Generative AI in The Context of Intellectual Property Law: Urgency, Challenges, and Legal Protection

Yuka Latieful Mantiqa[1]*, Mulida Hayati[2], Satriya Nugraha[3]
[1]Universitas Palangka Raya, Palangka Raya, Indonesia, yukalatieful99@gmail.com
[2]Universitas Palangka Raya, Palangka Raya, Indonesia, mulida_hayati21@law.upr.ac.id
[3]Universitas Palangka Raya, Palangka Raya, Indonesia, satriya@law.upr.ac.id

*Corresponding Author: yukalatieful99@gmail.com

Abstract: The rapid development of generative Artificial Intelligence (AI) technologies such as OpenAI and Stable Diffusion has created a complex dilemma in copyright protection in Indonesia. Generative AI, which is capable of producing works of art, music, and writing by imitating human artistic styles through the use of training data from various sources without permission, poses a serious threat to the originality of works and the economic well-being of original artists. This study identifies significant legal gaps in Indonesia's legal system, where AI is not recognized as a legal entity under Article 1367 of the Civil Code, the Information and Transactions Law (ITE Law), the Patent Law, the Copyright Law, and Government Regulation No. 71 of 2019, making it difficult to hold AI accountable for copyright infringements it causes. Using a normative legal research method with a legislative and comparative approach, the study identified three main issues: the absence of specific AI regulations, the use of copyrighted data without permission, and productivity disparities that harm original creators. Comprehensive solutions include the creation of specific AI regulations, the implementation of blockchain technology, and the adoption of international best practices to create a sustainable creative ecosystem.

Keyword: Artificial Intelligence, Copyright, Artist Protection.

INTRODUCTION

The creative industries in Indonesia have a significant role in national economic growth, contributing a major contribution to Gross Domestic Product and creating jobs (Komang Adi Putra, 2024). The sector covers a wide range of fields such as performing arts, music, film, design, fashion, and software development, which rely on creativity and innovation as key assets. However, the development of digital technologies, particularly generative *artificial intelligence* (AI), has brought about fundamental changes in the way artworks and creative content are produced, distributed, and consumed.

Generative *Artificial Intelligence*, with its ability to automatically create images, music, text and other multimedia content, offers great potential for efficiency and innovation in the creative industries. However, on the other hand, it also poses serious challenges related to intellectual property rights (IPR), ownership of copyrighted works, and the welfare of art

workers. The use of generative *Artificial Intelligence* can generate derivative works or even entirely new works based on existing input data (Rachmawati. "Kreativitas atau Plagiarisme? Kontroversi AI dalam Seni Bergaya Studio Ghibli"Kompas.com, https://www.kompas.com/jawa-timur/read/2025/04/02/060000488/kreativitas-atau-plagiarisme-kontroversi-ai-dalam-seni-bergaya-studio?page=all#page2, diakses pada 16 April 2025).

In addition, there is also *Stability AI*, *Stable Diffusion* is an *artificial intelligence* (AI) tool that is able to convert text into images, producing "works of art" in a short period of time, even in just a few seconds. This kind of tool requires a collection of man-made images as training material to improve its ability to create images. However, problems arose as *Stability AI* (the company behind Stable Diffusion) allegedly used images from *Getty Images* without permission or a valid license. This sparked controversy over copyright infringement (Galuh dan Yudha. "Getty Images Gugat Perusahaan AI, Diduga Pakai Gambar Tanpa Izin untuk Latih Kecerdasan Buatan ", Kompas.com, https://tekno.kompas.com/read/2023/01/19/12010047/getty-images-gugat-perusahaan-ai-diduga-pakai-gambar-tanpa-izin-untuk-latih, diakses pada 16 April 2025).

In the context of civil law, the protection of Intellectual Property Rights becomes crucial to ensure that creators and art workers get recognition and fair compensation for their works. The Copyright Act, Patent Act, and Trademark Act are relevant legal instruments in protecting Intellectual Property Rights in Indonesia (Saefudin, Yuliana, & Idris, 2025). However, the effectiveness of these protections in the digital era, particularly in relation to the use of generative AI, still needs to be further evaluated.

