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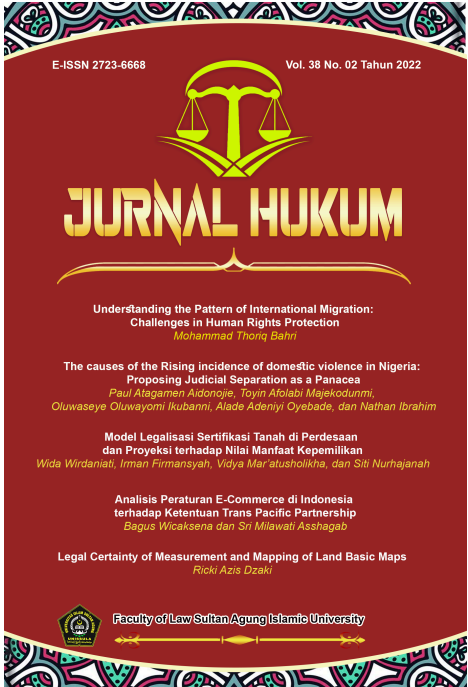
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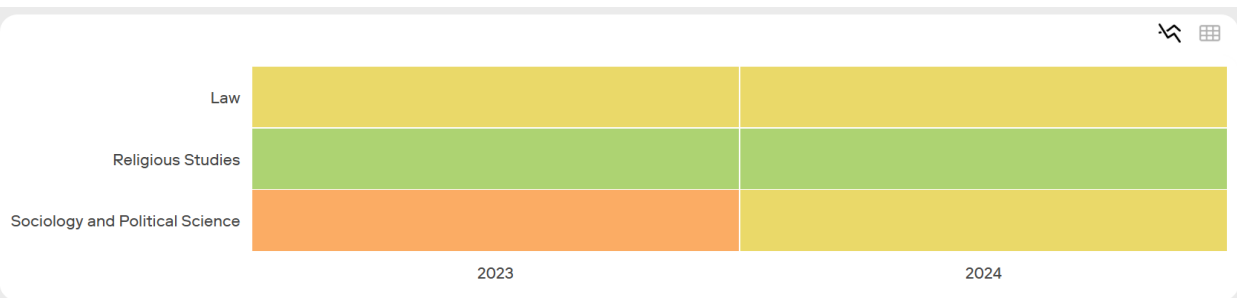
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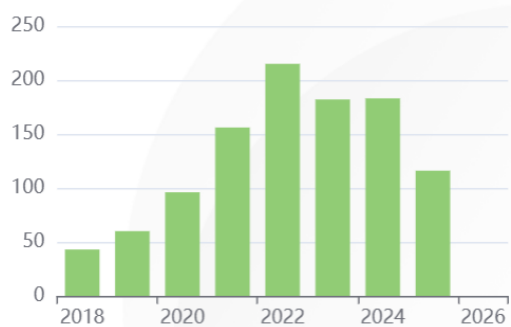
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Title and Abstract

Title	Reconstructing Copyright Protection for Artificial Intelligence-Generated Works
Abstract	The development of Generative Artificial Intelligence (AI) has transformed the process of intellectual creation and raised issues regarding authorship and copyright ownership. However, Law Number 28 of 2014 concerning Copyright is still based on the human authorship paradigm and therefore does not provide legal certainty for works produced with the help of AI. This study aims to analyze the adequacy of legal protection for AI works, identify weaknesses in the concept of creator in Indonesian copyright law, and formulate a Human-Centered Copyright Ownership model. The study uses a normative legal method with a statutory, conceptual, comparative, and case approach through an analysis of laws and regulations, international instruments, court decisions, doctrines, and scientific literature. The results of the study indicate that Indonesian copyright law still experiences a normative vacuum regarding the ownership of AI works and therefore is unable to provide legal certainty. As a novelty, this study offers a Human-Centered Copyright Ownership model that positions AI as a creative tool, while copyright ownership is determined based on substantial human creative contribution. This model provides more objective normative parameters for determining creators and copyright holders and serves as a basis for reforming the Copyright Law to achieve a balance between protecting human creativity, legal certainty, and technological innovation.

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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

Bernard Nainggolan

Universitas Kristen Indonesia, Jakarta, Indonesia

Abstract

The development of generative artificial intelligence (AI) has changed the paradigm of intellectual creation by enabling AI systems to generate text, images, music, videos, and even software without direct human intervention. This study aims to analyze the adequacy of Indonesian copyright law regulations in facing the development of generative AI, identify the gaps in norms regarding the ownership of AI works, and formulate a model for reconstructing copyright ownership that is in accordance with technological developments and the principles of copyright law. The study uses normative legal research methods with statutory, conceptual, comparative, and case study approaches. The results show that Indonesian copyright law is not yet able to accommodate works produced by AI because the concept of creator still requires human creativity. This gap in norms has the potential to create legal uncertainty, ownership disputes, and hinder the development of AI-based creative industries.

Keywords: Artificial Intelligence, Copyright, Legal Reconstruction.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from vast data sets. This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law (Horzyk, 2023; Kumar & Yadav, 2024; Stamatoudi, 2026).

The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI. In other words, the creative process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental

questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the creator and copyright holder of the work (Furqan et al., 2026; Stamatoudi, 2026; Kumar & Yadav, 2024).

This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans. Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense (Moerland, 2024; Subagiyo & Wibisono, 2024; Ampovska, 2025).

The differing approaches between countries indicate that there is currently no global consensus on the legal status of AI works. The United States consistently requires human authorship, making works entirely generated by AI ineligible for copyright protection (Furqan et al., 2026; Kumar & Yadav, 2024; Ampovska, 2025). The European Union maintains a similar approach, emphasizing the importance of human creativity as a key requirement for originality, despite ongoing discussions about legal reform (Kumar & Yadav, 2024; Ampovska, 2025; Thi, 2023). Japan also maintains the human creativity standard in determining eligibility for copyright protection, although it is beginning to seek a balance between protecting human works and developing AI innovations (Takeuchi, 2025).

This diversity demonstrates that the primary issue in copyright law is no longer simply whether AI works can be protected, but rather who legally holds the copyright. Various alternatives have been proposed in the literature. Some studies argue that copyright should be granted to AI users because they provide instructions that trigger the creative process (Cervera et al., 2025; Gaidartzi & Stamatoudi, 2025). Other studies propose that rights be granted to AI developers or those who create the technical arrangements that enable AI to produce works (Lee, 2021; Hoshier & Kiran, 2024). Others develop the concept of joint authorship between humans and AI (Subagiyo & Wibisono, 2024; Sanjaya & Rajavenkatesan, 2025), while others propose the creation of a sui generis regime because the existing copyright regime is deemed inadequate to regulate AI works (Sun, 2022; Tian, 2024; Baker, 2026; Massadeh et al., 2024).

Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works (Horzyk, 2023; Hoshier & Kiran, 2024; Yas et al., 2025; Ali et al., 2024). Therefore,

various studies have begun to emphasize the importance of transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works (Zhao, 2025).

In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them (Subagiyo & Wibisono, 2024; Mayana et al., 2024; Praja et al., 2025).

Various previous studies have made important contributions to the development of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and *sui generis* rights (Sun, 2022; Kumar & Yadav, 2024; Ampovska, 2025; Praja et al., 2025; Baker, 2026; Sanjaya & Rajavenkatesan, 2025). However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of the ownership of AI works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the *sui generis* approach, which establishes a new rights regime outside of copyright, the model proposed in this study maintains the fundamental principle that copyright is a right born of human creativity. AI is positioned as a creative tool, while copyright ownership is determined based on substantial human creative contributions to the creation process. Thus, this study not only identifies the normative gaps in the Indonesian Copyright Law but also offers a normative formulation that can serve as the basis for reforming national law in response to the development of artificial intelligence technology.

2. Research methods

This research is a normative legal research (doctrinal legal research) aimed at analyzing the adequacy of Indonesian copyright law regulations in addressing the

development of works produced by artificial intelligence (AI) and formulating a model for reconstructing copyright ownership that aligns with modern copyright law principles. Normative legal research was chosen because it focuses on identifying normative gaps, conceptual inconsistencies, and the need for legal reform in Law Number 28 of 2014 concerning Copyright.

This research employs four approaches. First, a statutory approach is used to examine the provisions in Law Number 28 of 2014 concerning Copyright, particularly regarding the concept of creator, copyright ownership, moral rights, and economic rights, as well as their relationship with international legal instruments such as the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) as a normative framework for copyright protection.

Second, a conceptual approach is used to analyze the theories underlying the copyright regime, including the concepts of authorship, originality, human creativity, moral rights, economic rights, and intellectual property ownership theory. This approach aims to assess whether these concepts remain adequate when applied to works produced through generative AI and to formulate conceptual parameters regarding substantial human creative contributions as a basis for copyright ownership.

Third, a comparative legal approach is used to compare regulations regarding AI works in several jurisdictions that have developed different approaches to copyright ownership issues, namely the United States, the United Kingdom, the European Union, Japan, Singapore, and China. Comparisons are made of the concepts of human authorship, computer-generated works, joint authorship, and various models for regulating ownership of AI works that have developed in legislation and judicial practice. This comparative approach aims to identify best practices and evaluate their potential adoption in the Indonesian legal system.

Fourth, a case-based approach is conducted through an analysis of court decisions, administrative policies, and official documents relating to copyright protection for AI works in various countries. Case analysis is used to understand how legal norms are applied in practice and how judges and relevant authorities interpret the concepts of creator, originality, and ownership in the context of AI.

3. Results and Discussion

3.1. Limitations of the Creator Concept in Indonesian Copyright Law

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms.

This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression. This protection not only has an economic dimension, namely the right to obtain commercial benefits from the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility (Mayana et al., 2024; Andrini, 2018).

Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system (Sajogo et al., 2025; Mayana et al., 2024).

This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law. Conversely, recognizing AI as a creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal interests that would form the basis for recognizing moral and economic rights in the copyright regime (Mayana et al., 2024; Andrini, 2018; Sajogo et al., 2025).

In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability. Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions (Sajogo et al., 2025).

This ambiguity is further exacerbated by the wide variety of human involvement in AI use. On the one hand, AI may function solely as a tool, for example, to correct grammar, enhance image quality, or assist with the editing process. In such situations, human creative contributions remain dominant, retaining the user's creative identity. However, on the other hand, there are works in which almost the entire creative process is carried out by AI with minimal human intervention. In such situations, it is difficult to determine whether AI users can be classified as creators or merely as operators of the technology (Praja et al., 2025; Subagiyo & Wibisono, 2024).

The absence of regulations regarding the level of human contribution indicates that the Indonesian Copyright Law lacks clear parameters for determining the legal status of AI-assisted works. All provisions regarding creators are still oriented towards the assumption that the creation process is always carried out directly by humans. As a result, the law is unable to address various new issues, such as who is entitled to hold copyright over AI works, the extent to which the use of AI can still be considered a human creative process, and when a work should be considered an automated creation that does not qualify for copyright protection (Praja et al., 2025; Mayana et al., 2024; Subagiyo & Wibisono, 2024).

Therefore, the creator concept in Indonesian copyright law requires adjustments to maintain legal certainty without eliminating the fundamental principle that copyright is essentially an instrument for protecting human creativity. This adjustment does not mean recognizing AI as a creator, but rather formulating clear limits on the level of human intellectual contribution that must be present for an AI-assisted work to receive copyright protection. In this way, copyright law can adapt to technological developments while maintaining the principle that human creativity remains the primary basis for copyright (Praja et al., 2025; Subagiyo & Wibisono, 2024; Rahman et al., 2020; Maddusila et al., 2025).

3.2. Lack of Norms Regarding Ownership of Artificial Intelligence Works

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process. A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work. This complexity raises fundamental questions regarding who is legally entitled to be recognized as the copyright holder (Praja et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of copyright protection. However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright (Praja et al., 2025; Subagiyo & Wibisono, 2024).

The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers

make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process (Praja et al., 2025; Mayana et al., 2024).

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI. Some platforms grant users usage rights, while others retain certain rights to the output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law (Praja et al., 2025; Mayana et al., 2024).

On the other hand, some argue that works generated entirely by AI should not receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works (Mayana et al., 2024; Praja et al., 2025; Subagiyo & Wibisono, 2024).

The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case (Praja et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified. Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When the identity of the copyright holder cannot be determined, the exercise of both types of rights becomes ineffective and has the potential to create uncertainty in commercial transactions (Mayana et al., 2025; Praja et al., 2025).

Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no guarantee that the rights to the work truly belong to the party transferring it. This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy (Maddusila et al., 2025; Syafrinaldi et al., 2024).

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions (Maddusila et al., 2025; Praja et al., 2025; Mahfuzzah et al., 2026).

3.3. Reconstructing the Copyright Ownership Model for Artificial Intelligence Works

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection (Maddusila et al., 2025; Praja et al., 2025). As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters regarding copyright ownership for works produced through AI (Subagiyo & Wibisono, 2024; Mayana et al., 2024). This lack of legal framework creates legal uncertainty because the current concept of creator is still based on the assumption that the entire creative process is carried out directly by humans (Praja et al., 2025; Mayana et al., 2024).

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection (Sajogo et al., 2025; Mayana et al., 2025). In this situation, humans merely act as the system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established (Sajogo et al., 2025). In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law (Mayana et al., 2024; Praja et al., 2025).

This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression (Subagiyo & Wibisono, 2024; Mayana et al., 2025). Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would

be granted to the results of computational processes, not to human creativity (Sajogo et al., 2025). Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities (Mayana et al., 2024; Mayana et al., 2025).

The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution (Prajā et al., 2025). In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make creative modifications, edits, and refinements, the work remains a product of human intellectual expression (Prajā et al., 2025; Subagiyo & Wibisono, 2024).

Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic elements, refine the colors, and rearrange the overall design to produce a significantly different visual character. In such a scenario, AI serves only as a supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders (Prajā et al., 2025).

Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection (Sajogo et al., 2025). Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process (Prajā et al., 2025).

Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework (Mayana et al., 2024; Prajā et al., 2025). Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder (Mayana et al., 2024; Mayana et al., 2025).

Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright over every output generated by their systems, unless there is another legal relationship regulated through an agreement (Prajā et al., 2025).

However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI (Maddusila et al., 2025; Mahfuzzah et al., 2026). These changes do not necessarily alter the concept of creator, but they do need to provide normative parameters regarding the relationship between human contributions and the use of AI in the creation process (Praja et al., 2025).

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between protecting human creativity and the development of artificial intelligence technology (Maddusila et al., 2025; Mahfuzzah et al., 2026). On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system (Praja et al., 2025; Mayana et al., 2024). Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works (Maddusila et al., 2025; Mahfuzzah et al., 2026).

4. Conclusion

The Indonesian Copyright Law fails to provide legal certainty regarding the ownership of AI-generated works because it is still based on the concept of creators being identical to humans. This lack of regulation has the potential to give rise to ownership disputes and hinder the development of an AI-based creative economy. Therefore, legal reforms need to be directed at recognizing that copyright protection remains human-centered (human-centered copyright ownership), provided there is substantial intellectual contribution to the creation process using AI. This model maintains a balance between encouraging technological innovation and the fundamental principles of copyright law, which aim to protect human creativity.

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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

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No	Component	Assessment Criteria	Reviewer's Comments
1	Title	Relevant to legal topics, maximum of 15 words, specific and focused	Needs Improvement
2	Abstract	Includes background, objectives, methods, results, and conclusion	Needs Improvement
3	Keywords	Relevant and specific, consists of 3–5 words or phrases	Needs improvement
4	Introduction	• Background: Explain the general context of the legal issue underlying the research. • Legal Problem: Clearly state the main legal issue being analyzed. • Law Being Examined (das sollen vs das sein): Present the regulation that is the object of analysis, and highlight the gap between the legal norms (<i>das sollen</i>) and the actual practice (<i>das sein</i>). • Research Urgency: Explain why this topic is important and relevant at the present time. • Research Gap: Identify the gap in existing studies that has not been addressed by previous research. • State of the Art: Provide an up-to-date review of relevant theories or the most recent research in the field. • Significance of the Research: Describe the contribution of the research to the development of law, both theoretically and practically. • Research Objective: Clearly and concisely state the aim of the research. • Research Questions: Explicitly formulate 2–3 clear, specific, and well-defined research questions that are aligned with the legal issues examined in the study. The research	Need Revision

		questions should serve as the foundation for the analysis in the Results and Discussion section, ensuring that all arguments and findings systematically and coherently address the research objectives.	
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11	Conclusion	Answers the research problems, concise, not deviating from the results. Relevant, applicable, and supports further research or policy	Major Revision
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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

Abstract

The development of generative artificial intelligence (AI) has changed the paradigm of intellectual creation by enabling AI systems to generate text, images, music, videos, and even software without direct human intervention. This study aims to analyze the adequacy of Indonesian copyright law regulations in facing the development of generative AI, identify the gaps in norms regarding the ownership of AI works, and formulate a model for reconstructing copyright ownership that is in accordance with technological developments and the principles of copyright law. The study uses normative legal research methods with statutory, conceptual, comparative, and case study approaches. The results show that Indonesian copyright law is not yet able to accommodate works produced by AI because the concept of creator still requires human creativity. This gap in norms has the potential to create legal uncertainty, ownership disputes, and hinder the development of AI-based creative industries.

Keywords: Artificial Intelligence, Copyright, Legal Reconstruction.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from vast data sets. This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law (Horzyk, 2023; Kumar & Yadav, 2024; Stamatoudi, 2026).

The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI. In other words, the creative process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the creator and copyright holder of the work (Furqan et al., 2026; Stamatoudi, 2026; Kumar & Yadav, 2024).

This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans. Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense (Moerland, 2024; Subagiyo & Wibisono, 2024; Ampovska, 2025).

The differing approaches between countries indicate that there is currently no global consensus on the legal status of AI works. The United States consistently requires human authorship, making works entirely generated by AI ineligible for copyright protection (Furqan et al., 2026; Kumar & Yadav, 2024; Ampovska, 2025). The European Union maintains a similar approach, emphasizing the importance of human creativity as a key requirement for originality, despite ongoing discussions about legal reform (Kumar & Yadav, 2024; Ampovska, 2025; Thi, 2023). Japan also maintains the human creativity standard in determining eligibility for copyright protection, although it is beginning to seek a balance between protecting human works and developing AI innovations (Takeuchi, 2025).

This diversity demonstrates that the primary issue in copyright law is no longer simply whether AI works can be protected, but rather who legally holds the copyright. Various alternatives have been proposed in the literature. Some studies argue that copyright should be granted to AI users because they provide instructions that trigger the creative process (Cervera et al., 2025; Gaidartzi & Stamatoudi, 2025). Other studies propose that rights be granted to AI developers or those who create the technical arrangements that enable AI to produce works (Lee, 2021; Hoshier & Kiran, 2024). Others develop the concept of joint authorship between humans and AI (Subagiyo & Wibisono, 2024; Sanjaya & Rajavenkatesan, 2025), while others propose the creation of a *sui generis* regime because the existing copyright regime is deemed inadequate to regulate AI works (Sun, 2022; Tian, 2024; Baker, 2026; Massadeh et al., 2024).

Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works (Horzyk, 2023; Hoshier & Kiran, 2024; Yas et al., 2025; Ali et al., 2024). Therefore, various studies have begun to emphasize the importance of transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works (Zhao, 2025).

In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them (Subagiyo & Wibisono, 2024; Mayana et al., 2024; Praja et al., 2025).

Various previous studies have made important contributions to the development of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and sui generis rights (Sun, 2022; Kumar & Yadav, 2024; Ampovska, 2025; Praja et al., 2025; Baker, 2026; Sanjaya & Rajavenkatesan, 2025). However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of the ownership of AI works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the sui generis approach, which establishes a new rights regime outside of copyright, the model proposed in this study maintains the fundamental principle that copyright is a right born of human creativity. AI is positioned as a creative tool, while copyright ownership is determined based on substantial human creative contributions to the creation process. Thus, this study not only identifies the normative gaps in the Indonesian Copyright Law but also offers a normative formulation that can serve as the basis for reforming national law in response to the development of artificial intelligence technology.

2. Research methods

This research is a normative legal research (doctrinal legal research) aimed at analyzing the adequacy of Indonesian copyright law regulations in addressing the development of works produced by artificial intelligence (AI) and formulating a model for reconstructing copyright ownership that aligns with modern copyright law principles. Normative legal research was chosen because it focuses on identifying

normative gaps, conceptual inconsistencies, and the need for legal reform in Law Number 28 of 2014 concerning Copyright.

This research employs four approaches. First, a statutory approach is used to examine the provisions in Law Number 28 of 2014 concerning Copyright, particularly regarding the concept of creator, copyright ownership, moral rights, and economic rights, as well as their relationship with international legal instruments such as the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) as a normative framework for copyright protection.

Second, a conceptual approach is used to analyze the theories underlying the copyright regime, including the concepts of authorship, originality, human creativity, moral rights, economic rights, and intellectual property ownership theory. This approach aims to assess whether these concepts remain adequate when applied to works produced through generative AI and to formulate conceptual parameters regarding substantial human creative contributions as a basis for copyright ownership.

Third, a comparative legal approach is used to compare regulations regarding AI works in several jurisdictions that have developed different approaches to copyright ownership issues, namely the United States, the United Kingdom, the European Union, Japan, Singapore, and China. Comparisons are made of the concepts of human authorship, computer-generated works, joint authorship, and various models for regulating ownership of AI works that have developed in legislation and judicial practice. This comparative approach aims to identify best practices and evaluate their potential adoption in the Indonesian legal system.

Fourth, a case-based approach is conducted through an analysis of court decisions, administrative policies, and official documents relating to copyright protection for AI works in various countries. Case analysis is used to understand how legal norms are applied in practice and how judges and relevant authorities interpret the concepts of creator, originality, and ownership in the context of AI.

3. Results and Discussion

3.1. Limitations of the Creator Concept in Indonesian Copyright Law

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms.

This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression. This protection not only has an economic dimension, namely the right to obtain commercial benefits from

the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility (Mayana et al., 2024; Andrini, 2018).

Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system (Sajogo et al., 2025; Mayana et al., 2024).

This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law. Conversely, recognizing AI as a creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal interests that would form the basis for recognizing moral and economic rights in the copyright regime (Mayana et al., 2024; Andrini, 2018; Sajogo et al., 2025).

In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability. Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions (Sajogo et al., 2025).

This ambiguity is further exacerbated by the wide variety of human involvement in AI use. On the one hand, AI may function solely as a tool, for example, to correct grammar, enhance image quality, or assist with the editing process. In such situations, human creative contributions remain dominant, retaining the user's creative identity. However, on the other hand, there are works in which almost the entire creative process is carried out by AI with minimal human intervention. In such situations, it is difficult to determine whether AI users can be classified as creators or merely as operators of the technology (Praja et al., 2025; Subagiyo & Wibisono, 2024).

The absence of regulations regarding the level of human contribution indicates that the Indonesian Copyright Law lacks clear parameters for determining the legal status of AI-assisted works. All provisions regarding creators are still oriented towards the assumption that the creation process is always carried out directly by humans. As a result, the law is unable to address various new issues, such as who is entitled to

hold copyright over AI works, the extent to which the use of AI can still be considered a human creative process, and when a work should be considered an automated creation that does not qualify for copyright protection (Prajapati et al., 2025; Mayana et al., 2024; Subagiyo & Wibisono, 2024).

Therefore, the creator concept in Indonesian copyright law requires adjustments to maintain legal certainty without eliminating the fundamental principle that copyright is essentially an instrument for protecting human creativity. This adjustment does not mean recognizing AI as a creator, but rather formulating clear limits on the level of human intellectual contribution that must be present for an AI-assisted work to receive copyright protection. In this way, copyright law can adapt to technological developments while maintaining the principle that human creativity remains the primary basis for copyright (Prajapati et al., 2025; Subagiyo & Wibisono, 2024; Rahman et al., 2020; Maddusila et al., 2025).

3.2. Lack of Norms Regarding Ownership of Artificial Intelligence Works

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process. A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work. This complexity raises fundamental questions regarding who is legally entitled to be recognized as the copyright holder (Prajapati et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of copyright protection. However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright (Prajapati et al., 2025; Subagiyo & Wibisono, 2024).

The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the

developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process (Praja et al., 2025; Mayana et al., 2024).

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI. Some platforms grant users usage rights, while others retain certain rights to the output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law (Praja et al., 2025; Mayana et al., 2024).

On the other hand, some argue that works generated entirely by AI should not receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works (Mayana et al., 2024; Praja et al., 2025; Subagiyo & Wibisono, 2024).

The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case (Praja et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified. Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When the identity of the copyright holder cannot be determined, the exercise of both types of rights becomes ineffective and has the potential to create uncertainty in commercial transactions (Mayana et al., 2025; Praja et al., 2025).

Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no

guarantee that the rights to the work truly belong to the party transferring it. This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy (Maddusila et al., 2025; Syafrinaldi et al., 2024).

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions (Maddusila et al., 2025; Praja et al., 2025; Mahfuzzah et al., 2026).

3.3. Reconstructing the Copyright Ownership Model for Artificial Intelligence Works

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection (Maddusila et al., 2025; Praja et al., 2025). As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters regarding copyright ownership for works produced through AI (Subagiyo & Wibisono, 2024; Mayana et al., 2024). This lack of legal framework creates legal uncertainty because the current concept of creator is still based on the assumption that the entire creative process is carried out directly by humans (Praja et al., 2025; Mayana et al., 2024).

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection (Sajogo et al., 2025; Mayana et al., 2025). In this situation, humans merely act as the system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established (Sajogo et al., 2025). In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law (Mayana et al., 2024; Praja et al., 2025).

This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression (Subagiyo & Wibisono, 2024; Mayana et al., 2025). Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would be granted to the results of computational processes, not to human creativity (Sajogo et al., 2025). Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities (Mayana et al., 2024; Mayana et al., 2025).

The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution (Prajapati et al., 2025). In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make creative modifications, edits, and refinements, the work remains a product of human intellectual expression (Prajapati et al., 2025; Subagiyo & Wibisono, 2024).

Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic elements, refine the colors, and rearrange the overall design to produce a significantly different visual character. In such a scenario, AI serves only as a supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders (Prajapati et al., 2025).

Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection (Sajogo et al., 2025). Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process (Prajapati et al., 2025).

Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework (Mayana et al., 2024; Prajapati et al., 2025). Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder (Mayana et al., 2024; Mayana et al., 2025).

Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright over every output generated by their systems, unless there is another legal relationship regulated through an agreement (Prajapati et al., 2025).

However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI (Maddusila et al., 2025; Mahfuzzah et al., 2026). These changes do not necessarily alter the concept of creator, but they

do need to provide normative parameters regarding the relationship between human contributions and the use of AI in the creation process (Praja et al., 2025).

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between protecting human creativity and the development of artificial intelligence technology (Maddusila et al., 2025; Mahfuzzah et al., 2026). On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system (Praja et al., 2025; Mayana et al., 2024). Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works (Maddusila et al., 2025; Mahfuzzah et al., 2026).

4. Conclusion

The Indonesian Copyright Law fails to provide legal certainty regarding the ownership of AI-generated works because it is still based on the concept of creators being identical to humans. This lack of regulation has the potential to give rise to ownership disputes and hinder the development of an AI-based creative economy. Therefore, legal reforms need to be directed at recognizing that copyright protection remains human-centered (human-centered copyright ownership), provided there is substantial intellectual contribution to the creation process using AI. This model maintains a balance between encouraging technological innovation and the fundamental principles of copyright law, which aim to protect human creativity.

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by Akun Turnitin

LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

Abstract

The development of generative artificial intelligence (AI) has changed the paradigm of intellectual creation by enabling AI systems to generate text, images, music, videos, and even software without direct human intervention. This study aims to analyze the adequacy of Indonesian copyright law regulations in facing the development of generative AI, identify the gaps in norms regarding the ownership of AI works, and formulate a model for reconstructing copyright ownership that is in accordance with technological developments and the principles of copyright law. The study uses normative legal research methods with statutory, conceptual, comparative, and case study approaches. The results show that Indonesian copyright law is not yet able to accommodate works produced by AI because the concept of creator still requires human creativity. This gap in norms has the potential to create legal uncertainty, ownership disputes, and hinder the development of AI-based creative industries.

