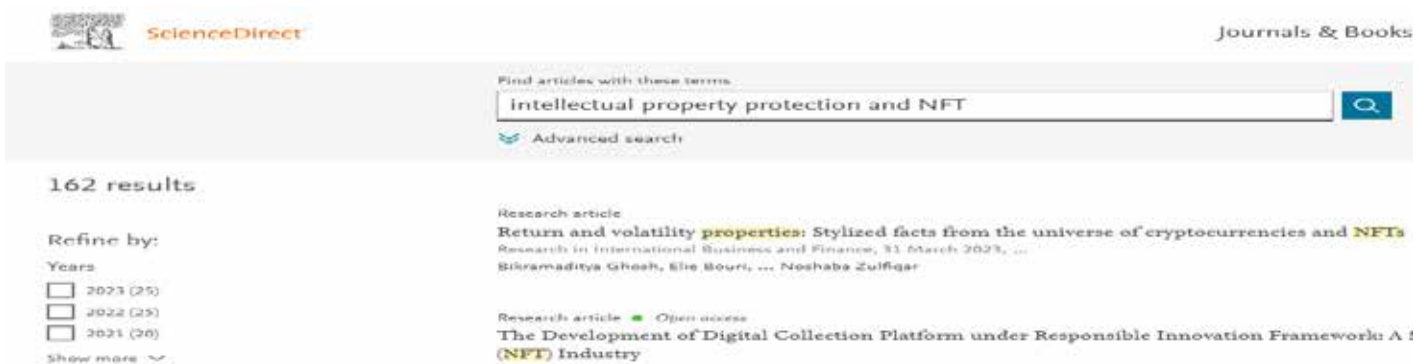


Figure 2. Article search in the ScienceDirect database

Based on the results of the article search above, it can be explained that by using the Taylor and Francis Group database which is focused on using keywords, there are at least 66 scientific articles in various forms. Then to find relevant articles, the researcher used the elimination method and found 9 scientific articles that met the criteria. Furthermore, in the third step and fourth step, 7 relevant articles were found in answering the research problem formulation. Meanwhile, in the ScienceDirect database, researchers found 162 scientific articles in various forms with predefined keywords. Then in the second step through the process of elimination found 26 relevant scientific articles. Whereas in the third step through deepening the contents of the abstract and analysis of each article, only 20 scientific articles were found. Furthermore, in the fourth step, the researcher concluded that from all of these, only 13 articles were relevant in answering the research problem formulation. So that in total in this study researchers only used 20 scientific articles in international journals.

2. Scientific Article Synthesis

Table 2. Results of the synthesis of scientific articles

Categorization	Brief description	Writer	Total
Blockchain system	securing users' personal data, especially in the financial sector to make it more secure, transparent, audit easier and more efficient.	17, 18, 19, 20, 21, 22,	6
copyright	protect the holders of works of art and guarantee the security of works of art to be recognized by all parties	23, 24,	2
investment	securing and recognizing a work will have a significant impact on increasing domestic investment in a country	25, 26,	2

- 17 Liutao Zhao, Jiawan Zhang, and Lin Zhong, "A Blockchain-Based Transaction System with Payment Statistics and Supervision," *Connection Science* 34, no. 1 (2022): 1751–71, <https://doi.org/10.1080/09540091.2022.2080181>.
- 18 Tomás N. Rotta and Edemilson Parana, "Bitcoin as a Digital Commodity," *New Political Economy* 27, no. 6 (2022): 1046–61, <https://doi.org/10.1080/13563467.2022.2054966>.the paper argues that Bitcoin mining is an automated reproduction process that requires no direct (living
- 19 Catherine Flick, "A Critical Professional Ethical Analysis of Non-Fungible Tokens (NFTs)," *Journal of Responsible Technology* 12 (2022): 1–16, <https://doi.org/10.1016/j.jrt.2022.100054>.
- 20 Dandan He et al., "The Development of Digital Collection Platform under Responsible Innovation Framework: A Study on China's Non-Fungible Token (NFT) Industry," *Journal of Open Innovation: Technology, Market, and Complexity* 8, no. 4 (2022): 1–15, <https://doi.org/10.3390/joitmc8040203>.
- 21 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>.
- 22 Gönenç Gürkaynak et al., "Intellectual Property Law and Practice in the Blockchain Realm," *Computer Law and Security Review* 34, no. 4 (2018): 847–62, <https://doi.org/10.1016/j.clsr.2018.05.027>.
- 23 Justus Duhnkrack, "The Art of Regulating the Arts - Artistic Street Photography and the Limits of EU Regulation," *Journal of Intellectual Property Law and Practice* 15, no. 1 (2020): 66–69, <https://doi.org/10.1093/jiplp/jpz153>.
- 24 Salman Atif, "Appointed Person Rejects Appeal That Two DG Decisions Are Inconsistent," *Journal of Intellectual Property Law and Practice* 15, no. 1 (2020): 5–7, <https://doi.org/10.1093/JIPLP/JPZ155>.
- 25 Po Lu Chen, "Modelling the Impact of Intellectual Property Protection and Spillovers on Attracting Foreign Direct Investment," *Economic Research-Ekonomska Istrazivanja* 35, no. 1 (2022): 622–36, <https://doi.org/10.1080/1331677X.2021.1931909>.
- 26 Elissar Toufaily, "An Integrative Model of Trust toward Crypto-Tokens Applications: A Customer Perspective Approach," *Digital Business* 2, no. 2 (2022): 1–15, <https://doi.org/10.1016/j.digbus.2022.100041>.

