Research Article

Legal Issues of Artificial Intelligence – Generated Works: Challenges on Indonesian Copyright Law

Ranti Fauza Mayana[1*], Tisni Santika[2], Yin Yin Win[3], Jamil Adrian Khalil Matalam[4] , Ahmad M Ramli[5]

[1,5]Faculty of Law, Universitas Padjajaran, Indonesia
[2]Faculty of Law, Universitas Pasundan, Indonesia
[3]MacMilan Center, Yale University, United States of America
[4]School of Law, University of Southeastern Philippines, Philippines
***ranti.fauza@unpad.ac.id**

ABSTRACT

Digital transformation fosters the massive utilization of Artificial Intelligence (AI) in creating literary, artistic, and musical works worldwide, including in Indonesia. The autonomous functioning of AI challenges the essential presumption that technology is merely a device in the hands of humans in the creation process of Works. This paper examines several legal issues and problems concerning the copyright-ability, authorship, and ownership of AI-generated works using a juridical normative approach. The result of the analysis shows that although the framework of Indonesia's copyright law is based on the principle of human authorship, the rapid development of AI must be balanced with an accommodating legal framework. In conclusion, the Indonesian government can open up the possibility of accepting AI's role in the creation of the work and formulate the limited artificial legal personhood of AI by granting exclusive rights, copyright protection, moral rights, and economic rights to individuals or groups of individuals who produce AI or whose contribution is required for AI function. This formulation is expected to encourage the utilization of AI also provide legal certainty and solve the problem concerning the lack of legal accountability for AI-generated works. In addition, the advancement of technical and legal support is needed in implementing this provisioning model.

Keywords: Artificial Intelligence; Authorship; Copyright; Legal Personhood.

A. INTRODUCTION

The world has come to digital transformation which has brought major changes in activities, lifestyles, and even creative processes. Digital media became the preferred media in the creative processes including the realization and manifestation of creative works because of its ease, effectiveness, and wide reach (Mayana, & Santika, 2022). The extensive use of information technology has changed how society processes the creation of works.

Furthermore, the massive development of technology and globalization fostered the creation of technology called Artificial Intelligence (AI) as a field of study related to capturing, modelling, and storing human intelligence in a technology system, information so that the system can facilitate decision–making processes that are usually carried out by humans.

Professor John McCarthy, a computer scientist, known as the "Father of AI" pioneered the research on Artificial Intelligence in 1955

(Andersen, 2022). AI is machines that perform intelligence-required tasks. A machine can be considered artificially intelligence if it performs errands that people perform utilizing knowledge like perception, discussion, and direction. Rule-based expert systems were the first AI systems. AI is a field of computer science devoted to the study of the automation of intelligent behaviour or a subfield of computer science devoted to the creation of software and hardware that can fully replicate some of the functions of the human brain. In principle, AI is designed to create a tool to help human activities in the form of tools that can think like humans. This assumption has changed drastically with recent advances in AI that can generate new content in ways that cannot be distinguished anymore from human craftsmanship. In these systems, a computer program simply follows a set of specific instructions about how to act in a certain circumstance. Recent advancement in AI enables more sophisticated functions where AI uses algorithms to learn from data and develop solutions for certain problems (Scharre, & Horowitz, 2018). Today, AI technology allows computers to be actively involved in human decision-making and can even enable computers to make decisions without human involvement (Anggraini, 2020).

The Industrial Revolution brought in an era of automation that requires insignificant human contribution. The popularity and development of AI now show that AI is increasingly capable of performing functions that were originally only able to be performed by humans because it requires cognitive abilities such as making textual works and composing melodies and song compositions to produce pictures/paintings independently (Tektona, Sari, & Alfaris, 2021). AI systems already become participants in certain social relations, AI technologies "are capturing" not only business but also the social sphere: education, healthcare, employment, and other social relations (Nobile C, 2023). In line with the technological developments that have occurred, AI has also experienced very significant developments where the Generative AI system is not used only as a tool for humans to facilitate their work. Many modern Artificial Intelligence systems are now capable of producing artistic works independently, imitating human intelligence.

The utilization of AI in the creation process has brought an impact on the Copyright system where the use of AI has also penetrated object and creatorship regulated in Copyright, (Christiani, Qureshi, & Kosasih, 2022) for example in creating music and songs as well as making works of art. Computer programs currently have algorithm engines that enable AI to analyze the input data and make decisions both under supervision and independently. In addition, AI can express works made from previous works of art in various forms, including Traditional Cultural Expressions (TCEs) (Dharmawan et al, 2023).

The types of AI are generally divided based on the level of advancement (Kaminski, 2017).

Generally, the types of AI consist of: **Artificial Narrow Intelligence (ANI)**, which refers to weak AI that primarily focuses on one single narrow task with a limited range of abilities; **Artificial General Intelligence (AGI),** which refers to AI that on the level of thinking as a human and hypothetically can perform varied tasks; **Artificial Super Intelligence (ASI),** refers to AI technology that (also hypothetically) will match and then surpass the human mind. In short, AI is categorized as weak if it simply performs programmed functions through simulation, and AI is categorized as strong if it goes beyond these functions by thinking and creating autonomously. (de Mántaras, 2018).

The vast development of AI fosters the revolution in the production of literary, artistic, and musical works that have been generated in some shape or form by AI due to the recent advancements in AI that can generate new content in ways that cannot be distinguished anymore from human craftsmanship (Guadamuz, 2021). The term "Generative AI" refers to computational techniques that are capable of generating seemingly new, meaningful content such as text, images, or audio from training data. For this reason, generative AI has the potential to transform the process that relies on creativity, innovation, and knowledge processing (Euchner, 2023). The vast development of AI also become a reminder to reflect and evaluate the quality of regulatory and legislative measures in Indonesia, that according to the research of Astariyani, *et.al* in need of improvement in the terms of the quality

of regulatory and legislative measures that accommodate the preventive and evaluative mechanism (Astariyani et al, 2023).

An example of strong AI where input data from various kinds of works / which are derivatives of works that are inputted into the system, where humans only act as programmers who input data and enter algorithms which are then AI will process orders and produce the implementation of these orders into real output (Ng, & Leung, 2020). The advertising project titled *"The Next Rembrandt"* was ordered by ING Bank to J. Walter Thompson, an advertising agency in 2016. In this project, AI analyzes 346 paintings by Dutch painter, Rembrandt van Rijn, who is one of the greatest painters in European art history. The utilization of AI in this project succeeded in concluding that if Rembrandt were still alive today, he would most likely have painted a man aged 30-40 years, wearing a black shirt and hat and posing from the right side. This project shows that once the AI program analyzed the style of Rembrandt from the input of the painter's 364 paintings, the program then created a new, creative, independent, and original work of art. (Yanisky-Ravid, 2017) *"The Next Rembrandt"* advertising project went on to win more than 60 advertising awards, including the prestigious Cannes Lions (Westhoff, 2020).