Keywords: Artificial Intelligence, Copyright, Legal Reconstruction.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from vast data sets. This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law (Horzyk, 2023; Kumar & Yadav, 2024; Stamatoudi, 2026).

The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI. In other words, the creative process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the creator and copyright holder of the work (Furqan et al., 2026; Stamatoudi, 2026; Kumar & Yadav, 2024).

This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans. Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense (Moerland, 2024; Subagiyo & Wibisono, 2024; Ampovska, 2025).

The differing approaches between countries indicate that there is currently no global consensus on the legal status of AI works. The United States consistently requires human authorship, making works entirely generated by AI ineligible for copyright protection (Furqan et al., 2026; Kumar & Yadav, 2024; Ampovska, 2025). The European Union maintains a similar approach, emphasizing the importance of human creativity as a key requirement for originality, despite ongoing discussions about legal reform (Kumar & Yadav, 2024; Ampovska, 2025; Thi, 2023). Japan also maintains the human creativity standard in determining eligibility for copyright protection, although it is beginning to seek a balance between protecting human works and developing AI innovations (Takeuchi, 2025).

This diversity demonstrates that the primary issue in copyright law is no longer simply whether AI works can be protected, but rather who legally holds the copyright. Various alternatives have been proposed in the literature. Some studies argue that copyright should be granted to AI users because they provide instructions that trigger the creative process (Cervera et al., 2025; Gaidartzi & Stamatoudi, 2025). Other studies propose that rights be granted to AI developers or those who create the technical arrangements that enable AI to produce works (Lee, 2021; Hoshier & Kiran, 2024). Others develop the concept of joint authorship between humans and AI (Subagiyo & Wibisono, 2024; Sanjaya & Rajavenkatesan, 2025), while others propose the creation of a sui generis regime because the existing copyright regime is deemed inadequate to regulate AI works (Sun, 2022; Tian, 2024; Baker, 2026; Massadeh et al., 2024).

Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works (Horzyk, 2023; Hoshier & Kiran, 2024; Yas et al., 2025; Ali et al., 2024). Therefore, various studies have begun to emphasize the importance of transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works (Zhao, 2025).

In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them (Subagiyo & Wibisono, 2024; Mayana et al., 2024; Praja et al., 2025).

Various previous studies have made important contributions to the development of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and sui generis rights (Sun, 2022; Kumar & Yadav, 2024; Ampovska, 2025; Praja et al., 2025; Baker, 2026; Sanjaya & Rajavenkatesan, 2025). However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of the ownership of AI works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the sui generis approach, which establishes a new rights regime outside of copyright, the model proposed in this study maintains the fundamental principle that copyright is a right born of human creativity. AI is positioned as a creative tool, while copyright ownership is determined based on substantial human creative contributions to the creation process. Thus, this study not only identifies the normative gaps in the Indonesian Copyright Law but also offers a normative formulation that can serve as the basis for reforming national law in response to the development of artificial intelligence technology.

2. Research methods

This research is a normative legal research (doctrinal legal research) aimed at analyzing the adequacy of Indonesian copyright law regulations in addressing the development of works produced by artificial intelligence (AI) and formulating a model for reconstructing copyright ownership that aligns with modern copyright law principles. Normative legal research was chosen because it focuses on identifying

normative gaps, conceptual inconsistencies, and the need for legal reform in Law Number 28 of 2014 concerning Copyright.

This research employs four approaches. First, a statutory approach is used to examine the provisions in Law Number 28 of 2014 concerning Copyright, particularly regarding the concept of creator, copyright ownership, moral rights, and economic rights, as well as their relationship with international legal instruments such as the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) as a normative framework for copyright protection.

Second, a conceptual approach is used to analyze the theories underlying the copyright regime, including the concepts of authorship, originality, human creativity, moral rights, economic rights, and intellectual property ownership theory. This approach aims to assess whether these concepts remain adequate when applied to works produced through generative AI and to formulate conceptual parameters regarding substantial human creative contributions as a basis for copyright ownership.

Third, a comparative legal approach is used to compare regulations regarding AI works in several jurisdictions that have developed different approaches to copyright ownership issues, namely the United States, the United Kingdom, the European Union, Japan, Singapore, and China. Comparisons are made of the concepts of human authorship, computer-generated works, joint authorship, and various models for regulating ownership of AI works that have developed in legislation and judicial practice. This comparative approach aims to identify best practices and evaluate their potential adoption in the Indonesian legal system.

Fourth, a case-based approach is conducted through an analysis of court decisions, administrative policies, and official documents relating to copyright protection for AI works in various countries. Case analysis is used to understand how legal norms are applied in practice and how judges and relevant authorities interpret the concepts of creator, originality, and ownership in the context of AI.

3. Results and Discussion

3.1. Limitations of the Creator Concept in Indonesian Copyright Law

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms.

This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression. This protection not only has an economic dimension, namely the right to obtain commercial benefits from

the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility (Mayana et al., 2024; Andrini, 2018).

Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system (Sajogo et al., 2025; Mayana et al., 2024).

This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law. Conversely, recognizing AI as a creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal interests that would form the basis for recognizing moral and economic rights in the copyright regime (Mayana et al., 2024; Andrini, 2018; Sajogo et al., 2025).

In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability. Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions (Sajogo et al., 2025).

This ambiguity is further exacerbated by the wide variety of human involvement in AI use. On the one hand, AI may function solely as a tool, for example, to correct grammar, enhance image quality, or assist with the editing process. In such situations, human creative contributions remain dominant, retaining the user's creative identity. However, on the other hand, there are works in which almost the entire creative process is carried out by AI with minimal human intervention. In such situations, it is difficult to determine whether AI users can be classified as creators or merely as operators of the technology (Praja et al., 2025; Subagiyo & Wibisono, 2024).

The absence of regulations regarding the level of human contribution indicates that the Indonesian Copyright Law lacks clear parameters for determining the legal status of AI-assisted works. All provisions regarding creators are still oriented towards the assumption that the creation process is always carried out directly by humans. As a result, the law is unable to address various new issues, such as who is entitled to

hold copyright over AI works, the extent to which the use of AI can still be considered a human creative process, and when a work should be considered an automated creation that does not qualify for copyright protection (Praja et al., 2025; Mayana et al., 2024; Subagiyo & Wibisono, 2024).

Therefore, the creator concept in Indonesian copyright law requires adjustments to maintain legal certainty without eliminating the fundamental principle that copyright is essentially an instrument for protecting human creativity. This adjustment does not mean recognizing AI as a creator, but rather formulating clear limits on the level of human intellectual contribution that must be present for an AI-assisted work to receive copyright protection. In this way, copyright law can adapt to technological developments while maintaining the principle that human creativity remains the primary basis for copyright (Praja et al., 2025; Subagiyo & Wibisono, 2024; Rahman et al., 2020; Maddusila et al., 2025).

3.2. Lack of Norms Regarding Ownership of Artificial Intelligence Works

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process. A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work. This complexity raises fundamental questions regarding who is legally entitled to be recognized as the copyright holder (Praja et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of copyright protection. However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright (Praja et al., 2025; Subagiyo & Wibisono, 2024).

The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the

developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process (Praja et al., 2025; Mayana et al., 2024).

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI. Some platforms grant users usage rights, while others retain certain rights to the output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law (Praja et al., 2025; Mayana et al., 2024).

On the other hand, some argue that works generated entirely by AI should not receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works (Mayana et al., 2024; Praja et al., 2025; Subagiyo & Wibisono, 2024).

The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case (Praja et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified. Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When the identity of the copyright holder cannot be determined, the exercise of both types of rights becomes ineffective and has the potential to create uncertainty in commercial transactions (Mayana et al., 2025; Praja et al., 2025).

Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no

guarantee that the rights to the work truly belong to the party transferring it. This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy (Maddusila et al., 2025; Syafrinaldi et al., 2024).

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions (Maddusila et al., 2025; Praja et al., 2025; Mahfuzzah et al., 2026).

3.3. Reconstructing the Copyright Ownership Model for Artificial Intelligence Works

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection (Maddusila et al., 2025; Praja et al., 2025). As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters regarding copyright ownership for works produced through AI (Subagiyo & Wibisono, 2024; Mayana et al., 2024). This lack of legal framework creates legal uncertainty because the current concept of creator is still based on the assumption that the entire creative process is carried out directly by humans (Praja et al., 2025; Mayana et al., 2024).

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection (Sajogo et al., 2025; Mayana et al., 2025). In this situation, humans merely act as the system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established (Sajogo et al., 2025). In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law (Mayana et al., 2024; Praja et al., 2025).

This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression (Subagiyo & Wibisono, 2024; Mayana et al., 2025). Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would be granted to the results of computational processes, not to human creativity (Sajogo et al., 2025). Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities (Mayana et al., 2024; Mayana et al., 2025).

²⁵ The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution (Prajā et al., 2025). In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make creative modifications, edits, and refinements, the work remains a product of human intellectual expression (Prajā et al., 2025; Subagiyo & Wibisono, 2024).

Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic elements, refine the colors, and rearrange the overall design to produce a significantly different visual character. In such a scenario, AI serves only as a supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders (Prajā et al., 2025).

Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection (Sajogo et al., 2025). Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process (Prajā et al., 2025).

⁸³ Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework (Mayana et al., 2024; Prajā et al., 2025). Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder (Mayana et al., 2024; Mayana et al., 2025).

Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright over every output generated by their systems, unless there is another legal relationship regulated through an agreement (Prajā et al., 2025).

⁷¹ However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI (Maddusila et al., 2025; Mahfuzzah et al., 2026). These changes do not necessarily alter the concept of creator, but they

do need to provide normative parameters regarding the relationship between human contributions and the use of AI in the creation process (Praja et al., 2025).

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between protecting human creativity and the development of artificial intelligence technology (Maddusila et al., 2025; Mahfuzzah et al., 2026). On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system (Praja et al., 2025; Mayana et al., 2024). Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works (Maddusila et al., 2025; Mahfuzzah et al., 2026).

4. Conclusion

The Indonesian Copyright Law fails to provide legal certainty regarding the ownership of AI-generated works because it is still based on the concept of creators being identical to humans. This lack of regulation has the potential to give rise to ownership disputes and hinder the development of an AI-based creative economy. Therefore, legal reforms need to be directed at recognizing that copyright protection remains human-centered (human-centered copyright ownership), provided there is substantial intellectual contribution to the creation process using AI. This model maintains a balance between encouraging technological innovation and the fundamental principles of copyright law, which aim to protect human creativity.

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#53948 Review

SUMMARY

REVIEW

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Karim Abdullah

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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

Abstract

The development of generative artificial intelligence (AI) has changed the paradigm of intellectual creation by enabling AI systems to generate text, images, music, videos, and even software without direct human intervention. This study aims to analyze the adequacy of Indonesian copyright law regulations in facing the development of generative AI, identify the gaps in norms regarding the ownership of AI works, and formulate a model for reconstructing copyright ownership that is in accordance with technological developments and the principles of copyright law. The study uses normative legal research methods with statutory, conceptual, comparative, and case study approaches. The results show that Indonesian copyright law is not yet able to accommodate works produced by AI because the concept of creator still requires human creativity. This gap in norms has the potential to create legal uncertainty, ownership disputes, and hinder the development of AI-based creative industries.

Keywords: Artificial Intelligence, Copyright, Copyright Ownership, Legal Reconstruction.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from vast data sets. This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law (Horzyk, 2023; Kumar & Yadav, 2024; Stamatoudi, 2026).

The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI. In other words, the creative process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the

creator and copyright holder of the work (Furqan et al., 2026; Stamatoudi, 2026; Kumar & Yadav, 2024).

This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans. Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense (Moerland, 2024; Subagiyo & Wibisono, 2024; Ampovska, 2025).

The different approaches adopted by various countries indicate that there is still no international consensus regarding the legal status of AI-generated works. The United States consistently upholds the requirement of human authorship, meaning that works created entirely by AI are not eligible for copyright protection (Furqan et al., 2026; Kumar & Yadav, 2024; Ampovska, 2025). Similarly, the European Union emphasizes human creativity as an essential element of originality, although discussions on possible legal reforms continue to evolve (Kumar & Yadav, 2024; Ampovska, 2025; Le Thi, 2023). Japan likewise adheres to the principle of human creativity in determining copyright eligibility while gradually seeking to balance the protection of human-created works with the advancement of AI innovation (Takeuchi, 2025).

These varying approaches suggest that the central issue in copyright law has shifted beyond the question of whether AI-generated works should receive protection to the more complex question of who should legally own the copyright. Several alternatives have been proposed in the literature. Some scholars argue that copyright should belong to AI users because their prompts or instructions initiate the creative process (Cervera et al., 2025; Gaidartzi & Stamatoudi, 2025). Others contend that ownership should be granted to AI developers or those responsible for creating the technical framework that enables AI to generate works (Lee, 2021; Hoshier & Kiran, 2024). Meanwhile, some researchers advocate a joint authorship model involving both humans and AI (Subagiyo & Wibisono, 2024; Sanjaya & Rajavenkatesan, 2025), whereas others recommend establishing a *sui generis* legal regime, arguing that the existing copyright framework is insufficient to regulate AI-generated works effectively (Sun, 2022; Gaffar & Albarashdi, 2025; Baker, 2025; Massadeh et al., 2024).

Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works (Horzyk, 2023; Hoshier & Kiran, 2024; Yas et al., 2025; Ali et al., 2024). Therefore,

various studies have begun to emphasize the importance of transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works (Zhao, 2026).

In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them (Subagiyo & Wibisono, 2024; Mayana et al., 2024; Praja et al., 2025).

Various previous studies have made important contributions to the development of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and *sui generis* rights (Sun, 2022; Kumar & Yadav, 2024; Ampovska, 2025; Praja et al., 2025; Baker, 2025; Sanjaya & Rajavenkatesan, 2025). However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of the ownership of AI works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the *sui generis* approach, which establishes a new rights regime outside of copyright, the model proposed in this study maintains the fundamental principle that copyright is a right born of human creativity. AI is positioned as a creative tool, while copyright ownership is determined based on substantial human creative contributions to the creation process. Thus, this study not only identifies the normative gaps in the Indonesian Copyright Law but also offers a normative formulation that can serve as the basis for reforming national law in response to the development of artificial intelligence technology.

2. Research Methods

This research is a normative legal research (doctrinal legal research) aimed at analyzing the adequacy of Indonesian copyright law regulations in addressing the development of works produced by artificial intelligence (AI) and formulating a model

for reconstructing copyright ownership that aligns with modern copyright law principles. Normative legal research was chosen because it focuses on identifying normative gaps, conceptual inconsistencies, and the need for legal reform in Law Number 28 of 2014 concerning Copyright.

This research employs four approaches. First, a statutory approach is used to examine the provisions in Law Number 28 of 2014 concerning Copyright, particularly regarding the concept of creator, copyright ownership, moral rights, and economic rights, as well as their relationship with international legal instruments such as the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) as a normative framework for copyright protection. Second, a conceptual approach is used to analyze the theories underlying the copyright regime, including the concepts of authorship, originality, human creativity, moral rights, economic rights, and intellectual property ownership theory. This approach aims to assess whether these concepts remain adequate when applied to works produced through generative AI and to formulate conceptual parameters regarding substantial human creative contributions as a basis for copyright ownership.

Third, a comparative legal approach is used to compare regulations regarding AI works in several jurisdictions that have developed different approaches to copyright ownership issues, namely the United States, the United Kingdom, the European Union, Japan, Singapore, and China. Comparisons are made of the concepts of human authorship, computer-generated works, joint authorship, and various models for regulating ownership of AI works that have developed in legislation and judicial practice. This comparative approach aims to identify best practices and evaluate their potential adoption in the Indonesian legal system. Fourth, a case-based approach is conducted through an analysis of court decisions, administrative policies, and official documents relating to copyright protection for AI works in various countries. Case analysis is used to understand how legal norms are applied in practice and how judges and relevant authorities interpret the concepts of creator, originality, and ownership in the context of AI.

3. Results and Discussion

3.1. Limitations of the Creator Concept in Indonesian Copyright Law

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms.

This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression. This protection not only has an economic dimension, namely the right to obtain commercial benefits from

the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility (Mayana et al., 2024; Andrini, 2018).

Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system (Sajogo et al., 2025; Mayana et al., 2024).

This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law. Conversely, recognizing AI as a creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal interests that would form the basis for recognizing moral and economic rights in the copyright regime (Mayana et al., 2024; Andrini, 2018; Sajogo et al., 2025).

In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability. Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions (Sajogo et al., 2025).

This ambiguity becomes even more pronounced due to the varying degrees of human involvement in the use of AI. On the one hand, AI may serve merely as a supporting tool, such as for correcting grammar, improving image quality, or assisting in the editing process. Under these circumstances, human creative input remains the dominant element, thereby preserving the user's status as the creator. On the other hand, certain works are generated through processes in which AI performs nearly the entire creative function with only minimal human participation. In these cases, it becomes difficult to determine whether the AI user should be regarded as the creator or simply as an operator of the technology (Prajna et al., 2025; Subagiyo & Wibisono, 2024).

The absence of legal provisions establishing the required level of human contribution demonstrates that the Indonesian Copyright Law does not provide clear criteria for determining the legal status of AI-assisted works. Existing provisions

concerning authorship continue to assume that the creative process is conducted directly by human beings. Consequently, the current legal framework is incapable of addressing emerging issues, including the identification of the rightful copyright owner of AI-generated works, the threshold at which the use of AI can still be regarded as a manifestation of human creativity, and the circumstances under which a work should be considered an automated output that falls outside the scope of copyright protection (Praja et al., 2025; Mayana et al., 2024; Subagiyo & Wibisono, 2024).

Accordingly, the concept of authorship under Indonesian copyright law requires refinement to ensure legal certainty while preserving the fundamental principle that copyright exists to protect human creativity. Such refinement should not be interpreted as recognizing AI as a legal creator; rather, it should establish clear standards regarding the extent of human intellectual contribution necessary for AI-assisted works to qualify for copyright protection. By adopting this approach, copyright law can effectively respond to technological advancements while continuing to uphold human creativity as the essential foundation of copyright protection (Praja et al., 2025; Subagiyo & Wibisono, 2024; Rahman et al., 2020; Maddusila et al., 2025).

3.2. Lack of Norms Regarding Ownership of Artificial Intelligence Works

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process. A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work. This complexity raises fundamental questions regarding who is legally entitled to be recognized as the copyright holder (Praja et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of copyright protection. However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright (Praja et al., 2025; Subagiyo & Wibisono, 2024).

The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's

contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process (Praja et al., 2025; Mayana et al., 2024).

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI. Some platforms grant users usage rights, while others retain certain rights to the output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law (Praja et al., 2025; Mayana et al., 2024).

On the other hand, some argue that works generated entirely by AI should not receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works (Mayana et al., 2024; Praja et al., 2025; Subagiyo & Wibisono, 2024).

The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case (Praja et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified. Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When the identity of the copyright holder cannot be determined, the exercise of both types of rights becomes ineffective and has the potential to create uncertainty in commercial transactions (Mayana et al., 2025; Praja et al., 2025).

Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a

clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no guarantee that the rights to the work truly belong to the party transferring it. This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy (Maddusila et al., 2025; Syafrinaldi et al., 2024).

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions (Maddusila et al., 2025; Praja et al., 2025; Hidayat et al., 2026).

3.3. Reconstructing the Copyright Ownership Model for Artificial Intelligence Works

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection (Maddusila et al., 2025; Praja et al., 2025). As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters regarding copyright ownership for works produced through AI (Subagiyo & Wibisono, 2024; Mayana et al., 2024). This lack of legal framework creates legal uncertainty because the current concept of creator is still based on the assumption that the entire creative process is carried out directly by humans (Praja et al., 2025; Mayana et al., 2024).

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection (Sajogo et al., 2025; Mayana et al., 2025). In this situation, humans merely act as the system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established (Sajogo et al., 2025). In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law (Mayana et al., 2024; Praja et al., 2025).

This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression (Subagiyo & Wibisono, 2024; Mayana et al., 2025). Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would

be granted to the results of computational processes, not to human creativity (Sajogo et al., 2025). Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities (Mayana et al., 2024; Mayana et al., 2025).

The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution (Prajapati et al., 2025). In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make creative modifications, edits, and refinements, the work remains a product of human intellectual expression (Prajapati et al., 2025; Subagiyo & Wibisono, 2024).

Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic elements, refine the colors, and rearrange the overall design to produce a significantly different visual character. In such a scenario, AI serves only as a supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders (Prajapati et al., 2025).

Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection (Sajogo et al., 2025). Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process (Prajapati et al., 2025).

Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework (Mayana et al., 2024; Prajapati et al., 2025). Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder (Mayana et al., 2024; Mayana et al., 2025).

Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright over every output generated by their systems, unless there is another legal relationship regulated through an agreement (Prajapati et al., 2025).

However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI (Maddusila et al., 2025; Hidayat et al., 2026). These changes do not necessarily alter the concept of creator, but they do need to provide normative parameters regarding the relationship between human contributions and the use of AI in the creation process (Praja et al., 2025).

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between protecting human creativity and the development of artificial intelligence technology (Maddusila et al., 2025; Hidayat et al., 2026). On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system (Praja et al., 2025; Mayana et al., 2024). Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works (Maddusila et al., 2025; Hidayat et al., 2026).

4. Conclusion

The development of generative artificial intelligence has fundamentally challenged the conventional concept of authorship and copyright ownership, exposing significant limitations within the Indonesian Copyright Law. This study demonstrates that the existing legal framework remains firmly grounded in the assumption that copyright can only arise from direct human creativity, without providing explicit rules for determining the ownership of works created with the assistance of AI. As a result, the absence of clear legal standards creates uncertainty regarding the status of AI-generated works, increases the potential for ownership disputes among users, developers, and platform providers, and may impede the sustainable growth of Indonesia's AI-based creative economy.

The findings further indicate that the principal legal issue is not whether AI itself should be recognized as a creator, but rather how copyright ownership should be determined when AI participates in the creative process. In this regard, the study proposes the Human-Centered Copyright Ownership model as a normative framework that preserves the fundamental principle of copyright law while accommodating technological developments. Under this model, AI is positioned solely as a creative tool rather than a legal subject, and copyright protection is granted only where there is a substantial human intellectual contribution that significantly influences the final expression of the work. Conversely, works generated entirely through automated AI processes without meaningful human creativity should remain outside the scope of copyright protection.

Accordingly, legal reform of Law Number 28 of 2014 concerning Copyright is necessary to establish clear legal parameters for assessing human creative contribution in AI-assisted works. Such reform would strengthen legal certainty, reduce potential disputes over ownership, and provide a balanced framework that simultaneously promotes technological innovation and safeguards the core objective of copyright law, namely the protection and encouragement of human creativity in the digital era.

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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

Abstract

The development of generative artificial intelligence (AI) has changed the paradigm of intellectual creation by enabling AI systems to generate text, images, music, videos, and even software without direct human intervention. This study aims to analyze the adequacy of Indonesian copyright law regulations in facing the development of generative AI, identify the gaps in norms regarding the ownership of AI works, and formulate a model for reconstructing copyright ownership that is in accordance with technological developments and the principles of copyright law. The study uses normative legal research methods with statutory, conceptual, comparative, and case study approaches. The results show that Indonesian copyright law is not yet able to accommodate works produced by AI because the concept of creator still requires human creativity. This gap in norms has the potential to create legal uncertainty, ownership disputes, and hinder the development of AI-based creative industries.

Keywords: Artificial Intelligence, Copyright, Legal Reconstruction.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from vast data sets. This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law (Horzyk, 2023; Kumar & Yadav, 2024; Stamatoudi, 2026).

The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI. In other words, the creative process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the creator and copyright holder of the work (Furqan et al., 2026; Stamatoudi, 2026; Kumar & Yadav, 2024).

³ This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans. Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense (Moerland, 2024; Subagiyo & Wibisono, 2024; Ampovska, 2025).

¹ The differing approaches between countries indicate that there is currently no global consensus on the legal status of AI works. The United States consistently requires human authorship, making works entirely generated by AI ineligible for copyright protection (Furqan et al., 2026; Kumar & Yadav, 2024; Ampovska, 2025). The European Union maintains a similar approach, emphasizing the importance of human creativity as a key requirement for originality, despite ongoing discussions about legal reform (Kumar & Yadav, 2024; Ampovska, 2025; Thi, 2023). Japan also maintains the human creativity standard in determining eligibility for copyright protection, although it is beginning to seek a balance between protecting human works and developing AI innovations (Takeuchi, 2025).

¹ This diversity demonstrates that the primary issue in copyright law is no longer simply whether AI works can be protected, but rather who legally holds the copyright. Various alternatives have been proposed in the literature. Some studies argue that copyright should be granted to AI users because they provide instructions that trigger the creative process (Cervera et al., 2025; Gaidartzi & Stamatoudi, 2025). Other studies propose that rights be granted to AI developers or those who create the technical arrangements that enable AI to produce works (Lee, 2021; Hoshier & Kiran, 2024). Others develop the concept of joint authorship between humans and AI (Subagiyo & Wibisono, 2024; Sanjaya & Rajavenkatesan, 2025), while others propose the creation of a sui generis regime because the existing copyright regime is deemed inadequate to regulate AI works (Sun, 2022; Tian, 2024; Baker, 2026; Massadeh et al., 2024).

¹ Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works (Horzyk, 2023; Hoshier & Kiran, 2024; Yas et al., 2025; Ali et al., 2024). Therefore, various studies have begun to emphasize the importance of transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works (Zhao, 2025).

In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them (Subagiyo & Wibisono, 2024; Mayana et al., 2024; Praja et al., 2025).

Various previous studies have made important contributions to the development of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and sui generis rights (Sun, 2022; Kumar & Yadav, 2024; Ampovska, 2025; Praja et al., 2025; Baker, 2026; Sanjaya & Rajavenkatesan, 2025). However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of the ownership of AI works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the sui generis approach, which establishes a new rights regime outside of copyright, the model proposed in this study maintains the fundamental principle that copyright is a right born of human creativity. AI is positioned as a creative tool, while copyright ownership is determined based on substantial human creative contributions to the creation process. Thus, this study not only identifies the normative gaps in the Indonesian Copyright Law but also offers a normative formulation that can serve as the basis for reforming national law in response to the development of artificial intelligence technology.

2. Research methods

This research is a normative legal research (doctrinal legal research) aimed at analyzing the adequacy of Indonesian copyright law regulations in addressing the development of works produced by artificial intelligence (AI) and formulating a model for reconstructing copyright ownership that aligns with modern copyright law principles. Normative legal research was chosen because it focuses on identifying

normative gaps, conceptual inconsistencies, and the need for legal reform in Law Number 28 of 2014 concerning Copyright.

This research employs four approaches. First, a statutory approach is used to examine the provisions in Law Number 28 of 2014 concerning Copyright, particularly regarding the concept of creator, copyright ownership, moral rights, and economic rights, as well as their relationship with international legal instruments such as the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) as a normative framework for copyright protection.

Second, a conceptual approach is used to analyze the theories underlying the copyright regime, including the concepts of authorship, originality, human creativity, moral rights, economic rights, and intellectual property ownership theory. This approach aims to assess whether these concepts remain adequate when applied to works produced through generative AI and to formulate conceptual parameters regarding substantial human creative contributions as a basis for copyright ownership.

Third, a comparative legal approach is used to compare regulations regarding AI works in several jurisdictions that have developed different approaches to copyright ownership issues, namely the United States, the United Kingdom, the European Union, Japan, Singapore, and China. Comparisons are made of the concepts of human authorship, computer-generated works, joint authorship, and various models for regulating ownership of AI works that have developed in legislation and judicial practice. This comparative approach aims to identify best practices and evaluate their potential adoption in the Indonesian legal system.

Fourth, a case-based approach is conducted through an analysis of court decisions, administrative policies, and official documents relating to copyright protection for AI works in various countries. Case analysis is used to understand how legal norms are applied in practice and how judges and relevant authorities interpret the concepts of creator, originality, and ownership in the context of AI.