law enforcement	Law enforcement on intellectual property is carried out by starting with legal legal aspects.	27 28 29 30 31 , , , , ,	5
educated group	this group consists of experts in their fields who exchange information, including in the fields of technology, natural disaster prevention, and human resource management.	32 33 34 35 36 , , , , ,	5

Source: processed data (2023)

3. Blockchain System to NFTs

The Blockchain system is a system designed as a tool to provide supporting data in law enforcement of any intellectual property. Has a feature as a supporter in the NFTs system. The working principle of this system is to involve other agencies that have authority in enforcing intellectual property. For example from the Customs Agency which will supervise products more-products that enter the country, especially the prosecution of counterfeit products that threaten the national security and resilience of a country, research conducted

- 27 Shiue Hung Lin and Leslie Wu, "Intellectual Property Rights and Law Enforcement in Developing Countries," *Economic Research-Ekonomiska Istrazivanja* 35, no. 1 (2022): 143–57, <https://doi.org/10.1080/1331677X.2021.1889390>.
- 28 Sun Park, "The Ambivalence in the Ambiguity of UNESCO's Cultural Policy Remit: A Structural Description of the Common Heritage of Mankind in the Cultural Diversity Convention," *International Journal of Cultural Policy* 00, no. 00 (2022): 1–15, <https://doi.org/10.1080/10286632.2022.2107637>.
- 29 Michele Grimaldi, Marco Greco, and Livio Cricelli, "A Framework of Intellectual Property Protection Strategies and Open Innovation," *Journal of Business Research* 123 (2021): 156–64, <https://doi.org/10.1016/j.jbusres.2020.09.043>.
- 30 Thuy Thi Nguyen et al., "The Impact of Trust on Intellectual Property Right Protection: A Cross-National Study," *Journal of Economics and Development*, 2021, 1–14, <https://doi.org/10.1108/jed-05-2021-0063>.
- 31 Daniel Berkowitz, Chen Lin, and Yue Ma, "Do Property Rights Matter? Evidence from a Property Law Enactment," *Journal of Financial Economics* 116, no. 3 (2015): 583–93, <https://doi.org/10.1016/j.jfineco.2015.04.003>.
- 32 Asad Ullah, Qingyu Zhang, and Mansoor Ahmed, "The Influence of Intellectual Property Rights Protection on Contribution Efforts of Participants in Online Crowdsourcing Contests," *Computers in Human Behavior* 123 (2021): 106869, <https://doi.org/10.1016/j.chb.2021.106869>.
- 33 Misbah Habib, Jawad Abbas, and Rahat Noman, "Are Human Capital, Intellectual Property Rights, and Research and Development Expenditures Really Important for Total Factor Productivity? An Empirical Analysis," *International Journal of Social Economics* 46, no. 6 (2019): 756–74, <https://doi.org/10.1108/IJSE-09-2018-0472>.
- 34 Hee soo Choi and Sang heon Kim, "A Content Service Deployment Plan for Metaverse Museum Exhibitions—Centering on the Combination of Beacons and HMDs," *International Journal of Information Management* 37, no. 1 (2017): 1519–27, <https://doi.org/10.1016/j.ijinfomgt.2016.04.017>.
- 35 Michael A. Kock, "Open Intellectual Property Models for Plant Innovations in the Context of New Breeding Technologies," *Agronomy* 11, no. 6 (2021): 1–38, <https://doi.org/10.3390/agronomy11061218>.
- 36 Sebastian Bökle et al., "Conceptual Framework of a Decentral Digital Farming System for Resilient and Safe Data Management," *Smart Agricultural Technology* 2 (2022): 1–15, <https://doi.org/10.1016/j.atech.2022.100039>.

