

Legal Protection of Ai-Generated Creative Works in the Age of Digital Disruption: An Intellectual Property Law Perspective

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ABSTRACT: The advancement of Artificial Intelligence (AI) technology in the era of digital disruption has led to the emergence of a new phenomenon: generative works autonomously or semi-autonomously produced by AI systems. This development presents significant legal challenges in the field of copyright protection, particularly concerning the determination of authorship and whether such works satisfy the originality requirement as mandated by prevailing copyright law. This study aims to analyze and evaluate the legal protection afforded to AI-generated works within the framework of Indonesian Intellectual Property Law, with specific reference to Law No. 28 of 2014 on Copyright and relevant international principles under the TRIPs Agreement.

This research employs a normative juridical approach using statutory analysis and doctrinal examination of legal literature, statutory provisions, and contemporary legal theories. The findings indicate that the current Indonesian legal system does not explicitly accommodate the legal status of AI-generated works, thereby creating a potential legal vacuum and uncertainty in copyright protection.

The study recommends a reformulation of copyright regulation to include recognition of human contribution in the creative process of AI-generated works (human authorship model) as a fundamental basis for copyright entitlement. Adapting the legal framework is essential to maintain a balance between the protection of creative works, the promotion of technological innovation, and the assurance of legal certainty within the Intellectual Property ecosystem in the digital era.

KEYWORDS: Copyright, Artificial Intelligence, Generative Works, Digital Disruption, Intellectual Property Law.

I. INTRODUCTION

Communication technology has become an essential element in shaping the structure and dynamics of social life. Its role has evolved beyond that of a mere tool, emerging instead as a foundational pillar sustaining the continuity of interaction and social construction in contemporary society. Within this context, the theory of socio-materiality provides a framework for understanding the intricate, reciprocal relationship between humans and technology, wherein each shapes and influences the other. Communication technologies are not merely used by humans—they actively reshape modes of thinking, behavior, and the formation of social identity (Orlikowski and Scott, 2008).

This conceptual framework is further reinforced by Susan Greenfield in her influential work *Mind Change*, wherein she asserts that the human brain possesses a high degree of plasticity, allowing it to adapt to the technologies embedded in its environment. Such adaptation is not merely passive but involves an active reconstruction of cognitive patterns in accordance with the demands of digital reality (Davies, 2016). Greenfield's assertions resonate strongly with Charles Darwin's Theory of Evolution, which posits that living organisms—including humans—evolve in response to their environments. In this case, technology becomes an inseparable component of the modern human environment. Therefore, technological advancement in the digital age should not be perceived as a threat to human intellectual capacity. Rather, it serves as a catalyst for fostering creativity, innovation, and the actualization of latent intellectual potential. Instead of diminishing human thought, technology—when critically and reflectively engaged—has the potential to empower and elevate the cognitive capacities of individuals (Kriyantono, 2025).

The Social Construction of Technology (SCOT) theory posits that technology does not determine human actions; rather, it is shaped and developed in response to human needs (Irwanto and Irwansyah, 2020). In this view, technology is understood as a tool created by humans to fulfill specific purposes, not as an autonomous force that dictates human behavior. Based on this theoretical perspective, the rapid advancement of Artificial Intelligence (AI) has emerged as a central topic in both academic discourse and public policy debates. Two primary concerns dominate these discussions: the immense potential of AI applications across various sectors of life, and the growing apprehension regarding its risks and possible misuse.

Mustafa Suleyman, a leading AI researcher who spent nearly 15 years developing AI systems at DeepMind in London, has begun to emphasize the urgent need to address both the risks and the mechanisms for mitigating harm associated with the evolution

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of AI technologies. According to Suleyman, AI marks the beginning of a new era in human civilization. However, this advancement also entails significant risks of abuse and misuse (Winter, 2023), especially considering that the rapid pace of technological innovation has far outstripped the development of corresponding regulatory frameworks. As such, robust legal safeguards and regulatory mechanisms are needed to minimize potential harms in the future.

McLeod and Schell define Artificial Intelligence (AI) as the effort to equip machines with capabilities that allow them to simulate intelligent human behavior (“Apa Itu AI (Artificial Intelligence): Pengertian, Kelebihan, dan Kekurangan,” n.d.). AI refers to computational systems designed to perform tasks that traditionally require human cognitive functions, such as decision-making, problem-solving, and pattern recognition. These systems operate by collecting and analyzing vast amounts of data to identify patterns, training models based on those patterns, and subsequently using those models to generate increasingly accurate predictions or decisions over time (Jamaaluddin and Sulistyowati, 2021). This continuous learning process enables AI to enhance its performance and undertake complex tasks that were once exclusively within the domain of human capability—hence, AI may be said to act humanly. (“Mengenal Apa Itu Kecerdasan Buatan (Artificial Intelligence),” n.d.)