3. Results and Discussion

3.1. Limitations of the Creator Concept in Indonesian Copyright Law

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms.

This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression. This protection not only has an economic dimension, namely the right to obtain commercial benefits from

the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility (Mayana et al., 2024; Andrini, 2018).

Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system (Sajogo et al., 2025; Mayana et al., 2024).

This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law. Conversely, recognizing AI as a creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal interests that would form the basis for recognizing moral and economic rights in the copyright regime (Mayana et al., 2024; Andrini, 2018; Sajogo et al., 2025).

In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability. Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions (Sajogo et al., 2025).

This ambiguity is further exacerbated by the wide variety of human involvement in AI use. On the one hand, AI may function solely as a tool, for example, to correct grammar, enhance image quality, or assist with the editing process. In such situations, human creative contributions remain dominant, retaining the user's creative identity. However, on the other hand, there are works in which almost the entire creative process is carried out by AI with minimal human intervention. In such situations, it is difficult to determine whether AI users can be classified as creators or merely as operators of the technology (Praja et al., 2025; Subagiyo & Wibisono, 2024).

The absence of regulations regarding the level of human contribution indicates that the Indonesian Copyright Law lacks clear parameters for determining the legal status of AI-assisted works. All provisions regarding creators are still oriented towards the assumption that the creation process is always carried out directly by humans. As a result, the law is unable to address various new issues, such as who is entitled to

34 hold copyright over AI works, the extent to which the use of AI can still be considered a human creative process, and when a work should be considered an automated creation that does not qualify for copyright protection (Praja et al., 2025; Mayana et al., 2024; Subagiyo & Wibisono, 2024).

Therefore, the creator concept in Indonesian copyright law requires adjustments to maintain legal certainty without eliminating the fundamental principle that copyright is essentially an instrument for protecting human creativity. This adjustment does not mean recognizing AI as a creator, but rather formulating clear limits on the level of human intellectual contribution that must be present for an AI-assisted work to receive copyright protection. In this way, copyright law can adapt to technological developments while maintaining the principle that human creativity remains the primary basis for copyright (Praja et al., 2025; Subagiyo & Wibisono, 2024; Rahman et al., 2020; Maddusila et al., 2025).

3.2. Lack of Norms Regarding Ownership of Artificial Intelligence Works

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process. A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work. This complexity raises fundamental questions regarding who is legally entitled to be recognized as the copyright holder (Praja et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of copyright protection. However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright (Praja et al., 2025; Subagiyo & Wibisono, 2024).

The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the

developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process (Praja et al., 2025; Mayana et al., 2024).

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI. Some platforms grant users usage rights, while others retain certain rights to the output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law (Praja et al., 2025; Mayana et al., 2024).

On the other hand, some argue that works generated entirely by AI should not receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works (Mayana et al., 2024; Praja et al., 2025; Subagiyo & Wibisono, 2024).

The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case (Praja et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified. Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When the identity of the copyright holder cannot be determined, the exercise of both types of rights becomes ineffective and has the potential to create uncertainty in commercial transactions (Mayana et al., 2025; Praja et al., 2025).

Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no

guarantee that the rights to the work truly belong to the party transferring it. This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy (Maddusila et al., 2025; Syafrinaldi et al., 2024).

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions (Maddusila et al., 2025; Praja et al., 2025; Mahfuzzah et al., 2026).

3.3. Reconstructing the Copyright Ownership Model for Artificial Intelligence Works

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection (Maddusila et al., 2025; Praja et al., 2025). As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters regarding copyright ownership for works produced through AI (Subagiyo & Wibisono, 2024; Mayana et al., 2024). This lack of legal framework creates legal uncertainty because the current concept of creator is still based on the assumption that the entire creative process is carried out directly by humans (Praja et al., 2025; Mayana et al., 2024).

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection (Sajogo et al., 2025; Mayana et al., 2025). In this situation, humans merely act as the system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established (Sajogo et al., 2025). In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law (Mayana et al., 2024; Praja et al., 2025).

This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression (Subagiyo & Wibisono, 2024; Mayana et al., 2025). Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would be granted to the results of computational processes, not to human creativity (Sajogo et al., 2025). Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities (Mayana et al., 2024; Mayana et al., 2025).

³ The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution (Prajapati et al., 2025). In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make creative modifications, edits, and refinements, the work remains a product of human intellectual expression (Prajapati et al., 2025; Subagiyo & Wibisono, 2024).

Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic elements, refine the colors, and rearrange the overall design to produce a significantly different visual character. In such a scenario, AI serves only as a supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders (Prajapati et al., 2025).

Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection (Sajogo et al., 2025). Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process (Prajapati et al., 2025).

³⁶ Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework (Mayana et al., 2024; Prajapati et al., 2025). Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder (Mayana et al., 2024; Mayana et al., 2025).

Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright over every output generated by their systems, unless there is another legal relationship regulated through an agreement (Prajapati et al., 2025).

However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI (Maddusila et al., 2025; Mahfuzzah et al., 2026). These changes do not necessarily alter the concept of creator, but they

do need to provide normative parameters regarding the relationship ²⁷ between human contributions and the use of AI in the creation process (Praja et al., 2025).

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between ¹ protecting human creativity and the development of artificial intelligence technology (Maddusila et al., 2025; Mahfuzzah et al., ³¹ 2026). On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system (Praja et al., 2025; Mayana et al., 2024). Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, ¹² but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works (Maddusila et al., 2025; Mahfuzzah et al., 2026).

4. Conclusion

The Indonesian Copyright Law fails to provide legal certainty regarding the ownership of AI-generated works because it is still based on the concept of creators being identical to humans. This lack of regulation has the potential to give rise to ownership disputes and hinder the development of an AI-based creative economy. Therefore, legal reforms need to be directed at recognizing that copyright protection remains human-centered (human-centered copyright ownership), provided there is substantial ¹ intellectual contribution to the creation process using AI. This model maintains a balance between encouraging technological innovation and the fundamental principles of copyright law, which aim to protect human creativity.

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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

Abstract

The development of generative artificial intelligence (AI) has changed the paradigm of intellectual creation by enabling AI systems to generate text, images, music, videos, and even software without direct human intervention. This study aims to analyze the adequacy of Indonesian copyright law regulations in facing the development of generative AI, identify the gaps in norms regarding the ownership of AI works, and formulate a model for reconstructing copyright ownership that is in accordance with technological developments and the principles of copyright law. The study uses normative legal research methods with statutory, conceptual, comparative, and case study approaches. The results show that Indonesian copyright law is not yet able to accommodate works produced by AI because the concept of creator still requires human creativity. This gap in norms has the potential to create legal uncertainty, ownership disputes, and hinder the development of AI-based creative industries.

Keywords: Artificial Intelligence, Copyright, Copyright Ownership, Legal Reconstruction.

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1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from vast data sets. This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law (Horzyk, 2023; Kumar & Yadav, 2024; Stamatoudi, 2026).

The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI. In other words, the creative process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the

creator and copyright holder of the work (Furqan et al., 2026; Stamatoudi, 2026; Kumar & Yadav, 2024).

This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans. Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense (Moerland, 2024; Subagiyo & Wibisono, 2024; Ampovska, 2025).

The different approaches adopted by various countries indicate that there is still no international consensus regarding the legal status of AI-generated works. The United States consistently upholds the requirement of human authorship, meaning that works created entirely by AI are not eligible for copyright protection (Furqan et al., 2026; Kumar & Yadav, 2024; Ampovska, 2025). Similarly, the European Union emphasizes human creativity as an essential element of originality, although discussions on possible legal reforms continue to evolve (Kumar & Yadav, 2024; Ampovska, 2025; Le Thi, 2023). Japan likewise adheres to the principle of human creativity in determining copyright eligibility while gradually seeking to balance the protection of human-created works with the advancement of AI innovation (Takeuchi, 2025).

These varying approaches suggest that the central issue in copyright law has shifted beyond the question of whether AI-generated works should receive protection to the more complex question of who should legally own the copyright. Several alternatives have been proposed in the literature. Some scholars argue that copyright should belong to AI users because their prompts or instructions initiate the creative process (Cervera et al., 2025; Gaidartzi & Stamatoudi, 2025). Others contend that ownership should be granted to AI developers or those responsible for creating the technical framework that enables AI to generate works (Lee, 2021; Hoshier & Kiran, 2024). Meanwhile, some researchers advocate a joint authorship model involving both humans and AI (Subagiyo & Wibisono, 2024; Sanjaya & Rajavenkatesan, 2025), whereas others recommend establishing a *sui generis* legal regime, arguing that the existing copyright framework is insufficient to regulate AI-generated works effectively (Sun, 2022; Gaffar & Albarashdi, 2025; Baker, 2025; Massadeh et al., 2024).

Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works (Horzyk, 2023; Hoshier & Kiran, 2024; Yas et al., 2025; Ali et al., 2024). Therefore,

various studies have begun to emphasize the importance of transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works (Zhao, 2026).

In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them (Subagiyo & Wibisono, 2024; Mayana et al., 2024; Praja et al., 2025).

Various previous studies have made important contributions to the development of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and sui generis rights (Sun, 2022; Kumar & Yadav, 2024; Ampovska, 2025; Praja et al., 2025; Baker, 2025; Sanjaya & Rajavenkatesan, 2025). However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of the ownership of AI works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the sui generis approach, which establishes a new rights regime outside of copyright, the model proposed in this study maintains the fundamental principle that copyright is a right born of human creativity. AI is positioned as a creative tool, while copyright ownership is determined based on substantial human creative contributions to the creation process. Thus, this study not only identifies the normative gaps in the Indonesian Copyright Law but also offers a normative formulation that can serve as the basis for reforming national law in response to the development of artificial intelligence technology.

2. Research Methods

This research is a normative legal research (doctrinal legal research) aimed at analyzing the adequacy of Indonesian copyright law regulations in addressing the development of works produced by artificial intelligence (AI) and formulating a model

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for reconstructing copyright ownership that aligns with modern copyright law principles. Normative legal research was chosen because it focuses on identifying normative gaps, conceptual inconsistencies, and the need for legal reform in Law Number 28 of 2014 concerning Copyright.

This research employs four approaches. First, a statutory approach is used to examine the provisions in Law Number 28 of 2014 concerning Copyright, particularly regarding the concept of creator, copyright ownership, moral rights, and economic rights, as well as their relationship with international legal instruments such as the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) as a normative framework for copyright protection. Second, a conceptual approach is used to analyze the theories underlying the copyright regime, including the concepts of authorship, originality, human creativity, moral rights, economic rights, and intellectual property ownership theory. This approach aims to assess whether these concepts remain adequate when applied to works produced through generative AI and to formulate conceptual parameters regarding substantial human creative contributions as a basis for copyright ownership.

Third, a comparative legal approach is used to compare regulations regarding AI works in several jurisdictions that have developed different approaches to copyright ownership issues, namely the United States, the United Kingdom, the European Union, Japan, Singapore, and China. Comparisons are made of the concepts of human authorship, computer-generated works, joint authorship, and various models for regulating ownership of AI works that have developed in legislation and judicial practice. This comparative approach aims to identify best practices and evaluate their potential adoption in the Indonesian legal system. Fourth, a case-based approach is conducted through an analysis of court decisions, administrative policies, and official documents relating to copyright protection for AI works in various countries. Case analysis is used to understand how legal norms are applied in practice and how judges and relevant authorities interpret the concepts of creator, originality, and ownership in the context of AI.

3. Results and Discussion

3.1. Limitations of the Creator Concept in Indonesian Copyright Law

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms.

This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression. This protection not only has an economic dimension, namely the right to obtain commercial benefits from

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the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility (Mayana et al., 2024; Andriani, 2018).

Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system (Sajogo et al., 2025; Mayana et al., 2024).

This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law. Conversely, recognizing AI as a creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal interests that would form the basis for recognizing moral and economic rights in the copyright regime (Mayana et al., 2024; Andriani, 2018; Sajogo et al., 2025).

In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability. Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions (Sajogo et al., 2025).

This ambiguity becomes even more pronounced due to the varying degrees of human involvement in the use of AI. On the one hand, AI may serve merely as a supporting tool, such as for correcting grammar, improving image quality, or assisting in the editing process. Under these circumstances, human creative input remains the dominant element, thereby preserving the user's status as the creator. On the other hand, certain works are generated through processes in which AI performs nearly the entire creative function with only minimal human participation. In these cases, it becomes difficult to determine whether the AI user should be regarded as the creator or simply as an operator of the technology (Prajna et al., 2025; Subagiyo & Wibisono, 2024).

The absence of legal provisions establishing the required level of human contribution demonstrates that the Indonesian Copyright Law does not provide clear criteria for determining the legal status of AI-assisted works. Existing provisions

concerning authorship continue to assume that the creative process is conducted directly by human beings. Consequently, the current legal framework is incapable of addressing emerging issues, including the identification of the rightful copyright owner of AI-generated works, the threshold at which the use of AI can still be regarded as a manifestation of human creativity, and the circumstances under which a work should be considered an automated output that falls outside the scope of copyright protection (Prajapati et al., 2025; Mayana et al., 2024; Subagiyo & Wibisono, 2024).

Accordingly, the concept of authorship under Indonesian copyright law requires refinement to ensure legal certainty while preserving the fundamental principle that copyright exists to protect human creativity. Such refinement should not be interpreted as recognizing AI as a legal creator; rather, it should establish clear standards regarding the extent of human intellectual contribution necessary for AI-assisted works to qualify for copyright protection. By adopting this approach, copyright law can effectively respond to technological advancements while continuing to uphold human creativity as the essential foundation of copyright protection (Prajapati et al., 2025; Subagiyo & Wibisono, 2024; Rahman et al., 2020; Maddusila et al., 2025).

3.2. Lack of Norms Regarding Ownership of Artificial Intelligence Works

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process. A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work. This complexity raises fundamental questions regarding who is legally entitled to be recognized as the copyright holder (Prajapati et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of copyright protection. However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright (Prajapati et al., 2025; Subagiyo & Wibisono, 2024).

The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's

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contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process (Praja et al., 2025; Mayana et al., 2024).

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI. Some platforms grant users usage rights, while others retain certain rights to the output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law (Praja et al., 2025; Mayana et al., 2024).

On the other hand, some argue that works generated entirely by AI should not receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works (Mayana et al., 2024; Praja et al., 2025; Subagiyo & Wibisono, 2024).

The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case (Praja et al., 2025; Mayana et al., 2024; Maddusila et al., 2025).

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified. Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When the identity of the copyright holder cannot be determined, the exercise of both types of rights becomes ineffective and has the potential to create uncertainty in commercial transactions (Mayana et al., 2025; Praja et al., 2025).

Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a

clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no guarantee that the rights to the work truly belong to the party transferring it. This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy (Maddusila et al., 2025; Syafrinaldi et al., 2024).

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions (Maddusila et al., 2025; Praja et al., 2025; Hidayat et al., 2026).

3.3. Reconstructing the Copyright Ownership Model for Artificial Intelligence Works

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection (Maddusila et al., 2025; Praja et al., 2025). As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters regarding copyright ownership for works produced through AI (Subagiyo & Wibisono, 2024; Mayana et al., 2024). This lack of legal framework creates legal uncertainty because the current concept of creator is still based on the assumption that the entire creative process is carried out directly by humans (Praja et al., 2025; Mayana et al., 2024).

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection (Sajogo et al., 2025; Mayana et al., 2025). In this situation, humans merely act as the system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established (Sajogo et al., 2025). In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law (Mayana et al., 2024; Praja et al., 2025).

This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression (Subagiyo & Wibisono, 2024; Mayana et al., 2025). Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would

be granted to the results of computational processes, not to human creativity (Sajogo et al., 2025). Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities (Mayana et al., 2024; Mayana et al., 2025).

The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution (Prajapati et al., 2025). In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make creative modifications, edits, and refinements, the work remains a product of human intellectual expression (Prajapati et al., 2025; Subagiyo & Wibisono, 2024).

Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic elements, refine the colors, and rearrange the overall design to produce a significantly different visual character. In such a scenario, AI serves only as a supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders (Prajapati et al., 2025).

Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection (Sajogo et al., 2025). Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process (Prajapati et al., 2025).

Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework (Mayana et al., 2024; Prajapati et al., 2025). Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder (Mayana et al., 2024; Mayana et al., 2025).

Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright over every output generated by their systems, unless there is another legal relationship regulated through an agreement (Prajapati et al., 2025).

However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI (Maddusila et al., 2025; Hidayat et al., 2026). These changes do not necessarily alter the concept of creator, but they do need to provide normative parameters regarding the relationship between human contributions and the use of AI in the creation process (Praja et al., 2025).

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between protecting human creativity and the development of artificial intelligence technology (Maddusila et al., 2025; Hidayat et al., 2026). On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system (Praja et al., 2025; Mayana et al., 2024). Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works (Maddusila et al., 2025; Hidayat et al., 2026).

4. Conclusion

The development of generative artificial intelligence has fundamentally challenged the conventional concept of authorship and copyright ownership, exposing significant limitations within the Indonesian Copyright Law. This study demonstrates that the existing legal framework remains firmly grounded in the assumption that copyright can only arise from direct human creativity, without providing explicit rules for determining the ownership of works created with the assistance of AI. As a result, the absence of clear legal standards creates uncertainty regarding the status of AI-generated works, increases the potential for ownership disputes among users, developers, and platform providers, and may impede the sustainable growth of Indonesia's AI-based creative economy.

The findings further indicate that the principal legal issue is not whether AI itself should be recognized as a creator, but rather how copyright ownership should be determined when AI participates in the creative process. In this regard, the study proposes the Human-Centered Copyright Ownership model as a normative framework that preserves the fundamental principle of copyright law while accommodating technological developments. Under this model, AI is positioned solely as a creative tool rather than a legal subject, and copyright protection is granted only where there is a substantial human intellectual contribution that significantly influences the final expression of the work. Conversely, works generated entirely through automated AI processes without meaningful human creativity should remain outside the scope of copyright protection.

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Accordingly, legal reform of Law Number 28 of 2014 concerning Copyright is necessary to establish clear legal parameters for assessing human creative contribution in AI-assisted works. Such reform would strengthen legal certainty, reduce potential disputes over ownership, and provide a balanced framework that simultaneously promotes technological innovation and safeguards the core objective of copyright law, namely the protection and encouragement of human creativity in the digital era.

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#53948 Review

SUMMARY

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Reconstructing Copyright Protection for Artificial Intelligence-Generated Works

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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

Abstract

The rapid development of generative artificial intelligence (AI) has challenged the traditional concept of authorship and copyright ownership by enabling AI systems to produce creative works with varying degrees of human involvement. However, Indonesian Copyright Law (Law Number 28 of 2014) remains grounded in the assumption that copyright arises solely from direct human creativity, creating normative uncertainty regarding AI-generated works. This study aims to analyze the limitations of the current legal framework, identify normative gaps concerning copyright ownership, and formulate a Human-Centered Copyright Ownership model. The research employs normative legal research using statutory, conceptual, comparative, and case approaches. Legal materials were collected through library research and analyzed qualitatively using statutory interpretation, comparative legal analysis, and legal argumentation. The findings reveal that Indonesian copyright law lacks clear standards for determining authorship and ownership of AI-generated works, creating uncertainty for users, developers, and platform providers. To address these issues, this study proposes a Human-Centered Copyright Ownership model, which recognizes copyright only where substantial human creative contribution exists while positioning AI solely as a creative tool. This model provides a normative basis for future copyright law reform, strengthens legal certainty, and promotes innovation without undermining the fundamental principle of protecting human creativity.

Keywords: Artificial Intelligence, Copyright, Copyright Ownership, Legal Reconstruction.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from vast data sets. This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law (Horzyk, 2023; Kumar & Yadav, 2024; Stamatoudi, 2026).

The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire

structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI. In other words, the creative process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the creator and copyright holder of the work (Furqan et al., 2026; Stamatoudi, 2026; Kumar & Yadav, 2024).

This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans. Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense (Moerland, 2024; Subagiyo & Wibisono, 2024; Ampovska, 2025).

The different approaches adopted by various countries indicate that there is still no international consensus regarding the legal status of AI-generated works. The United States consistently upholds the requirement of human authorship, meaning that works created entirely by AI are not eligible for copyright protection (Furqan et al., 2026; Kumar & Yadav, 2024; Ampovska, 2025). Similarly, the European Union emphasizes human creativity as an essential element of originality, although discussions on possible legal reforms continue to evolve (Kumar & Yadav, 2024; Ampovska, 2025; Le Thi, 2023). Japan likewise adheres to the principle of human creativity in determining copyright eligibility while gradually seeking to balance the protection of human-created works with the advancement of AI innovation (Takeuchi, 2025).

These varying approaches suggest that the central issue in copyright law has shifted beyond the question of whether AI-generated works should receive protection to the more complex question of who should legally own the copyright. Several alternatives have been proposed in the literature. Some scholars argue that copyright should belong to AI users because their prompts or instructions initiate the creative process (Cervera et al., 2025; Gaidartzi & Stamatoudi, 2025). Others contend that ownership should be granted to AI developers or those responsible for creating the technical framework that enables AI to generate works (Lee, 2021; Hoshier & Kiran, 2024). Meanwhile, some researchers advocate a joint authorship model involving both humans and AI (Subagiyo & Wibisono, 2024; Sanjaya & Rajavenkatesan, 2025), whereas others recommend establishing a *sui generis* legal regime, arguing that the existing copyright framework is insufficient to regulate AI-generated works effectively (Sun, 2022; Gaffar & Albarashdi, 2025; Baker, 2025; Massadeh et al., 2024).

Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the

same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works (Horzyk, 2023; Hoshier & Kiran, 2024; Yas et al., 2025; Ali et al., 2024). Therefore, various studies have begun to emphasize the importance of transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works (Zhao, 2026).

In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them (Subagiyo & Wibisono, 2024; Mayana et al., 2024a; Praja et al., 2025).

Various previous studies have made important contributions to the development of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and sui generis rights (Sun, 2022; Kumar & Yadav, 2024; Ampovska, 2025; Praja et al., 2025; Baker, 2025; Sanjaya & Rajavenkatesan, 2025). However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of copyright ownership for AI-generated works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the sui generis approach, which establishes a new rights regime outside the copyright framework, the model proposed in this study maintains the fundamental principle that copyright is a right derived from human creativity. AI is positioned solely as a creative tool, while copyright ownership is determined based on substantial human creative contributions throughout the creation process. Accordingly, the main objective of this study is to analyze the limitations of the current Indonesian Copyright Law in regulating AI-generated works, identify the normative gaps concerning copyright ownership, and

formulate a Human-Centered Copyright Ownership model as a legal reconstruction capable of accommodating technological developments while preserving the principle of human authorship.

To achieve this objective, this study addresses the following research questions:

1. How does the existing concept of "creator" under Indonesian Copyright Law limit the recognition and protection of AI-assisted works?
2. What normative gaps exist in Indonesian Copyright Law regarding the ownership of AI-generated works, and what legal consequences do these gaps create?
3. How should the copyright ownership model for AI-generated works be reconstructed to ensure legal certainty while maintaining the principle of human authorship?

2. Research Methods

This study employs normative legal research (doctrinal legal research) to examine the adequacy of Indonesian copyright law in regulating AI-generated works and to formulate a legal reconstruction of copyright ownership based on the principle of human authorship. This method is appropriate because the research focuses on identifying normative gaps, conceptual inconsistencies, and the need for legal reform within the Indonesian copyright system.

The research applies four complementary approaches: (1) a statutory approach, to examine the provisions of Law Number 28 of 2014 concerning Copyright together with relevant international legal instruments, including the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement); (2) a conceptual approach, to analyze legal doctrines relating to authorship, originality, moral rights, economic rights, and copyright ownership in the context of artificial intelligence; (3) a comparative approach, to compare the regulation of AI-generated works in the United States, the United Kingdom, the European Union, Japan, Singapore, and China in order to identify best practices that may be adapted to the Indonesian legal system; and (4) a case approach, through the examination of court decisions, administrative policies, and official documents concerning copyright protection for AI-generated works in various jurisdictions.

The legal materials used in this research consist of primary legal materials, including Law Number 28 of 2014 concerning Copyright, the Berne Convention, the TRIPS Agreement, relevant legislation from the selected jurisdictions, and judicial decisions concerning AI-generated works. Secondary legal materials comprise books, peer-reviewed journal articles, legal commentaries, and scholarly publications discussing copyright law, artificial intelligence, and intellectual property rights, while tertiary legal materials include legal dictionaries, encyclopedias, and other reference sources that support legal interpretation.

Legal materials were collected through library research by systematically reviewing legislation, international legal instruments, judicial decisions, and academic literature relevant to copyright ownership of AI-generated works. The collected materials were then analyzed using qualitative normative analysis, involving statutory interpretation, conceptual analysis, comparative legal analysis, and legal argumentation. The analysis was conducted by identifying inconsistencies and normative gaps within the existing legal framework, comparing them with approaches adopted in other jurisdictions, and synthesizing the findings to formulate a Human-Centered Copyright Ownership model as a proposed reconstruction of Indonesian copyright law.

3. Results and Discussion

3.1. Limitations of the Creator Concept in Indonesian Copyright Law

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms (Adams & Grosse Ruse-Khan, 2020; Gaffar & Albarashdi, 2025).

This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression (Bartholomew, 2021). This protection not only has an economic dimension, namely the right to obtain commercial benefits from the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility (Mayana et al., 2024a; Andrini, 2018).

Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system (Sajogo et al., 2025; Ranade et al., 2025).

This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law (Eshraghian, 2020; Li et al., 2025). Conversely, recognizing AI as a creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal

interests that would form the basis for recognizing moral and economic rights in the copyright regime (Mayana et al., 2024a; Andrini, 2018).

In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability (Abrams, 1992). Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions (Sajogo et al., 2025).

This ambiguity becomes even more pronounced due to the varying degrees of human involvement in the use of AI. On the one hand, AI may serve merely as a supporting tool, such as for correcting grammar, improving image quality, or assisting in the editing process. Under these circumstances, human creative input remains the dominant element, thereby preserving the user's status as the creator. On the other hand, certain works are generated through processes in which AI performs nearly the entire creative function with only minimal human participation. In these cases, it becomes difficult to determine whether the AI user should be regarded as the creator or simply as an operator of the technology (Praja et al., 2025; Subagiyo & Wibisono, 2024).

The uncertainty surrounding the concept of authorship becomes even more evident when AI-assisted creativity is viewed as a continuum rather than a binary distinction between human-generated and AI-generated works. In practice, creative processes involve different levels of human intervention, ranging from AI functioning merely as a technical assistant to situations where it autonomously generates almost the entire expressive content (De Cock Buning, 2018; Rafner, 2025). Between these two extremes lies a broad spectrum of collaborative interactions in which human users formulate prompts, evaluate alternative outputs, revise compositions, combine multiple AI-generated results, and incorporate their own creative judgment into the final work. This demonstrates that authorship can no longer be assessed solely by identifying whether AI was used, but rather by evaluating the quality, intensity, and significance of human intellectual involvement throughout the creative process (Bonadio & McDonagh, 2020; Hajibayova & Lee, 2025).

Consequently, the absence of statutory criteria distinguishing substantial creative contribution from mere operational use creates considerable legal uncertainty for creators, copyright examiners, and courts when determining whether an AI-assisted work satisfies the human authorship requirement under Indonesian copyright law. Similar concerns have also been emphasized in comparative legal scholarship, which argues that the central issue is not the existence of AI itself but the inability of existing copyright doctrines to establish objective standards for measuring human creativity in AI-assisted works (Sajogo et al., 2025).

The absence of legal provisions establishing the required level of human contribution demonstrates that the Indonesian Copyright Law does not provide clear criteria for determining the legal status of AI-assisted works. Existing provisions concerning authorship continue to assume that the creative process is conducted directly by human beings. Consequently, the current legal framework is incapable of addressing emerging issues, including the identification of the rightful copyright owner of AI-generated works, the threshold at which the use of AI can still be regarded as a manifestation of human creativity, and the circumstances under which a work should be considered an automated output that falls outside the scope of copyright protection (Mayana et al., 2024a; Subagiyo & Wibisono, 2024).