From this description, it can be concluded that the development of *Artificial Intelligence* globally is happening very rapidly and has penetrated almost all fields of human life. This condition makes regulating the existence of AI through law, especially with regard to copyright, a very urgent matter. This is due to the vulnerability of *Artificial Intelligence* technology to intersect with the copyright of a work or creation. Therefore, the government needs to take preventive intervention steps by drafting comprehensive regulations to protect the rights of art workers and improve their welfare in the midst of the digital era.

Based on the background of the problems that have been described, the problem formulations in this study are: What is the urgency of *Artificial Intelligence* regulation in Copyright law in Indonesia, What are the main challenges faced in protecting copyright and the welfare of artists in the era of generative *Artificial Intelligence*, and how comprehensive legal solutions can be applied to overcome these challenges.

METHOD

This research uses normative research methods, normative legal research is also known as doctrinal research methods, namely legal research methods that are conceptualized and developed on the basis of doctrine (Muhammad Syahrum, 2022). The approach used in this legal research is a statutory approach or statue approach and a comparative approach. This research aims to know and understand the urgency of *Artificial Intelligence* regulation in Copyright law in Indonesia as well as the main challenges faced as well as how comprehensive legal solutions can be applied to protect copyright, the welfare of artists in the era of generative AI, and overcome these challenges.

Data collection techniques are conducted through library research by tracing relevant literature and legal sources. Data analysis is done qualitatively by interpreting existing legal norms, then drawing prescriptive conclusions to provide legal solutions or recommendations related to *Artificial Intelligence* regulation in Indonesian Copyright law. The research method contains the type of research, sample and population or research subjects, time and place of research, instruments, procedures, and research techniques, as well as other matters relating to

the method of research. This section can be divided into several sub-chapters, but no numbering is necessary.

RESULTS AND DISCUSSION

Urgency of Artificial Intelligence regulation in Copyright law in Indonesia

The development of generative Artificial Intelligence such as *OpenAI* and *Stable Diffusion* has raised serious concerns among artists and content creators. The ability of *Artificial Intelligence* to produce art, music, or writing in a short period of time by imitating human artistic style not only threatens the originality of the work but also has the potential to reduce the income of the original artist. Without clear regulations, the unauthorized use of artworks as AI training data could damage the copyright ecosystem and erode creators' livelihoods. This raises an urgent question: how should Indonesian law respond to this phenomenon to protect copyright amidst the rapid advancement of technology?

In the Indonesian legal system, legal subjects are divided into two categories, namely human natuurlijk persoon and legal entity rechtspersoon. *Artificial Intelligence* does not fall into these two categories because although it is capable of performing various tasks like humans, even with higher efficiency (Nada et al., 2024). *Artificial Intelligence* essentially has no consciousness, free will, or legal capacity like humans. Article 1367 paragraphs 1 and 3 of the Civil Code stipulates that the responsibility for the actions of a tool (in this case Artificial Intelligence) remains with the human or legal entity using it. Thus, *Artificial Intelligence* cannot be considered as a legal subject but only as a legal object that depends on the orders of its users.

The main foundation of technology regulation in Indonesia, Law No. 19/2016 on Electronic Information and Transactions, does not explicitly regulate the legal status of *Artificial Intelligence*. However, based on its characteristics, *Artificial Intelligence* can be associated with two concepts in the Electronic Information and Transaction Law: (1) electronic system (Article 1 point 5), because *Artificial Intelligence* operates by collecting and processing data digitally, and (2) electronic agent (Article 1 point 8), because *Artificial Intelligence* can work automatically based on human commands. This interpretation further strengthens *Artificial Intelligence's* position as a technological tool, not as an independent legal entity (Akbar, I. P., & Sarifudin, A., 2024).

Furthermore, Government Regulation No. 71/2019 as a derivative of the Electronic Information and Transaction Law regulates the obligations of owners or operators of electronic agents, including Artificial Intelligence. They are responsible for maintaining data confidentiality, ensuring user privacy, and providing information related to the system used. This liability is comprehensive, covering civil aspects in the event of a violation (Purwaningsih, E., & Islami, I., 2023). Thus, even though *Artificial Intelligence* can operate automatically, the legal responsibility still lies with the human or company that developed or operates it, except under certain conditions or force majeure.