AI can be understood as the computational ability to perform complex tasks that typically require human reasoning, achieved through the processes of big data collection, pattern analysis, model training, and adaptive learning (McLeod et al., 2024). Fundamentally, AI operates using three interrelated concepts: Machine Learning (ML), Deep Learning, and Artificial Neural Networks (ANNs) (Muttaqin. et al., 2023).

Machine Learning is a subfield of artificial intelligence that enables machines to learn from data and experience without being explicitly programmed. Using statistical algorithms and mathematical models, ML systems are able to detect patterns within large datasets to make increasingly accurate predictions or decisions as more data and experience accumulate.

Artificial Neural Networks (ANNs), a core method within ML, are inspired by the structure of the human brain. These networks consist of layers of interconnected artificial "neurons" that process information in successive stages. The architecture of neural networks is particularly effective for complex tasks such as image and speech recognition due to their capacity to simultaneously process multiple features in a manner akin to the human brain.

Deep Learning, an advanced form of ML, emphasizes the use of multi-layered neural networks (deep neural networks) to simulate the way the human brain learns and processes information. Deep learning models automatically extract high-level and abstract features from large-scale data—such as images, text, or audio—by training deep neural networks with vast amounts of input. This approach is regarded as the key technique enabling machines to emulate human learning processes. As the volume of data and the depth of network layers increase, deep learning algorithms continue to enhance their performance, approaching human cognitive abilities in pattern recognition.

Through this iterative learning process, AI systems can "learn" from examples, allowing them to make decisions and solve problems autonomously.

The advancement of Artificial Intelligence (AI) technology has brought about significant disruption across various aspects of human life. Today, AI has penetrated nearly all industrial sectors—from healthcare services and the energy sector to industrial automation systems—driving a transformative shift in how humans work and live their daily lives. In the manufacturing industry, for instance, AI is utilized for predictive maintenance by modeling machine failure data, enabling earlier interventions and enhancing operational efficiency. In the healthcare sector, AI accelerates diagnostics and drug discovery, supports clinical decision-making, streamlines administrative tasks, and improves overall patient care (“Menjelajahi Peran AI dalam Industri Manufaktur dan Kedokteran - Institut Teknologi Bandung,” n.d.).

More broadly, AI is also widely used in the creative industries and in the production of intellectual works. The technology is capable of autonomously generating text, music, images, and video content. As a new medium involved in the production of meaning, generative AI gives rise to novel forms of communication that challenge traditional structures of authorship and authority in creative processes. This rapid and widespread adoption of AI introduces substantial legal challenges, particularly concerning copyright protection and intellectual property ownership. When AI produces outputs that resemble human-created works, critical questions emerge: who can be rightfully acknowledged as the author, and how can legal protection be applied fairly? These concerns underline the urgency for legal frameworks to be updated in response to the new realities introduced by intelligent technology.

Article 1 of the Indonesian Copyright Law (Law No. 28 of 2014) defines an "author" as an individual. Based on this definition, debates arise regarding whether non-human entities, such as AI, can be recognized as legitimate authors. Some scholars argue that works created entirely by machines do not qualify as “creations” protected under copyright law. Juridical analysis suggests that under current Indonesian copyright law, AI-generated works cannot be recognized as protectable creations, as AI does not constitute an author according to legal standards (Fadilla et al., 2023). Consequently, such works are implicitly considered part of the public domain (i.e., without copyright ownership). In Indonesia, there is currently no explicit regulation addressing the copyright ownership of AI-generated works, leading to the prevailing perception that such works fall outside the scope of legal protection (Lalamentik, 2018).

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The legal regulation governing copyright in Indonesia is comprehensively set forth in Law Number 28 of 2014 on Copyright (hereinafter referred to as the Copyright Law or UUHC). This law provides a normative framework for the legal protection of creative works arising as a result of intellectual and creative efforts across various fields, including science, the arts, and literature. Article 1(1) of the Copyright Law defines copyright as an exclusive right granted to the creator, which arises automatically under the declarative principle once a work is manifested in tangible form, without prejudice to the limitations and exceptions stipulated by law.

In this context, a creator is defined as an individual or a group of individuals who collectively produce a work that exhibits distinctive characteristics and originality reflecting personal expression (Samsithawrati, 2023). This interpretation is consistent with international principles as articulated in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which stipulates that intellectual property rights protection, including copyright, can only be granted to legal subjects, whether natural or legal persons, in accordance with the standards and norms applied by World Trade Organization (WTO) member states.

The Indonesian Copyright Law recognizes two inherent and inseparable categories of rights arising from authorship: moral rights and economic rights. These rights are intended to ensure a balance between the protection of a creator's personal expression and the economic incentives afforded as recognition for their creative contribution.

Economic rights, as stipulated in Articles 8 through 13 of the Copyright Law, confer upon the creator or copyright holder the authority to obtain commercial benefits from the exploitation of their work. Such exploitation includes the rights to publish, reproduce, distribute, adapt, translate, and transform the work for commercial purposes. These economic rights are transferable and may become the subject of licensing agreements or assignments to third parties, either for a fixed duration or permanently.