by Gurkaynak in 2018 also confirms that the Blockchain system will become an eternal database storage without space and time limits and by involving the NFTs which becomes a virtual space. Users will immediately know from these products whether there are indications of fake or not and violates intellectual property rights or not.³⁷ The holders of royalties for their creations will also be assigned an IP (*a type of personal website address*) they are allowed to access and manage and contract their royalties and significantly encourage their creations and direct consumers to avoid counterfeit products before they buy them.³⁸

The involvement of NFT and Blockchain was also explained in research by Rotta and Parana in 2022 where they explained the two systems where both are interrelated and both have weaknesses in operation, namely it is wasteful of electricity and a very large carbon footprint.³⁹ Therefore, based on another explanation by Flick in 2022, it is better if the technology from NFT and Blockchain must have a separator and for NFT itself it should be avoided by various groups considering that activity in NFT is currently almost in all countries unable to provide absolute identification whether NFT is a a free world or a world full of crimes that cannot be penetrated by the laws of every state parliament.⁴⁰

Apart from that, Dandan He, et al., in 2022, explained that NFT and the Blockchain system were also developed further. In 2022, he alluded to the development of the metaverse world and its market which was growing rapidly in China, and became part of the country's big business. The results of his research state that the combination of NFT and Blockchain that leads to intellectual property in China has received a positive response and as an ongoing effort to address the weakness of this NFT system, efforts to develop platforms from NFT in China will continue to be pursued.⁴¹ This is also encouraged by the government of the country, where Beijing expressly gives flexibility to entrepreneurs to utilize technology in their business and one of them is NFT which will take priority in product development and fulfill China's export market. There are clear differences in this country and of course the central government will concentrate more on technological advances and market demand. If there are problems in the future, the central government with all its resources will be the first law enforcer to protect the interests of its domestic industry.⁴²

37 Gürkaynak et al., "Intellectual Property Law and Practice in the Blockchain Realm."

38 Zhao, Zhang, and Zhong, "A Blockchain-Based Transaction System with Payment Statistics and Supervision."

39 Rotta and Parana, "Bitcoin as a Digital Commodity:"the paper argues that Bitcoin mining is an automated reproduction process that requires no direct (living

40 Flick, "A Critical Professional Ethical Analysis of Non-Fungible Tokens (NFTs)."

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

42 He et al., "The Development of Digital Collection Platform under Responsible Innovation Framework: A Study on China's Non-Fungible Token (NFT) Industry."

4. Law Enforcement of Intellectual Property in Indonesia

Law enforcement of intellectual property especially in developing countries is still ambiguous,⁴³ this was emphasized by Lin and Wu in 2022 through the title of intellectual property rights and law enforcement in developing countries stating that for the Chinese state in the 1996-2015 range it was still compartmentalized by the concerns of most business people to develop their products and were worried about being exposed to sanctions in other countries as a result of carrying out various methods in developing their products and being affected by intellectual property rights in other countries and within their own country. This makes the central government in Beijing take various ways to keep motivating these business people not to worry about this, where the central government gradually gives concessions to innovation from business people in developing their products and there will certainly be counterproductive to this.⁴⁴

Whereas in Indonesia itself through Law Number 28 of 2014 concerning Copyright has a relatively short copyright protection period including for example broadcasting institutions only 20 years since it was first broadcast, then record producers only 50 years since the creation was fixed while for computers only 50 years from publication and copyright protection other than that applies for the life of the creator or 70 years after the creator dies and must register for each creation. Meanwhile, in comparison with neighboring countries, for example Malaysia used the *Copyright Act 1987* and ratified the *Berne Convention* in 1990 and became a member of the World Trade Organization (WTO) in 1996 where protection will be automatically given to users without prior registration with a record of their original work, it has been embodied in copyright form, and first published in Malaysia.⁴⁵

In addition, according to research by Grimaldi, Greco, and Cricelli in 2021, intellectual property management must be dynamic and open innovation in order to increase its advantages and competitiveness compared to other products abroad.⁴⁶ The dynamics of regulations in other countries compared to Indonesia must also receive attention from all parties, especially at the Directorate General of Intellectual Property, Ministry of Law and Human Rights of the Republic of Indonesia. Where so far intellectual property rights have been minimal in providing royalties. The reference used for example for music is Government Regulation Number 56 of 2021 concerning Management of Song Copyright Royalties which is reiterated in the Decree of the Minister of Law and Human Rights Number

43 Park, "The Ambivalence in the Ambiguity of UNESCO's Cultural Policy Remit: A Structural Description of the Common Heritage of Mankind in the Cultural Diversity Convention."