The unclear status of *Artificial Intelligence* is increasingly evident in Law No. 13/2016 on Patents and Law No. 28/2014 on Copyright. In the Patent Law, inventions produced by Artificial Intelligence are not recognized because the inventor must be a human (Article 1 point 3 jo. Article 10). Meanwhile, the Copyright Law explicitly defines the creator as a "person" (Article 1 point 2), either an individual or a legal entity (Article 1 point 27). *Artificial Intelligence* does not qualify as a legal subject in these two laws. If the invention is produced with the help of *Artificial Intelligence*, then the *Artificial Intelligence* is still positioned as a tool. Like objects used in a laboratory to produce an invention.

This legal uncertainty poses a risk of copyright infringement, especially when *Artificial Intelligence* uses artists' works as training data without permission, potentially leading to copyright infringement and harming the original creators.

A clear example is the case of *ChatGPT-4o* that allows users to create images in the typical Studio Ghibli style. Quoted from *KOMPAS.com*, this feature can produce illustrations with unique Ghibli characteristics, such as bright colors and distinctive facial shapes (Rachmawati. "Kreativitas atau Plagiarisme? Kontroversi AI dalam Seni Bergaya Studio Ghibli"Kompas.com,   https://www.kompas.com/jawa-timur/read/2025/04/02/060000488/kreativitas-atau-plagiarisme-kontroversi-ai-dalam-seni-bergaya-studio?page=all#page2, diakses pada 16 April 2025). If ordinary people can easily create similar works, the economic value of the original artists' works will be eroded. Other cases include Universal Music Publishing Group's lawsuit against Anthropic for Claude's *Artificial Intelligence* allegedly using copyrighted songs as training data (Ibadikal Mukhlisina, "Sebuah Perusahaan AI Diduga Telah Melakukan Pelanggaran Hak Cipta Terhadap Beberapa Lagu"Whiteboard   journal,   https://www.whiteboardjournal.com/ideas/music/sebuah-perusahaan-ai-diduga-telah-melakukan-pelanggaran-hak-cipta-terhadap-beberapa-lagu/, diakses pada 17 April 2025), as well as artists' claims against *DeviantArt, Midjourney*, and *Stability Artificial Intelligence* for unauthorized use of copyrighted images to generate new artwork. These suits involve copyright infringement (Galuh Putri Riyanto dan Yudha Pramoto, "Hakim AS Tolak Gugatan Seniman ke Midjourney dan Devian Arts"Kompas.com, https://tekno.kompas.com/read/2023/11/01/13080067/hakim-as-tolak-gugatan-seniman-ke-midjourney-dan-devian-arts?page=all, diakses pada 17 April 2025.). Another case in point is the authors' lawsuit against Nvidia. Three authors Brian Keene, Abdi Nazemian, and Stewart O'Nan, sued Nvidia because *Artificial Intelligence NeMo* was trained to use their books without permission. They sought damages for the use of their works in *Artificial Intelligence* training in violation of copyright (Livia Kristianti, "Nvidia digugat tiga penulis akibat AI yang langgar hak   cipta"ANTARA,   https://www.antaranews.com/berita/4004637/nvidia-digugat-tiga-penulis-akibat-ai-yang-langgar-hak-cipta, diakses pada 17 April 2025).

Quoted from InixIndoJogja.co.id, several countries have taken progressive steps, namely drafting an adaptive regulatory framework in regulating the development of artificial intelligence technology. China, the United States, Canada, Brazil, and Japan are some of the countries that have taken early initiatives in regulating the use of *Artificial Intelligence* (5 Negara yang Telah Menerapkan Regulasi AI Secara Bertahap. (5 Mar. 2025). InixIndoJogja.co.id. Diakses tanggal 20 Apr. 2025, dari https://inixindojogja.co.id/5-negara-yang-telah-menerapkan-regulasi-ai-secara-bertahap/), with approaches tailored to their respective needs and characteristics.

Since 2017, China has initiated systematic steps in the development of *Artificial Intelligence* through the *New Generation AI Development Plan*, which aims to make the country a global leader in *Artificial Intelligence* by 2030. This policy includes not only heavy investment in research, but also strengthening data security through the *Cybersecurity Law*. In 2023, China introduced Measures for the Management of Generative AI Services, which requires service providers to adhere to the values of socialism and national security. These regulations have a significant impact on tech companies such as *Alibaba* and *Tencent*, who must adapt their algorithms to government standards, albeit potentially limiting innovation.