There are numerous examples other than the aforementioned advertising project titled *"The Next Rembrandt"*. **First,** regarding the copyright of *"Zarya of the Dawn",* on September 15, 2022, Kristina Kashtanova submitted a copyright

application for the Work in the form of a comic book under her name. The US Copyright Office reviewed the application and registered the copyright registration for the work under registration number VAu001480196 (United States Copyright Office, 2023a). Shortly after registering the work, the US Copyright Office became aware of statements on social media that attributed Kashtanova to using Midjourney's AI in creating the comic book, whereas the application did not disclose the use of AI. The US Copyright Office then determined that the application was erroneous or at least incomplete in content. In a letter dated 28 October 2022, the US Copyright Office informed Ms Kashtanova that it intended to cancel the registration unless she provided additional information in writing explaining why the US Copyright Office should not cancel her registration (United States Copyright Office, 2023a). Kashtanova responded with a letter that describes specific information about the creation of the work "*Zarya of the Dawn"* where she authored every aspect of the work while Midjourney served merely as the supporting tool, thus Ms Kashtanova argued that portions of the work shall be protected because she authored the text and the overall Work is copyrightable due to her creative selection, coordination, and arrangement of the text and images as the compilation. The US Copyright Office conducted the review of the work and application. The review concluded that Ms Kashtanova is the writer of the text as well as the choice, coordination, and game plan of the composed and visual components of

the Works (Sans, 2023). However, because the images in the Work that were generated by the AI (Midjourney technology) are not the product of human authorship, The US Copyright Office cancelled the original certificate issued to Ms Kashtanova and issued a new certificate covering the limited copyright registration only for the expressive material that she authored/created. The authors argue that the casuistic approach concerning the utilization of AI is needed concerning the development of Generative AI, acknowledgement Ms Kashtanova's creative effort in creating the stories, conducting the selection and arrangement of the AI-generated images as the "modicum human creativity" and the decision of The US Copyright Office to issue a new certificate covering the limited copyright registration only for the expressive material that authored by the legal subject can be the important milestone in searching the intersection between human creativity and the utilization of advance technology in the context of copyright.

The second example is *"Edmond de Belamy"* a painting that was sold in an auction for USD 432,500 on 25 October 2018 at *Christie's* in New York (Christie's, 2018). The painting is one of a group of portraits of the fictional *"Belamy Family"* created by *Obvious,* a Paris-based collective consisting of Hugo Caselles-Dupré, Pierre Fautrel, and Gauthier Vernier (Goenaga, 2020). They are taken part in investigating the connection point between craftsmanship and man-made consciousness, and their strategy goes by the abbreviation GAN, which represents

'Generative Adversarial Network', one of the deep learning technologies that can create abstract images used to create *"Obvious Art's Project"* (Purba, & Hendry, 2022). In this case, the authors argue that the collective goal of the *"Bellamy Family"* creation was to prove that machines can also be creative, from the Copyright point of view, although computer programs can be protected by copyright, the creation of computer program is not necessarily copyrightable since the copyright of the work is separate of any material/tools that may be used to create that work. However, the "Obvious Art's Project as an ensemble could be protected as a work of art/compilation although each portrait generated by the *"Generative Adversarial Network'* is not protected by copyright.

Another example is the utilization of AI in music production. *Jukebox* is an open-source neural network tool that generates music and rudimentary singing as raw audio in multiple genres and styles of many artists, including the late Elvis Presley (Guadamuz, 2021). Through massive combination models, *Jukebox* can produce coherent, highly realistic, and diverse songs as well as shape the style of music and vocals. There is also Google AI, a division of Google that focuses on AI and has released products such as *Magenta* and *Nsynth* as products that are made to aid artists and composers in creating music with the help of AI. Concerning the utilization of AI in music production, the author addressed the importance of conducting the assessment of whether the

utilization of these AI tools combines with a significant amount of human intervention or not, in case there is a significant amount of human intervention, it can be argued that the creativity exist, on contrary, if the human contribution considered to be insignificant then there will be no copyright.

Numerous creators are using generative AI to supplement, edit, inspire, or even replace several steps of their works (United States Copyright Office, 2023b). The utilization of generative AI can result in the work as the output that is potentially generated with insignificant human control, contribution, and creativity and the AI system autonomously creates the work. In this case, the work is ineligible for copyright protection. At the other end of the spectrum, the creators may have complex interactions with generative AI to create the fixation of a creative vision and incorporate the result into advanced work. In short, a wide variety of other utilization that combines human and generative authorship is possible and occurring. The authors' standpoint of all of the cases is that the utilization of AI cannot fully diminish human creativity therefore, the casuistic approach and assessment are important in deciding whether a certain work can be the subject of copyright protection. In addition, deeper analysis and a progressive approach to copyright law are needed to address this matter.

Initially, intellectual property protection comes from the result of human mind activities in creating useful products and/or processes, (Disemadi, 2022; Rifqi, Roisah, & Lestari, 2022)

however, the ability of AI, especially strong AI to produce creative works makes AI systems inevitably become an indispensable part of human activities, such symbiosis and cooperation between AI and humans that will lead to the condition described by Joseph Stiglitz, a Nobel Prize Winner in Economic Sciences, as the "transformation of civilization" (Stiglitz, 2017). This transformation in the creation of works raises several challenges in Indonesian Copyright Law concerning the copyright-ability and authorship of AI-generated works.

Ryan Abbott argues that to increase the level of human well-being, the law must not make the distinction between human activity and that of artificial intelligence when people and artificial intelligence perform the same function and task in creating the works (Abbot, 2020). However, according to the legal personality theory, to be a legal person is to be the subject of rights and obligations, to confer legal rights or to impose legal obligations, therefore, is to confer legal personality (Dewi, 2013). This approach is adopted by copyright law, therefore the human-centric approach can be found in Copyright Law. Based on the legal personality theory, AI systems do not possess any legal personality of civil law nor have a special legal position in most national legal systems (Filipova, & Koroteev 2023), including Indonesia, thus, the advancement of AI raises several challenges to Indonesian Copyright Law.