Accordingly, the concept of authorship under Indonesian copyright law requires refinement to ensure legal certainty while preserving the fundamental principle that copyright exists to protect human creativity. Such refinement should not be interpreted as recognizing AI as a legal creator; rather, it should establish clear standards regarding the extent of human intellectual contribution necessary for AI-assisted works to qualify for copyright protection. By adopting this approach, copyright law can effectively respond to technological advancements while continuing to uphold human creativity as the essential foundation of copyright protection (Rahman et al., 2020; Maddusila et al., 2025).

3.2. Lack of Norms Regarding Ownership of Artificial Intelligence Works

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process. A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work. This complexity raises fundamental questions regarding who is legally entitled to be recognized as the copyright holder (Praja et al., 2025; Maddusila et al., 2025).

The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of copyright protection (Ranade et al., 2025; Korzynski et al., 2023). However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright (Subagiyo & Wibisono, 2024).

The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process (Mazzi, 2024; Sun, 2022).

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI (Lagioia et al., 2022; Quintais et al., 2023). Some platforms grant users usage rights, while others retain certain rights to the output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law (Mayana et al., 2024a).

On the other hand, some argue that works generated entirely by AI should not receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works (Praja et al., 2025; Bonadio et al., 2022).

The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case (Maddusila et al., 2025).

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified (Kwall, 2001). Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When the identity of the copyright holder cannot be determined, the exercise of both types of rights becomes ineffective and has the potential to create uncertainty in commercial transactions (Mayana et al., 2024b).

Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no guarantee that the rights to the work truly belong to the party transferring it (Brown, 2021). This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy (Maddusila et al., 2025; Syafrinaldi et al., 2024).

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions (Praja et al., 2025; Hidayat et al., 2026).

3.3. Reconstructing the Copyright Ownership Model for Artificial Intelligence Works

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection (Praja et al., 2025). As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters regarding copyright ownership for works produced through AI (Subagiyo & Wibisono, 2024). This lack of legal framework creates legal uncertainty because the current concept of creator is still based on the assumption that the entire creative process is carried out directly by humans (Mayana et al., 2024a).

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection (Sajogo et al., 2025). In this situation, humans merely act as the system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established. In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law (Mayana et al., 2024a; Praja et al., 2025).

This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression (Subagiyo & Wibisono, 2024).

Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would be granted to the results of computational processes, not to human creativity (Sajogo et al., 2025). Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities (Mayana et al., 2024b).

The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution (Prajapati et al., 2025). In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make creative modifications, edits, and refinements, the work remains a product of human intellectual expression (Subagiyo & Wibisono, 2024).

Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic elements, refine the colors, and rearrange the overall design to produce a significantly different visual character (Baklaga, 2026; Haase & Pokutta, 2026). In such a scenario, AI serves only as a supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders (Prajapati et al., 2025). Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection (Sajogo et al., 2025). Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process.

Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework. Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder (Mayana et al., 2024a; Mayana et al., 2024b).

Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright over every output generated by their systems, unless there is another legal relationship regulated through an agreement (Prajapati et al., 2025).

However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update

to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI (Maddusila et al., 2025; Hidayat et al., 2026). These changes do not necessarily alter the concept of creator, but they do need to provide normative parameters regarding the relationship between human contributions and the use of AI in the creation process.

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between protecting human creativity and the development of artificial intelligence technology (Maddusila et al., 2025; Hidayat et al., 2026). On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system (Praja et al., 2025; Mayana et al., 2024a). Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works.

4. Conclusion

The development of generative artificial intelligence has fundamentally challenged the conventional concept of authorship and copyright ownership, exposing significant limitations within the Indonesian Copyright Law. This study demonstrates that the existing legal framework remains firmly grounded in the assumption that copyright can only arise from direct human creativity, without providing explicit rules for determining the ownership of works created with the assistance of AI. As a result, the absence of clear legal standards creates uncertainty regarding the status of AI-generated works, increases the potential for ownership disputes among users, developers, and platform providers, and may impede the sustainable growth of Indonesia's AI-based creative economy.

The findings further indicate that the principal legal issue is not whether AI itself should be recognized as a creator, but rather how copyright ownership should be determined when AI participates in the creative process. In this regard, the study proposes the Human-Centered Copyright Ownership model as a normative framework that preserves the fundamental principle of copyright law while accommodating technological developments. Under this model, AI is positioned solely as a creative tool rather than a legal subject, and copyright protection is granted only where there is a substantial human intellectual contribution that significantly influences the final expression of the work. Conversely, works generated entirely through automated AI processes without meaningful human creativity should remain outside the scope of copyright protection.

Accordingly, legal reform of Law Number 28 of 2014 concerning Copyright is necessary to establish clear legal parameters for assessing substantial human creative contribution in AI-assisted works. Such reform would strengthen legal certainty, reduce ownership disputes, and provide a balanced framework that promotes

technological innovation while safeguarding the fundamental objective of copyright law, namely the protection of human creativity. The proposed Human-Centered Copyright Ownership model may serve as a normative reference for legislators, policymakers, courts, and copyright authorities in developing future regulations on AI-generated works. Future research should examine the practical implementation of this model through empirical studies and comparative analysis to evaluate its effectiveness in addressing emerging copyright issues associated with artificial intelligence.

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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

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Abstract

The rapid development of generative artificial intelligence (AI) has challenged the traditional concept of authorship and copyright ownership by enabling AI systems to produce creative works with varying degrees of human involvement. However, Indonesian Copyright Law (Law Number 28 of 2014) remains grounded in the assumption that copyright arises solely from direct human creativity, creating normative uncertainty regarding AI-generated works. This study aims to analyze the limitations of the current legal framework, identify normative gaps concerning copyright ownership, and formulate a Human-Centered Copyright Ownership model. The research employs normative legal research using statutory, conceptual, comparative, and case approaches. Legal materials were collected through library research and analyzed qualitatively using statutory interpretation, comparative legal analysis, and legal argumentation. The findings reveal that Indonesian copyright law lacks clear standards for determining authorship and ownership of AI-generated works, creating uncertainty for users, developers, and platform providers. To address these issues, this study proposes a Human-Centered Copyright Ownership model, which recognizes copyright only where substantial human creative contribution exists while positioning AI solely as a creative tool. This model provides a normative basis for future copyright law reform, strengthens legal certainty, and promotes innovation without undermining the fundamental principle of protecting human creativity.

Keywords: Artificial Intelligence, Copyright, Copyright Ownership, Legal Reconstruction.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from vast data sets. This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law (Horzyk, 2023; Kumar & Yadav, 2024; Stamatoudi, 2026).

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The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire

structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI. In other words, the creative process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the creator and copyright holder of the work (Furqan et al., 2026; Stamatoudi, 2026; Kumar & Yadav, 2024).

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This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans. Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense (Moerland, 2024; Subagiyo & Wibisono, 2024; Ampovska, 2025).

The different approaches adopted by various countries indicate that there is still no international consensus regarding the legal status of AI-generated works. The United States consistently upholds the requirement of human authorship, meaning that works created entirely by AI are not eligible for copyright protection (Furqan et al., 2026; Kumar & Yadav, 2024; Ampovska, 2025). Similarly, the European Union emphasizes human creativity as an essential element of originality, although discussions on possible legal reforms continue to evolve (Kumar & Yadav, 2024; Ampovska, 2025; Le Thi, 2023). Japan likewise adheres to the principle of human creativity in determining copyright eligibility while gradually seeking to balance the protection of human-created works with the advancement of AI innovation (Takeuchi, 2025).

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These varying approaches suggest that the central issue in copyright law has shifted beyond the question of whether AI-generated works should receive protection to the more complex question of who should legally own the copyright. Several alternatives have been proposed in the literature. Some scholars argue that copyright should belong to AI users because their prompts or instructions initiate the creative process (Cervera et al., 2025; Gaidartzi & Stamatoudi, 2025). Others contend that ownership should be granted to AI developers or those responsible for creating the technical framework that enables AI to generate works (Lee, 2021; Hoshier & Kiran, 2024). Meanwhile, some researchers advocate a joint authorship model involving both humans and AI (Subagiyo & Wibisono, 2024; Sanjaya & Rajavenkatesan, 2025), whereas others recommend establishing a *sui generis* legal regime, arguing that the existing copyright framework is insufficient to regulate AI-generated works effectively (Sun, 2022; Gaffar & Albarashdi, 2025; Baker, 2025; Massadeh et al., 2024).

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Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the

same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works (Horzyk, 2023; Hoshiar & Kiran, 2024; Yas et al., 2025; Ali et al., 2024). Therefore, various studies have begun to emphasize the importance of transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works (Zhao, 2026).

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In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them (Subagiyo & Wibisono, 2024; Mayana et al., 2024a; Praja et al., 2025).

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Various previous studies have made important contributions to the development of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and *sui generis* rights (Sun, 2022; Kumar & Yadav, 2024; Ampovska, 2025; Praja et al., 2025; Baker, 2025; Sanjaya & Rajavenkatesan, 2025). However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

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Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of copyright ownership for AI-generated works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the *sui generis* approach, which establishes a new rights regime outside the copyright framework, the model proposed in this study maintains the fundamental principle that copyright is a right derived from human creativity. AI is positioned solely as a creative tool, while copyright ownership is determined based on substantial human creative contributions throughout the creation process. Accordingly, the main objective of this study is to analyze the limitations of the current Indonesian Copyright Law in regulating AI-generated works, identify the normative gaps concerning copyright ownership, and

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formulate a Human-Centered Copyright Ownership model as a legal reconstruction capable of accommodating technological developments while preserving the principle of human authorship.

To achieve this objective, this study addresses the following research questions:

1. How does the existing concept of "creator" under Indonesian Copyright Law limit the recognition and protection of AI-assisted works?
2. What normative gaps exist in Indonesian Copyright Law regarding the ownership of AI-generated works, and what legal consequences do these gaps create?
3. How should the copyright ownership model for AI-generated works be reconstructed to ensure legal certainty while maintaining the principle of human authorship?

2. Research Methods

This study employs normative legal research (doctrinal legal research) to examine the adequacy of Indonesian copyright law in regulating AI-generated works and to formulate a legal reconstruction of copyright ownership based on the principle of human authorship. This method is appropriate because the research focuses on identifying normative gaps, conceptual inconsistencies, and the need for legal reform within the Indonesian copyright system.

The research applies four complementary approaches: (1) a statutory approach, to examine the provisions of Law Number 28 of 2014 concerning Copyright together with relevant international legal instruments, including the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement); (2) a conceptual approach, to analyze legal doctrines relating to authorship, originality, moral rights, economic rights, and copyright ownership in the context of artificial intelligence; (3) a comparative approach, to compare the regulation of AI-generated works in the United States, the United Kingdom, the European Union, Japan, Singapore, and China in order to identify best practices that may be adapted to the Indonesian legal system; and (4) a case approach, through the examination of court decisions, administrative policies, and official documents concerning copyright protection for AI-generated works in various jurisdictions.

The legal materials used in this research consist of primary legal materials, including Law Number 28 of 2014 concerning Copyright, the Berne Convention, the TRIPS Agreement, relevant legislation from the selected jurisdictions, and judicial decisions concerning AI-generated works. Secondary legal materials comprise books, peer-reviewed journal articles, legal commentaries, and scholarly publications discussing copyright law, artificial intelligence, and intellectual property rights, while tertiary legal materials include legal dictionaries, encyclopedias, and other reference sources that support legal interpretation.

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Legal materials were collected through library research by systematically reviewing legislation, international legal instruments, judicial decisions, and academic literature relevant to copyright ownership of AI-generated works. The collected materials were then analyzed using qualitative normative analysis, involving statutory interpretation, conceptual analysis, comparative legal analysis, and legal argumentation. The analysis was conducted by identifying inconsistencies and normative gaps within the existing legal framework, comparing them with approaches adopted in other jurisdictions, and synthesizing the findings to formulate a Human-Centered Copyright Ownership model as a proposed reconstruction of Indonesian copyright law.

3. Results and Discussion

3.1. Limitations of the Creator Concept in Indonesian Copyright Law

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms (Adams & Grosse Ruse-Khan, 2020; Gaffar & Albarashdi, 2025).

This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression (Bartholomew, 2021). This protection not only has an economic dimension, namely the right to obtain commercial benefits from the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility (Mayana et al., 2024a; Andriani, 2018).

Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system (Sajogo et al., 2025; Ranade et al., 2025).

This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law (Eshraghian, 2020; Li et al., 2025). Conversely, recognizing AI as a creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal

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interests that would form the basis for recognizing moral and economic rights in the copyright regime (Mayana et al., 2024a; Andrini, 2018).

In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability (Abrams, 1992). Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions (Sajogo et al., 2025).

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This ambiguity becomes even more pronounced due to the varying degrees of human involvement in the use of AI. On the one hand, AI may serve merely as a supporting tool, such as for correcting grammar, improving image quality, or assisting in the editing process. Under these circumstances, human creative input remains the dominant element, thereby preserving the user's status as the creator. On the other hand, certain works are generated through processes in which AI performs nearly the entire creative function with only minimal human participation. In these cases, it becomes difficult to determine whether the AI user should be regarded as the creator or simply as an operator of the technology (Prajā et al., 2025; Subagiyo & Wibisono, 2024).

The uncertainty surrounding the concept of authorship becomes even more evident when AI-assisted creativity is viewed as a continuum rather than a binary distinction between human-generated and AI-generated works. In practice, creative processes involve different levels of human intervention, ranging from AI functioning merely as a technical assistant to situations where it autonomously generates almost the entire expressive content (De Cock Buning, 2018; Rafner, 2025). Between these two extremes lies a broad spectrum of collaborative interactions in which human users formulate prompts, evaluate alternative outputs, revise compositions, combine multiple AI-generated results, and incorporate their own creative judgment into the final work. This demonstrates that authorship can no longer be assessed solely by identifying whether AI was used, but rather by evaluating the quality, intensity, and significance of human intellectual involvement throughout the creative process (Bonadio & McDonagh, 2020; Hajibayova & Lee, 2025).

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Consequently, the absence of statutory criteria distinguishing substantial creative contribution from mere operational use creates considerable legal uncertainty for creators, copyright examiners, and courts when determining whether an AI-assisted work satisfies the human authorship requirement under Indonesian copyright law. Similar concerns have also been emphasized in comparative legal scholarship, which argues that the central issue is not the existence of AI itself but the inability of existing copyright doctrines to establish objective standards for measuring human creativity in AI-assisted works (Sajogo et al., 2025).

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The absence of legal provisions establishing the required level of human contribution demonstrates that the Indonesian Copyright Law does not provide clear criteria for determining the legal status of AI-assisted works. Existing provisions concerning authorship continue to assume that the creative process is conducted directly by human beings. Consequently, the current legal framework is incapable of addressing emerging issues, including the identification of the rightful copyright owner of AI-generated works, the threshold at which the use of AI can still be regarded as a manifestation of human creativity, and the circumstances under which a work should be considered an automated output that falls outside the scope of copyright protection (Mayana et al., 2024a; Subagiyo & Wibisono, 2024).

Accordingly, the concept of authorship under Indonesian copyright law requires refinement to ensure legal certainty while preserving the fundamental principle that copyright exists to protect human creativity. Such refinement should not be interpreted as recognizing AI as a legal creator; rather, it should establish clear standards regarding the extent of human intellectual contribution necessary for AI-assisted works to qualify for copyright protection. By adopting this approach, copyright law can effectively respond to technological advancements while continuing to uphold human creativity as the essential foundation of copyright protection (Rahman et al., 2020; Maddusila et al., 2025).

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3.2. Lack of Norms Regarding Ownership of Artificial Intelligence Works

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process. A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work. This complexity raises fundamental questions regarding who is legally entitled to be recognized as the copyright holder (Praja et al., 2025; Maddusila et al., 2025).

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The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of copyright protection (Ranade et al., 2025; Korzynski et al., 2023). However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright (Subagiyo & Wibisono, 2024).

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The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process (Mazzi, 2024; Sun, 2022).

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI (Lagioia et al., 2022; Quintais et al., 2023). Some platforms grant users usage rights, while others retain certain rights to the output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law (Mayana et al., 2024a).

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On the other hand, some argue that works generated entirely by AI should not receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works (Praja et al., 2025; Bonadio et al., 2022).

The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case (Maddusila et al., 2025).

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified (Kwall, 2001). Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When the identity of the copyright holder cannot be determined, the exercise of both types of rights becomes ineffective and has the potential to create uncertainty in commercial transactions (Mayana et al., 2024b).

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Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no guarantee that the rights to the work truly belong to the party transferring it (Brown, 2021). This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy (Maddusila et al., 2025; Syafrinaldi et al., 2024).

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions (Praja et al., 2025; Hidayat et al., 2026).

3.3. Reconstructing the Copyright Ownership Model for Artificial Intelligence Works

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection (Praja et al., 2025). As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters regarding copyright ownership for works produced through AI (Subagiyo & Wibisono, 2024). This lack of legal framework creates legal uncertainty because the current concept of creator is still based on the assumption that the entire creative process is carried out directly by humans (Mayana et al., 2024a).

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection (Sajogo et al., 2025). In this situation, humans merely act as the system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established. In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law (Mayana et al., 2024a; Praja et al., 2025).

This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression (Subagiyo & Wibisono, 2024).

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Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would be granted to the results of computational processes, not to human creativity (Sajogo et al., 2025). Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities (Mayana et al., 2024b).

The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution (Prajapati et al., 2025). In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make creative modifications, edits, and refinements, the work remains a product of human intellectual expression (Subagiyo & Wibisono, 2024).

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Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic elements, refine the colors, and rearrange the overall design to produce a significantly different visual character (Baklaga, 2026; Haase & Pokutta, 2026). In such a scenario, AI serves only as a supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders (Prajapati et al., 2025). Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection (Sajogo et al., 2025). Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process.

Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework. Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder (Mayana et al., 2024a; Mayana et al., 2024b).

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Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright over every output generated by their systems, unless there is another legal relationship regulated through an agreement (Prajapati et al., 2025).

However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update

to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI (Maddusila et al., 2025; Hidayat et al., 2026). These changes do not necessarily alter the concept of creator, but they do need to provide normative parameters regarding the relationship between human contributions and the use of AI in the creation process.

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between protecting human creativity and the development of artificial intelligence technology (Maddusila et al., 2025; Hidayat et al., 2026). On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system (Praja et al., 2025; Mayana et al., 2024a). Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works.

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4. Conclusion

The development of generative artificial intelligence has fundamentally challenged the conventional concept of authorship and copyright ownership, exposing significant limitations within the Indonesian Copyright Law. This study demonstrates that the existing legal framework remains firmly grounded in the assumption that copyright can only arise from direct human creativity, without providing explicit rules for determining the ownership of works created with the assistance of AI. As a result, the absence of clear legal standards creates uncertainty regarding the status of AI-generated works, increases the potential for ownership disputes among users, developers, and platform providers, and may impede the sustainable growth of Indonesia's AI-based creative economy.

The findings further indicate that the principal legal issue is not whether AI itself should be recognized as a creator, but rather how copyright ownership should be determined when AI participates in the creative process. In this regard, the study proposes the Human-Centered Copyright Ownership model as a normative framework that preserves the fundamental principle of copyright law while accommodating technological developments. Under this model, AI is positioned solely as a creative tool rather than a legal subject, and copyright protection is granted only where there is a substantial human intellectual contribution that significantly influences the final expression of the work. Conversely, works generated entirely through automated AI processes without meaningful human creativity should remain outside the scope of copyright protection.

Accordingly, legal reform of Law Number 28 of 2014 concerning Copyright is necessary to establish clear legal parameters for assessing substantial human creative contribution in AI-assisted works. Such reform would strengthen legal certainty, reduce ownership disputes, and provide a balanced framework that promotes

technological innovation while safeguarding the fundamental objective of copyright law, namely the protection of human creativity. The proposed Human-Centered Copyright Ownership model may serve as a normative reference for legislators, policymakers, courts, and copyright authorities in developing future regulations on AI-generated works. Future research should examine the practical implementation of this model through empirical studies and comparative analysis to evaluate its effectiveness in addressing emerging copyright issues associated with artificial intelligence.

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#53948 Review

SUMMARY REVIEW EDITING

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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

Abstract

The rapid development of generative artificial intelligence (AI) has challenged the traditional concept of authorship and copyright ownership by enabling AI systems to produce creative works with varying degrees of human involvement. However, Indonesian Copyright Law (Law Number 28 of 2014) remains grounded in the assumption that copyright arises solely from direct human creativity, creating normative uncertainty regarding AI-generated works. This study aims to analyze the limitations of the current legal framework, identify normative gaps concerning copyright ownership, and formulate a Human-Centered Copyright Ownership model. The research employs normative legal research using statutory, conceptual, comparative, and case approaches. Legal materials were collected through library research and analyzed qualitatively using statutory interpretation, comparative legal analysis, and legal argumentation. The findings reveal that Indonesian copyright law lacks clear standards for determining authorship and ownership of AI-generated works, creating uncertainty for users, developers, and platform providers. To address these issues, this study proposes a Human-Centered Copyright Ownership model, which recognizes copyright only where substantial human creative contribution exists while positioning AI solely as a creative tool. This model provides a normative basis for future copyright law reform, strengthens legal certainty, and promotes innovation without undermining the fundamental principle of protecting human creativity.

Keywords: Artificial Intelligence, Copyright, Copyright Ownership, Legal Reconstruction.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from vast data sets. This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law.¹

¹ Horzyk, Amanda M. "How AI affects our understanding of musical works that should be protected by copyright." In *2023 international joint conference on neural networks (IJCNN)*, pp. 1-8. IEEE, 2023.

The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI. In other words, the creative process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the creator and copyright holder of the work.²

This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans. Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense.³

The different approaches adopted by various countries indicate that there is still no international consensus regarding the legal status of AI-generated works. The United States consistently upholds the requirement of human authorship, meaning that works created entirely by AI are not eligible for copyright protection.⁴ Similarly, the European Union emphasizes human creativity as an essential element of originality, although discussions on possible legal reforms continue to evolve.⁵ Japan likewise adheres to the principle of human creativity in determining copyright eligibility

See too, Kumar, Satish, and Akansha Yadav. "Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan." In *AIP Conference Proceedings*, vol. 3220, no. 1, p. 040009. AIP Publishing LLC, 2024; Stamatoudi, Irene. "Copyright Protection for AI-Generated Works: Is It Something We Want?." *Cyprus Review* 38, no. 1 (2026): 107-125.

² Furqan, Tiyyaba, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi. "Global laws governing intellectual property rights for AI-generated works." *Discover Artificial Intelligence* (2026). See too, Stamatoudi, Irene. "Copyright Protection for AI-Generated Works: Is It Something We Want?." *Cyprus Review* 38, no. 1 (2026): 107-125.

³ Moerland, Anke. "Intellectual property law and AI." In *The Cambridge Handbook of Private Law and Artificial Intelligence*, pp. 362-383. Cambridge University Press, 2024. See too, Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156; Ampovska, Marija. "Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright." *Review of European and Comparative Law* 62, no. 3 (2025): 107-131.

⁴ Furqan, Tiyyaba, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi. "Global laws governing intellectual property rights for AI-generated works." *Discover Artificial Intelligence* (2026).

⁵ Kumar, Satish, and Akansha Yadav. "Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan." In *AIP Conference Proceedings*, vol. 3220, no. 1, p. 040009. AIP Publishing LLC, 2024. See too, Ampovska, Marija. "Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright." *Review of European and Comparative Law* 62, no. 3 (2025): 107-131; Le Thi, Minh. "Copyright Protection for Works Created by AI Technology under the EU Law and Vietnamese Law." *Review of European and Comparative Law* 55, no. 4 (2023): 7-28.

while gradually seeking to balance the protection of human-created works with the advancement of AI innovation.⁶

These varying approaches suggest that the central issue in copyright law has shifted beyond the question of whether AI-generated works should receive protection to the more complex question of who should legally own the copyright. Several alternatives have been proposed in the literature. Some scholars argue that copyright should belong to AI users because their prompts or instructions initiate the creative process.⁷ Others contend that ownership should be granted to AI developers or those responsible for creating the technical framework that enables AI to generate works.⁸ Meanwhile, some researchers advocate a joint authorship model involving both humans and AI,⁹ whereas others recommend establishing a *sui generis* legal regime, arguing that the existing copyright framework is insufficient to regulate AI-generated works effectively.¹⁰

Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works.¹¹ Therefore, various studies have begun to emphasize the importance of

⁶ Takeuchi, Seiya S. "Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach." *The Journal of World Intellectual Property* 28, no. 2 (2025): 323-343.

⁷ Cervera, Axell, Erik Obiol, and José Rolando Cardenas-Gonzales. "Derechos de autor y calidad de las instrucciones en obras generadas por inteligencia artificial." *Nuevo Derecho* 21, no. 37 (2025): 1-27. See too, Gaidartzi, Anthi, and Irini Stamatoudi. "Authorship and ownership issues raised by AI-generated works: a comparative analysis." *Laws* 14, no. 4 (2025): 57.

⁸ Lee, Jyh-An. "Computer-generated Works under the CDPA 1988." *Artificial Intelligence and Intellectual Property* (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65 (2021). See too, Hoshidar, Singh, and Sharma Kiran. "Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work." In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, pp. 1-7. IEEE, 2024.

⁹ Sanjaya, Karun, and P. R. L. Rajavenkatesan. "Artificial intelligence and intellectual property rights—A copyright perspective." *Journal of Intellectual Property Rights (JIPR)* 30, no. 1 (2025): 26-34.

¹⁰ Sun, Haochen. "Redesigning copyright protection in the era of artificial intelligence." *Iowa Law Review* 107 (2022): 1213-1251. See too, Gaffar, Hafiz, and Saleh Albarashdi. "Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape." *Asian Journal of International Law* 15, no. 1 (2025): 23-46; Baker, Mohammad Abu. "Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges." In *Conference on Sustainability and Cutting-Edge Business Technologies*, pp. 285-294. Cham: Springer Nature Switzerland, 2025; Massadeh, Firas, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail. "The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright." *Corporate Law & Governance Review* 6, no. 1 (2024).

¹¹ Yas, Nadia, Hani Abdulrahim, Issa Ghassan Rabadi, and Zeana Abdijabar. "Protecting the civil rights of the author from the risks of artificial intelligence." *Research Journal in Advanced Humanities* 6, no. 1 (2025). See too, Ali, Sk M., Anuttama Ghose, Shashikant Saurav, and Sachin Deshmukh. "Creativity

transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works.¹²

In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them.¹³

Various previous studies have made important contributions to the development of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and *sui generis* rights.¹⁴ However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model

and Innovation in the Age of Artificial Intelligence: A Copyright Dilemma." *Padjadjaran Jurnal Ilmu Hukum (Journal of Law)* 11, no. 2 (2024): 6.

¹² Zhao, Sikun. "The Role of Copyright Authentication in AI-Generated Visual Content: Constructing Trust in AIGC Media Environments and the Impact of Copyright Ambiguity on Perceived Authenticity." *Studies in Media and Communication* 14, no. 1 (2026): 336-350.

¹³ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75. See too, Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170.

¹⁴ Sun, Haochen. "Redesigning copyright protection in the era of artificial intelligence." *Iowa Law Review* 107 (2022): 1213-1251. See too, Kumar, Satish, and Akansha Yadav. "Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan." In *AIP Conference Proceedings*, vol. 3220, no. 1, p. 040009. AIP Publishing LLC, 2024; Ampovska, Marija. "Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright." *Review of European and Comparative Law* 62, no. 3 (2025): 107-131; Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170; Baker, Mohammad Abu. "Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges." In *Conference on Sustainability and Cutting-Edge Business Technologies*, pp. 285-294. Cham: Springer Nature Switzerland, 2025; Sanjaya, Karun, and P. R. L. Rajavenkatesan. "Artificial intelligence and intellectual property rights—A copyright perspective." *Journal of Intellectual Property Rights (JIPR)* 30, no. 1 (2025): 26-34.

maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of copyright ownership for AI-generated works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the *sui generis* approach, which establishes a new rights regime outside the copyright framework, the model proposed in this study maintains the fundamental principle that copyright is a right derived from human creativity. AI is positioned solely as a creative tool, while copyright ownership is determined based on substantial human creative contributions throughout the creation process. Accordingly, the main objective of this study is to analyze the limitations of the current Indonesian Copyright Law in regulating AI-generated works, identify the normative gaps concerning copyright ownership, and formulate a Human-Centered Copyright Ownership model as a legal reconstruction capable of accommodating technological developments while preserving the principle of human authorship.