On the other hand, moral rights, as set forth in Article 5 of the Copyright Law, are non-economic rights that are permanently attached to the creator and non-transferable under any circumstances. These rights include, among others, the right to be recognized as the author, the right to use a pseudonym, the right to modify the work in accordance with ethical standards and decency, and the right to preserve the integrity of the work against any distortion or mutilation that could harm the creator's honor or reputation.

Thus, copyright protection under the framework of the Copyright Law (UUHC) is not merely intended as a means to encourage the productivity of creative works through economic incentives, but also as a form of recognition of the creator's personal rights over the expression of their intellectual output. This dual approach reflects the model of copyright protection within the civil law legal system, which emphasizes the protection of moral rights of individuals while simultaneously accommodating commercialization aspects as observed in the common law system (Fadilla et al., 2023).

Based on the concept of moral rights as previously discussed, there are significant legal implications concerning the status of content or written works produced by AI systems. AI-generated works are essentially derived from third-party data—such as articles, essays, or other written materials—often collected through web scraping techniques without explicit permission from the original owners. These digital texts are protected under Law No. 28 of 2014 on Copyright (UUHC), which mandates that any use of such content must include proper attribution and acknowledgment of the original author. Situations in which AI provides responses or summaries without citing sources pose a risk of copyright infringement, particularly when users claim such content as original work within academic writing contexts.

Within the framework of copyright protection in the digital era, UUHC stipulates that the use of digital works for reproduction, adaptation, or dissemination requires authorization or, at a minimum, appropriate attribution. If an AI user adopts text generated by an AI system without disclosing the primary data sources, such action may constitute a violation of Article 9(2) of the UUHC, which obligates the mention of the author's name and the source of the work. Furthermore, claiming ownership over AI-generated content without referring to the original rights holders can be classified as an unlawful act under copyright law, thereby subjecting the legal subject to administrative or criminal sanctions pursuant to Articles 113 to 118 of the UUHC.

As digital materials used for AI training fall under the category of “digital works” as defined in Article 1(1) of the UUHC, it is necessary to establish effective control mechanisms to prevent automatic plagiarism by AI. Such mechanisms may include regulations requiring AI platforms to implement source tracking and data verification systems, as well as the use of blockchain-based anti-plagiarism technologies to record the usage history of digital works. Accordingly, both public policy formulation and the enhancement of technical features in AI service providers are expected to offer stronger protection for digital content creators.

Based on the concept of moral rights as discussed, there are significant implications for the legal status of content or written works produced by AI systems. AI-generated works are essentially sourced from third-party data—whether in the form of articles, essays, or other written materials—that are collected through web scraping techniques without explicit permission from the original owner. In fact, these digital-formatted written works are protected by Law Number 28 of 2014 concerning Copyright (UUHC), so that any utilization of such content should be accompanied by the inclusion of the source and identity of the original creator (Karimullah and Putri, 2025). The situation where AI presents answers or summaries without mentioning source references raises the risk of copyright infringement if users claim the content as original work in the context of scientific writing.

In terms of copyright protection in the digital age, the provisions of the UUHC require that any use of digital works for the purpose of reproduction, adaptation, or dissemination must obtain permission or, at the very least, include proper attribution. If an

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AI user adopts the text provided by the AI without disclosing the primary data source, it could potentially violate Article 9 paragraph (2) of the UUHC which requires the mention of the name of the creator and the source of the work. Furthermore, the act of claiming ownership over AI-processed text without referring to the original rights owner can be classified as an unlawful act in the realm of copyright, so that the legal subject concerned can be subject to administrative and criminal sanctions in accordance with the provisions of Article 113 through Article 118 of the UUHC.

Since the digital materials used as AI training materials fall under the category of "digital works" as stipulated in Article 1 number 1 of the UUHC, it is necessary to develop an effective control mechanism to prevent automatic plagiarism by AI. Such mechanisms can be in the form of regulations that require AI platforms to implement source tracking and data verification systems, to the use of blockchain-based anti-plagiarism technology to record the history of use of digital works (Akbari and Fithry, 2024). Thus, the formulation of public policies and the enrichment of technical features in AI service providers are expected to provide stronger protection for creators of digital works.

This research intends to conduct an in-depth analysis of the legality and originality of digital works produced by AI, as well as formulate preventive and curative measures to protect the copyright of human creators. The main focus of the research includes evaluating the application of the UUHC in the context of AI, determining the criteria for originality of AI-generated works, and recommending policies and technologies that can mitigate the risk of plagiarism by AI.

II. RESEARCH METHODS

This research utilizes a normative juridical approach, also known as a doctrinal approach. This method focuses on analyzing legal norms written in legislation, doctrine, legal principles, and relevant legal theories. As a desk legal research, the data used comes from secondary legal materials, including legal literature, journals, books, and other legal documents (Wiraguna, 2024).