44 Lin and Wu, "Intellectual Property Rights and Law Enforcement in Developing Countries."

45 Rakhmita Desmayanti, "Undang-Undang Hak Cipta Indonesia Dan Undang-Undang Hak Cipta Malaysia: Perlindungan Dan Penerapan (Sebuah Perbandingan)," *Jurnal Hukum* 4, no. 2 (2013): 372-94, <https://academicjournal.yarsi.ac.id/index.php/Jurnal-ADIL/article/view/807>.

46 Grimaldi, Greco, and Cricelli, "A Framework of Intellectual Property Protection Strategies and Open Innovation."

HKI.2.OT.03.01-02 of 2016 applies music royalty rates, for example holding commercial seminars and conferences is 500 thousand per day, then cafe and restaurant royalties are 60 thousand, pubs, bars and distros are 180 thousand / square meter per year (provisions will apply according to area of work area).⁴⁷ Research conducted by Nguyen et al in 2021 trust in intellectual property will greatly increase if the government provides guarantees for an equitable increase in the economy, and the results of his research Nguyen reveal that if the state immediately strengthens its role in intellectual property and facilitates the protection of their intellectual property it will create business processes and business people will carry out many innovations which are of course beneficial for both the state and business people as well as the welfare of the community.⁴⁸

Meanwhile, the application in Indonesia, if you look at the existence of intellectual property, is still very low and in the November 2021 period there were only 216 thousand applicants for intellectual property and this figure is considered very small when compared to the total population of Indonesia⁴⁹. On the other hand, the public's reluctance to register their copyrights is an economic problem. Where the guarantees provided are still very minimal, whereas in 2022 with the issuance of Government Regulation Number 24 of 2022 concerning the creative economy, copyright holders should be able to provide loans to banks and banks will accept the transfer of intellectual property from the holders as collateral. Not only that, patent guarantees can also be used as fiduciary guarantees in banks because they are stated in Law Number 13 of 2016 concerning Patents in article 108 paragraph 1 where patent rights from the holder can be used as fiduciary guarantees in banks.⁵⁰

Thus, if the government through DJKI gives freedom to copyright holders and encourages copyright owners to immediately register their copyrights and fiduciary guarantees as well as royalty laws and legal certainty for enforcement, this will certainly provide a sense of security to the public and the public will trust the government regarding their creations. Moreover, Indonesia is one of the countries that agrees to the Agreement on Trade Related Aspects of Property Rigiht (TRIPs) so that both patents, copyrights, industrial designs, brands, trade secrets, and others must be a top priority and a guarantee to their fiduciary holders.⁵¹

47 "Peraturan Pemerintah Nomor 56 Tahun 2021 Tentang Pengelolaan Royalti Hak Cipta Lagu" (n.d.).

48 Nguyen et al., "The Impact of Trust on Intellectual Property Right Protection: A Cross-National Study."

49 Direktorat Jenderal Kekayaan Intelektual, "Kesadaran Masyarakat Masih Rendah, DJKI Gencarkan Edukasi KI," DJKI, 2021, <https://dgip.go.id/artikel/detail-artikel/kesadaran-masyarakat-masih-rendah-djki-gencarkan-edukasi-ki?kategori=liputan-humas>.

50 "Undang-Undang Nomor 13 Tahun 2016 Tentang Paten" (n.d.).

51 Maria Alfons, "Kepastian Hukum Perolehan Hak Atas Kekayaan Intelektual," *Jurnal Hukum Jatiswara* 31, no. 2 (2017): 303-17, <https://jatiswara.unram.ac.id/index.php/js/article/view/51>.

5. Educated For Society About Intellectual Property Protection

The existence of educated groups as human resources or human capital in a country is very important in contributing to national interests. Research by Habib, Abbas and Noman in 2019 showed that human capital in increasing intellectual property is something that state must be guard because the economic improvement of their existence is very crucial, for example in the country Pakistan which always provides protection to educated human capital to develop its innovations and given the widest possible freedom for progress and providing jobs to the community without any tightening of rules that worsen the state's condition.⁵²

Of course, this in the future will give rise to what is called Crowdsourcing, but research by Ullah, Zhang, and Ahmed in 2021 states that the position of intellectual property will always be dynamic and not static, therefore when Crowdsourcing occurs it will always provide novelty and innovation to the recipients. and other registrars will be treated the same and the task of the intellectual property agency will be very busy looking for and analyzing the novelty of each registered intellectual property, and assessing whether or not it deserves recognition.⁵³