To achieve this objective, this study addresses the following research questions:

1. How does the existing concept of "creator" under Indonesian Copyright Law limit the recognition and protection of AI-assisted works?
2. What normative gaps exist in Indonesian Copyright Law regarding the ownership of AI-generated works, and what legal consequences do these gaps create?
3. How should the copyright ownership model for AI-generated works be reconstructed to ensure legal certainty while maintaining the principle of human authorship?

2. Research Methods

This study employs normative legal research (doctrinal legal research) to examine the adequacy of Indonesian copyright law in regulating AI-generated works and to formulate a legal reconstruction of copyright ownership based on the principle of human authorship. This method is appropriate because the research focuses on identifying normative gaps, conceptual inconsistencies, and the need for legal reform within the Indonesian copyright system.

The research applies four complementary approaches: (1) a statutory approach, to examine the provisions of Law Number 28 of 2014 concerning Copyright together with relevant international legal instruments, including the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement); (2) a conceptual approach, to analyze legal doctrines relating to authorship, originality, moral rights, economic rights, and copyright ownership in the context of artificial intelligence; (3) a comparative approach, to compare the regulation of AI-generated works in the United States, the United Kingdom, the European Union, Japan, Singapore, and China in order

to identify best practices that may be adapted to the Indonesian legal system; and (4) a case approach, through the examination of court decisions, administrative policies, and official documents concerning copyright protection for AI-generated works in various jurisdictions.

The legal materials used in this research consist of primary legal materials, including Law Number 28 of 2014 concerning Copyright, the Berne Convention, the TRIPS Agreement, relevant legislation from the selected jurisdictions, and judicial decisions concerning AI-generated works. Secondary legal materials comprise books, peer-reviewed journal articles, legal commentaries, and scholarly publications discussing copyright law, artificial intelligence, and intellectual property rights, while tertiary legal materials include legal dictionaries, encyclopedias, and other reference sources that support legal interpretation.

Legal materials were collected through library research by systematically reviewing legislation, international legal instruments, judicial decisions, and academic literature relevant to copyright ownership of AI-generated works. The collected materials were then analyzed using qualitative normative analysis, involving statutory interpretation, conceptual analysis, comparative legal analysis, and legal argumentation. The analysis was conducted by identifying inconsistencies and normative gaps within the existing legal framework, comparing them with approaches adopted in other jurisdictions, and synthesizing the findings to formulate a Human-Centered Copyright Ownership model as a proposed reconstruction of Indonesian copyright law.

3. Results and Discussion

3.1. Limitations of the Existing Creator Concept under Indonesian Copyright Law in Recognizing and Protecting AI-Assisted Works

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms.¹⁵

This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression.¹⁶ This protection not only has an economic dimension, namely the right to obtain commercial benefits from

¹⁵ Adams, Zoe, and Henning Grosse Ruse-Khan. "Work and works on digital platforms in capitalism: conceptual and regulatory challenges for labour and copyright law." *International Journal of Law and Information Technology* 28, no. 4 (2020): 329-370. See too, Gaffar, Hafiz, and Saleh Albarashdi. "Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape." *Asian Journal of International Law* 15, no. 1 (2025): 23-46.

¹⁶ Bartholomew, Mark. "Copyright and the creative process." *Notre Dame Law Review* 97, no. 1 (2021): 357.

the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility.¹⁷

Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system.¹⁸

This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law.¹⁹ Conversely, recognizing AI as a creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal interests that would form the basis for recognizing moral and economic rights in the copyright regime.²⁰

In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability.²¹ Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training

¹⁷ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75. See too, Andirini, Laurensia. "Redesigning Indonesia Copyright Act to Accommodate Autonomous Intelligent System: Status Quo and Room for Improvement." *Asian Journal of Law and Economics* 9, no. 3 (2018): 20180013.

¹⁸ Sajogo, Kenneth Bradley, Fajar Sugianto, and Atsuko Yamamoto. "Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum." *Jurnal Hukum Bisnis Bonum Commune* (2025): 213-242. See too, Ranade, Nupoor, Marly Saravia, and Aditya Johri. "Using rhetorical strategies to design prompts: A human-in-the-loop approach to make AI useful." *AI & SOCIETY* 40, no. 2 (2025): 711-732.

¹⁹ Eshraghian, Jason K. "Human ownership of artificial creativity." *Nature Machine Intelligence* 2, no. 3 (2020): 157-160. See too, Li, Wei, Ruiming Song, Bing Zhang, and Kunpeng Yu. "AI creativity and legal protection for AI-generated works in posthuman societal scenarios." *Sustainable Futures* 9 (2025): 100749.

²⁰ Andirini, Laurensia. "Redesigning Indonesia Copyright Act to Accommodate Autonomous Intelligent System: Status Quo and Room for Improvement." *Asian Journal of Law and Economics* 9, no. 3 (2018): 20180013. See too, Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75.

²¹ Abrams, Howard B. "Originality and creativity in copyright law." *Law and Contemporary Problems* 55, no. 2 (1992): 3-44.

data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions.²²

This ambiguity becomes even more pronounced due to the varying degrees of human involvement in the use of AI. On the one hand, AI may serve merely as a supporting tool, such as for correcting grammar, improving image quality, or assisting in the editing process. Under these circumstances, human creative input remains the dominant element, thereby preserving the user's status as the creator. On the other hand, certain works are generated through processes in which AI performs nearly the entire creative function with only minimal human participation. In these cases, it becomes difficult to determine whether the AI user should be regarded as the creator or simply as an operator of the technology.²³

The uncertainty surrounding the concept of authorship becomes even more evident when AI-assisted creativity is viewed as a continuum rather than a binary distinction between human-generated and AI-generated works. In practice, creative processes involve different levels of human intervention, ranging from AI functioning merely as a technical assistant to situations where it autonomously generates almost the entire expressive content.²⁴ Between these two extremes lies a broad spectrum of collaborative interactions in which human users formulate prompts, evaluate alternative outputs, revise compositions, combine multiple AI-generated results, and incorporate their own creative judgment into the final work. This demonstrates that authorship can no longer be assessed solely by identifying whether AI was used, but rather by evaluating the quality, intensity, and significance of human intellectual involvement throughout the creative process.²⁵

Consequently, the absence of statutory criteria distinguishing substantial creative contribution from mere operational use creates considerable legal uncertainty for creators, copyright examiners, and courts when determining whether an AI-assisted work satisfies the human authorship requirement under Indonesian copyright law. Similar concerns have also been emphasized in comparative legal scholarship, which argues that the central issue is not the existence of AI itself but the inability of

²² Sajogo, Kenneth Bradley, Fajar Sugianto, and Atsuko Yamamoto. "Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum." *Jurnal Hukum Bisnis Bonum Commune* (2025): 213-242.

²³ Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170. See too, Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156.

²⁴ De Cock Buning, Madeleine. "Artificial intelligence and the creative industry: new challenges for the EU paradigm for art and technology by autonomous creation." In *Research handbook on the law of artificial intelligence*, pp. 511-535. Edward Elgar Publishing, 2018. See too, Rafner, Janet, Blanka Zana, Ida Bang Hansen, Simon Ceh, Jacob Sherson, Mathias Benedek, and Izabela Lebuda. "Agency in Human-AI Collaboration for Image Generation and Creative Writing: Preliminary Insights from Think-Aloud Protocols." *Creativity Research Journal* (2025): 1-24.

²⁵ Bonadio, Enrico, and Luke McDonagh. "Artificial intelligence as producer and consumer of copyright works: evaluating the consequences of algorithmic creativity." *Intellectual Property Quarterly* 2020, no. 2 (2020): 112-137. See too, Hajibayova, Lala, and Seungmin Lee. "Authorship in the age of artificial intelligence." *Journal of Documentation* 81, no. 5-6 (2025): 1401-1414.

existing copyright doctrines to establish objective standards for measuring human creativity in AI-assisted works.

The absence of legal provisions establishing the required level of human contribution demonstrates that the Indonesian Copyright Law does not provide clear criteria for determining the legal status of AI-assisted works. Existing provisions concerning authorship continue to assume that the creative process is conducted directly by human beings. Consequently, the current legal framework is incapable of addressing emerging issues, including the identification of the rightful copyright owner of AI-generated works, the threshold at which the use of AI can still be regarded as a manifestation of human creativity, and the circumstances under which a work should be considered an automated output that falls outside the scope of copyright protection.²⁶

Accordingly, the concept of authorship under Indonesian copyright law requires refinement to ensure legal certainty while preserving the fundamental principle that copyright exists to protect human creativity. Such refinement should not be interpreted as recognizing AI as a legal creator; rather, it should establish clear standards regarding the extent of human intellectual contribution necessary for AI-assisted works to qualify for copyright protection. By adopting this approach, copyright law can effectively respond to technological advancements while continuing to uphold human creativity as the essential foundation of copyright protection.²⁷

3.2. Normative Gaps in Indonesian Copyright Law Regarding the Ownership of AI-Generated Works and Their Legal Consequences

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process. A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work. This complexity raises

²⁶ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75. See too, Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156.

²⁷ Rahman, Rofi Aulia, Akhmad Al-Farouqi, and Shu Mei Tang. "Should Indonesian Copyright Law be Amended Due to Artificial Intelligence Development?: Lesson Learned from Japan." *NTUT Journal of Intellectual Property Law and Management* 9, no. 1 (2020): 34-57. See too, Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390.

fundamental questions regarding who is legally entitled to be recognized as the copyright holder.²⁸

The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of copyright protection.²⁹ However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright.³⁰

The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process.³¹

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI.³² Some platforms grant users usage rights, while others retain certain rights to the

²⁸ Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170. See too, Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390.

²⁹ Ranade, Nupoor, Marly Saravia, and Aditya Johri. "Using rhetorical strategies to design prompts: A human-in-the-loop approach to make AI useful." *AI & SOCIETY* 40, no. 2 (2025): 711-732. See too, Korzynski, Pawel, Grzegorz Mazurek, Pamela Krzyrkowska, and Artur Kurasinski. "Artificial intelligence prompt engineering as a new digital competence: Analysis of generative AI technologies such as ChatGPT." *Entrepreneurial Business and Economics Review* 11, no. 3 (2023): 25-37.

³⁰ Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156.

³¹ Mazzi, Francesca. "Authorship in artificial intelligence-generated works: Exploring originality in text prompts and artificial intelligence outputs through philosophical foundations of copyright and collage protection." *The Journal of World Intellectual Property* 27, no. 3 (2024): 410-427. See too, Sun, Haochen. "Redesigning copyright protection in the era of artificial intelligence." *Iowa Law Review* 107 (2022): 1213-1251.

³² Lagioia, Francesca, Agnieszka Agata Jablonowska, Rūta Liepiņa, and Kasper Drazewski. "AI in search of unfairness in consumer contracts: the terms of service landscape." *Journal of Consumer Policy* 45 (2022): 481-536. See too, Quintais, João Pedro, Giovanni De Gregorio, and João C. Magalhães. "How

output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law.³³

On the other hand, some argue that works generated entirely by AI should not receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works.³⁴

The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case.³⁵

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified.³⁶ Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When the identity of the copyright holder cannot be determined, the exercise of both types

platforms govern users' copyright-protected content: Exploring the power of private ordering and its implications." *Computer Law & Security Review* 48 (2023): 105792.

³³ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75.

³⁴ Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170. See too, Bonadio, Enrico, Nicola Lucchi, and Giuseppe Mazziotti. "Will technology-aided creativity force us to rethink copyright's fundamentals? Highlights from the platform economy and artificial intelligence." *IIC-International Review of Intellectual Property and Competition Law* 53, no. 8 (2022): 1174-1200.

³⁵ Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390.

³⁶ Kwall, Roberta Rosenthal. "Author-stories: narrative's implications for moral rights and copyright's joint authorship doctrine." *Southern California Law Review* 75, no. 1 (2001).

of rights becomes ineffective and has the potential to create uncertainty in commercial transactions.³⁷

Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no guarantee that the rights to the work truly belong to the party transferring it.³⁸ This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy.³⁹

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions.⁴⁰

3.3. Reconstructing the Copyright Ownership Model for Artificial Intelligence Works

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection.⁴¹ As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters

³⁷ Mayana, Ranti Fauza, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno. "Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law." In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, pp. 39-43. 2024.

³⁸ Brown, Rafael Dean. "Property ownership and the legal personhood of artificial intelligence." *Information & Communications Technology Law* 30, no. 2 (2021): 208-234.

³⁹ Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390.

⁴⁰ Hidayat, Agi Attaubah, Amalia Nur Anwari, Ransya Ayu Zulvia, and Muhamad Kholid. "Negotiating Haqq al-Ibtikar and State Patent Law: A Socio-Legal Study of Masalahah and Intellectual Property among Indonesian Muslim SMEs." *DIKTUM: Jurnal Syariah dan Hukum* 24, no. 2 (2026): 138-167.

⁴¹ Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170.

regarding copyright ownership for works produced through AI.⁴² This lack of legal framework creates legal uncertainty because the current concept of creator is still based on the assumption that the entire creative process is carried out directly by humans.⁴³

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection.⁴⁴ In this situation, humans merely act as the system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established. In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law.⁴⁵

This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression. Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would be granted to the results of computational processes, not to human creativity.⁴⁶ Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities.⁴⁷

The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution. In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make

⁴² Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156.

⁴³ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75.

⁴⁴ Sajogo, Kenneth Bradley, Fajar Sugianto, and Atsuko Yamamoto. "Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum." *Jurnal Hukum Bisnis Bonum Commune* (2025): 213-242.

⁴⁵ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75. See too, Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170.

⁴⁶ Sajogo, Kenneth Bradley, Fajar Sugianto, and Atsuko Yamamoto. "Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum." *Jurnal Hukum Bisnis Bonum Commune* (2025): 213-242.

⁴⁷ Mayana, Ranti Fauza, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno. "Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law." In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, pp. 39-43. 2024.

creative modifications, edits, and refinements, the work remains a product of human intellectual expression.⁴⁸

Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic elements, refine the colors, and rearrange the overall design to produce a significantly different visual character.⁴⁹ In such a scenario, AI serves only as a supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders. Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection.⁵⁰ Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process.

Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework. Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder.⁵¹

Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright

⁴⁸ Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156.

⁴⁹ Baklaga, Luka. "The impact of AI on creativity: Enhancing human potential or challenging creative expression." In *Artificial Intelligence and Applications*, vol. 4, no. 2, pp. 235-247. 2026. See too, Haase, Jennifer, and Sebastian Pokutta. "Human-AI cocreativity: Exploring synergies across levels of creative collaboration." In *Generative Artificial Intelligence and Creativity*, pp. 205-221. Academic Press, 2026.

⁵⁰ Sajogo, Kenneth Bradley, Fajar Sugianto, and Atsuko Yamamoto. "Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum." *Jurnal Hukum Bisnis Bonum Commune* (2025): 213-242.

⁵¹ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75. See too, Mayana, Ranti Fauza, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno. "Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law." In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, pp. 39-43. 2024.

over every output generated by their systems, unless there is another legal relationship regulated through an agreement.⁵²

However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI.⁵³ These changes do not necessarily alter the concept of creator, but they do need to provide normative parameters regarding the relationship between human contributions and the use of AI in the creation process.

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between protecting human creativity and the development of artificial intelligence technology.⁵⁴ On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system.⁵⁵ Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works.

4. Conclusion

The development of generative artificial intelligence has fundamentally challenged the conventional concept of authorship and copyright ownership, exposing significant limitations within the Indonesian Copyright Law. This study demonstrates that the existing legal framework remains firmly grounded in the assumption that copyright can only arise from direct human creativity, without providing explicit rules

⁵² Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170.

⁵³ Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390. See too, Hidayat, Agi Attaubah, Amalia Nur Anwari, Ransya Ayu Zulvia, and Muhamad Kholid. "Negotiating Haqq al-Ibtikar and State Patent Law: A Socio-Legal Study of Maslahah and Intellectual Property among Indonesian Muslim SMEs." *DIKTUM: Jurnal Syariah dan Hukum* 24, no. 2 (2026): 138-167.

⁵⁴ Hidayat, Agi Attaubah, Amalia Nur Anwari, Ransya Ayu Zulvia, and Muhamad Kholid. "Negotiating Haqq al-Ibtikar and State Patent Law: A Socio-Legal Study of Maslahah and Intellectual Property among Indonesian Muslim SMEs." *DIKTUM: Jurnal Syariah dan Hukum* 24, no. 2 (2026): 138-167. See too, Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390.

⁵⁵ Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170. See too, Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75.

for determining the ownership of works created with the assistance of AI. As a result, the absence of clear legal standards creates uncertainty regarding the status of AI-generated works, increases the potential for ownership disputes among users, developers, and platform providers, and may impede the sustainable growth of Indonesia's AI-based creative economy.

The findings further indicate that the principal legal issue is not whether AI itself should be recognized as a creator, but rather how copyright ownership should be determined when AI participates in the creative process. In this regard, the study proposes the Human-Centered Copyright Ownership model as a normative framework that preserves the fundamental principle of copyright law while accommodating technological developments. Under this model, AI is positioned solely as a creative tool rather than a legal subject, and copyright protection is granted only where there is a substantial human intellectual contribution that significantly influences the final expression of the work. Conversely, works generated entirely through automated AI processes without meaningful human creativity should remain outside the scope of copyright protection.

Accordingly, legal reform of Law Number 28 of 2014 concerning Copyright is necessary to establish clear legal parameters for assessing substantial human creative contribution in AI-assisted works. Such reform would strengthen legal certainty, reduce ownership disputes, and provide a balanced framework that promotes technological innovation while safeguarding the fundamental objective of copyright law, namely the protection of human creativity. The proposed Human-Centered Copyright Ownership model may serve as a normative reference for legislators, policymakers, courts, and copyright authorities in developing future regulations on AI-generated works. Future research should examine the practical implementation of this model through empirical studies and comparative analysis to evaluate its effectiveness in addressing emerging copyright issues associated with artificial intelligence.

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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP IN AI-GENERATED CREATIONS

Abstract

The rapid development of generative artificial intelligence (AI) has challenged the traditional concept of authorship and copyright ownership by enabling AI systems to produce creative works with varying degrees of human involvement. However, Indonesian Copyright Law (Law Number 28 of 2014) remains grounded in the assumption that copyright arises solely from direct human creativity, creating normative uncertainty regarding AI-generated works. This study aims to analyze the limitations of the current legal framework, identify normative gaps concerning copyright ownership, and formulate a Human-Centered Copyright Ownership model. The research employs normative legal research using statutory, conceptual, comparative, and case approaches. Legal materials were collected through library research and analyzed qualitatively using statutory interpretation, comparative legal analysis, and legal argumentation. The findings reveal that Indonesian copyright law lacks clear standards for determining authorship and ownership of AI-generated works, creating uncertainty for users, developers, and platform providers. To address these issues, this study proposes a Human-Centered Copyright Ownership model, which recognizes copyright only where substantial human creative contribution exists while positioning AI solely as a creative tool. This model provides a normative basis for future copyright law reform, strengthens legal certainty, and promotes innovation without undermining the fundamental principle of protecting human creativity.

Keywords: Artificial Intelligence, Copyright, Copyright Ownership, Legal Reconstruction.

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1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from vast data sets. This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law.¹

The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI. In other words, the creative

¹ Horzyk, Amanda M. "How AI affects our understanding of musical works that should be protected by copyright." In *2023 international joint conference on neural networks (IJCNN)*, pp. 1-8. IEEE, 2023. See too, Kumar, Satish, and Akansha Yadav. "Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan." In *AIP Conference Proceedings*, vol. 3220, no. 1, p. 040009. AIP Publishing LLC, 2024; Stamatoudi, Irene. "Copyright Protection for AI-Generated Works: Is It Something We Want?." *Cyprus Review* 38, no. 1 (2026): 107-125.

process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the creator and copyright holder of the work.²

This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans. Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense.³

The different approaches adopted by various countries indicate that there is still no international consensus regarding the legal status of AI-generated works. The United States consistently upholds the requirement of human authorship, meaning that works created entirely by AI are not eligible for copyright protection.⁴ Similarly, the European Union emphasizes human creativity as an essential element of originality, although discussions on possible legal reforms continue to evolve.⁵ Japan likewise adheres to the principle of human creativity in determining copyright eligibility while gradually seeking to balance the protection of human-created works with the advancement of AI innovation.⁶

These varying approaches suggest that the central issue in copyright law has shifted beyond the question of whether AI-generated works should receive protection to the more complex question of who should legally own the copyright. Several alternatives have been proposed in the literature. Some scholars argue that copyright should belong to AI users because their prompts or instructions initiate the creative

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² Furqan, Tiyyaba, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi. "Global laws governing intellectual property rights for AI-generated works." *Discover Artificial Intelligence* (2026). See too, Stamatoudi, Irene. "Copyright Protection for AI-Generated Works: Is It Something We Want?." *Cyprus Review* 38, no. 1 (2026): 107-125.

³ Moerland, Anke. "Intellectual property law and AI." In *The Cambridge Handbook of Private Law and Artificial Intelligence*, pp. 362-383. Cambridge University Press, 2024. See too, Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156; Ampovska, Marija. "Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright." *Review of European and Comparative Law* 62, no. 3 (2025): 107-131.

⁴ Furqan, Tiyyaba, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi. "Global laws governing intellectual property rights for AI-generated works." *Discover Artificial Intelligence* (2026).

⁵ Kumar, Satish, and Akansha Yadav. "Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan." In *AIP Conference Proceedings*, vol. 3220, no. 1, p. 040009. AIP Publishing LLC, 2024. See too, Ampovska, Marija. "Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright." *Review of European and Comparative Law* 62, no. 3 (2025): 107-131; Le Thi, Minh. "Copyright Protection for Works Created by AI Technology under the EU Law and Vietnamese Law." *Review of European and Comparative Law* 55, no. 4 (2023): 7-28.

⁶ Takeuchi, Seiya S. "Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach." *The Journal of World Intellectual Property* 28, no. 2 (2025): 323-343.

process.⁷ Others contend that ownership should be granted to AI developers or those responsible for creating the technical framework that enables AI to generate works.⁸ Meanwhile, some researchers advocate a joint authorship model involving both humans and AI,⁹ whereas others recommend establishing a *sui generis* legal regime, arguing that the existing copyright framework is insufficient to regulate AI-generated works effectively.¹⁰

Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works.¹¹ Therefore, various studies have begun to emphasize the importance of transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works.¹²

In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship

⁷ Cervera, Axell, Erik Obiol, and José Rolando Cardenas-Gonzales. "Derechos de autor y calidad de las instrucciones en obras generadas por inteligencia artificial." *Nuevo Derecho* 21, no. 37 (2025): 1-27. See too, Gaidartzi, Anthi, and Irini Stamatoudi. "Authorship and ownership issues raised by AI-generated works: a comparative analysis." *Laws* 14, no. 4 (2025): 57.

⁸ Lee, Jyh-An. "Computer-generated Works under the CDPA 1988." *Artificial Intelligence and Intellectual Property* (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65 (2021). See too, Hoshir, Singh, and Sharma Kiran. "Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work." In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, pp. 1-7. IEEE, 2024.

⁹ Sanjaya, Karun, and P. R. L. Rajavenkatesan. "Artificial intelligence and intellectual property rights—A copyright perspective." *Journal of Intellectual Property Rights (JIPR)* 30, no. 1 (2025): 26-34.

¹⁰ Sun, Haochen. "Redesigning copyright protection in the era of artificial intelligence." *Iowa Law Review* 107 (2022): 1213-1251. See too, Gaffar, Hafiz, and Saleh Albarashdi. "Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape." *Asian Journal of International Law* 15, no. 1 (2025): 23-46; Baker, Mohammad Abu. "Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges." In *Conference on Sustainability and Cutting-Edge Business Technologies*, pp. 285-294. Cham: Springer Nature Switzerland, 2025; Massadeh, Firas, Fayeze Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail. "The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright." *Corporate Law & Governance Review* 6, no. 1 (2024).

¹¹ Yas, Nadia, Hani Abdulrahim, Issa Ghassan Rabadi, and Zeana Abdijabar. "Protecting the civil rights of the author from the risks of artificial intelligence." *Research Journal in Advanced Humanities* 6, no. 1 (2025). See too, Ali, Sk M., Anuttama Ghose, Shashikant Saurav, and Sachin Deshmukh. "Creativity and Innovation in the Age of Artificial Intelligence: A Copyright Dilemma." *Padjadjaran Jurnal Ilmu Hukum (Journal of Law)* 11, no. 2 (2024): 6.

¹² Zhao, Sikun. "The Role of Copyright Authentication in AI-Generated Visual Content: Constructing Trust in AIGC Media Environments and the Impact of Copyright Ambiguity on Perceived Authenticity." *Studies in Media and Communication* 14, no. 1 (2026): 336-350.

between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them.¹³

Various previous studies have made important contributions to the development of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and *sui generis* rights.¹⁴ However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of copyright ownership for AI-generated works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the *sui generis* approach, which establishes a new rights regime outside the copyright framework, the model proposed in this study maintains the fundamental principle that copyright is a right derived from human creativity. AI is positioned solely as a creative tool, while copyright ownership is determined based on substantial human creative contributions throughout the creation process. Accordingly, the main objective of this study is to analyze the limitations of the current Indonesian Copyright Law in regulating AI-generated works, identify the normative gaps concerning copyright ownership, and formulate a Human-Centered Copyright Ownership model as a legal reconstruction capable of accommodating technological developments while preserving the principle of human authorship.

¹³ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75. See too, Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170.

¹⁴ Sun, Haochen. "Redesigning copyright protection in the era of artificial intelligence." *Iowa Law Review* 107 (2022): 1213-1251. See too, Kumar, Satish, and Akansha Yadav. "Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan." In *AIP Conference Proceedings*, vol. 3220, no. 1, p. 040009. AIP Publishing LLC, 2024; Ampovska, Marija. "Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright." *Review of European and Comparative Law* 62, no. 3 (2025): 107-131; Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170; Baker, Mohammad Abu. "Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges." In *Conference on Sustainability and Cutting-Edge Business Technologies*, pp. 285-294. Cham: Springer Nature Switzerland, 2025; Sanjaya, Karun, and P. R. L. Rajavenkatesan. "Artificial intelligence and intellectual property rights—A copyright perspective." *Journal of Intellectual Property Rights (JIIPR)* 30, no. 1 (2025): 26-34.

To achieve this objective, this study addresses the following research questions:

1. How does the existing concept of "creator" under Indonesian Copyright Law limit the recognition and protection of AI-assisted works?
2. What normative gaps exist in Indonesian Copyright Law regarding the ownership of AI-generated works, and what legal consequences do these gaps create?
3. How should the copyright ownership model for AI-generated works be reconstructed to ensure legal certainty while maintaining the principle of human authorship?

2. Research Methods

This study employs normative legal research (doctrinal legal research) to examine the adequacy of Indonesian copyright law in regulating AI-generated works and to formulate a legal reconstruction of copyright ownership based on the principle of human authorship. This method is appropriate because the research focuses on identifying normative gaps, conceptual inconsistencies, and the need for legal reform within the Indonesian copyright system.

The research applies four complementary approaches: (1) a statutory approach, to examine the provisions of Law Number 28 of 2014 concerning Copyright together with relevant international legal instruments, including the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement); (2) a conceptual approach, to analyze legal doctrines relating to authorship, originality, moral rights, economic rights, and copyright ownership in the context of artificial intelligence; (3) a comparative approach, to compare the regulation of AI-generated works in the United States, the United Kingdom, the European Union, Japan, Singapore, and China in order to identify best practices that may be adapted to the Indonesian legal system; and (4) a case approach, through the examination of court decisions, administrative policies, and official documents concerning copyright protection for AI-generated works in various jurisdictions.

The legal materials used in this research consist of primary legal materials, including Law Number 28 of 2014 concerning Copyright, the Berne Convention, the TRIPS Agreement, relevant legislation from the selected jurisdictions, and judicial decisions concerning AI-generated works. Secondary legal materials comprise books, peer-reviewed journal articles, legal commentaries, and scholarly publications discussing copyright law, artificial intelligence, and intellectual property rights, while tertiary legal materials include legal dictionaries, encyclopedias, and other reference sources that support legal interpretation.