The advancement of AI brings the legal consequences of Copyright due to the challenges to the basic principles of Copyright protection: originality, creativity (personality) and fixation. Originality means that copyright protection can be granted to work that consists of the form of creativity as the result of one's creation. The originality principle lies based on human intellectual creation. Therefore, there must be a strong relation between the creation and the creator (legal subject), in other words, based on the personality theory of copyright, the originality and personality of the creation arise from the relationship between the act of creating copyrightable work and the (legal) person as the creator. Further, the fixation principle implies that a work is entitled to a copyright if it has been stated in concrete form, not in the form of an idea. In the conventional approach, these 3 (three) approaches are attached to legal persons (human or legal entities).

The gap between these 3 (three) basic principles of Copyright that emphasishe the human-centric approach which excludes AI from the scope of legal subjects and the advanced development of Generative AI where it can produce works produced by humans brought several legal challenges concerning: the copyright-ability, authorship, ownership and accountability of AI-generated works

A Previous study from Guadamuz (Guadamuz, 2024) reveals the inevitable challenges that accompany technological advancements and emphasizes the importance of acknowledging the irreversible emergence of AI in human life, thus legal systems must adapt and

offer equitable solutions to copyright holders while fostering technological advancement. Several perspectives of Copyright Law were also presented in earlier studies, for example study from Hristov analyzed this issue from the perspective of the U.S. Copyright Act and proposed that instead of redefining "authorship" to include non-humans, it is simpler to reinterpret the terms of "employee" and "employer" in the made for hire doctrine (Hristov, 2017). A Study from Chakraborty elaborates on analysis of Authorship of AI-generated Works under the Indian Copyright Act 1957; the study concludes that in the absence of having the legal capacity to claim remedies for copyright infringement, AI cannot be considered as an author and the argument of extending copyright protection to AI-generated works will fail (Chakraborty, 2019). A Study from Ramli, et.al analyzes Artificial Intelligence as an object of intellectual property in Indonesian Law and questions whether AI can be qualified as a legal subject of creator, inventor or designer and then registered as intellectual property (Ramli et al, 2023). A Study from Christiani, Qureshi, and Kosasih analyzes who can be categorized as the subject of rights owners in AI and whether Indonesia's Copyright Law accommodate the rights of creators in the form of AI as copyrighted works (Christiani, Qureshi, & Kosasih 2022).

Novel to the previous research, this article attempts to examine several legal challenges concerning the copyright-ability, authorship, ownership and accountability of AI-generated works from the perspective of Indonesian Copyright Law using a progressive approach and elaborate on some potential solutions to the issue of authorship, copyright-ability and ownership of AI-generated works and the "artificial" legal personality of AI.

B. RESEARCH METHODS

The study uses a normative juridical approach. The laws, regulations, theories and legal principles of copyright especially concerning authorship, copyright-ability and ownership of AI-generated works are analyzed to examine the challenges and potential solutions in balancing copyright protection and the massive development of AI innovation. Both an analytical and deductive approach have been employed in determining the most effective solution to the copyright legal issues of AI-generated works. The Indonesian Copyright law, copyright and technology-related regulations, legal cases which have set copyright precedents and published articles on non-human creativity and innovation have been analyzed, and several solutions and recommendations have been formulated as a result.

C. RESULTS AND DISCUSSION

1. Legal Issues of Artificial Intelligence – Generated Work: Some Challenges on Indonesian Copyright Law

a. Copyright-ability of Artificial Intelligence – Generated Works

Article 1.2 Indonesia Copyright Law defines an author as a person or several persons who

individually or jointly produce works that are unique and personal. This definition shows human-centric approach to Indonesia Copyright Law. This means that it's the author/creator makes the creative choices and as such, infuses his / her personality into a given work (Chakraborty, 2019). The authors expostulate that in a human-centred approach, the principle of originality is linked to a 'natural person and the requirement of "intellectual creation" addressing the personality of the authors. Thus, for this reason, the works autonomously produced by non-human (Artificial Intelligence) might not be eligible for copyright protection based on Indonesia Copyright Law.

"Work" or "Creation" in the provision of the Indonesian Copyright Law is defined as the work in the fields of science, art, and literature; produced based on inspiration, ability, thought, imagination, dexterity, creativity, or expertise and must be fixated in concrete form (Roisah, & Rakhmi, 2018). Article 40 verse (1) letter n Indonesian Copyright states that protected work includes Works in science, art, and literature which include interpretations, adaptations, anthologies, databases, adaptations, modifications arrangements, and other works resulting from the transformation.

The authors argue that the works resulting from the transformation and derivative works play an important element in analyzing the copyright-ability of Artificial Intelligence – Generated Works based on the potential portion of utilization of existing copyrighted works as the input or references for Generative AI. In the multi-faceted world of copyright law, the terms transformative and derivative works often create confusion since both refer to the adaptation or modification of an original work. However, there is a principal differentiation of both works. A work is considered "transformative" if it adds something new to the original with a further or different character, in short, the work has transformed the content in such a way that it imparts a new meaning or message, differing from the original. The "derivative work is a work based on or derived from one or more already existing works including translations, musical arrangements, motion picture versions of literary material or plays, art reproductions, abridgements and condensations of preexisting works.

The copyright-ability of Works based on Indonesian copyright law relies on several factors, especially the criteria of originality and the involvement of creativity in work creation, thus the analysis relates to the classification of AI that is used to create AI-generated works. In case AI is used merely as a tool of human to create work that fulfils the degree of originality and creativity that is dominantly part of the human contribution, for example, the utilization of Microsoft Word to write a novel, then the novelist considered as the author of the work (Chakraborty, 2019) or the utilization of recorder to record the music and lyric, the composer/songwriter will be considered as the author and/or copyright holder due to the significant involvement of human contribution in creating the works. The computer and recorder as

AI technology cannot be considered as the author since they are only the tools in the hands of humans and thus will not be able to discharge legal responsibilities. The legal rationale of this conventional approach is according to legal personality theory, Gray defines a legal person as "any being to whom the law attributes a capacity of interests and, therefore, of legal rights and duties (Gray, 1921). In addition, to be a legal person is to be the subject of rights and obligations, to confer legal rights or to impose legal obligations, therefore, is to confer legal personality, thus the incapability of AI to bear legal responsibilities makes AI (in this case weak AI like computer and recorder cannot be considered as the legal subject based on Copyright Law.

Nevertheless, unlike technology like Microsoft Word and recorder, the advancement of AI technology enables the AI to operate autonomously to a certain degree in creating the works. Further, the work created by AI is largely indistinguishable from work created by humans (Naithani, 2022). In the case of advanced AI, there is little or no creative input from a human, at most, the human chooses certain data in the data-feeding process then AI autonomously processes the data to generate an output without further intervention / direct role of the human in providing creative input and process.