In contrast to China, the United States adopts a more decentralized approach to *Artificial Intelligence* regulation. The federal government relies on existing laws, such as Section 5 of the FTC Act, to police unethical AI practices. Meanwhile, states like California took a step further by passing AB 331 in 2023, which requires transparency in the use of *Artificial Intelligence* for important decisions like hiring and lending. This policy encourages tech companies in Silicon Valley, including Google and Meta, to increase accountability, although it adds to the compliance burden.

Canada began an *Artificial Intelligence* regulatory initiative through the *Pan-Canadian Artificial Intelligence* Strategy in 2017, which focuses on developing a safe and ethical AI

ecosystem. In 2022, the government proposed the *Artificial Intelligence* and *Data Act* (AIDA) as part of Bill C-27, which is designed to mitigate the risks of high-performance AI systems, particularly in the health and public safety sectors. If passed, AIDA will demand greater accountability from tech companies, particularly in innovation hubs like Toronto.

Brazil began formulating its *Artificial Intelligence* regulatory framework in 2020 by establishing a special commission in the National Congress. The draft regulations proposed in 2022 emphasize privacy protection and nondiscrimination, and classify *Artificial Intelligence* risks based on their impact on society. The drafting process involved extensive public consultation, reflecting Brazil's commitment to balancing innovation with social justice.

Japan has opted for a more flexible approach to *Artificial Intelligence* regulation. In 2018, the country passed the *Act on Promotion of Research*, Development and Utilization of *Artificial Intelligence* to encourage the adoption of AI in various sectors. Later, the *Artificial Intelligence* Strategy 2021 introduced voluntary ethical guidelines that focus on privacy and fairness. While this approach encourages innovation, some are concerned about the lack of oversight on privacy issues. Indonesia can study this policy as a reference to formulate regulations that balance protecting artists' rights without hindering technological innovation.

Seeing this, Indonesia needs regulations governing artificial intelligence, considering various developed countries that have taken proactive steps in this regard which can be used as a reference for Indonesia in formulating a balanced legal framework between technological progress and legal protection.

Therefore, adequate regulations are needed to fill the legal recht vacuum by clarifying the status of the creation of *Artificial Intelligence* works and expanding the definition of creator to include the role of humans in the process of developing and operating *Artificial Intelligence*. The regulation should also regulate the use of copyrighted training data so as not to harm the original creator, and establish an effective protection and enforcement mechanism. With clear regulations in place, it is expected to provide legal certainty while protecting the rights and welfare of artists from the exploitation of their works by *Artificial Intelligence* technologies.

Key challenges in protecting copyright and artists' welfare in the era of generative AI, and comprehensive legal solutions to address these challenges
a. Key Challenges

One of the main challenges is the lack of regulations that specifically address the use of *Artificial Intelligence* in the context of *Copyright.* This legal vacuum creates uncertainty and opens a loophole for copyright infringement, plagiarism, and unauthorized exploitation of artworks. Technically, *Generative Artificial Intelligence* relies on developer-designed parameters and algorithms to process image databases through deep learning. This process involves modifying visual elements from various references into new forms, so the end result is not completely independent. In the context of copyright law, it is difficult for AI works to meet the criteria of "*author's own intellectual creation*", as the system lacks independent creative capacity. Instead of creating works from original thoughts, AI relies on the adaptation of pre-processed data (Suryani, A. N., & Hakim, A. R., 2024). This is certainly a serious challenge because existing regulations are not fully prepared to deal with the complexity of protecting intellectual property rights in this era of autonomous technology.

In addition, the use of copyrighted training data without permission is a serious problem that often occurs. *Generative Artificial Intelligence* is often trained using the works of copyrighted artists without consent, Artificial Intelligence systems work by utilizing training data of image collections taken from various sources to be trained to recognize patterns and generate new outputs based on user requests. Such data is generally sourced from digital uploads scattered across search engines, often without the explicit consent of

the original work owners (Nurjamilah, et al., 2023). This results in copyright infringement and harms the original creator economically and morally. It violates Article 23 of the Copyright Act on reproduction of works.