Legal materials were collected through library research by systematically reviewing legislation, international legal instruments, judicial decisions, and academic literature relevant to copyright ownership of AI-generated works. The collected materials were then analyzed using qualitative normative analysis, involving statutory interpretation, conceptual analysis, comparative legal analysis, and legal argumentation. The analysis was conducted by identifying inconsistencies and normative gaps within the existing legal framework, comparing them with approaches adopted in other jurisdictions, and synthesizing the findings to formulate a Human-

Centered Copyright Ownership model as a proposed reconstruction of Indonesian copyright law.

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3. Results and Discussion

3.1. Limitations of the Existing Creator Concept under Indonesian Copyright Law in Recognizing and Protecting AI-Assisted Works

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms.¹⁵

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This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression.¹⁶ This protection not only has an economic dimension, namely the right to obtain commercial benefits from the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility.¹⁷

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Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system.¹⁸

This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law.¹⁹

¹⁵ Adams, Zoe, and Henning Grosse Ruse-Khan. "Work and works on digital platforms in capitalism: conceptual and regulatory challenges for labour and copyright law." *International Journal of Law and Information Technology* 28, no. 4 (2020): 329-370. See too, Gaffar, Hafiz, and Saleh Albarashdi. "Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape." *Asian Journal of International Law* 15, no. 1 (2025): 23-46.

¹⁶ Bartholomew, Mark. "Copyright and the creative process." *Notre Dame Law Review* 97, no. 1 (2021): 357.

¹⁷ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75. See too, Andrini, Laurensia. "Redesigning Indonesia Copyright Act to Accommodate Autonomous Intelligent System: Status Quo and Room for Improvement." *Asian Journal of Law and Economics* 9, no. 3 (2018): 20180013.

¹⁸ Sajogo, Kenneth Bradley, Fajar Sugianto, and Atsuko Yamamoto. "Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum." *Jurnal Hukum Bisnis Bonum Commune* (2025): 213-242. See too, Ranade, Nupoor, Marly Saravia, and Aditya Johri. "Using rhetorical strategies to design prompts: A human-in-the-loop approach to make AI useful." *AI & SOCIETY* 40, no. 2 (2025): 711-732.

¹⁹ Eshraghian, Jason K. "Human ownership of artificial creativity." *Nature Machine Intelligence* 2, no. 3 (2020): 157-160. See too, Li, Wei, Ruiming Song, Bing Zhang, and Kunpeng Yu. "AI creativity and legal

Conversely, recognizing AI as a creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal interests that would form the basis for recognizing moral and economic rights in the copyright regime.²⁰

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In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability.²¹ Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions.²²

This ambiguity becomes even more pronounced due to the varying degrees of human involvement in the use of AI. On the one hand, AI may serve merely as a supporting tool, such as for correcting grammar, improving image quality, or assisting in the editing process. Under these circumstances, human creative input remains the dominant element, thereby preserving the user's status as the creator. On the other hand, certain works are generated through processes in which AI performs nearly the entire creative function with only minimal human participation. In these cases, it becomes difficult to determine whether the AI user should be regarded as the creator or simply as an operator of the technology.²³

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The uncertainty surrounding the concept of authorship becomes even more evident when AI-assisted creativity is viewed as a continuum rather than a binary distinction between human-generated and AI-generated works. In practice, creative processes involve different levels of human intervention, ranging from AI functioning merely as a technical assistant to situations where it autonomously generates almost the entire expressive content.²⁴ Between these two extremes lies a broad spectrum of

protection for AI-generated works in posthuman societal scenarios." *Sustainable Futures* 9 (2025): 100749.

²⁰ Andriani, Laurensia. "Redesigning Indonesia Copyright Act to Accommodate Autonomous Intelligent System: Status Quo and Room for Improvement." *Asian Journal of Law and Economics* 9, no. 3 (2018): 20180013. See too, Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75.

²¹ Abrams, Howard B. "Originality and creativity in copyright law." *Law and Contemporary Problems* 55, no. 2 (1992): 3-44.

²² Sajogo, Kenneth Bradley, Fajar Sugianto, and Atsuko Yamamoto. "Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum." *Jurnal Hukum Bisnis Bonum Commune* (2025): 213-242.

²³ Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170. See too, Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156.

²⁴ De Cock Buning, Madeleine. "Artificial intelligence and the creative industry: new challenges for the EU paradigm for art and technology by autonomous creation." In *Research handbook on the law of artificial intelligence*, pp. 511-535. Edward Elgar Publishing, 2018. See too, Rafner, Janet, Blanka Zana, Ida Bang Hansen, Simon Ceh, Jacob Sherson, Mathias Benedek, and Izabela Lebeda. "Agency in Human-AI Collaboration for Image Generation and Creative Writing: Preliminary Insights from Think-Aloud Protocols." *Creativity Research Journal* (2025): 1-24.

collaborative interactions in which human users formulate prompts, evaluate alternative outputs, revise compositions, combine multiple AI-generated results, and incorporate their own creative judgment into the final work. This demonstrates that authorship can no longer be assessed solely by identifying whether AI was used, but rather by evaluating the quality, intensity, and significance of human intellectual involvement throughout the creative process.²⁵

Consequently, the absence of statutory criteria distinguishing substantial creative contribution from mere operational use creates considerable legal uncertainty for creators, copyright examiners, and courts when determining whether an AI-assisted work satisfies the human authorship requirement under Indonesian copyright law. Similar concerns have also been emphasized in comparative legal scholarship, which argues that the central issue is not the existence of AI itself but the inability of existing copyright doctrines to establish objective standards for measuring human creativity in AI-assisted works.

The absence of legal provisions establishing the required level of human contribution demonstrates that the Indonesian Copyright Law does not provide clear criteria for determining the legal status of AI-assisted works. Existing provisions concerning authorship continue to assume that the creative process is conducted directly by human beings. Consequently, the current legal framework is incapable of addressing emerging issues, including the identification of the rightful copyright owner of AI-generated works, the threshold at which the use of AI can still be regarded as a manifestation of human creativity, and the circumstances under which a work should be considered an automated output that falls outside the scope of copyright protection.²⁶

Accordingly, the concept of authorship under Indonesian copyright law requires refinement to ensure legal certainty while preserving the fundamental principle that copyright exists to protect human creativity. Such refinement should not be interpreted as recognizing AI as a legal creator; rather, it should establish clear standards regarding the extent of human intellectual contribution necessary for AI-assisted works to qualify for copyright protection. By adopting this approach, copyright law can effectively respond to technological advancements while continuing to uphold human creativity as the essential foundation of copyright protection.²⁷

²⁵ Bonadio, Enrico, and Luke McDonagh. "Artificial intelligence as producer and consumer of copyright works: evaluating the consequences of algorithmic creativity." *Intellectual Property Quarterly* 2020, no. 2 (2020): 112-137. See too, Hajibayova, Lala, and Seungmin Lee. "Authorship in the age of artificial intelligence." *Journal of Documentation* 81, no. 5-6 (2025): 1401-1414.

²⁶ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75. See too, Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156.

²⁷ Rahman, Rofi Aulia, Akhmad Al-Farouqi, and Shu Mei Tang. "Should Indonesian Copyright Law be Amended Due to Artificial Intelligence Development?: Lesson Learned from Japan." *NTUT Journal of Intellectual Property Law and Management* 9, no. 1 (2020): 34-57. See too, Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390.

3.2. Normative Gaps in Indonesian Copyright Law Regarding the Ownership of AI-Generated Works and Their Legal Consequences

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process. A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work. This complexity raises fundamental questions regarding who is legally entitled to be recognized as the copyright holder.²⁸

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The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of copyright protection.²⁹ However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright.³⁰

The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process.³¹

²⁸ Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170. See too, Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390.

²⁹ Ranade, Nupoor, Marly Saravia, and Aditya Johri. "Using rhetorical strategies to design prompts: A human-in-the-loop approach to make AI useful." *AI & SOCIETY* 40, no. 2 (2025): 711-732. See too, Korzynski, Pawel, Grzegorz Mazurek, Pamela Krzypkowska, and Artur Kurasinski. "Artificial intelligence prompt engineering as a new digital competence: Analysis of generative AI technologies such as ChatGPT." *Entrepreneurial Business and Economics Review* 11, no. 3 (2023): 25-37.

³⁰ Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156.

³¹ Mazzi, Francesca. "Authorship in artificial intelligence-generated works: Exploring originality in text prompts and artificial intelligence outputs through philosophical foundations of copyright and collage protection." *The Journal of World Intellectual Property* 27, no. 3 (2024): 410-427. See too, Sun, Haochen. "Redesigning copyright protection in the era of artificial intelligence." *Iowa Law Review* 107 (2022): 1213-1251.

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI.³² Some platforms grant users usage rights, while others retain certain rights to the output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law.³³

On the other hand, some argue that works generated entirely by AI should not receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works.³⁴

The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case.³⁵

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified.³⁶ Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When

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³² Lagioia, Francesca, Agnieszka Agata Jablonowska, Rūta Liepiņa, and Kasper Drazewski. "AI in search of unfairness in consumer contracts: the terms of service landscape." *Journal of Consumer Policy* 45 (2022): 481-536. See too, Quintais, João Pedro, Giovanni De Gregorio, and João C. Magalhães. "How platforms govern users' copyright-protected content: Exploring the power of private ordering and its implications." *Computer Law & Security Review* 48 (2023): 105792.

³³ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75.

³⁴ Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170. See too, Bonadio, Enrico, Nicola Lucchi, and Giuseppe Mazziotti. "Will technology-aided creativity force us to rethink copyright's fundamentals? Highlights from the platform economy and artificial intelligence." *IIC-International Review of Intellectual Property and Competition Law* 53, no. 8 (2022): 1174-1200.

³⁵ Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390.

³⁶ Kwall, Roberta Rosenthal. "Author-stories: narrative's implications for moral rights and copyright's joint authorship doctrine." *Southern California Law Review* 75, no. 1 (2001).

the identity of the copyright holder cannot be determined, the exercise of both types of rights becomes ineffective and has the potential to create uncertainty in commercial transactions.³⁷

Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no guarantee that the rights to the work truly belong to the party transferring it.³⁸ This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy.³⁹

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions.⁴⁰

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3.3. Reconstructing the Copyright Ownership Model for Artificial Intelligence Works

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection.⁴¹ As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters regarding copyright ownership for works produced through AI.⁴² This lack of legal framework creates legal uncertainty because the current concept of creator is still

³⁷ Mayana, Ranti Fauza, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno. "Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law." In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, pp. 39-43. 2024.

³⁸ Brown, Rafael Dean. "Property ownership and the legal personhood of artificial intelligence." *Information & Communications Technology Law* 30, no. 2 (2021): 208-234.

³⁹ Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390.

⁴⁰ Hidayat, Agi Attaubah, Amalia Nur Anwari, Ransya Ayu Zulvia, and Muhamad Kholid. "Negotiating Haqq al-Ibtikar and State Patent Law: A Socio-Legal Study of Masalahah and Intellectual Property among Indonesian Muslim SMEs." *DIKTUM: Jurnal Syariah dan Hukum* 24, no. 2 (2026): 138-167.

⁴¹ Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170.

⁴² Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156.

based on the assumption that the entire creative process is carried out directly by humans.⁴³

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection.⁴⁴ In this situation, humans merely act as the system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established. In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law.⁴⁵

This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression. Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would be granted to the results of computational processes, not to human creativity.⁴⁶ Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities.⁴⁷

The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution. In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make creative modifications, edits, and refinements, the work remains a product of human intellectual expression.⁴⁸

Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic

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⁴³ Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75.

⁴⁴ Sajogo, Kenneth Bradley, Fajar Sugianto, and Atsuko Yamamoto. "Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum." *Jurnal Hukum Bisnis Bonum Commune* (2025): 213-242.

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⁴⁷ Mayana, Ranti Fauza, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno. "Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law." In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, pp. 39-43. 2024.

⁴⁸ Subagiyo, Dwi Tatak, and Hari Wibisono. "The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement." *Indonesia Private Law Review* 5, no. 2 (2024): 135-156.

elements, refine the colors, and rearrange the overall design to produce a significantly different visual character.⁴⁹ In such a scenario, AI serves only as a supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders. Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection.⁵⁰ Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process.

Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework. Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder.⁵¹

Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright over every output generated by their systems, unless there is another legal relationship regulated through an agreement.⁵²

However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI.⁵³ These changes do not necessarily

⁴⁹ Baklaga, Luka. "The impact of AI on creativity: Enhancing human potential or challenging creative expression." In *Artificial Intelligence and Applications*, vol. 4, no. 2, pp. 235-247. 2026. See too, Haase, Jennifer, and Sebastian Pokutta. "Human-AI cocreativity: Exploring synergies across levels of creative collaboration." In *Generative Artificial Intelligence and Creativity*, pp. 205-221. Academic Press, 2026.

⁵⁰ Sajogo, Kenneth Bradley, Fajar Sugianto, and Atsuko Yamamoto. "Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum." *Jurnal Hukum Bisnis Bonum Commune* (2025): 213-242.

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⁵³ Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390. See too, Hidayat, Agi Attaubah, Amalia Nur Anwari, Ransya Ayu Zulvia, and Muhamad Kholid. "Negotiating Haqq al-Ibtikar and State Patent Law: A Socio-Legal Study of Masalahah and Intellectual Property among Indonesian Muslim SMEs." *DIKTUM: Jurnal Syariah dan Hukum* 24, no. 2 (2026): 138-167.

alter the concept of creator, but they do need to provide normative parameters regarding the relationship between human contributions and the use of AI in the creation process.

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between protecting human creativity and the development of artificial intelligence technology.⁵⁴ On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system.⁵⁵ Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works.

4. Conclusion

The development of generative artificial intelligence has fundamentally challenged the conventional concept of authorship and copyright ownership, exposing significant limitations within the Indonesian Copyright Law. This study demonstrates that the existing legal framework remains firmly grounded in the assumption that copyright can only arise from direct human creativity, without providing explicit rules for determining the ownership of works created with the assistance of AI. As a result, the absence of clear legal standards creates uncertainty regarding the status of AI-generated works, increases the potential for ownership disputes among users, developers, and platform providers, and may impede the sustainable growth of Indonesia's AI-based creative economy.

The findings further indicate that the principal legal issue is not whether AI itself should be recognized as a creator, but rather how copyright ownership should be determined when AI participates in the creative process. In this regard, the study proposes the Human-Centered Copyright Ownership model as a normative framework that preserves the fundamental principle of copyright law while accommodating technological developments. Under this model, AI is positioned solely as a creative tool rather than a legal subject, and copyright protection is granted only where there is a substantial human intellectual contribution that significantly influences the final expression of the work. Conversely, works generated entirely through automated AI processes without meaningful human creativity should remain outside the scope of copyright protection.

⁵⁴ Hidayat, Agi Attaubah, Amalia Nur Anwari, Ransya Ayu Zulvia, and Muhamad Kholid. "Negotiating Haqq al-Ibtikar and State Patent Law: A Socio-Legal Study of Masalahah and Intellectual Property among Indonesian Muslim SMEs." *DIKTUM: Jurnal Syariah dan Hukum* 24, no. 2 (2026): 138-167. See too, Maddusila, Sitti Fatimah, Agus Lanini, and Andi Intan Purnamasari. "AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence." *Hasanuddin Law Review* (2025): 366-390.

⁵⁵ Praja, Chrisna Bagus Edhita, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares. "Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review." *Jurnal Media Hukum* 32, no. 1 (2025): 151-170. See too, Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli. "Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law." *Law Reform* 20, no. 1 (2024): 54-75.

Accordingly, legal reform of Law Number 28 of 2014 concerning Copyright is necessary to establish clear legal parameters for assessing substantial human creative contribution in AI-assisted works. Such reform would strengthen legal certainty, reduce ownership disputes, and provide a balanced framework that promotes technological innovation while safeguarding the fundamental objective of copyright law, namely the protection of human creativity. The proposed Human-Centered Copyright Ownership model may serve as a normative reference for legislators, policymakers, courts, and copyright authorities in developing future regulations on AI-generated works. Future research should examine the practical implementation of this model through empirical studies and comparative analysis to evaluate its effectiveness in addressing emerging copyright issues associated with artificial intelligence.

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#53948 Review

SUMMARY REVIEW EDITING

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LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP FOR AI-GENERATED CREATIONS UNDER INDONESIAN COPYRIGHT LAW

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ABSTRACT

The rapid development of generative artificial intelligence (AI) challenges the traditional concept of authorship and copyright ownership by enabling AI systems to produce creative works with varying degrees of human involvement. However, Indonesian Copyright Law (Law Number 28 of 2014) remains grounded in the assumption that copyright arises solely from direct human creativity, creating normative uncertainty regarding AI-generated works. This study analyzes limitations of the current legal framework, identifies normative gaps in copyright ownership, and formulates a Human-Centered Copyright Ownership model. It employs normative legal research using statutory, conceptual, comparative, and case approaches. The analysis examines primary legal materials, including Law Number 28 of 2014, the Berne Convention, the TRIPS Agreement, relevant foreign copyright legislation, and judicial decisions, supported by scholarly books and peer-reviewed journal articles. The findings reveal that Indonesian copyright law lacks clear standards for determining authorship and ownership of AI-generated works, creating uncertainty for users, developers, and platform providers. This study proposes a Human-Centered Copyright Ownership model that recognizes copyright only where substantial human creative contribution exists while positioning AI as a creative tool. The proposed model provides a normative basis for copyright law reform, strengthens legal certainty, and promotes innovation while preserving protection for human creativity.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has brought about fundamental changes in the way humans produce intellectual works. Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, graphic designs, and even computer programs through machine learning and large language models, enabling the system to learn patterns from

vast data sets.¹ This capability transforms AI into a technology that plays an active role in the creative process. This shift has impacted nearly every sector of the creative industry, from publishing and design to film and music to software development, raising new challenges to fundamental concepts in copyright law.²

The emergence of generative AI challenges this assumption. In practice, users often provide only brief instructions (prompts) to AI systems, while the entire structure, composition, style, and even the final expression of the work are generated through computational processes carried out by AI.³ In other words, the creative process previously performed by humans can now be partially or even entirely performed by artificial intelligence systems. This condition raises fundamental questions about whether works produced by AI can still be considered as the result of human creativity and, if the answer is affirmative, who should be recognized as the creator and copyright holder of the work.⁴

This issue is further complicated by the fact that AI is not a legal subject. AI lacks legal personality, will, consciousness, or the capacity to assume rights and obligations similar to humans.⁵ Consequently, the concept of authorship, which has long been the foundation of copyright law, cannot be directly applied to AI. Most legal systems continue to reject recognition of AI as an author, as authorship is viewed as inherently human. Thus, works produced by AI present a gap in the construction of modern copyright law, where a work possesses economic and creative value but cannot be clearly attributed to a creator in the legal sense.⁶

¹ Stefan Feuerriegel, Jochen Hartmann, Christian Janiesch, and Patrick Zschech., *Generative AI, Business & Information Systems Engineering*, Vol.66, no.1, 2024, page.119. See too, Justin D. Weisz, Jessica He, Michael Muller, Gabriela Hoefer, Rachel Miles, and Werner Geyer., *Design principles for generative AI applications*, In *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems*, 2024, page.13.

² Amanda M. Horzyk., *How AI affects our understanding of musical works that should be protected by copyright*, In *2023 International Joint Conference on Neural Networks (IJCNN)*, Piscataway, IEEE, 2023, page.5. See too, Satish Kumar, and Akansha Yadav., *Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European Union, the United States, and Japan*, In *AIP Conference Proceedings*, vol.3220, Melville, AIP Publishing LLC, 2024, page.040009; Irene Stamatoudi., *Copyright Protection for AI-Generated Works: Is It Something We Want?*, *Cyprus Review*, Vol.38, no.1, 2026, page.116.

³ Robert Clarisó, and Jordi Cabot., *Model-driven prompt engineering*, In *2023 ACM/IEEE 26th International Conference on Model Driven Engineering Languages and Systems (MODELS)*, Piscataway, IEEE, 2023, page.51.

⁴ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., *Global laws governing intellectual property rights for AI-generated works*, *Discover Artificial Intelligence*, Vol.6, no.1, 2026, page.449. See too, Irene Stamatoudi., *Copyright Protection for AI-Generated Works: Is It Something We Want?*, *Cyprus Review*, Vol.38, no.1, 2026, page.117.

⁵ Simon Chesterman., *Artificial intelligence and the limits of legal personality*, *International & Comparative Law Quarterly*, Vol.69, no.4, 2020, page.822. See too, Bernard Nainggolan, Agus Joko Pramono, and Stefan Koos., *Legal Protection of Intellectual Property for Digital Works by Utilizing Emerging Technologies*, *Jurnal Hukum UNISSULA*, Vol.41, no.4, 2025, page.913.

⁶ Anke Moerland., *Intellectual Property Law and AI*, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge, Cambridge University Press, 2024, page.375. See too, Dwi

The different approaches adopted by various countries indicate that there is still no international consensus regarding the legal status of AI-generated works. The United States consistently upholds the requirement of human authorship, meaning that works created entirely by AI are not eligible for copyright protection.⁷ Similarly, the European Union emphasizes human creativity as an essential element of originality, although discussions on possible legal reforms continue to evolve.⁸ Japan likewise adheres to the principle of human creativity in determining copyright eligibility while gradually seeking to balance the protection of human-created works with the advancement of AI innovation.⁹

These varying approaches suggest that the central issue in copyright law has shifted beyond the question of whether AI-generated works should receive protection to the more complex question of who should legally own the copyright. Several alternatives have been proposed in the literature. Some scholars argue that copyright should belong to AI users because their prompts or instructions initiate the creative process.¹⁰ Others contend that ownership should be granted to AI developers or those responsible for creating the technical framework that enables AI to generate works.¹¹ Meanwhile, some researchers advocate a joint authorship model involving both humans and AI,¹² whereas others recommend establishing a *sui generis* legal regime, arguing that the existing copyright

Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.145; Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.120.

⁷ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.6, no.1, 2026, page.448.

⁸ Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European Union, the United States, and Japan, In *AIP Conference Proceedings*, vol.3220, Melville, AIP Publishing LLC, 2024, page.040010. See too, Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.121; Minh Le Thi., Copyright Protection for Works Created by AI Technology under the EU Law and Vietnamese Law, *Review of European and Comparative Law*, Vol.55, no.4, 2023, page.23.

⁹ Seiya S. Takeuchi., Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.334.

¹⁰ Axell Cervera, Erik Obiol, and José Rolando Cardenas-Gonzales., Derechos de autor y calidad de las instrucciones en obras generadas por inteligencia artificial, *Nuevo Derecho*, Vol.21, no.37, 2025, page.19. See too, Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.57.

¹¹ Jyh-An Lee., Computer-generated Works under the CDP 1988, In *Artificial Intelligence and Intellectual Property*, Oxford, Oxford University Press, 2021, page.77. See too, Singh Hoshiar, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work, In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, Piscataway, IEEE, 2024, page.4.

¹² Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights—A copyright perspective, *Journal of Intellectual Property Rights (JIPR)*, Vol.30, no.1, 2025, page.31.

framework is insufficient to regulate AI-generated works effectively.¹³

Beyond ownership issues, the development of AI also raises increasingly complex economic and ethical implications. AI's ability to produce large volumes of work at relatively low cost increases the efficiency of the creative industry, but at the same time raises concerns about the diminishing economic value of human creativity. If all AI works were protected by copyright, companies that master AI technology could potentially monopolize the production of creative works and weaken the position of human creators. Conversely, if all AI works were placed in the public domain, users and industry players would lose legal certainty in commercializing AI-generated works.¹⁴ Therefore, various studies have begun to emphasize the importance of transparency, accountability, the use of digital watermarking, and metadata to ensure the clarity of the origin of AI works.¹⁵

In the Indonesian context, this challenge becomes even more significant because Law Number 28 of 2014 concerning Copyright is still entirely built on the paradigm of the creator as a human being. The definition of creator, the concept of originality, moral rights, and economic rights are all assumed to arise from human creativity. There are no explicit provisions governing the legal status of works produced by AI, who holds the copyright to such works, or the legal relationship between AI users, AI developers, and AI platform providers. Consequently, when disputes regarding AI works arise in Indonesia, positive law does not provide an adequate normative basis for resolving them.¹⁶

Various previous studies have made important contributions to the development

¹³ Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, no.2, 2022, page.1238. See too, Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.32; Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.289; Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection of Artificial Intelligence-Generated Work: The Argument for *Sui Generis* over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.339.

¹⁴ Nadia Yas, Hani Abdulrahim, Issa Ghassan Rabadi, and Zeana Abdijabar., Protecting the civil rights of the author from the risks of artificial intelligence, *Research Journal in Advanced Humanities*, Vol.6, no.1, 2025, page.671. See too, Sk M. Ali, Anuttama Ghose, Shashikant Saurav, and Sachin Deshmukh., Creativity and Innovation in the Age of Artificial Intelligence: A Copyright Dilemma, *Padjadjaran Jurnal Ilmu Hukum (Journal of Law)*, Vol.11, no.2, 2024, page.6.

¹⁵ Sikun Zhao., The Role of Copyright Authentication in AI-Generated Visual Content: Constructing Trust in AIGC Media Environments and the Impact of Copyright Ambiguity on Perceived Authenticity, *Studies in Media and Communication*, Vol.14, no.1, 2026, page.340.

¹⁶ Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.61. See too, Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.166.

of AI and copyright studies. Most research focuses on the copyrightability of AI works, human authorship requirements, the principle of originality, copyright infringement in AI training processes, comparative analysis between countries, and proposals for the establishment of new legal regimes such as joint authorship, work-made-for-hire, and *sui generis* rights.¹⁷ However, these studies still leave fundamental issues unaddressed in the Indonesian context. No research has specifically reconstructed the concept of copyright ownership for AI works based on the Indonesian legal framework, placing substantial human creative contributions as the primary parameter in determining the status of creators and copyright holders. In other words, previous research has primarily debated whether AI works can be protected, but has not comprehensively addressed how a copyright ownership model maintains the principle of human authorship while simultaneously accommodating the use of AI as a creative instrument.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model as a legal reconstruction of copyright ownership for AI-generated works within the Indonesian copyright system. Unlike the joint authorship approach, which positions AI as part of the authorship process, and the *sui generis* approach, which establishes a new rights regime outside the copyright framework, the model proposed in this study maintains the fundamental principle that copyright is a right derived from human creativity. AI is positioned solely as a creative tool, while copyright ownership is determined based on substantial human creative contributions throughout the creation process. Accordingly, the main objective of this study is to analyze the limitations of the current Indonesian Copyright Law in regulating AI-generated works, identify the normative gaps concerning copyright ownership, and formulate a Human-Centered Copyright Ownership model as a legal reconstruction capable of accommodating technological developments while preserving the principle of human authorship.

To achieve this objective, this study addresses the following research questions:

1. How does the existing concept of “creator” under Indonesian Copyright Law limit the recognition and protection of AI-assisted works?
2. What normative gaps exist in Indonesian Copyright Law regarding the ownership of AI-generated works, and what legal consequences do these

¹⁷ Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, no.2, 2022, page.1239. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European Union, the United States, and Japan, In *AIP Conference Proceedings*, vol.3220, Melville, AIP Publishing LLC, 2024, page.040011; Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.119; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.167; Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.288; Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights—A copyright perspective, *Journal of Intellectual Property Rights (JIPR)*, Vol.30, no.1, 2025, page.33.

gaps create?

3. How should the copyright ownership model for AI-generated works be reconstructed to ensure legal certainty while maintaining the principle of human authorship?

2. Research Methods

This study employs normative legal research (doctrinal legal research) to examine the adequacy of Indonesian copyright law in regulating AI-generated works and to formulate a legal reconstruction of copyright ownership based on the principle of human authorship. This method is appropriate because the research focuses on identifying normative gaps, conceptual inconsistencies, and the need for legal reform within the Indonesian copyright system.