According to Indonesia Copyright Law, the registration of copyright has substantive requirements, namely originality, creativity, and fixation. Work can be said to have an element of

originality and is a form of creativity if it is the result of one's creation, even though it may be inspired by the work of other people. The fixation principle implies that a work is entitled to a copyright if it has been stated in concrete form, not in the form of an idea. The originality principle in Indonesia Copyright Law is interpreted as the author's intellectual creation, in other words, according to the personality theory of copyright, the originality and personality of the creation arise from the relationship between the act of creating copyrightable work and the person acting as the creator. As a consequence, when there is no natural (legal) person behind a work, there is no originality and personality, and copyright cannot exist (Maggiore, 2018).

In addressing the originality of the works, the involvement of the creativity process and the role of AI in performing the creativity process must be examined; in this matter, transparency is undoubtedly one of the most fundamental pillars and central importance (De Werra, 2023) due to the issue connected with the creation and right to responsibility for safeguarded works emerges when those works reflect creative choices attributable to AI. The dilemma arises from the human-centric conception of copyright law that is structured around the idea that only human beings are the source of creativity and may produce original works in a copyright sense.

b. Copyright-ability, Authorship and Ownership of AI-generated Works

The ability to be creative has always been a big part of what separates human beings from

machines. Based on this principle, normatively, Article 1.1. Copyright means an exclusive right of the author, further Article 1.2. Indonesian Copyright Law defines the creator as a person or group of people who individually or jointly produce a work that has unique and personal characteristics. These provisions describe that the unique and personal characteristics of the work are the result of the creative process of the creator, therefore a person who creates original works of authorship is granted the exclusive but not absolute- rights to do anything about his / her creation, for example, the right to produce, copy, distribute or conduct any form of commercialization to gain economic benefit (Mayana, & Santika 2022)

However today, a new generation of AI applications is casting doubt on how the Copyright Law defines the subject since AI is being used in applications across sectors; AI is creating artistic, musical, and literary works. This raised a question since Article 1.2 and Article 1.4 Indonesian Copyright Law restrict the scope of author/creator/copyright holder to a person (legal person – covers both human and legal entity). Further, Article 1.27 of Indonesian Copyright Law explains that "person" includes individuals (human) or legal entities who are eligible to be the holders of rights and obligations in their capacity as legal subjects.

Article 31 of Indonesian Copyright Law regulates that unless proven otherwise, the one to be considered as the creator is the individual whose name is expressed in progress recordation or potentially recorded in the General register of fills in as the creator / the author. According to Article 37, unless proven otherwise, in the event a legal entity makes publication, distribution, or communication of works originating from the legal entity without citing any person as the Author, the one who will be regarded as the author is the legal entity. In addition, Article 39 states that if the Author of Works is unknown and the Works have not been published, the copyright of the Works will be held by the State for the benefit of the Author.

The qualification of copyright subject to a legal person is considering that based on Article 4 of Indonesian Copyright Law, copyright embodies both economic and moral rights. Further, Article 5 regulates that moral rights are the rights that are eternally inherent to the author consisting of the right to integrity and the right to paternity (Yudiana, 2022). Related to the exercise of rights, Article 5 verse (2) regulates the exercise of moral rights as transferable by testament or other reason by the provisions of laws and regulations after their demise, according to the Indonesian law both the testator and beneficiary must be a legal person. Regarding the exercise of economic rights, article 9 (2) regulates that every person (except the author and/or copyright holder) who exercises the economic rights is obligated to obtain permission from the author or the copyright holder. These provisions regarding the exercise of copyright limit the subject to a person, defined as a legal person (both person and legal entity).

Articles 66 and 67 of Indonesian Copyright

Law regulate that the recordation of Works for copyright and related rights products is filled with written application in the Indonesian language by the author, copyright holder and related rights owner or several persons who are jointly entitled to the Works or related rights product or their representative to the Minister of Law and Human Rights of the Republic Indonesia. If the application is filled by several people who are jointly entitled to the Works or related rights products, all the applicants' names must be written. If the application is filled by legal entities, the application will be enclosed with a certified true copy of the deed of establishment of the legal entity that has been certified by competent authorities.

Article 69 of Indonesian Copyright Law regulates that if the Minister issues a certificate of Work and records it in the general Register of Works, the certificate will specify the name of the author and the copyright holder, or the name of the owner of the related right products. Article 74 (1) point (a) of Indonesian Copyright Law regulates the revocation of the recordation of Works and Related Rights products based on the application of the person or legal entity whose name is recorded as the author, copyright holder, or related rights owner.

The aforementioned provisions pictured the strict limitation of Indonesian Copyright Law legal subject to a legal person. This legal person-centric also describes the provisions concerning copyright protection measures through lawsuits. Article 97 juncto Article 99 Indonesian Copyright

Law regulates that if the Works have been recorded, other interested parties may file a lawsuit for cancellation of recordation of the Works in the public register of Works through the Commercial Court, and the lawsuit is addressed to the author and/or the legally registered copyright holder The author, copyright holders, or the related rights owners are entitled to file a claim for damages to the Commercial Court for infringement of copyright or related rights products (Nurhayati et al, 2019).

Copyright subjects consist of creators, copyright holders, and related rights holders in general. In the Indonesian Civil Code who are recognized as legal subjects (servants/supporters of rights and obligations) are humans and legal entities (Yunus, Zein, & Siagian 2022). The acknowledgement of legal persons in Copyright Law states in the definition of "Author", "Copyright Holder", "Performer(s)" and "Producer of Phonogram". Article 1.2 Copyright Law defines an Author as a person or several persons who individually or jointly produce works that are unique and personal. Article 1.4 Copyright Law defines Copyright Holder as an Author as the Copyright owner, the party acquiring a lawful right from the Author or other parties who acquire subsequent rights from the party such acquiring lawful rights. Article 1.6 Copyright Law defines Performer(s) as one or several persons who individually or jointly display and perform works. Article 1.7 defines the Producer of Phonogram as a person or legal entity that is the first to record and is responsible for performing voice recording

or sound recording, both performance recording and voice or other sound recording.

Based on the statutory review concerning the qualification of Copyright subject according to Copyright Law that acknowledges human and legal entity as the subject, it's relevant to also elaborate on legal entity as an artificial legal person. The qualification of the legal subject in Copyright Law is by general, Indonesian law also recognises 2 (two) types of legal person, consisting of natural person (human/individual) and legal person / juristic person (legal entity/corporation). A natural person is any human being, with legal capacity commencing from the time of birth. A legal person is an association of people or special-purpose fund that is recognized by law as having a legal personality and capable of being the subject of rights and duties. A Legal person is known as an artificial person, meaning that its existence is created by a natural legal person (a group of persons) whose status is granted or acknowledged by the law.