The approach used in this research is the statute approach, which is an approach carried out by reviewing all laws and regulations relating to the legal issues being addressed. This approach is important to understand the consistency and compatibility between various applicable legal regulations, as well as to identify potential conflicts or overlaps between regulations.

This research is descriptive-analytical. Descriptive means this research aims to describe systematically and accurately the facts and characteristics of the legal phenomena under study, particularly in relation to copyright protection of works produced by Artificial Intelligence (AI). Analytical means that this research also aims to analyze and interpret the data that has been collected, by connecting, classifying, or marking the copyright law review related to AI-generated works.

With this approach, the research is expected to provide an in-depth understanding of how current positive law regulates copyright protection of works produced by AI, as well as identify legal gaps or the need for regulatory updates to accommodate these technological developments.

III. PEMBAHASAN

The era of digital disruption is characterized by the rapid integration of information and communication technology in almost all aspects of life, including the production and consumption of intellectual works. One of the most striking recent phenomena is the emergence of generative AI that is capable of autonomously generating creative content. Systems such as ChatGPT (text-to-text), DALL-E and Midjourney (text-to-image), or stable diffusion models, use large-capacity neural networks to learn patterns from extensive datasets (training data) and then generate human-like text, images or other media (Fibrianti, 2019).

In recent years, advances in Artificial Intelligence (AI) technology - especially in the realm of generative AI - have brought about a paradigm shift in the creative process. Technologies such as deep learning models, transformers, and advanced neural network architectures (e.g. GPT, DALL-E, Midjourney, Stable Diffusion, and others) can generate text, images, music, and other forms of expression that increasingly resemble human creations. This phenomenon is what is called "generative AI work": synthetic output formed from complex computational processes based on training on big data involving millions, even billions of copyrighted text, image, or audio samples ("Reformasi Undang-Undang Hak Cipta: Tantangan dan Peluang Era Kecerdasan Buatan - LK2 FHUI," n.d.).

Specifically, generative AI works have the following characteristics:

1. **Involvement of Copyrighted Training Data.** In the training phase, AI models extract statistical patterns, language structures, visual elements, or musical motifs from a corpus of "training data" that is mostly copyrighted. This process does not require explicit permission from each owner if it is done in a jurisdiction where fair use (US) or fair dealing (UK) for research purposes applies, but still triggers ethical and legal debates regarding the utilization of copyrighted content without consent.
2. **Machine Autonomy in Generative Processes.** Once the model is trained, the AI operates in response to user prompts in a relatively autonomous manner. As a result, the end result-such as a landscape image, an essay article, or a piece of music-is not generated through direct human thought steps, but rather based on statistical processing engineered to mimic human patterns.

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3. Human Role as "Prompter" or "Curator". Although AI can be automated, a human presence is still required to provide prompts and perform selection, editing, or post-processing. In many cases, creatives use AI as a tool, where a human directs the conceptual vision, selects the best results, and processes them to meet certain artistic or editorial standards.

AI-based generative work refers to creations that are partially or fully generated by smart machines that operate based on deep learning algorithms. Generative AI models are trained on large data sets (e.g. text, images, music) to recognize creative patterns, so as to create new works according to user instructions. For example, ChatGPT is able to write new narrative paragraphs or dialogs in a human style, while Midjourney or DALL-E transform text descriptions into artistic images. These works often resemble human creations because AI systems learn from existing works of art or literature. However, it should be underlined that AI does not "think" independently: its work is the result of statistical extrapolation from training data ("Bagaimana Kejelasan Hak Cipta Karya Artificial Intelligence di Indonesia? Apakah Dapat Menjadi Public Use? - LBH Digitek," n.d.). For example, Midjourney is claimed to be able to generate images for free from its users' text instructions, and the works can adopt a certain art style based on the patterns it has learned. These technological advantages bring very high creative productivity, but also raise the question of whether such works are human or machine creations, and what legal status is attached to them ("Reformasi Undang-Undang Hak Cipta: Tantangan dan Peluang Era Kecerdasan Buatan - LK2 FHUI," n.d.).

From the perspective of copyright law, these characteristics raise some fundamental questions:

- 1) Do AI generative works qualify as "creations" as stipulated in Law Number 28 of 2014 on Copyright (UUHC)?
- 2) Who can qualify as the "creator" of an AI result-is it the human who prepared the prompt, the model developer, the platform provider, or the AI itself?
- 3) How to determine originality and substantial similarity if the AI output contains elements taken indirectly from other works in the training data?