The research applies four complementary approaches: (1) a statutory approach, to examine the provisions of Law Number 28 of 2014 concerning Copyright together with relevant international legal instruments, including the Berne Convention for the Protection of Literary and Artistic Works and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement); (2) a conceptual approach, to analyze legal doctrines relating to authorship, originality, moral rights, economic rights, and copyright ownership in the context of artificial intelligence; (3) a comparative approach, to compare the regulation of AI-generated works in the United States, the United Kingdom, the European Union, Japan, Singapore, and China in order to identify best practices that may be adapted to the Indonesian legal system; and (4) a case approach, through the examination of court decisions, administrative policies, and official documents concerning copyright protection for AI-generated works in various jurisdictions.

The legal materials used in this research consist of primary legal materials, including Law Number 28 of 2014 concerning Copyright, the Berne Convention, the TRIPS Agreement, relevant legislation from the selected jurisdictions, and judicial decisions concerning AI-generated works. Secondary legal materials comprise books, peer-reviewed journal articles, legal commentaries, and scholarly publications discussing copyright law, artificial intelligence, and intellectual property rights, while tertiary legal materials include legal dictionaries, encyclopedias, and other reference sources that support legal interpretation. Legal materials were collected through library research by systematically reviewing legislation, international legal instruments, judicial decisions, and academic literature relevant to copyright ownership of AI-generated works. The collected materials were then analyzed using qualitative normative analysis, involving statutory interpretation, conceptual analysis, comparative legal analysis, and legal argumentation. The analysis was conducted by identifying inconsistencies and normative gaps within the existing legal framework, comparing them with approaches adopted in other jurisdictions, and synthesizing the findings to formulate a Human-Centered Copyright Ownership model as a proposed reconstruction of Indonesian copyright law.

3. Results and Discussion

3.1. Limitations of the Existing Creator Concept under Indonesian Copyright Law in Recognizing and Protecting AI-Assisted Works

The concept of creator is the primary foundation of the copyright protection system because it determines who is entitled to recognition, moral rights, and economic rights over a work. In the modern copyright regime, legal protection is granted not only to the final work, but also to the legal relationship between the work and its creator. Therefore, identifying who can be categorized as a creator is a crucial aspect in determining the validity of all copyright protection mechanisms.¹⁸ This concept aligns with the basic philosophy of copyright developed in various legal systems. Copyright is fundamentally intended to reward human creativity by granting exclusive rights to the results of intellectual expression.¹⁹ This protection not only has an economic dimension, namely the right to obtain commercial benefits from the creation, but also has a moral dimension inherent in the creator, such as the right to be named and the right to maintain the integrity of the creation. Both types of rights can conceptually only be attributed to humans as legal subjects with will, consciousness, and legal responsibility.²⁰

Problems arise when the creation process involves artificial intelligence (AI), particularly generative AI, which can independently generate text, images, music, videos, and computer programs based on machine learning algorithms. Unlike conventional software that simply executes user instructions mechanically, generative AI is capable of generating a variety of new forms of expression through the analysis of vast amounts of training data. In practice, users often provide only brief commands (prompts), while the overall structure, composition, and final form of the work are generated by the AI system.²¹ This shift in the pattern of creation raises fundamental issues with the concept of creator in the Copyright Law. If a work is produced almost entirely by AI, it is difficult to assert that the work is the result of human creativity, as required by law.²² Conversely, recognizing AI as a

¹⁸ Zoe Adams, and Henning Grosse Ruse-Khan., Work and works on digital platforms in capitalism: conceptual and regulatory challenges for labour and copyright law, *International Journal of Law and Information Technology*, Vol.28, no.4, 2020, page.349. See too, Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.33.

¹⁹ Mark Bartholomew., Copyright and the creative process, *Notre Dame Law Review*, Vol.97, no.1, 2021, page.357.

²⁰ Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.59. See too, Laurensia Andriani., Redesigning Indonesia Copyright Act to Accommodate Autonomous Intelligent System: Status Quo and Room for Improvement, *Asian Journal of Law and Economics*, Vol.9, no.3, 2018, page.20180013.

²¹ Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, Vol.8, no.2, 2025, page.228. See too, Nupoor Ranade, Marly Saravia, and Aditya Johri., Using rhetorical strategies to design prompts: A human-in-the-loop approach to make AI useful, *AI & Society*, Vol.40, no.2, 2025, page.725.

²² Jason K. Eshraghian., Human ownership of artificial creativity, *Nature Machine Intelligence*, Vol.2, no.3, 2020, page.159. See too, Wei Li, Ruiming Song, Bing Zhang, and Kunpeng Yu., AI creativity

creator also contradicts the construction of Indonesian copyright law, as AI is not a legal subject capable of rights or obligations. AI lacks legal personality, consciousness, or legal interests that would form the basis for recognizing moral and economic rights in the copyright regime.²³

In addition to the issue of creator status, the concept of originality also faces new challenges. In copyright doctrine, originality is not defined as absolute novelty, as recognized in patent law, but rather as the result of intellectual expression derived from the creator's own creative ability.²⁴ Originality is thus always associated with the intellectual contribution of humans to the creation process of a work. However, in works produced by AI, this contribution is often obscured because AI constructs the final product through computational processes based on patterns learned from training data. This situation raises the question of whether AI-generated works can still be considered original if human creativity is limited to providing initial instructions.²⁵

This ambiguity becomes even more pronounced due to the varying degrees of human involvement in the use of AI. On the one hand, AI may serve merely as a supporting tool, such as for correcting grammar, improving image quality, or assisting in the editing process. Under these circumstances, human creative input remains the dominant element, thereby preserving the user's status as the creator.²⁶ On the other hand, certain works are generated through processes in which AI performs nearly the entire creative function with only minimal human participation. In these cases, it becomes difficult to determine whether the AI user should be regarded as the creator or simply as an operator of the technology.²⁷

The uncertainty surrounding the concept of authorship becomes even more evident when AI-assisted creativity is viewed as a continuum rather than a binary

and legal protection for AI-generated works in posthuman societal scenarios, *Sustainable Futures*, Vol.9, no.3, 2025, page.100749.

²³ Laurensia Andriani., Redesigning Indonesia Copyright Act to Accommodate Autonomous Intelligent System: Status Quo and Room for Improvement, *Asian Journal of Law and Economics*, Vol.9, no.3, 2018, page.20180014. See too, Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.62.

²⁴ Howard B. Abrams., Originality and creativity in copyright law, *Law and Contemporary Problems*, Vol.55, no.2, 1992, page.26.

²⁵ Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, Vol.8, no.2, 2025, page.227.

²⁶ Nantheera Anantrasirichai, and David Bull., Artificial intelligence in the creative industries: a review, *Artificial Intelligence Review*, Vol.55, no.1, 2022, page.597.

²⁷ Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.164. See too, Dwi Tata Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.146.

distinction between human-generated and AI-generated works. In practice, creative processes involve different levels of human intervention, ranging from AI functioning merely as a technical assistant to situations where it autonomously generates almost the entire expressive content.²⁸ Between these two extremes lies a broad spectrum of collaborative interactions in which human users formulate prompts, evaluate alternative outputs, revise compositions, combine multiple AI-generated results, and incorporate their own creative judgment into the final work. This demonstrates that authorship can no longer be assessed solely by identifying whether AI was used, but rather by evaluating the quality, intensity, and significance of human intellectual involvement throughout the creative process.²⁹

Consequently, the absence of statutory criteria distinguishing substantial creative contribution from mere operational use creates considerable legal uncertainty for creators, copyright examiners, and courts when determining whether an AI-assisted work satisfies the human authorship requirement under Indonesian copyright law. Similar concerns have also been emphasized in comparative legal scholarship, which argues that the central issue is not the existence of AI itself but the inability of existing copyright doctrines to establish objective standards for measuring human creativity in AI-assisted works.

The absence of legal provisions establishing the required level of human contribution demonstrates that the Indonesian Copyright Law does not provide clear criteria for determining the legal status of AI-assisted works. Existing provisions concerning authorship continue to assume that the creative process is conducted directly by human beings. Consequently, the current legal framework is incapable of addressing emerging issues, including the identification of the rightful copyright owner of AI-generated works, the threshold at which the use of AI can still be regarded as a manifestation of human creativity, and the circumstances under which a work should be considered an automated output that falls outside the scope of copyright protection.³⁰

Accordingly, the concept of authorship under Indonesian copyright law requires refinement to ensure legal certainty while preserving the fundamental principle that copyright exists to protect human creativity. Such refinement should not be

²⁸ Madeleine De Cock Buning., Artificial intelligence and the creative industry: New challenges for the EU paradigm for art and technology by autonomous creation, In *Research Handbook on the Law of Artificial Intelligence*, Cheltenham, Edward Elgar Publishing, 2018, page.521. See too, Janet Rafner, Blanka Zana, Ida Bang Hansen, Simon Ceh, Jacob Sherson, Mathias Benedek, and Izabela Lebeda., Agency in Human-AI Collaboration for Image Generation and Creative Writing: Preliminary Insights from Think-Aloud Protocols, *Creativity Research Journal*, Vol.31, no.3, 2025, page.14.

²⁹ Enrico Bonadio, and Luke McDonagh., Artificial intelligence as producer and consumer of copyright works: evaluating the consequences of algorithmic creativity, *Intellectual Property Quarterly*, Vol.2020, no.2, 2020, page.124. See too, Lala Hajibayova, and Seungmin Lee., Authorship in the age of artificial intelligence, *Journal of Documentation*, Vol.81, no.5, 2025, page.1407.

³⁰ Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.61. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.147.

interpreted as recognizing AI as a legal creator; rather, it should establish clear standards regarding the extent of human intellectual contribution necessary for AI-assisted works to qualify for copyright protection. By adopting this approach, copyright law can effectively respond to technological advancements while continuing to uphold human creativity as the essential foundation of copyright protection.³¹

3.2. Normative Gaps in Indonesian Copyright Law Regarding the Ownership of AI-Generated Works and Their Legal Consequences

The development of generative artificial intelligence has changed the paradigm of intellectual property ownership. While in conventional copyright systems, the relationship between creator, creation, and copyright holder is relatively easy to determine because the entire creative process is carried out by humans, the use of AI presents a new configuration involving multiple parties in a single creation process.³² A work produced by AI typically involves a user who provides a prompt, a developer who designs the algorithm, a platform provider who provides AI services, and the AI system itself that produces the final form of the work.³³ This complexity raises fundamental questions regarding who is legally entitled to be recognized as the copyright holder.³⁴

The first party often considered a potential copyright holder is the AI user. In practice, the user determines the purpose of the work's creation by formulating a prompt, selecting specific parameters, making multiple revisions, and determining the final result. From this perspective, the user is seen as having made an intellectual contribution in directing the creative process and thus deserving of

³¹ Rofi Aulia Rahman, Akhmad Al-Farouqi, and Shu Mei Tang., Should Indonesian Copyright Law be Amended Due to Artificial Intelligence Development?: Lesson Learned from Japan, *NTUT Journal of Intellectual Property Law and Management*, Vol.9, no.1, 2020, page.42. See too, Sitti Fatimah Maddusila, Agus Lanini, and Andi Intan Purnamasari., AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence, *Hasanuddin Law Review*, Vol.11, no.3, 2025, page.376.

³² Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.358. See too, Septy Dwi Diantika Mulyasari., The Urgency of Using Artificial Intelligence (AI) in Public Services, *Jurnal Daulat Hukum*, Vol.8, no.3, 2025, page.535.

³³ Katherine Lee, A. Feder Cooper, and James Grimmelmman., Talkin"bout AI Generation: Copyright and the Generative-AI Supply Chain, *arXiv Preprint arXiv:2309.08133*, 2023, page.142. See too, Kuku Dwi Kurniawan, Deassy JA Hehanussa, Rahmat Setiawan, Sopian Sopian, and Desmarani Helfisar., Criminal Sanctions and Personal Data Protection in Indonesia, *Lex Publica: Jurnal Ilmu Hukum Asosiasi Pimpinan Perguruan Tinggi Hukum Indonesia*, Vol.11, no.2, 2024, page.235.

³⁴ Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.168. See too, Sitti Fatimah Maddusila, Agus Lanini, and Andi Intan Purnamasari., AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence, *Hasanuddin Law Review*, Vol.11, no.3, 2025, page.373.

copyright protection.³⁵ However, this argument is not always accepted. In many cases, the prompt provided is only a simple instruction, while the overall structure, composition, style, and expression of the work are generated automatically by the AI. This situation raises questions about whether simply providing instructions can be considered a form of creativity that qualifies for copyright.³⁶

The second party is the AI developer who creates the models, algorithms, and machine learning systems that enable AI to produce various forms of work. Developers make a significant technical contribution because without the AI model being designed and trained, the work would never have been produced. However, the developer's contribution is more related to the creation of the technology than to the creation of the specific work. Developers generally do not know, control, or determine the final expression of each user-generated work. Therefore, granting copyright to the developer over all AI output is difficult to justify, as it would ignore the user's contribution to the creative process.³⁷

The third party is the AI platform provider, which provides digital infrastructure, computing services, and access to AI models. In business practice, the relationship between the platform provider and the user is typically governed by terms of service that govern the use of the service, including rights to the output generated by the AI.³⁸ Some platforms grant users usage rights, while others retain certain rights to the output generated through their systems. However, such contractual arrangements are only binding on the parties in civil relations and cannot supersede the provisions of national copyright laws. Consequently, if a dispute arises regarding the ownership of AI works in Indonesia, the platform's terms of use may not be sufficient to determine who holds the copyright under Indonesian law.³⁹

On the other hand, some argue that works generated entirely by AI should not

³⁵ Nupoor Ranade, Marly Saravia, and Aditya Johri., Using rhetorical strategies to design prompts: A human-in-the-loop approach to make AI useful, *AI & Society*, Vol.40, no.2, 2025, page.726. See too, Pawel Korzynski, Grzegorz Mazurek, Pamela Krzykowska, and Artur Kurasinski., Artificial intelligence prompt engineering as a new digital competence: Analysis of generative AI technologies such as ChatGPT, *Entrepreneurial Business and Economics Review*, Vol.11, no.3, 2023, page.30.

³⁶ Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.142.

³⁷ Francesca Mazzi., Authorship in artificial intelligence-generated works: Exploring originality in text prompts and artificial intelligence outputs through philosophical foundations of copyright and collage protection, *The Journal of World Intellectual Property*, Vol.27, no.3, 2024, page.417. See too, Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, no.2, 2022, page.1240.

³⁸ Francesca Lagioia, Agnieszka Agata Jablonowska, Rūta Liepiņa, and Kasper Drazewski., AI in search of unfairness in consumer contracts: the terms of service landscape, *Journal of Consumer Policy*, Vol.45, no.2, 2022, page.504. See too, João Pedro Quintais, Giovanni De Gregorio, and João C. Magalhães., How platforms govern users' copyright-protected content: Exploring the power of private ordering and its implications, *Computer Law & Security Review*, Vol.48, no.2, 2023, page.105792.

³⁹ Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.64.

receive copyright protection because they do not fulfill the elements of human creativity required by copyright law. This approach upholds the fundamental principle that copyright is a recognition of human intellectual expression, not the results of computational processes. However, if all AI output is automatically considered to be in the public domain, new issues arise, such as reduced incentives for users to develop AI-based works and increased uncertainty regarding the commercial use of such works.⁴⁰ The absence of norms regarding the ownership of AI works has the potential to give rise to various forms of legal disputes. The first dispute relates to ownership claims between users and AI platform providers for the same work. A second dispute could arise between multiple users producing similar works using identical AI models. A third dispute concerns the commercial use of AI works, including licensing, transfer of rights, and enforcement of rights against parties who reproduce them without permission. Without clear regulations, the resolution of these disputes will depend on the interpretation of judges, which can vary from case to case.⁴¹

This lack of norms also impacts the enforcement of moral and economic rights. Moral rights, such as the right to be credited and the right to maintain the integrity of a work, can only be exercised if the creator can be clearly identified.⁴² Similarly, economic rights, including the right to reproduce, publish, distribute, and license a work, require certainty regarding who is authorized to take such legal action. When the identity of the copyright holder cannot be determined, the exercise of both types of rights becomes ineffective and has the potential to create uncertainty in commercial transactions.⁴³ Broader implications are evident in the development of the AI-based creative industry. The creative industry requires legal certainty so that business actors have a clear basis for commercializing their works, attracting investment, and entering into business partnerships. Unclear ownership of AI works increases legal risk in every transaction because the party purchasing, licensing, or using the work has no guarantee that the rights to the work truly

⁴⁰ Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.161. See too, Enrico Bonadio, Nicola Lucchi, and Giuseppe Mazziotti., Will technology-aided creativity force us to rethink copyright's fundamentals? Highlights from the platform economy and artificial intelligence, *IIC-International Review of Intellectual Property and Competition Law*, Vol.53, no.8, 2022, page.1188.

⁴¹ Sitti Fatimah Maddusila, Agus Lanini, and Andi Intan Purnamasari., AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence, *Hasanuddin Law Review*, Vol.11, no.3, 2025, page.379.

⁴² Roberta Rosenthal Kwall., Author-stories: narrative's implications for moral rights and copyright's joint authorship doctrine, *Southern California Law Review*, Vol.75, no.1, 2001, page.441.

⁴³ Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024, page.41.

belong to the party transferring it.⁴⁴ This situation can hinder innovation and reduce the competitiveness of Indonesia's creative industry in the global digital economy.⁴⁵

Furthermore, the lack of legal norms also has the potential to create an imbalance between innovation protection and the public interest. On the one hand, granting overly broad copyright to AI works could create a monopoly over works that are essentially produced through automated processes. On the other hand, the complete lack of protection can discourage industry players from developing technology and utilizing AI as a means of creative innovation. Therefore, copyright law must strike a balance between encouraging technological development and upholding the principle that copyright protection is granted to human intellectual contributions.⁴⁶

3.3. Strengthening the Protection of the Physical Integrity of Catcalling Victims through Legal and Institutional Approaches

The development of generative artificial intelligence demands a paradigm shift in copyright law to address changes in the creation process without eliminating the fundamental principles underlying copyright protection.⁴⁷ As outlined in the previous subchapter, the primary issue with Indonesian copyright law lies not in the existence or absence of protection for AI technology, but rather in the lack of clear parameters regarding copyright ownership for works produced through AI.⁴⁸ This lack of legal framework creates legal uncertainty because the current concept of creator is still based on the assumption that the entire creative process is carried out directly by humans.⁴⁹

The first principle of the Human-Centered Copyright Ownership model is that works produced entirely by AI without any human creative contribution are ineligible for copyright protection.⁵⁰ In this situation, humans merely act as the

⁴⁴ Rafael Dean Brown., Property ownership and the legal personhood of artificial intelligence, *Information & Communications Technology Law*, Vol.30, no.2, 2021, page.216.

⁴⁵ Sitti Fatimah Maddusila, Agus Lanini, and Andi Intan Purnamasari., AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence, *Hasanuddin Law Review*, Vol.11, no.3, 2025, page.380.

⁴⁶ Agi Attaubah Hidayat, Amalia Nur Anwari, Ransya Ayu Zulvia, and Muhamad Kholid., Negotiating *Haqq al-Ibtikar* and State Patent Law: A Socio-Legal Study of *Maslahah* and Intellectual Property among Indonesian Muslim SMEs, *DIKTUM: Jurnal Syariah dan Hukum*, Vol.24, no.2, 2026, page.151.

⁴⁷ Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.159.

⁴⁸ Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.151.

⁴⁹ Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.68.

⁵⁰ Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, Vol.8, no.2, 2025, page.221.

system's operators, without engaging in the intellectual processes that determine the final form of the work. AI generates works automatically based on computational processes, while users do not make creative choices that influence the final expression of the work. Therefore, the relationship between the work and human creativity that forms the basis for copyright is not established. In the absence of a legal creator, the work cannot receive copyright protection as defined in the Copyright Law.⁵¹ This approach maintains the philosophical consistency of copyright as an instrument of respect for human intellectual expression. Recognizing copyright for works entirely generated by AI has the potential to undermine the primary purpose of copyright law, as protection would be granted to the results of computational processes, not to human creativity.⁵² Furthermore, granting creator status to AI is also impossible, as AI is not a legal subject possessing moral rights, economic rights, or legal responsibilities.⁵³

The second principle is that works generated with the assistance of AI can still receive copyright protection if there is a substantial human creative contribution. In this model, the use of AI does not automatically eliminate humans' status as creators. Rather, AI is viewed as a technological instrument that expands human capabilities in expressing creative ideas. As long as humans determine the concept, choose the direction of creation, select from the various alternatives generated by AI, and make creative modifications, edits, and refinements, the work remains a product of human intellectual expression.⁵⁴

Substantial human creative contributions differentiate the use of AI as a tool from its primary creator. For example, an illustrator might use AI to generate several visual concepts, then select one concept, modify the composition, add artistic elements, refine the colors, and rearrange the overall design to produce a significantly different visual character.⁵⁵ In such a scenario, AI serves only as a

⁵¹ Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.69. See too, Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.158.

⁵² Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, Vol.8, no.2, 2025, page.233.

⁵³ Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024, page.41.

⁵⁴ Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.153.

⁵⁵ Luka Baklaga., The impact of AI on creativity: Enhancing human potential or challenging creative expression, *Artificial Intelligence and Applications*, Vol.4, no.2, 2026, page.241. See too, Jennifer Haase, and Sebastian Pokutta., Human-AI cocreativity: Exploring synergies across levels of

supporting medium, while the creative decisions that determine the final character of the work still come from humans. Therefore, humans still deserve to be recognized as creators and copyright holders. Conversely, if a user simply provides a simple one or two-sentence prompt and immediately uses the AI-generated results without further creative processing, it is difficult to assert that the user has made sufficient intellectual contribution to warrant copyright protection.⁵⁶ Thus, it is not the use of AI that is decisive, but rather the quality and extent of human contribution to the creative process.

Based on this, this study proposes that AI be legally positioned as a creative tool, a creative aid with functions similar to cameras, graphic design software, or digital editing tools. Historically, new technologies have been viewed as instruments that aid the human creative process, not as subjects of copyright. The presence of AI should be placed within the same framework. Although AI has the ability to produce complex expressions, this ability remains dependent on algorithm design, training data, and human use. Therefore, AI does not have legal standing as a creator or copyright holder.⁵⁷

Positioning AI as a creative tool also provides legal certainty for creative industry players. AI users gain clarity that copyright in their works depends on the level of their creative contribution, not solely on the use of AI technology. On the other hand, AI developers and platform providers do not automatically acquire copyright over every output generated by their systems, unless there is another legal relationship regulated through an agreement.⁵⁸

However, the Human-Centered Copyright Ownership model cannot be optimally implemented without changes to the national legal framework. Therefore, an update to Law Number 28 of 2014 concerning Copyright is needed to include specific provisions regarding works generated through AI.⁵⁹ These changes do not necessarily alter the concept of creator, but they do need to provide normative parameters regarding the relationship between human contributions and the use

creative collaboration, In *Generative Artificial Intelligence and Creativity*, Cambridge, Academic Press, 2026, page.212.

⁵⁶ Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, Vol.8, no.2, 2025, page.224.

⁵⁷ Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.56. See too, Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024, page.43.

⁵⁸ Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.170.

⁵⁹ Sitti Fatimah Maddusila, Agus Lanini, and Andi Intan Purnamasari., AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence, *Hasanuddin Law Review*, Vol.11, no.3, 2025, page.367. See too, Agi Attaubah Hidayat, Amalia Nur Anwari, Ransya Ayu Zulvia, and Muhamad Kholid., Negotiating *Haqq al-Ibtikar* and State Patent Law: A Socio-Legal Study of *Maslahah* and Intellectual Property among Indonesian Muslim SMEs, *DIKTUM: Jurnal Syariah dan Hukum*, Vol.24, no.2, 2026, page.154.

of AI in the creation process.

The Human-Centered Copyright Ownership model ultimately not only offers a solution to the normative gap in Indonesian copyright law, but also maintains a balance between protecting human creativity and the development of artificial intelligence technology.⁶⁰ On the one hand, this model provides room for innovation by recognizing the use of AI as part of the modern creative process. On the other hand, this model maintains the basic principle that copyright arises from human intellectual contributions, not from the computational capabilities of a technological system.⁶¹ Thus, the reform of Indonesian copyright law is not aimed at granting legal status to AI as creators, but rather at ensuring that technological development continues to align with the primary objective of copyright law, which is to protect and encourage human creativity in producing intellectual works.

4. Conclusion

The development of generative artificial intelligence has fundamentally challenged the conventional concept of authorship and copyright ownership, exposing significant limitations within the Indonesian Copyright Law. This study demonstrates that the existing legal framework remains firmly grounded in the assumption that copyright can only arise from direct human creativity, without providing explicit rules for determining the ownership of works created with the assistance of AI. As a result, the absence of clear legal standards creates uncertainty regarding the status of AI-generated works, increases the potential for ownership disputes among users, developers, and platform providers, and may impede the sustainable growth of Indonesia's AI-based creative economy.

The findings further indicate that the principal legal issue is not whether AI itself should be recognized as a creator, but rather how copyright ownership should be determined when AI participates in the creative process. In this regard, the study proposes the Human-Centered Copyright Ownership model as a normative framework that preserves the fundamental principle of copyright law while accommodating technological developments. Under this model, AI is positioned solely as a creative tool rather than a legal subject, and copyright protection is granted only where there is a substantial human intellectual contribution that significantly influences the final expression of the work. Conversely, works generated entirely through automated AI processes without meaningful human creativity should remain outside the scope of copyright protection.

Accordingly, legal reform of Law Number 28 of 2014 concerning Copyright is necessary to establish clear legal parameters for assessing substantial human

⁶⁰ Sitti Fatimah Maddusila, Agus Lanini, and Andi Intan Purnamasari., AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence, *Hasanuddin Law Review*, Vol.11, no.3, 2025, page.386.

⁶¹ Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.73.

creative contribution in AI-assisted works. Such reform would strengthen legal certainty, reduce ownership disputes, and provide a balanced framework that promotes technological innovation while safeguarding the fundamental objective of copyright law, namely the protection of human creativity. The proposed Human-Centered Copyright Ownership model may serve as a normative reference for legislators, policymakers, courts, and copyright authorities in developing future regulations on AI-generated works. Future research should examine the practical implementation of this model through empirical studies and comparative analysis to evaluate its effectiveness in addressing emerging copyright issues associated with artificial intelligence.

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Dear Author,

We are delighted to inform you that your manuscript entitled, "**LEGAL RECONSTRUCTION OF COPYRIGHT OWNERSHIP FOR AI-GENERATED CREATIONS UNDER INDONESIAN COPYRIGHT LAW**", has been Accepted for publication in Vol 42, No 2 (2026) of the Journal Hukum Unissula.

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RECONSTRUCTING COPYRIGHT PROTECTION FOR ARTIFICIAL INTELLIGENCE-GENERATED WORKS

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ABSTRACT

The development of Generative Artificial Intelligence (AI) has transformed the process of intellectual creation and raised issues regarding authorship and copyright ownership. However, Law Number 28 of 2014 concerning Copyright is still based on the human authorship paradigm and therefore does not provide legal certainty for works produced with the help of AI. This study aims to analyze the adequacy of legal protection for AI works, identify weaknesses in the concept of creator in Indonesian copyright law, and formulate a Human-Centered Copyright Ownership model. The study uses a normative legal method with a statutory, conceptual, comparative, and case approach through an analysis of laws and regulations, international instruments, court decisions, doctrines, and scientific literature. The results of the study indicate that Indonesian copyright law still experiences a normative vacuum regarding the ownership of AI works and therefore is unable to provide legal certainty. As a novelty, this study offers a Human-Centered Copyright Ownership model that positions AI as a creative tool, while copyright ownership is determined based on substantial human creative contribution. This model provides more objective normative parameters for determining creators and copyright holders and serves as a basis for reforming the Copyright Law to achieve a balance between protecting human creativity, legal certainty, and technological innovation.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial intelligence, has fundamentally transformed the process of creating intellectual

works.¹ Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, computer programs, and various other forms of creative expression through machine learning and large language models. This capability makes AI no longer merely a tool but plays an active role in the creative process. This development raises new issues in copyright law, particularly regarding whether works generated by AI are eligible for legal protection and who should be legally recognized as the creator and copyright holder.²

The international copyright legal framework currently lacks provisions that explicitly accommodate works generated by AI. The Berne Convention for the Protection of Literary and Artistic Works is based on the principle that copyright arises from human intellectual creation, while the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) adopts the Berne standard without specifically addressing AI. Similarly, various discussions within the World Intellectual Property Organization (WIPO) indicate that current international copyright instruments were drafted before the development of generative AI and therefore are unable to address issues regarding authorship and copyright ownership of works autonomously generated by AI.³ Consequently, the resolution of these issues remains up to individual countries, leading to diverse legal approaches.