The threat to artists' welfare is also an important concern. The massive and cheap production of *Artificial Intelligence* works can lower the economic value of human works, threatening the income and sustainability of the artist's profession. Native artists struggle to track down infringements due to lack of access to *digital forensics* tools.

b. A Comprehensive Legal Solution

In the era of rapid development of artificial intelligence, copyright protection for creative works faces new challenges. Creating a balance between technological innovation and artists' rights requires a comprehensive legal approach. One key step is to reform copyright law by updating the definitions of "creator" and "original work" to include human contributions in the process of creating *Artificial Intelligence*-assisted works.

In addition to regulatory approaches, the application of technologies such as non-fungible tokens and smart contracts can be an effective technical solution. *Non-fungible tokens* ensure the ownership and authenticity of digital works through transparent and immutable *blockchain* records, while smart contracts can automate royalty distribution and restrict unauthorized use. Thus, creators have more control over the distribution and commercialization of their works (Agusman, 2025).

Complementing these technological solutions, innovations such as *Nightshade* and *Glaze* offer an additional layer of defense. *Nightshade* uses data *poisoning* techniques to disrupt Artificial Intelligence models that attempt to study unauthorized images, while *Glaze* disguises elements of artistic style to make it difficult for *Artificial Intelligence* to replicate (Zulhan, et al., 2024). This combination of Non-fungible Token ownership verification system and content protection *(Nightshade/Glaze)* creates a more comprehensive ecosystem, where artists not only have the tools to assert copyright, but also proactively prevent exploitation of their works by *Artificial Intelligence* systems.

Several developed countries have taken proactive steps in this regard, which can be used as a reference for Indonesia in formulating a balanced legal framework between technological progress and legal protection. Indonesia can use this as a reference in formulating a balanced legal framework between technological advancement and legal protection. However, Indonesia needs to adapt the regulation to the local context and specific challenges faced by the government in the implementation of *Artificial Intelligence* technology in the country. A strong legal framework will provide clear guidance for *Artificial Intelligence* developers and users (Faisal, 2025), while protecting the rights of artists and content creators from potential misuse of AI technology, without hindering technological innovation that can drive the progress of Indonesia's digital economy. With the right regulations, Indonesia can optimally utilize the potential of *Artificial Intelligence* while minimizing the risks and negative impacts that may arise.

Finally, education and increased legal awareness for creative industry players and the wider community is needed to create a fair and sustainable ecosystem.

With this comprehensive approach, it is hoped that a balanced ecosystem can be created where *Artificial Intelligence* innovation can flourish without compromising the rights and welfare of artists. Collaboration between government, industry, academia, and the creative community is key to realizing a sustainable solution.

CONCLUSION

Based on an in-depth analysis of the urgency of *Artificial Intelligence* regulation in Indonesian copyright law, this research successfully identifies that the existing legal vacuum

creates significant challenges for the copyright protection of artists and content creators in the era of *Generative Artificial Intelligence*. The main findings show that the Indonesian legal system has not recognized Artificial Intelligence as a legal subject that can be held liable, as seen in the provisions of Article 1367 of the Civil Code, Electronic Information and Transaction Law, Patent Law, Copyright Law, and Government Regulation No. 71/2019, thus creating a legal gap. 71/2019, thus creating a legal loophole that allows copyright infringement without clear consequences. The comprehensive solution formulated includes three main approaches: regulatory reform through the creation of specialized *Artificial Intelligence* laws or updating the definitions of "creator" and "original work" in existing copyright laws, implementation of protection technologies such as *Non-Fungible Tokens, smart contracts, Nightshade,* and *Glaze* as technical mechanisms, and adoption of best practices from developed countries that have developed a balanced *Artificial Intelligence* legal framework. This research makes a significant contribution to the development of technology law in Indonesia by providing a regulatory blueprint that can bridge the interests of *Artificial Intelligence* technology innovation and intellectual property rights protection, while strengthening Indonesia's position in facing global digital legal challenges. The implementation of these recommendations is expected to create a fair and sustainable creative ecosystem, where *Artificial Intelligence* technology can develop without compromising the rights and welfare of artists and original content creators.

REFERENCE

Agusman, D. (2025). Perlindungan Hak Cipta Berbasis NFT dan Smart Contract dalam Menanggapi Isu Pencurian Suatu Karya Digital. Jurnal Teknologi dan Manajemen Industri Terapan, 4(2), 387-394.