Law No. 28 Year 2014 on Copyright (UUHC) is the main reference in copyright protection in Indonesia. Some of the points that are highlighted are:

- 1) Creator: Article 1 point 2 of the UUHC states "The creator is a person or several persons who individually or collectively produce a work that is distinctive and personal." In other words, the UUHC requires that the creator must be a person (not a machine) and the work produced contains the characteristics and personal touch of the creator.
- 2) Creation: Article 1 point 3 of the UUHC defines "creation" as "any work in the fields of science, art, and literature produced by inspiration, ability, thought, imagination, dexterity, skill, or expertise expressed in tangible form." Thus, the object of protection includes a wide range of creative expressions (e.g. writings, paintings, music, computer programs) that are communicated in tangible form.
- 3) Principle of Originality: Although the UUHC does not explicitly use the term "originality", the requirement is reflected in the above definition. The work must be original (not merely novelty) and the result of the creator's creativity. As explained in the literature, a work is considered original if it is born from the creator's personal creative work. This principle requires a minimal contribution of ideas or creative expression, rather than simply copying another work.
- 4) Declarative Principle: The UUHC adheres to the declarative stelsel, i.e. copyright arises automatically once the work is realized in real form without the need for prior registration. This means that copyright protection is inherent since the creation is expressed, although registration can be done as additional evidence.

Drawing conclusions based on the above explanation, the Indonesian legal system explicitly recognizes exclusive rights to works produced by humans. Copyright does not protect ideas, facts or processes; only 'tangible expressions' that qualify the creator's creativity will receive protection.

The UUHC explicitly defines creation as any work in the fields of science, art, and literature produced by inspiration, ability, thought, imagination, dexterity, skill, or expertise expressed in tangible form (Article 1 point 3 of the UUHC). Meanwhile, the creator is clarified in Article 1 number 2 of the UUHC as "a person or several persons who individually or collectively produce a work that is distinctive and personal in nature". All of them must display personal characteristics - a "personal stamp" that distinguishes the creation.

Copyright as an exclusive right automatically arises when the creation is realized in real form (Article 5 UUHC). This exclusive right includes economic rights as well as moral rights. Economic rights (Article 8-Article 13 of the UUHC) authorize the creator or copyright holder to obtain financial returns through the utilization of the work. In principle, this right is transferable, licensable, and inheritable. In practice, economic rights involve:

1. The right to publish: Publishing a copy of the work to the public.
2. Reproduction rights: Reproducing the work in various formats (digital, print, audio, video).
3. The right to adapt and transform: Create derivative works (e.g. translations, synopses, music remixes, or AI-generated fan art).
4. Right to distribute: Disseminating the work to the public, whether through sale, rental, or lease.

In the context of AI works, if an individual-such as a digital artist-uses generative AI to create a digital painting, and then adds artistic value through editing, recoloring, or rearranging elements, then this creative contribution potentially satisfies the

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element of "creation" such that economic rights to the final work can be claimed by the individual. However, if the AI operates fully automatically and the user simply presses the "generate" button without making any real creative contribution, then the application of economic rights becomes problematic as it is difficult to demonstrate original human contribution. (Mityuchenko and Kuznetsova, 2024)

Moral Rights (Article 5 of the UUHC) include:

1. The right to be recognized as the creator.
2. The right to object to falsification, alteration, or addition that harms the honor or good name of the creator (integrity right).
3. The right to withdraw his/her creation from circulation if it is considered contrary to decency or proper values.

Moral rights are inalienable and perpetual. In the case of AI works, AI entities do not have moral rights as they do not have the "dignity" or status of a legal subject. Therefore, the only way to assert moral rights is if there is a human being recognized as the creator—that is, an individual who contributed to it through creative planning, editing, or other artistic aspects. Thus, when an AI work is sold or exhibited, the active human creator can demand to be named and object to subsequent modifications that compromise the integrity of the work. Since the UUHC requires the "creator" element to be a natural person, AI generative works that are purely devoid of human creative contributions do not meet the basic requirements as objects of copyright protection. In other words, AI as a tool cannot be recognized as a creator (non-human legal subject), so if the output of AI is completely devoid of human creative polishing, the work is beyond the reach of copyright protection. (Gede Ari Rama et al., 2023)

Referring to the provisions enshrined in the articles of the UUHC, a number of key issues arise in protecting AI generative works:

1. **AI as Creator:** The UUHC requires the creator to be a person (human legal subject). As such, AIs cannot be formally recognized as creators. As a result, works generated entirely by machines have no legitimate copyright holder. Legal studies conclude that purely AI generative works "cannot be copyrighted" because the law only recognizes humans. For example, the LBH article states that in many jurisdictions (including Indonesia) fully AI-generated works are not copyrightable, unless there is human creative intervention. In practice, this lacuna can make AI works automatically public domain (public use) that anyone can use without permission.
2. **Ownership of AI Works:** Since the UUHC does not explicitly provide for non-human creators, it is unclear who owns the copyright of AI works. Some possibilities considered in the literature are: (i) the developer or owner of the AI technology, (ii) the user or operator who provides creative instructions to the AI, or (iii) neither party owns it (it is also in the public domain). For example, Midjourney's Terms of Service state that paid users gain ownership of the images generated through its instructions. However, such claims are contractual and have not been tested for legality under Indonesian law. Without explicit regulation, such practices remain uncertain.
3. **Principle of Originality:** Copyright mandates creative human contributions, whereas generative AI works on existing data sets. AI output is often a compilation or adaptation of elements of other works it has trained on. The UUHC does not allow copyright for elements that are not the result of human creativity. As a result, if a user simply copies the full text from ChatGPT or uses the AI's images without any creative adjustments, then the work runs the risk of not being considered original; more appropriate to be called plagiarism or simply algorithmic imitation. The academic analysis states that without human creative touch, AI works are generally "unqualified as original" and unprotected. In other words, for a generative AI work to be considered a new creation, there needs to be a human contribution (e.g. ideas, unique style, significant editing) that meets the elements of distinctiveness and personality.