The aforementioned provisions show that the authorship, ownership, rights, and obligations concerning copyrights in Indonesia Copyright Law are entitled to legal persons. In other words, Indonesia Copyright Law is human-centric (legal person-centric). There is no justification and legal formulation based on Indonesian Copyright Law that can be the basis for granting legal rights including economic rights and moral rights to non-legal persons and further, only legal persons have legal standing in the court. Further, since in the Indonesian Copyright Law the term "Author" is defined as the person who creates the work, therefore AI cannot be an author because the Indonesian Copyright adopted a "human authorship requirement". Moreover, AI cannot be considered an "author" due to the inexistence of legal standing. As a legal subject, especially in the context of copyright, AI is deemed not to have creativity and personality as humans do, so in the copyright framework, when AI makes a work it is not considered a result of creativity and cannot be protected by copyright because it was not made/produced by legal subject. In this manner, AI with regards to copyright is seen as a specialized device that helps people during the time spent making works. If a copyrighted work is created by a human using AI as a technical tool, the result can be protected as copyright (Ramli et al, 2023). The authors argue that when AI is perceived merely as the tools/device that support people in creating the works, there will be no legal issue, however with the advancement of AI massively rising it's arguable whether AI can be seen merely as the tools or should be seen as advance tools. This will bring the impact concerning the degree of creativity and human contribution in creating the work and whether the work is eligible for copyright protection, especially when there is only an insignificant contribution of humans and the domination of AI in the work creation process. Further, it's important to analyze not only the aspect of rights but also the aspect of accountability and legal responsibility of the creator. The discussion of legal rights and responsibility is strongly related to the discussion

of legal personality since the legal person is the bearer of legal rights and duties, therefore the next sub-section will discuss and analyze the potential of acknowledgement of the limited legal personality of Artificial Intelligence.

c. The Acknowledgement of Limited Artificial Legal Personality for Artificial Intelligence: A Potential Solution?

Human authorship is undoubtedly a legal construct designed around policy considerations. The present framework of copyright law appears to revolve around "human creativity" In the general regime of copyright, AI cannot be considered an author since it will not be able to discharge legal responsibilities. However, AI utilization in the production of creative work disrupts several copyright laws at their core concerning the human author/creator. The issues regarding the degree of originality and personality of work are influenced by how dominant the utilization of AI is in producing the works. The level of disruption is not just the technology by itself, but how it is constructed by law (Kaminski, 2017)

According to Article 2 of Indonesia Copyright Law, this law (Copyright Law) applies to all Works and Related Rights products of Indonesian and non-Indonesian nationals, residents and legal entities. Based on said provision, the author argues that authorship based on Indonesian Copyright Law is human-centric, therefore works that are not strictly made by humans are ineligible for copyright protection due to the lack of originality, personality, and

degree of creativity, which can only conducted by a human according to copyright perspective. however, there is uncertainty regarding what qualities of originality and creativity a person should have to be recognized as an author Under Indonesian Law, the "originality" aspect is not explicitly stated, but rather implied in the definition of 'author' in the article 1.2 stating that a creator is a person whose works are 'unique' and 'personal' (Noor, 2021).

About the personality, Hegel regarded property as an essential attribute of personality (Yoo, 2019). Further, Justice Holme argues that personality here is a synonym of individuality and refers to the unique way in which an individual sees and expresses himself accordingly. What confers copyright protection is not the quality of the work, but the fact of being "personal" to the author, meaning that it results from the author's individuality. From the personality point of view, the copyright aims to protect the reflection of the personality of a person in his / her work. The personality of work cannot be attached to AI since AI cannot be said to have a personality like the personality of a human. Thus the information concerning the human contribution to AI-generated work is ultimately important in examining the degree of personality through the degree of creative input and contribution of humans in the creation of work. Indonesia Copyright law is partly silent regarding whether a non-person can qualify for authorship and leaves the issue open to judicial interpretation. There's a logical relationship between personality and

monism model. In monism, the personality rights and property rights of a work are considered as a whole. In the "monism of copyright" relevant scholars argue that property rights and personality rights are mixed as single rights and there is no need to make any distinction (Zhu, 2023)

The authors believe that even though AI has entered into a sophisticated category, basically AI is still a human-made system that does not have natural thinking power like humans in the sense of carrying out a function or producing output, AI depends on a set of algorithms and input from programmers, where from these algorithms and inputs, AI will carry out the functions ordered by it, for example, screening, data processing and producing certain outputs through modifications, so that works created by AI are seen as not pure and new creative processes, but abstractions or derivatives or previous works Guadamuz, 2021). Undoubtedly, a person's involvement is required in starting or operating the AI's creative undertaking, however, the process to determine the authorship or ownership when the AI is utilized and plays a pivotal role in the creation of the work continues to remain in grey area (Christiani, Qureshi, & Kosasih 2022).

The rapid development of AI sooner or later must be balanced with an accommodative legal framework. Since Indonesian copyright law constructed authorship as requiring a spark of human brilliance, there would be limited space in protecting AI as an author and/or legal subject. If,

on the other hand, copyright law focuses more on the development of AI in the creative process, then AI or emerging authors could more easily be incorporated into those systems of legal meaning. As AI systems become more complex and assume a bigger part in society, contentions that they ought to have some type of lawful character gain trustworthiness. Typically, the arguments are presented in instrumental terms, drawing comparisons to legal entities like corporations (Chesterman, 2020).

However, since AI is not sentient and is not conscious of how its output is used and utilized once it is generated, it would not make sense to recognize moral rights in the AI as the AI cannot exercise the implementation of moral rights in the form of right to integrity and the right to paternity. The Indonesian government can open up the possibility of admitting the contribution of AI in creating the Work considering that the use of AI and the output produced by AI has implications for society, to provide exclusive rights and protection of copyright along with protection of moral rights and economic rights to a person / several people as parties who produce AI or their contribution is needed in carrying out AI functions is more possible to be implemented rather than making AI and the products it produces become public domains that are not bound to subjects that can be subject to legal obligations to safeguards the use of AI so that it does not conflict with law, order, and decency. It is safer not to allow AI to acquire copyright ownership which concerns moral rights and economic rights independently.

As a property right, copyright needs to be the object/property attached to a subject that has legal standing in the sense of being able to own property, to be able to exercise and control the rights, and to be held accountable legally. To anticipate the development of AI, an approach can also be taken in the form of expanding the scope of creation which includes "computer-generated works and even AI-generated works where human intervention is at a minimal level to no intervention at all. However, when it comes to AI-generated works, the authorship of AI will be contentious under Indonesian Copyright laws. However, the limited legal personality of AI could potentially artifice to avoid problems concerning legal standing, enabling legal persons (human individuals or companies) to act on behalf of non-human persons to exercise their rights and obligations (Chesterman, 2020).