Akbar, I. P., & Sarifudin, A. (2024). Legalitas Kecerdasan Buatan (Artificial Intelligence) Sebagai Subjek Hukum Pemegang Hak Paten. *NUSANTARA: Jurnal Ilmu Pengetahuan Sosial*, *11*(1), 63-68.

Faisal, M. (2025). Regulasi dan Tantangan Hukum Penggunaan AI di Sektor Publik dalam Risiko, Akuntabilitas, dan Kebijakan Strategis. CENDEKIA: Jurnal Penelitian dan Pengkajian Ilmiah, 2(1), 109-116.

Galuh Putri Riyanto dan Yudha Pramoto, "Hakim AS Tolak Gugatan Seniman ke Midjourney dan Devian Arts"Kompas.com, https://tekno.kompas.com/read/2023/11/01/13080067/hakim-as-tolak-gugatan-seniman-ke-midjourney-dan-devian-arts?page=all, diakses pada 17 April 2025.

Ibadikal Mukhlisina, "Sebuah Perusahaan AI Diduga Telah Melakukan Pelanggaran Hak Cipta Terhadap Beberapa Lagu"Whiteboard journal, https://www.whiteboardjournal.com/ideas/music/sebuah-perusahaan-ai-diduga-telah-melakukan-pelanggaran-hak-cipta-terhadap-beberapa-lagu/, diakses pada 17 April 2025.

Komang Adi Utama Putra. (2024). Pertanggungjawaban perdata bagi pelaku pelanggaran kekayaan intelektual dalam era digital. *Jurnal Riset Ilmu Hukum, Sosial dan Politik*, 1(4), 24-43.

Livia Kristianti, "Nvidia digugat tiga penulis akibat AI yang langgar hak cipta"ANTARA, https://www.antaranews.com/berita/4004637/nvidia-digugat-tiga-penulis-akibat-ai-yang-langgar-hak-cipta, diakses pada 17 April 2025.

Nada, F., Abqori, F. F., RH, D. R. N. F., Rahadiyan, I., & Riswandi, B. A. (2024, July). Gagasan Pengaturan Artificial Intelligence Sebagai Subjek Hukum Di Indonesia. In *Prosiding Seminar Hukum Aktual Fakultas Hukum Universitas Islam Indonesia* (Vol. 2, No. 4, pp. 149-157).

Nurjamilah, dkk. (2023). Pengaruh Kecerdasan Buatan terhadap Hak Cipta (Analisis Karya Kreatif yang Dihasilkan Bing Image Creator). Jurnal Hukum HAM WaraSains, 3 (1), 77-83

PT. Inixindo Widya Iswara Nusantara, 5 Negara yang Telah Menerapkan Regulasi AI Secara Bertahap. (5 Mar. 2025). InixIndoJogja.co.id. Diakses tanggal 20 Apr. 2025, dari https://inixindojogja.co.id/5-negara-yang-telah-menerapkan-regulasi-ai-secara-bertahap/

Purwaningsih, E., & Islami, I. (2023). Analisis artificial intelligence (AI) sebagai inventor berdasarkan hukum paten dan hukum Islam. *Jurnal Ilmiah Galuh Justisi*, *11*(1), 1-15.

Rachmawati, "Kreativitas atau Plagiarisme? Kontroversi AI dalam Seni Bergaya Studio Ghibli"Kompas.com, https://www.kompas.com/jawa-timur/read/2025/04/02/060000488/kreativitas-atau-plagiarisme-kontroversi-ai-dalam-seni-bergaya-studio?page=all#page2, diakses pada 16 April 2025.

Saefudin, Yuliana, & Idris. (2025). Analisis hukum perdata atas perlindungan hak kekayaan intelektual di industri kreatif Indonesia pada era digital. *Jurnal Hukum dan Hukum Islam*, 12(1). 141-153

Suryani, A. N., & Hakim, A. R. (2024). Tinjauan Hukum Komersialisasi Karya Cipta Hasil Artificial Intelligence (AI) Image Generator di Indonesia. *Jurnal Studi Hukum Modern*, *6*(3).

Zulhan, G., Santoso, E., & Dewi, C. (2024). Analisis Perturbasi Glaze dan Nightshade dalam Perlindungan Karya Seni Digital Menggunakan Image Quality Assessment. Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer, 8(8).