The above issues create a legal vacuum in the copyright protection of AI works. In the current situation, there is no clear mechanism in the UUHC governing machine-made works. Many fear that this will weaken the incentive for human innovation and lead to widespread legal uncertainty. Therefore, this has led to the need for creative juridical interpretations to fill the void. For example, one could apply the principle that AI functions as a "tool" whose role is equivalent to that of a pen or a camera; thus, the originator of the idea, the user of the AI, or the final editor could act as a "creator" within the meaning of the UUHC. However, without a normative umbrella that clarifies the boundaries and criteria, this practice is not free from the risk of disputes.

In order to look for solution options, it is important to see how other countries position themselves towards AI works:

1. **United States (Human Authorship):** A key principle in the U.S. is that copyright is only for human creations. Through the U.S. Copyright Office, America officially refuses registration for works generated entirely by AI, as there is no "human author" in the legal sense. America itself uses the strict principle of "human authorship": copyright is only granted to works produced by humans. In the Compendium of U.S. Copyright Office Practices 3rd edition (2021-2023), it is outlined that "Works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author are not registrable". The case of *Thaler v. Perlmutter* (2023) confirmed this: the court rejected a copyright claim on a painting that was claimed to be created by a machine (AI Creativity Machine) because it did not meet the requirement of human authorship. The US court's decision reaffirmed the long-standing principle that US Copyright Law aims at motivating

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human creativity; without minimal human involvement, AI works are legally unprotected. On the other hand, however, the US applies a scale:

- 1) Pure AI Works (Computer-Generated Works). Without human creative contribution, AI output is deemed not to require registration as it does not meet the standard of "human authorship" (nontitolable).
- 2) AI-Assisted Works. If a human uses AI to speed up or facilitate a creative process - e.g. writing an initial draft of a paper, then revising, reorganizing, adding analysis - then the element of human creativity is met and copyright registration can be filed. The human contribution must be more than a technical command; there must be "substantial creativity" in the final composition. In copyright registration application practice, the US asks for a detailed description of how the AI was used and which parts depict human contribution. U.S. Copyright Office v. OpenAI (2024) is still under discussion; although there is no supreme court ruling yet, the Copyright Office has refused registration for works that are entirely AI-generated without human editorial contributions. ("Innovation Law Insights 30 April 2025 | DLA Piper," n.d.)
2. UK (Computer-Generated Works): Unlike most countries, the UK accommodates the category of computer-generated works in the Copyright, Designs and Patents Act 1988 (CDPA). The Act covers situations where no human author has written the work, and stipulates that the creator of a computer-generated work is the person who makes "arrangements necessary for the creation of the work". The UK was one of the pioneers in recognizing works produced without human intervention through Section 9(3) of the Copyright, Designs and Patents Act (CDPA) 1988, which states: "In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work were undertaken." (CDPA, s.9(3)). The implication of the provision is:
 - 1) If a work is created entirely by a computer-without any other human intervention except to "press the button" that triggers the process-then the UK CDPA automatically establishes the "creator" as the person who made the arrangements for the creation, e.g. the software developer or the AI user.
 - 2) Copyright in such works is valid for 50 years from the creation of the work (CDPA, s.12(7)). However, moral rights do not apply to "computer-generated" works (as there is no natural person to claim authorship), so there are no integrity rights or name recognition rights.

This approach creates a "per data" protection model, where "ownership" can be chosen through the developer's internal policies or user contracts-for example, a "Terms of Service" (ToS) stipulating that any work generated on the platform belongs to the user who paid for the subscription. Nonetheless, the ultimate decision on originality still depends on whether the AI output is truly novel and does not substantially imitate another copyrighted work. In the case of Nova v. Mazooma Games (1981), the court held that the programmer who wrote the algorithm was deemed to be the arranger of the creation of the graphical work in the game, so copyright attached to him. In contrast, a user who merely presses buttons without making any creative arrangements is not considered the creator. At the heart of the UK approach is flexibility: computer copyright is determined based on who led the creation process, although this creates uncertainty in practice. ("Dentons - AI and intellectual property rights," n.d.)