Joint ownership between AI and parties who are AI programmers can be an option regarding the authorization and ownership of works produced by AI. This approach has been adopted by the UK. Based on Article 9 (3) UK Copyright, Designs, and Patents Act for computer-generated works where it is stated that the creator is the person who made the necessary arrangements for the creation of the work. "Computer-generated" work, means that the work is generated by computer in circumstances such that there is no human author of the work. This provision does not provide copyright for AI independently but still recognizes the use of AI in creating works based on the doctrine of "Work Made for Hire" which essentially states that the employer (company, contractor, or programmer) is considered the creator of a work made under his orders, control or direction (Tektona, Sari, & Alfaris, 2021). Concerning computer-generated work, there are some arguments on joint authorship in copyright applications (Lee, 2021).

The basis for considering the application of this doctrine is that the creations produced along with the rights that arise - both moral and economic – can only be connected to a subject who can be the bearer/recipient of rights or incentives while at the same time being able to carry out legal obligations as well as legal responsibility/liability (Otero, & Quintais, 2018). To anticipate the possibility of an AI system getting out of control, it's important for the government as the regulator to formulate the legal basis between AI and legal subjects.

This formulation not only has the potential to encourage the utilization of AI but also provides legal certainty and potentially solves the problem concerning the lack of legal accountability for AI-generated works. This formulation recognizes the limited personhood of AI and entangles this limited personhood to a (legal) person behind the AI to exercise both moral and economic rights. However, this provision requires a clear formulation regarding the scope of "necessary arrangements for the creation of works" for example concerning data feeding as input and operational control of an AI function/program (Kop, 2019) to produce copyright-able creative works. Thus, the formulation of special provisions

for the copyright registration of AI-generative works is needed. The copyright registration of AI-generative works requires technical support in the inspection process and substantive examinations to check the eligibility of granting copyright protection based on the degree of creativity, personality, and originality of the works.

Responding to the phenomena concerning the rapid rise in ability, utilization, and performance of generative AI in art, literature, and music creations, it's of paramount importance for the Indonesian Copyright Office to formulate policy guidelines on copyright protection and registration of works created using generative AI. The guidance shall be able to conduct how to address and measure the degree of human creativity used in the creation of works. Technical guidelines are also needed concerning the examination of good faith in terms of transparency of the author/copyright holder in disclosing the information on the utilization and involvement of AI in creating/generating creative work. The disclosure of AI involvement in creating the work submitted for registration must provide a brief explanation of the human's author creativity as the contributions to the work.

The technical infrastructures also need several changes, improvements, and advancements to implement this provision. Currently, The Ministry of Law and Human Rights of the Republic of Indonesia implements the 'Automatic Copyright Registration Approval System' as the facilitation for the public to submit the registration for the works with approximately

10 (ten) minutes of process. The process of copyright registration is relatively simple, the procedure consists of the application form filling out the registration form, and uploading the required documents.

The online registration form consists of the data filling consist of: **First,** the type of application, whether the applicant is a Small, Medium Enterprises, Academic Institution, Government Research and Development Institute, or General Public Applicants; **Second,** the filling concerning the type of work and sub-type of work, the title of the work and sub-description of work, date of the first announcement and country and the city where it was first announced. **Third,** the filling of the information whether the application is submitted directly or submitted through a power of attorney. **Fourth,** the filling concerning the data of the author (creator) and copyright holder consists of name, nationality, address, province, city, district, zip code, email, telephone number, and whether the author (creator) or copyright holder is a legal entity. The input registration is accompanied by the uploading of required documents consisting of a scan of the Indonesian Citizen ID Card (for the individual applicant) or Company Deed (for the legal entity applicant), Tax ID Number, an example of the copyright that will be registered, statement of ownership, application form and proof of official payment. After the payment is made, a registration letter will be issued within approximately 10 (ten) minutes which can be downloaded by the registrant.

In terms of technical and digital infrastructure, the electronic copyright registration menu to accommodate AI-generated work in the Indonesian copyright framework requires adjustment and advancement, for example, applicants are instructed to select whether the works submitted contain the utilization or the involvement of AI. In case there is the involvement of AI, the work must be submitted with limitation of claim, where the applicant should select the type of elements of work that were AI-generated with the description of AI–generated materials and identification of human contribution in modification, supplementation, and compilation of the materials and how the human has control over AI technology used to generate copyrighted materials.

From the aforementioned description, the examiner of copyright registration objectively assessed the degree of creativity of such work. It has been argued that creativity in a work can be assessed in 2 ways: based on the final output/product or based on the process of creation by examining the human contribution in both aspects or whether the applicant fulfils the criteria as the person by whom the arrangements necessary for the creation of the work are undertaken or in the case that the work which is computer – generated, the person who causes the work to be created. If the AI works autonomously with an insignificant amount of human contribution, or even without any human creative input, then the degree of minimum creativity is not fulfilled, as a consequence the

work is ineligible for copyright protection. On the other hand, in case there is creative input by humans in programming the AI without which AI would not be able to create work, then it can be argued that the degree of creativity exists because AI functioned as the tools utilized by humans in the creation of work. The technical examination is further needed to examine the degree of human creativity of the work as the basis for granting copyright protection.

D. CONCLUSION

The legal framework of Indonesia's copyright law is based on the principle of human authorship. Due to their lack of originality and creativity, works not strictly created by humans are ineligible for copyright protection. However, the rapid development of AI sooner or later must be balanced with an accommodative legal framework. Considering that the creations in the copyright framework consist of both moral and economic rights that can only be legally connected to a subject who can be the bearer or recipient of rights while also being able to carry out legal responsibility and accountability serves as the basis for considering the application of this doctrine.

The Indonesian government can open up the possibility of accepting AI's role in the creation of the work and formulate the limited artificial legal personhood of AI by granting exclusive rights, copyright protection, moral rights, and economic rights to individuals or groups of individuals who produce AI or whose contribution is required for

AI function. This formulation not only potential to encourage the utilization of AI but also provides legal certainty and potentially solves the problem concerning the lack of legal accountability for AI-generated works. In addition, the advancement of technical and legal support is needed in implementing this provisioning model.