The existence of intellectual property can also be influenced by the role of the state in managing its national strategy where according to Kock in 2021 that the state does not have to get carried away in managing intellectual property, the state can direct every creator to be able to answer various social problems and problems of the country and these solutions will be provided intellectual property if successful in alleviating it.⁵⁴ Practices like this are a means of utilizing human capital. Another explanation is also given by Bökke, Paraforos, Reiser, and Griepentrog where the explanation is that the progress of a technology in a country will of course be in line with complex problems. The state can not only see this as an opportunity and the intellectual property agenda will still be prioritized, but the way to go in that direction is to take advantage of this educated group to devote all forms of its ability to be creative.⁵⁵

Meanwhile, other agencies that also have to change to adapt to the times and the flow of technology are museums, through many explanations that NFT which has become

52 Habib, Abbas, and Noman, "Are Human Capital, Intellectual Property Rights, and Research and Development Expenditures Really Important for Total Factor Productivity? An Empirical Analysis."intellectual property rights (IPRs

53 Ullah, Zhang, and Ahmed, "The Influence of Intellectual Property Rights Protection on Contribution Efforts of Participants in Online Crowdsourcing Contests."it is unclear what factors affect the quality of contributions by participants in crowdsourcing activities. This study attempts to understand the mechanism of how perceived intellectual property rights (IPR

54 Kock, "Open Intellectual Property Models for Plant Innovations in the Context of New Breeding Technologies."

55 Bökke et al., "Conceptual Framework of a Decentral Digital Farming System for Resilient and Safe Data Management."

part of the Metaverse is also growing very rapidly, museums can take advantage of these advances to provide graphic designs from past history of the development of an era. and its progress by promoting the virtual concept. According to research by Choi and Kim in 2017, the existence of minimal resources in libraries is one of the advantages of human capital in developing attractive solutions and will result in a lot of copyrights in it. Museum agencies must see this opportunity in order to be able to become a museum that is eyed by various investors if they want to develop it in a better direction.⁵⁶

D. Closing

The closing in this study is related to the protection of intellectual property especially with the NFT and Metaverse for Indonesia, of course it must be an opportunity to improve the economy and strengthen people's welfare. Intellectual property on a certain side, for example, the results of the analysis of researchers with several articles show the existence of a Blockchain system which is of course a very big big data in developing intellectual property. Where the system will become the basis of a public domain and the public can access it and become a benchmark whether the work to be registered as intellectual property is available or becomes a new innovation. Meanwhile, in the aspect of legal protection and the future of Indonesia, the researcher sees that there is still very low public awareness to register their intellectual property and the public is still reluctant because there is no legal certainty that their work is not plagiarized, then fiduciary guarantees are still low and royalties are also minimally received by apprentices in Indonesia.

On other side, there should be an applicable law, but the strength in enforcement, according to researchers, is still low and there needs to be serious enforcement from the Indonesian government, especially through the DGIP at the Ministry of Law and Human Rights of the Republic of Indonesia, as the highest authority in the legality of intellectual property in Indonesia. followed by low fiduciary guarantees and minimal royalties received by apprentices in Indonesia. On this side, there should be an applicable law, but the strength in enforcement, according to researchers, is still low and there needs to be serious enforcement from the Indonesian government, especially through the DGIP at the Ministry of Law and Human Rights of the Republic of Indonesia, as the highest authority in the legality of intellectual property in Indonesia. followed by low fiduciary guarantees and minimal royalties received by apprentices in Indonesia. On this side, there should be an applicable law, but the strength in enforcement, according to researchers, is still low and there needs to be serious enforcement from the Indonesian government, especially through the DGIP at the Ministry of Law and Human Rights of the Republic of Indonesia, as the highest authority in the legality of intellectual property in Indonesia.

56 Choi and Kim, "A Content Service Deployment Plan for Metaverse Museum Exhibitions—Centering on the Combination of Beacons and HMDs."

In addition, the findings of the analysis from the researcher's literature review are regarding educated groups which are also owned by Indonesia where on this occasion the researcher analyzed that if human capital is fully utilized by the Government of Indonesia it is not impossible that it can become a means of development and solutions to problems in society. Apart from that, the existence of other agencies that also have to improve in gaining profits and also developing technology is the existence of museums which are commonplace in Indonesia which are still conventional and have not used high technology in their promotions. Researchers also hope that all laws and regulations are sufficient for the sustainability of Indonesian intellectual property.

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C. Regulations

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