3. European Union (Limited Protection & Transparency): EU copyright rules are still essentially human-centered. The EU Directive does not recognize special rights for purely AI works; computer-generated works are not protected unless there is a significant human creative contribution. The EU generally adopts the principle of "original intellectual creation" adopted through the jurisprudence of the European Court of Justice. According to the Infopaq International A/S v. Danske Dagblades Forening (C-5/08) judgment, originality must reflect the expression of the free intellectual creation of a human creator. In response to the AI revolution, the EU has emphasized transparency and data regulation rather than creating new copyright. For example, the draft EU AI Act (2023) requires AI companies to disclose whether and to what extent their training datasets contain copyrighted material. The aim is to impose data licensing and accountability obligations, so that original creators of works can demand compensation if their works are used. In principle, the EU considers limited protection of AI output (only if there is human inclusion) while encouraging openness about AI training materials.

Some of the elements emphasized are:

- 1) Directive 2001/29/EC (InfoSoc Directive): Emphasizes copyright protection for "any production in the literary, scientific, or artistic domain" that is "original".
- 2) Commission Communication 2020 on AI: Calls for "accountability" and "transparency" in AI, without neglecting copyright. In practical terms, the EU has not issued specific regulations for AI works. However, the "Database Directive 96/9/EC" which grants sui generis rights to owners of databases (including those generated by AI) provides partial protection. Thus, while not directly copyrighting AI outputs, the EU provides protection for entities that organize, store, and manage training data. ("Navigating the EU's new digital regulatory landscape: what data centre operators and investors need to know | Technology's Legal Edge," n.d.)

The above comparison shows the tendency of international law to assert exclusive copyright for humans and seek alternative regulatory solutions for AI. Each system has its own nuances, but generally rejects the concept of non-human creation as a basis for copyright. On the other hand, measures such as those in the UK and EU show an attempt at adaptation by regulating the legal status of computer works and prioritizing data transparency.

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Furthermore, the discussion will continue with a case study of MidJourney and ChatGPT.

MidJourney is a generative AI platform that converts command text into images. In its terms of service, MidJourney states that paid users gain full ownership of the images it generates from their instructions (unless it is simply modifying an existing image). Free users only get non-commercial usage rights. However, MidJourney also limits legal liability, stating that it "makes no guarantees" regarding the copyright status of the resulting works. This means that while premium users are contractually deemed to be the owners of the work, their rights are still subject to the laws of the user's region. In Indonesia, as pointed out by LBH, this situation creates ambiguity. The UUHC does not yet regulate machine-generated works, leading to the notion that "MidJourney's AI work is not protected by copyright law" and is considered public domain. In other words, while platform users may feel that they technically own the images, national law does not ensure exclusive rights to the AI images.

ChatGPT has been widely used to create articles, poems, or other publication content. Legally, text generated entirely by ChatGPT without human creative contribution should not qualify for copyright. Research shows that under the UUHC, copyright protection cannot be granted to such written works because the only recognized creators are humans. In other words, if a user simply copies ChatGPT's text raw, he cannot yet claim to be the creator of the work. As a result, AI-pure text runs the risk of being considered plagiarism of the hidden data corpus that the AI uses. However, if the user makes significant modifications or additions to the creative content after the output of ChatGPT, then the changed part can be considered as a protected original work. A concrete case is when a researcher claims to be the author of a manuscript but claims ChatGPT as co-author; some journals refuse to list ChatGPT because it is not a legal subject. (Tektona et al., 2021)

The two examples above show the current state of obscurity: MidJourney produces sophisticated visual works without a single human creator, while ChatGPT produces narratives that are difficult to attribute. In practice, typical dispute resolution refers to whether the human user contributed his or her creative ideas or style. If not, the AI output is potentially considered free-to-use; if there is creative intervention, then the issue of originality is addressed on the part of the human contribution.

From the above, it is clear that the current provisions of the Copyright Law are inadequate to deal with AI generative works. Law No. 28/2014 lacks explicit provisions on AI, resulting in a significant legal vacuum. As a result, creators and users of AI generative works face great uncertainty: human creators may not get the protection (or credit) they deserve, while AI works may spread freely. Many practitioners and academics emphasize the need for an amendment or even an AI-specific law. An academic study concluded that "copyright protection of written works produced by AI ChatGPT cannot be granted because the UUHC only recognizes creators as human legal subjects", thus there is an urgent need for regulatory updates that accommodate the role of AI in the copyright ecosystem. This situation is also in line with Kominfo's finding that most jurisdictions do not protect fully AI works, so Indonesia needs to catch up with the global trend.

Furthermore, the urgency of reform is also driven by the national interest to promote creativity and innovation. The establishment of copyright is based on the constitutional principle of advancing science and art for the advancement of culture (1945 Constitution Articles 28C and 33). If our creative people are hampered by legal uncertainty when using AI technology, then the incentive to work will be reduced. An effective copyright policy in the AI era must balance the protection of human creators, the legal certainty of users, and technological advancement. As noted in international studies, new policies must balance the interests of AI creators, users, and innovators. Therefore, an update of Indonesia's Copyright Law that is inclusive of new technologies is a necessity to ensure fairness and sustainability of the creative ecosystem in this era of disruption.