REFERENCES

JOURNALS

Andersen, S. L. (2022). John McCarthy: Father of AI. *IEEE Intelligent Systems*, Vol.17, (No.5), pp.84–85. https://doi.org/10.1109/MIS.2002.1039837

Anggraini, D. (2020). Kecerdasan Buatan (AI) Dan Nilai Co-Creation Dalam Penjualan B2B (Business-To-Business). *Jurnal Sistem Informasi, Teknologi Informasi, Dan Edukasi Sistem Informasi*, Vol.1,(No.2), pp. 63–69. https://doi.org/10.25126/justsi.v1i2.7

Astariyani, Ni Luh Gede., Hermanto, Bagus., da Cruz, Rosino.,& Wisnaeni, Fifiana. (2023). Preventive and Evaluative Mechanism Analysis on Regulatory and Legislation Reform in Indonesia. *Law Reform,* Vol.19, (No.2),pp.248–269. https://doi.org/10.14710/lr.v19i2.55819

Chakraborty, A. (2019). Authorship of AI Generated Works under the Copyright Act, 1957: An Analytical Study. *Nirma University Law Journal*, Vol.8, (No.2), pp.37–54. https://heinonline.org/HOL/LandingPage?handle=hein.journals/nulj8&div=17&id=&page=

Chesterman, S. (2020). Artificial intelligence and the limits of legal personality. *International and Comparative Law Quarterly*, Vol.69, (No.4),pp.819–844. https://doi.org/10.1017/S0020589320000366

Christiani, Theresia Anita., Qureshi, Muhammad Imran., & Kosasih, Johannes Ibrahim. (2022). Artificial Intelligence (AI) In Copyright Law in Indonesia. *Journal of Positive School Psychology*, Vol.6, (No.3),pp.418–423. https://www.journalppw.com/index.php/jpsp/article/view/1418

De Werra, J. (2023). AI transparency: An emerging principle in the IP ecosystem?. *Journal of Intellectual Property Law and Practice*, Vol.18, (No.6), pp.407–408. https://doi.org/10.1093/jiplp/jpad041

Dewi, Yetty K. (2013). Liability of Legal Person in Indonesia: A Statutory and Practical Review, *Indonesia Law Review*, Vol.3, (No.1, January – April 2013), pp.43-54. https://doi.org/10.15742/ilrev.v3n1.29

Dharmawan, Ni Ketut Supasti., Kasih, Desak Putu Dewi., Samsithawrati, Putu Aras., Dwijayanthi, Putri Triari., Salain Made Suksma Prijandhini Devi., Mahaswari, Mirah., Ustriyana, Made Grazia., & Moisa, Robert Vaisile. (2023). Quo Vadis Traditional Cultural Expressions Protection : Threats' from Personal Intellectual Property and Artificial Intelligence. *Law*

*Reform,*Vol.19,(No.2),pp.321–343. https://doi.org/10.14710/lr.v19i2.58639

Disemadi, Hari S. (2022). Contextualization of Legal Protection of Intellectual Property in Micro Small and Medium Enterprises in Indonesia. *Law Reform,* Vol.18, (No.1), pp.89–110. https://doi.org/10.14710/lr.v18i1.42568

Euchner, J. (2023). Generative AI. *Research-Technology Management*, Vol.66, (No.3), pp.71–74.https://doi.org/10.1080/ 08956308.2023.2188861.

Filipova, Irina. A., & Koroteev, Vadim. D. (2023). Future of the Artificial Intelligence : Object of Law or Legal Personality ?. *Journal of Digital Technologies and Law*, Vol.1, (No.2),pp.359–386. https://doi.org/10.21202/jdtl.2023.15

Goenaga, Mikel A. (2020). A Critique Of Contemporary Artificial Intelligence Art: Who is Edmond de Belamy? *AusArt*, Vol.8, (No.1),pp.49–64. https://doi.org/10.1387/ausart.21490

Guadamuz, A. (2021). Do androids dream of electric copyright? Comparative analysis of originality in artificial intelligence generated works. *Artificial Intelligence and Intellectual Property*,pp.147–176. https://doi.org/10.1093/oso/978019887094 4.003.0008

Guadamuz, A. (2024). A Scanner Darkly: Copyright Liability and Exceptions in Artificial Intelligence Inputs and Outputs. *GRUR International*, Vol.73, Issue 2,

pp.111-127. https://doi.org/10.1093/grurint/ikad140

Hristov, K. (2017). Artificial Intelligence and the Copyright Dilemma. *IDEA; The Journal of the Franklin Pierce Center for Intellectual Property*, Vol.57, (No.3), pp.431–454. https://ipmall.law.unh.edu/sites/default/files/ hosted_resources/IDEA//hristov_formatted. pdf

Kaminski, Margot E. (2017). Authorship, Disrupted: AI Authors in Copyright and First Amendment Law. *University of California Davis Law Review*, Vol.51, (No.2), pp.589–616. https://lawreview.law.ucdavis.edu/sites/g/fil es/dgvnsk15026/files/media/documents/51-2_Kaminski.pdf

Roisah, Kholis., & Rakhmi, Wendy Budiati. (2018). The Marrakesh Treaty and Facilitating Access to Literary Works in the Field of Knowledge for Blind People. *Hassanudin Law Review,* Vol.4, Issue 3, pp.315–324. http://dx.doi.org/10.20956/halrev.v4i3.1539

Kop, M. (2019). AI &Intellectual Property: Towards an Articulated Public Domain. *Texas Intellectual Property Law Journal (TIPLJ)*, Vol. 28, (No.1), pp.1–39. https://doi.org/10.2139/ssrn.3409715

de Mántaras, Ramon López. (2018). Towards Artificial Intelligence Advances, Challenges, And Risks. *Metode Science Studies Journal*, Vol.9, pp.119–125. https://doi.org/10.7203/metode.9.11145

Rifqi, Muhammad., Roisah, Kholis., & Lestari, Sartika Nanda. (2023). The Prospects of Intellectual Property Rights as a Credit Collateral: An Indonesia-Singapore Comparative Study. *Jurnal Hukum Novelty,* Vol.14,Issue2,pp.170–191. http://dx.doi.org/10.26555/novelty.v14i2.a27017

Naithani, P. (2022). Issues of Authorship and Ownership in Work created by Artificial Intelligence - Indian Copyright Law Perspectives. *NTUT Journal of Intellectual Property Law and Management*, Vol.11, (No.1),pp.1–12. https://iip.ntut.edu.tw/var/file/92/1092/img/Vol11_No1.pdf

Nobile C, Gallese. (2023). Legal Aspects of the Use of Artificial Intelligence in Finnish Healthcare. *Journal of Digital Technologies and Law*, Vol.1, (No.2), pp.314–336. https://doi.org/10.17803/2618-8198-2020-10-4-039-045

Noor, N. (2021), Copyright Law in Protecting Creators' Exclusive Rights in the Creative Industry: A Comparative Study. *The Lawpreneurship Journal,* Vol.1, (No.2), pp.200–217. https://doi.org/10.21632/tlj.1.2.200-217

Nurhayati, Yati., Ifrani., Barkatullah, Abdul Halim, & Said, Muhamad Yasir. (2019). The Issue of Copyright Infringement in 4.0 Industrial Revolution: Indonesian Case. *Jurnal Media Hukum*, Vol.26, (No.2), pp.122–130. https://doi.org/10.18196/jmh.20190128

Purba, Eric Secada., & Hendry. (2022). Implementation of Generative Adversarial Networks for Penerapan Generative Adversarial Networks Dalam Pembuatan. *Jurnal Teknik Informatika (JUTIF)*, Vol.3, (No.3),pp.707–715. https://doi.org/10.20884/1.jutif.2022.3.3.262

Ramli, Tasya Safiranita., Ramli, Ahmad Mujahid., Mayana, Ranti Fauza., Ramadayanti, Ega., & Fauzi, Rizky. (2023). Artificial intelligence as object of intellectual property in Indonesian law. *Journal of World Intellectual Property*, Vol. 26, (No.2), pp.1–13. https://doi.org/10.1111/jwip.12264

Sans. N. (2023). The U.S. Copyright Office's Zarya Decision, and the Uncertain Future of AI Comics. *The Columbia Journal of Law & the Arts*. https://journals.library.columbia.edu/index.php/lawandarts/announcement/view/617

Stiglitz, J E. (2017). The Coming Great Transformation. *Journal of Policy Modeling*, Vol.39,(No.4),pp.625–638. https://doi.org/10.1016/j.jpolmod.2017.05.009

Tektona, Rahmadi Indra., Sari, Nuzulia Kumala., & Alfaris, Maulana Reyza. (2021). Quo Vadis Undang-Undang Hak Cipta Indonesia: Perbandingan Konsep Ciptaan Artificial Intelligence di Beberapa Negara. *LSP Jurnal Ilmiah Dosen*, Vol.5, (No.9), pp.285–305. https://repository.unej.ac.id/handle/123456789/108147

Ng, Gee Wah., & Leung, Wang Chi. (2020). Strong Artificial Intelligence and Consciousness. *Journal of Artificial Intelligence and Consciousness*, Vol.07, (No.01),pp.63–72. https://doi.org/10.1142/s2705078520300042

Yanisky-Ravid, S. (2017). Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era-The Human-like Authors Are Already Here-A New Model. *Michigan State Law Review*, pp. 659–726. https://ir.lawnet.fordham.edu/faculty_scholarship/956.

Yoo, Christopher S. (2019). Rethinking Copyright and Personhood. *University of Illinois Law Review,* Vol.2019,No.3,pp.1039–1078. https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=14 22&context=faculty_scholarship.

Yudiana, Teguh C. (2022). An Inequality of Moral Rights in Apple Music Platform as A Digital Copyright Protection Infringement. *Jurnal Supremasi,* Vol.12, (No.2), pp.17–26. https://doi.org/10.35457/supremasi.v12i2.1 971.

Yunus, Nur Rohim., Zein, Fitriyani., & Siagian, Amrizal. (2022). Civil Law System in Indonesia and Its Comparison with Other Legal Systems. *SALAM: Jurnal Sosial Dan Budaya Syar-I* Vol.9, (No.5), pp.1629–50. https://doi.org/10.15408/sjsbs.v9i3.26168.

Zhu, L. (2023). Dilemma and Outlet of Personality Right Protection in Sports Event Copyright. *Journal of Innovation and Development*, Vol.4,(No.2),pp.85–92. DOI:10.54097/jid.v4i2.12148

BOOKS

Abbot, R. (2020). *The Reasonable Robot : Artificial Intelligence and the Law*. Cambridge: Cambridge University Press. https://doi.org/https://doi.org/10.1017/9781 108631761

Gray, John C. (1921). *The Nature and Sources of the Law*. London: Routledge.

Lee, Jyh-An. (2021). Computer-generated Works under the CDPA 1988. Oxford: *Oxford University Press*, DOI:10.1093/oso/9780 198870944.003.0009.

Maggiore, M. (2018). Artificial Intelligence, computer generated works and copyright. In E. Bonadio & N. Lucchi (Eds.), *Non-Conventional Copyright* (p. 382). London : Edward Elgar Publishing.

Mayana, Ranti Fauza., & Santika, Tisni. (2022). *Hak Cipta Dalam Konteks Ekonomi Kreatif dan Transformasi Digital* (1st edition). Bandung : Refika Aditama.

Scharre, Paul & Horrowitz, Michael C. (2018). *Artificial Intelligence : What Every Policimaker Needs to Know.* Washington : Center for a New American Security.

PROCEEDINGS

Mahardita, Yoga., & Roisah, Kholis. (2018). Optimizing the Authority of Indonesia Customs in Legal Protection of Intellectual

Property Rights. *In Proceeding of 1st International Conference on Indonesian Legal Studies (ICILS 2018).* (pp.135-140). Dordrecht: Atlantis Press. https://www.atlantis-press.com/proceedings/icils-18.

Strelkova, O., & Pasichnyk, O. (2017). Three types of artificial intelligence. *IV All Ukrainian Scientific and Practical Conference,* (pp.142–146). Poltava. http://eztuir.ztu.edu.ua/bitstream/handle/123456789/6479/142.pdf?sequence=1&i

ONLINE SOURCES

Christie's. (2018). *Is artificial intelligence set to become art's next medium*?. Retrieved from https://www.christies.com/features/A-collaboration-between-two-artists-one-human-one-a-machine-9332-1.aspx.

Otero, Begona Gonzales., & Quintais, Joao Pedro. (2018). Before the Singularity: Copyright and the Challenges of Artificial Intelligence, Kluwer Copyright Blog. Retrieved from https://pure.uva.nl/ws/files/34082305/Before_the_Singularity_Copyright_and_the_Challenges_of_Artificial_Intellige.pdf.

United States Copyright Office. (2023a). *Zarya of the Dawn (Registration # VAu001480196).* Retrieved from https://fingfx.thomsonreuters.com/gfx/legaldocs/klpygnkyrpg/AI COPYRIGHT decision.pdf

United States Copyright Office. (2023b). Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence. Federal Register : Daily Journal of the United States Government. 2023. Retrieved from https://www.federalregister.gov/documents/2023/03/16/2023-05321/copyright-registration-guidance-works-containing-material-generated-by-artificial-intelligence.

Westhoff, M. (2020). The Next Rembrandt. Harvard Business School Digital Inovation and Transformation. Retrieved from https://d3.harvard.edu/platform-digit/submission/the-next-rembrandt/.