Based on the above analysis, several policy measures can be considered to create fair and effective copyright protection for human creators in the era of generative AI:

1. **Definition and Copyright of AI/Human Works:** Revise the UUHC to include new definitions, e.g. "computer creation" or "AI-human collaborative creation". The law could provide that when an AI work is produced with creative instruction from a human, copyright attaches to the human creator. Conversely, purely AI works (without human contribution) do not acquire copyright. This approach maintains incentives for human innovators while clarifying the ownership of AI outputs.
2. **Transparency and Licensing of Training Data:** Adopt transparency mechanisms in the use of AI training data. For example, companies developing AI models should disclose the source of the copyrighted data used, as proposed in the EU AI Act. In addition, regulations could require explicit licenses for copyrighted material included in training datasets. Such a move protects the owners of the original works and encourages licensed business models. The Studio Ghibli case study shows how important it is to license the use of art styles; some of the world's artists and studios have encouraged royalty business models where the use of AI to imitate a particular style is required to pay compensation to the copyright owner.
3. **Attribution and Attribution:** Introduce attribution obligations when AI works borrow elements of other works. For example, AI image or text metadata should list the primary source if known, or at least state that the work was "generated by AI". This approach is similar to content credentials that are beginning to be developed for tagging digital content, to uphold the honesty of creative resources. Thus, if an AI work resembles a certain style, the public (including the original creator) can trace the use of that style.

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4. Enforcement of Licenses and Royalties: Develop collective management mechanisms or pre-commercial licenses for works trained on copyrighted content. For example, extending the concept of collective management institutions to digital data, so that utilization of copyrighted works in AI training requires permission and royalty payments to the original owner. Thus, if an AI model is trained on thousands of protected paintings or texts, the owners can demand a share of the proceeds.
5. Detection Technology and DRM (Digital Rights Management): Encourage the use of technology to mark and protect AI works. For example, embedding digital watermarks or copyright metadata in AI outputs to make them easily recognizable as generative creations. In addition, artificial intelligence-based plagiarism detection tools can themselves be utilized to check for content similarities between AI outputs and existing works. These preventive measures are recommended in the literature, including the implementation of anti-plagiarism and DRM policies to protect digital works. In case of misuse (such as unauthorized reproduction), legal action (civil or criminal) can be taken in accordance with applicable laws.
6. Improved Monitoring and Enforcement: Strengthen copyright enforcement agencies for AI cases, including legal counseling to creators and consumers. Relevant ministries and agencies (DJKI, DG TKDN, etc.) should create specific guidelines on AI works and control new infringements (e.g. deepfake content or paid AI works that imitate artists).
7. International Collaboration: Keep abreast of international rules (WIPO, EU, US) so that national policies are consistent. Countries can participate in global discussions on intellectual property and AI, such as international summits or WIPO technical forums, for coordinated solutions.

With a combination of the above approaches, human copyright can remain protected while encouraging AI innovation in a fair way. The point is to adjust the legal framework so that human creators have incentives and clarity, while the use of AI remains supervised and regulated through licensing and data transparency. This balance will ensure that in the age of AI, original human creations continue to be valued without shutting down opportunities for new technologies to flourish.

IV. CONCLUSION

The era of digital disruption characterized by the rapid development of technology, especially artificial intelligence (AI), has created new challenges in the Intellectual Property Rights protection regime, especially in the field of copyright. AI-based generative works such as text, images, music, and videos can now be created autonomously or semi-autonomously, raising fundamental questions about the legal subject and object of protection in the copyright law system that is still oriented towards human creators.

In conventional copyright law, the principles of originality and creation by humans are the main prerequisites for granting exclusive rights. However, the existence of AI generative works has blurred the lines between human and machine creators and challenged traditional assumptions regarding the expression of ideas and creativity. Although positive law in Indonesia, specifically Law No. 28/2014 on Copyright, has not explicitly regulated the legal status of works created by or with the help of AI, a progressive approach is needed for the law to remain adaptive and responsive to changing times.

From an Intellectual Property Rights (IPR) perspective, an updated legal paradigm is needed that recognizes the role of humans as controllers or users of AI technology in the process of creating works, so as to maintain the principles of justice and legal certainty. The concept of authorship based on human contribution (human-in-the-loop) can be an alternative solution to justify copyright claims on AI works, as long as there is significant creative intervention from humans.

Copyright protection of AI generative works is not just a matter of legal recognition, but also relates to the balance between technological innovation, protection of the work, and the public interest. Therefore, regulatory reformulation, whether in the form of new legislation or progressive jurisprudential interpretations and administrative policies, is an urgent need to address this challenge.

In the global context, harmonization of international norms and ethical considerations in the use of AI to create intellectual works should be an integral part of the modern IPR legal discourse. Thus, the legal system not only protects copyrighted works as economic assets, but also ensures the sustainability of human creativity amidst automation and digitization.

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