These differences are evident in the various legal systems currently in development. The United States consistently requires human authorship, making

¹ Mohammad Abdallah, and Mousa Salah., Artificial intelligence and intellectual properties: Legal and ethical considerations, *International Journal of Intelligent Systems and Applications in Engineering*, Vol.12, no.1, 2024, page.369. See too, Ilyos Abdullayev, Kira Vagner, Olesya Tereshchenko, Alexey Nedelkin, and Vitalii Vasyukov., Opportunities for Developing Natural Language Models in Building Artificial Intelligence Systems to Enhance Educational Process Support, *Pakistan Journal of Life & Social Sciences*, Vol.22, no.2, 2024, page.343.

² Abed Fayed, Aliaa Zakaria, and Alaa Abouahmed., Innovations of Artificial Intelligence in Light of the Applicable Copyright Law: Realistic Solutions and Future Prospects. A Comparative Study of UAE, Egyptian, and French Laws, *Access to Just, Eastern Euroope*, Vol.2, 2025, page.241. See too, Amanda M. Horzyk, How AI affects our understanding of musical works that should be protected by copyright, In *2023 international joint conference on neural networks (IJCNN)*, IEEE, 2023, page.6; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.409; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.109.

³ Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.24. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.52; Qingchuan Xie, and Tianxiang He., Battle between 'long'and 'short'videos: Fragmented uses, diversified purposes, and the evolution of China's copyright limitation rules in the AI era, *The Chinese Journal of Comparative Law*, Vol.11, no.3, 2023, page.1.

works entirely generated by AI ineligible for copyright protection.⁴ The European Union also continues to prioritize human creativity as a key element in assessing the originality of a work.⁵ Conversely, the United Kingdom, through the Copyright, Designs and Patents Act 1988, recognizes computer-generated works by stipulating that the creator is the party who makes the necessary arrangements for the creation process.⁶ On the other hand, several court decisions in China have begun to provide protection for AI works by placing the developer or party controlling the AI system as the copyright holder.⁷ These diverse approaches demonstrate that there is currently no international consensus on the concept of authorship and copyright ownership for AI-generated works.

This issue is even more pressing in the Indonesian context because Law Number 28 of 2014 concerning Copyright is still entirely based on an anthropocentric paradigm that positions humans as the sole creators. The definition of author, the concept of originality, moral rights, and economic rights all assume that a work arises from human creativity. The law does not yet regulate the legal status of AI-generated works, the legal relationship between AI users, AI developers, and AI platform providers, or the mechanism for determining copyright ownership of AI-generated works.⁸ Yet, the use of generative AI applications such as ChatGPT,

⁴ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.113. See too, Ansagan Aronov, and Sara Idrysheva., Copyright protection on works generated by artificial intelligence, *Science and Innovation*, Vol.21, no.1, 2025, page.115; Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.23; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.410.

⁵ Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.355.

⁶ Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.23. See too, Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.54.

⁷ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.23. See too, Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1216; Sin Zhi Ying, Chia Yuh Bao, Sharon Varghese, Michael Goh, Tee Connie, and Manique Apsara Ephranella Cooray., AI Dilemma: Copyrighting Creativity in the Age of Artificial Intelligence, *International Journal of Cyber Criminology*, Vol.18, no.2, 2024, page.39.

⁸ Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.42. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.137; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.155.

Gemini, Midjourney, DALL·E, and various similar platforms is increasingly widespread in Indonesia for book development, graphic design, software, learning materials, marketing content, and other creative industries.⁹ If a dispute arises regarding ownership of the work, Indonesian positive law does not yet provide a clear normative basis for determining who has the right to copyright.

This lack of legal certainty has far-reaching implications. If all AI works are granted copyright protection without clear boundaries, companies that control AI technology could potentially monopolize the production of creative works and diminish the economic value of human creativity.¹⁰ Conversely, if all AI works are placed in the public domain, users and industry players will lose legal certainty in commercializing AI-assisted works. This lack of clarity also has the potential to create inconsistencies in judicial practices, licensing, investment, and copyright law enforcement in Indonesia.¹¹ Therefore, determining copyright ownership of AI works is no longer merely an academic issue, but rather an urgent need to ensure legal certainty, support the national creative industry, and maintain a balance between copyright protection and technological development.

Various previous studies have offered various concepts regarding copyright ownership of AI works. Some studies maintain the principle of human authorship by placing human creativity as the primary requirement for copyright protection.¹² Other studies argue that copyright should be granted to AI users because they provide prompts and initiate the creative process.¹³ Still others propose that

⁹ Gaspar Alberto Angulo Matos, Nadia Liz Romero Rodríguez, and Eduardo Andrés Calderón Marenco., Dos inteligencias y una autoría: chatGPT y el reconocimiento de la personalidad en el marco legal peruano, *Justicia*, Vol.4, no.3, 2025, page.232.

¹⁰ Minh Le Thi., Copyright Protection for Works Created by AI Technology under the EU Law and Vietnamese Law, *Rev. Eur. & Comp. L.* Vol.55, 2023, page.7.

¹¹ Amanda M. Horzyk, How AI affects our understanding of musical works that should be protected by copyright, In *2023 international joint conference on neural networks (IJCNN)*, IEEE, 2023, page.7. See too, Singh Hoshier, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work. In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.6; Paarth Naithani., Issues of authorship and ownership in work created by artificial intelligence-Indian copyright law perspective, *NTUT Journal of Intellectual Property Law and Management*, Vol.11, no.1, 2022, page.8; Rofi Aulia Rahman, Akhmad Al-Farouqi, and Shu Mei Tang., Should Indonesian Copyright Law be Amended Due to Artificial Intelligence Development?: Lesson Learned from Japan, *NTUT Journal of Intellectual Property Law and Management*, Vol.9, no.1, 2020, page.38; Nadia Yas, Hani Abdulrahim, Issa Ghassan Rabadi, and Zeana Abdijabar., Protecting the civil rights of the author from the risks of artificial intelligence, *Research Journal in Advanced Humanities*, Vol.6, no.1, 2025, page.23.

¹² Ansagan Aronov, and Sara Idrysheva., Copyright protection on works generated by artificial intelligence, *Science and Innovation*, Vol.21, no.1, 2025, page.116. See too, Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.365; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.111.

¹³ Sk M. Ali, Anuttama Ghose, Shashikant Saurav, and Sachin Deshmukh., Creativity and Innovation in the Age of Artificial Intelligence: A Copyright Dilemma, *Padjadjaran Jurnal Ilmu Hukum*, Vol.11,

copyright be granted to AI developers or those who undertake technical arrangements for AI systems, as is the UK's necessary arrangements approach.¹⁴ Furthermore, there is also the concept of joint authorship, which views humans and AI as parties that jointly contribute to the creation process, as well as the proposal to establish a sui generis regime because the copyright regime is deemed no longer adequate to regulate AI works.¹⁵ These differences indicate that there is no agreement yet on the concept of authorship or copyright ownership of AI works.

However, these studies still leave several gaps. First, most studies focus on the issue of copyrightability of AI works or on comparative studies between countries, but have not specifically reconstructed the concept of copyright ownership within the framework of the Indonesian Copyright Law. Second, various proposed models, such as user ownership, developer ownership, joint authorship, work-made-for-hire, and sui generis, have not been able to accommodate the anthropocentric nature of Indonesian copyright law while simultaneously accommodating the use of AI as a creative instrument. Third, previous research has not formulated clear legal parameters regarding the extent to which human creative contributions can be used as a basis for determining the status of creators and copyright holders of AI-generated works. Consequently, there is currently no normative model that can provide legal certainty while upholding the fundamental principle that copyright arises from human creativity.

no.2, 2024, page.6. See too, Axell Cervera, Erik Obiol, and José Rolando Cardenas-Gonzales., Derechos de autor y calidad de las instrucciones en obras generadas por inteligencia artificial, *Nuevo Derecho*, Vol.21, no.37, 2025, page.17; Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.58; Oluwatobi Victoria Taiwo., Artificial Intelligence Generated Works and the Copyright Dilemma: A Case Study of the United Kingdom and South Africa, In *Contemporary Issues in Intellectual Property Law in Africa*. Routledge, 2024, page.172; Felipe Osorio Umaña., El concepto de originalidad del Tribunal de Justicia de la Unión Europea y la inteligencia artificial, *Revista Justicia y Derecho*, Vol.8, no.1, 2025, page.1.

¹⁴ Singh Hoshiar, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work, In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.7. See too, Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.25.

¹⁵ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.288. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.53; Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights A copyright perspective, *Journal of Intellectual Property Rights*, Vol.30, no.1, 2025, page.27; Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.138; Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1218. See too, Jinyang Tian., The Nature and Ownership of Copyright for AI-Generated Works, *NTUT Journal of Intellectual Property Law and Management* Vol.13, no.1, 2024, page.47.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model to reconstruct copyright ownership of AI-generated works within the Indonesian legal system. Unlike the concept of joint authorship, which places AI as part of the authorship process, this model maintains that only humans can be recognized as creators. Unlike the work-made-for-hire approach, which bases ownership on technological control or contractual relationships, and the *sui generis* concept, which establishes a new rights regime outside of copyright law, the proposed model maintains the existing copyright regime by making substantial human creative contributions the primary parameter in determining creators and copyright holders. Thus, AI is positioned as a creative instrument, not as a legal subject or creator.

This research is expected to provide theoretical and practical contributions to the development of Indonesian copyright law. Theoretically, this research offers a reconstruction of the concept of copyright ownership that maintains the principle of human authorship but accommodates the development of generative AI. Practically, the proposed model is expected to serve as a basis for legislators, judges, legal practitioners, creative industry players, and AI developers in realizing legal certainty regarding copyright ownership of AI-generated works. Based on these objectives, this research aims to answer three main questions:

1. Does current Indonesian copyright law provide protection for AI-generated works?
2. Why the concept of creator in the Copyright Law is no longer adequate to regulate ownership of AI works?
3. How can the Human-Centered Copyright Ownership model be reconstructed within the Indonesian copyright legal system.

2. Research Methods

This research is a normative legal research (doctrinal legal research) aimed at evaluating the adequacy of Indonesian copyright regulations in accommodating works produced by Artificial Intelligence (AI), identifying gaps and inconsistencies in norms, and reconstructing a copyright ownership model that aligns with the development of AI without neglecting the basic principles of Indonesian copyright law. This research is prescriptive in nature, as it not only analyzes positive law but also formulates a Human-Centered Copyright Ownership model as a recommendation for legal reform. To address the research questions, the research utilizes four complementary approaches. The first question, concerning legal protection for AI works, is analyzed through a statutory and case-based approach. The second question, concerning weaknesses in the concept of creator, is analyzed through a conceptual approach, examining theories of authorship, originality, human creativity, moral rights, and economic rights. The third question, concerning the reconstruction of the copyright ownership model, is analyzed through a comparative legal approach, combining the results of normative, conceptual, and case-based analyses to produce a comprehensive reconstruction

model.

A doctrinal approach is used to assess the suitability of Indonesian positive law to the development of AI through an analysis of Law Number 28 of 2014 concerning Copyright, specifically provisions concerning creators, copyright ownership, moral rights, economic rights, originality, and protection of creations. This analysis is linked to international instruments that form the foundation of the copyright system, namely the Berne Convention for the Protection of Literary and Artistic Works, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), and documents and recommendations of the World Intellectual Property Organization (WIPO) regarding intellectual property and AI. Moreover, a conceptual approach is used to analyze copyright legal doctrine regarding authorship, originality, human creativity, moral rights, economic rights, theories of intellectual property ownership, and the relationship between humans and AI in the creation process. This analysis aims to formulate legal parameters for substantial human creative contribution as a basis for determining creators and copyright holders of AI-assisted works. Lastly, a comparative legal approach is used to compare AI copyright regulations in the United States, the United Kingdom, the European Union, Japan, Singapore, and China. The comparison is conducted to identify legal principles, best practices, and regulatory alternatives relevant to the reconstruction of Indonesian copyright law, not to conduct legal transplantation.

The legal materials consist of primary legal materials (statutory regulations, international instruments, court decisions, and official documents), secondary legal materials (books, scientific articles, research results, and doctrines), and tertiary legal materials (legal dictionaries and encyclopedias). All materials are analyzed qualitatively through inventory, classification, grammatical, systematic, comparative, and teleological interpretation, then compiled using legal reasoning to identify gaps, conflicts, and inadequacies of norms as the basis for formulating a Human-Centered Copyright Ownership model for Indonesian copyright law reform.

3. Results and Discussion

3.1. Legal Protection for Works Generated by Artificial Intelligence: A Doctrinal Perspective

The development of generative artificial intelligence has changed the paradigm of intellectual creation. Unlike conventional software, which only executes instructions deterministically, generative AI is capable of generating text, images, music, video, software, and even graphic designs through machine learning and large language models.¹⁶ This change raises fundamental questions regarding whether AI-generated works can be protected by copyright, who can be recognized as the creator, and how the economic and moral rights to these works

¹⁶ Jacopo Ciani., Learning from monkeys: authorship issues arising from AI technology, In *EPIA Conference on Artificial Intelligence*. Cham, Springer International Publishing, 2019, page.278. See too, Ekaterina A. Sviridova., The problem of determining the subject of copyright for works created by artificial intelligence, *Gosudarstvo i pravo*, Vol.2, 2021, page.97.

should be allocated.¹⁷

In copyright law, protection for AI-generated works is not only concerned with recognition of the creation but also includes determining who is entitled to the economic and moral rights to the work. Therefore, discussions about AI cannot be separated from the three fundamental concepts of copyright law: authorship, originality, and copyright ownership. Most copyright regimes worldwide continue to place humans at the center of the protection system (human-centered authorship), so that works are only protected if they are the result of human intellectual expression manifested in a tangible form.¹⁸

This principle also underpins various international instruments. The Berne Convention for the Protection of Literary and Artistic Works requires that works be the result of the intellectual expression of the creator, while the TRIPS Agreement adopts protection principles based on the provisions of the Berne Convention. Although neither instrument explicitly regulates works produced by AI, both are built on the assumption that the creator is human. Likewise, various discussions developed by the World Intellectual Property Organization (WIPO) to date have not produced a specific international instrument regarding copyright ownership of AI works, so that the resolution still depends on the interpretation of each country.¹⁹

¹⁷ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.24. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.412; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.367; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.112.

¹⁸ Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.59. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.413; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.368; Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.58.

¹⁹ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.24. See too, Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.25; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.414; Qingchuan Xie, and Tianxiang He., Battle between 'long'and 'short'videos: Fragmented uses, diversified purposes, and the evolution of China's copyright limitation rules in

In the Indonesian context, this construction is clearly reflected in Law Number 28 of 2014 concerning Copyright. Article 1 number (2) defines a creator as a person or several people who, individually or collectively, produce a work that is unique and personal. This provision demonstrates that Indonesian copyright law is built on three main elements: the existence of a human legal subject, the existence of human intellectual capacity that gives rise to the creation, and the existence of a personal relationship between the creator and the work they produce. Consequently, moral rights as regulated in Article 5 and economic rights in Articles 8 and 9 can only be attached to humans as rights holders. Thus, AI, as a computing system that lacks legal personality, consciousness, will, or legal responsibility, cannot be recognized as a creator according to the construction of Indonesian positive law.²⁰

However, the primary issue lies not in whether AI can be recognized as a creator, but rather in whether the concept of creator as formulated in the Copyright Law remains adequate when the creative process is no longer entirely human-driven. Doctrinally, the entire structure of Indonesian copyright law is assumed to be based on a direct relationship between human intellectual activity and the resulting expression. This assumption becomes inadequate when AI is capable of composing music, producing illustrations, writing scientific articles, or creating software autonomously based on computational processes not entirely controlled by humans. In other words, the problem that arises is not a lack of objects of protection, but a lack of norms in determining the legal relationship between humans, AI, and their creations.²¹

This normative gap becomes even more apparent when linked to the principle of originality. In copyright law, originality is not defined as absolute novelty, as in

the AI era, *The Chinese Journal of Comparative Law*, Vol.11, no.3, 2023, page.3; Shuang Yang., Optimizing Copyright Subject and Originality Rules for AI-Generated Software, In *Proceedings of the 2025 International Conference on Computer Technology, Digital Media and Communication*, 2025, page.544.

²⁰ Laurensia Andriani., Redesigning Indonesia Copyright Act to Accommodate Autonomous Intelligent System: Status Quo and Room for Improvement, *Asian Journal of Law and Economics*, Vol.9, no.3, 2018, page.21813. See too, Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.43; Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.139; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.156.

²¹ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.28. See too, Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.44; Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, no.2, 2025, page.218.

patent law, but rather as the result of human intellectual choice and creativity (independent intellectual creation). Therefore, the measure of originality is always related to the extent to which the final expression is a manifestation of human creativity. In entirely AI-generated works, this relationship becomes blurred because the final expression is formed through statistical and algorithmic processes carried out by the AI system, rather than through direct human creative choices.²² Consequently, even if a work appears novel and has economic value, it may not necessarily meet the requirements of originality as required by the copyright regime.

The international debate demonstrates the lack of a uniform approach to protecting AI works. The United States consistently requires human authorship, thus denying copyright protection to works generated entirely by AI. The European Union maintains a similar approach, placing human creativity as the primary criterion for originality. Conversely, the United Kingdom, through the Copyright, Designs and Patents Act 1988, recognizes computer-generated works by granting authorship to those who make necessary arrangements for the creation process. In China, several court decisions have begun to provide protection for AI works by attributing ownership to the developer or the party controlling the AI system. These differences in approach (Table 1) indicate that the primary issue is no longer the ability of AI to produce works, but rather the legal basis for determining who is entitled to copyright protection.²³

²² Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.356. See too, Komalavalli C., Rinki Bhati, R., Akhilesh Kumar Khan, and Arun Kumar Tripathi., *Smart contracts for AI-generated art rights*, *ShodhKosh: Journal of Visual and Performing Arts*, Vol.6, no.1, 2025, page.43; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.415; Hernán Núñez Rocha., Artificial Intelligence and Copyright Law, Notes on Content Generation, *Boletín mexicano de derecho comparado*, Vol.58, no.174, 2025, page.323; Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, no.2, 2025, page.219.

²³ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.114. See too, Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.25; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.417; Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.26; Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1217; Seiya S. Takeuchi., Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's

Table 1. Comparative Approaches to Copyright Protection for AI-Generated Works Across Selected Jurisdictions

Jurisdiction	Approach	Key Features	Protection Status	Sources
United States	Human Authorship	Requires human authorship; AI-generated works are not eligible for copyright protection.	Purely AI-generated works are not protected.	Furqan et al. (2026); Kumar & Yadav (2024); Ampovska (2025) ²⁴
European Union	Human Creativity	Emphasizes human creativity and originality; AI-generated works generally do not qualify for copyright protection.	Protection requires substantial human creative contribution.	Kumar & Yadav (2024); Ampovska (2025) ²⁵
United Kingdom	Necessary Arrangements	Recognizes <i>computer-generated works</i> under the Copyright, Designs and Patents Act 1988, assigning authorship to the	Copyright is granted to the person responsible for organizing the creation process.	Lee (2021); Ampovska (2025); Üner & Aksoy (2025); Praja et al. (2025) ²⁶

adoption of the UK legislative approach, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.325.

²⁴ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.115. See too, Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.26; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.419.

²⁵ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.116. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.418.

²⁶ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.117. See too, Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021,

		person making the necessary arrangements.		
Japan	Human Creativity	Balances the protection of human creativity with incentives for AI innovation.	AI is not recognized as an author; human contribution remains the primary basis for protection.	Takeuchi (2025) ²⁷
China	Judicial Approach	Several courts have recognized copyright protection for AI-generated works, attributing ownership to AI developers or controllers in specific cases.	Protection may be granted to AI developers or controllers under particular judicial circumstances.	Sun (2022); Dang (2026) ²⁸
Indonesia	Human-Centered Authorship	Copyright law remains human-centered and does not recognize AI as an author, although academic discussions have explored <i>joint</i>	No explicit legal regulation governing AI-generated works.	Praja et al. (2025); Subagiyo & Wibisono (2024); Mayana et al.

page.26; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.154; Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.57.

²⁷ Seiya S. Takeuchi., Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.326.

²⁸ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.25. See too, Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1218.

		authorship models.		(2024) ²⁹
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Various countries have also begun offering alternatives beyond conventional copyright regimes. One such approach is the concept of *sui generis* rights, which establishes a new intellectual property rights regime specifically governing works generated by AI without altering the concept of creatorship in copyright law. This approach aims to provide legal certainty for AI works that do not meet the requirements of human authorship. However, the *sui generis* approach remains controversial because it has the potential to create a dualistic protection regime and obscure the copyright philosophy, which was originally established to protect human creativity.³⁰

In the Indonesian context, establishing a *sui generis* regime is also not the most appropriate option, as it would require fundamental changes to the existing copyright legal system. The main problem lies in the lack of normative parameters to determine when the use of AI can still be considered part of the human creative process. Therefore, according to this study, protection for AI-based works should not be determined based on the presence or absence of AI use, but rather on substantial human creative contribution. These contributions can be assessed through several initial indicators, namely: (1) humans determine the main creative ideas, goals, and concepts; (2) humans carry out substantive and repeated selection, arrangement, or modification of prompts; (3) humans control the selection and revision process of AI output; (4) humans provide creative editing that influences the final form of the work; and (5) the final expression reflects human intellectual choices, not merely the automatic results of the AI system.

²⁹ Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.47. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.140; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.158; Sikun Zhao., The Role of Copyright Authentication in AI-Generated Visual Content: Constructing Trust in AIGC Media Environments and the Impact of Copyright Ambiguity on Perceived Authenticity, *Studies in Media and Communication*, Vol.14, no.1, 2026, page.339.

³⁰ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.289. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For *Sui Generis* Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.54; Pratiti Nayak, and Kiymet Tunca Çalyurt., Addressing Copyright Challenges in the Era of AI-Generated Content: What Are the Legal Implications?, In *A Multidisciplinary Approach to KIIT Horizons, Volume 1: Exploring Artificial Intelligence Across Disciplines*, Singapore, Springer Nature Singapore, 2025, page.3; Eleni Tzoulia., IP Protection for AI-Generated Content in the "Post-AI Act" Era, In *EU Digital Law in the AI Era*, Cham, Springer Nature Switzerland, 2025, page.136.

Conversely, if the human role is limited to providing simple commands (simple prompts) without further creative involvement, then the personal relationship between the creator and the creation becomes very weak, making it difficult to fulfill the authorship and originality requirements in the Copyright Law.

Thus, the main problem with Indonesian copyright law is not the recognition of AI as a creator, but rather the absence of norms that can measure the level of human creative contribution in the AI-based creation process. This gap causes Law Number 28 of 2014 to be unable to provide legal certainty regarding the status of copyright protection, ownership, or the boundaries between the use of AI as a creative aid and AI as the party that predominantly produces the expression of the work.

3.2. Human Authorship and the Creator Concept in AI-Generated Works: A Conceptual Approach

Law Number 28 of 2014 concerning Copyright comprehensively regulates creators, copyright holders, moral rights, and economic rights. However, this entire structure is based on the assumption that every creation is the result of human intellectual expression. Therefore, the relationship between creators and copyright holders is fundamentally inseparable from the existence of humans as legal subjects. This anthropocentric assumption is sufficient when the entire creation process is carried out by humans, but becomes problematic when works are produced through the involvement of generative Artificial Intelligence (AI), which is capable of autonomously generating creative expression based on machine learning processes and large language models.³¹

The key issue is not simply whether works produced by AI can obtain copyright protection, but rather whether the concept of "creator" in Indonesian copyright law remains sufficient to determine copyright ownership when the creative process involves more than one actor. In practice, the creation of AI-based works involves at least four parties: the user who formulates the prompt and determines the creative goal; the developer who designs the algorithm and trains the AI model; the platform provider who provides the computing infrastructure and terms of service; and the AI system that produces the final expression of the work. The complexity of these relationships was never anticipated in the construction of the Copyright Law, resulting in the lack of normative parameters to determine who is legally entitled to be the copyright holder.³²

³¹ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.27. See too, Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.45; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.369.

³² Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.118. See too,

This ambiguity creates a normative vacuum that directly impacts legal certainty. From a doctrinal perspective, certainty regarding copyright holders is a prerequisite for the exercise of both economic and moral rights. Without the identification of legitimate rights holders, licensing, transfer of rights, royalty payments, enforcement of infringement laws, and dispute resolution become difficult. For example, companies purchasing AI-generated illustrations or software have no assurance that the licensing party is truly the legitimate rights holder. This situation increases transaction risks, hinders investment in the creative industry, and reduces the effectiveness of copyright protection in Indonesia.³³

Various jurisdictions have developed different approaches to address this issue, but there is no international consensus. The United States and the European Union continue to uphold the principle of human authorship, so works generated entirely by AI do not qualify for copyright protection because they lack sufficient human creativity.³⁴ In contrast, the United Kingdom has adopted a computer-generated works approach through the concept of necessary arrangements, which places the party initiating the creation process as the copyright holder.³⁵ Meanwhile, several

Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.419; Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.29; Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.56.

³³ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.30. See too, Ziana Mahfuzzah, Putri Rumondang Siagaian, Cheryl Patriana Yuswar, Muhammad Citra Ramadhan, and Dametken Medikhanovna Turekulova., Reforming the fair use doctrine in Indonesian intellectual property law: Addressing AI and digital creativity through Islamic legal perspectives, *Jurnal Ilmiah Mizani*, Vol.13. no.1, 2026, page.454; Bernard Nainggolan, Agus Joko Pramono, and Stefan Koos., Legal Protection of Intellectual Property for Digital Works by Utilizing Emerging Technologies, *Jurnal Hukum UNISSULA*, Vol.41, no.4, 2025, page.899; Deslaely Putranti, Uni Tsulasi Putri, Adhi Prahara, and Muh Syah Quddus., Proposing digital copyright infringements enforcement through internet court in Indonesia: fostering the existing E-Court system, In *E3S Web of Conferences*, EDP Sciences, 2025, page.3006; Syafrinaldi Syafrinaldi, Kim Hyeonsoo, Rani Fadhila Syafrinaldi, and David Hardiogo., Artificial Intelligence, Innovation, and Copyright: Comparing Intellectual Property Law in Indonesia and South Korea, *Lex Scientia Law Review*, Vol.8, no.2, 2024, page.1148.

³⁴ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.119. See too, Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.357; Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.29; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.419.

³⁵ Jyh-An Lee., Computer-generated Works under the CIPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.26; Zehra Özkan Üner, and Pınar Çağlayan Aksoy., Navigating AI and Copyright Law in the

court decisions in China have begun to recognize protection for AI works by attributing ownership to the developer or party controlling the AI system, although AI itself remains unrecognized as a legal subject.³⁶ These differences indicate that the primary issue is not the recognition of AI as an author, but rather the determination of the legal relationship between human contributions and the results produced by AI.

Various literature shows that until now there is no lack of consensus on who should hold copyright over works produced through Artificial Intelligence (AI).³⁷ These differences have given rise to at least four ownership models that have developed in the literature and practice of several jurisdictions: user ownership, developer ownership, platform ownership, and collaborative ownership or special regimes (joint authorship and sui generis rights) (Table 2). Each model is based on different legal arguments but also has limitations when applied to a copyright system that maintains the principle of human authorship, as is the case in Indonesia.

Table 2. Comparison of Copyright Ownership Models for AI-Generated Works

Ownership Model	Underlying Rationale	Strengths	Limitations
User Ownership	The user determines the creative objective through prompts, selects parameters, revises outputs, and decides the final result.	Provides incentives for creators using AI while maintaining the principle that human creativity remains the foundation of copyright.	Not all prompts reflect sufficient creativity. If human involvement is limited to simple instructions, it is difficult to establish originality and meaningful intellectual expression.
Developer Ownership	The developer designs the algorithms, AI models, and machine learning systems that enable AI to generate	Recognizes the intellectual investment, technological innovation, and development costs involved in creating	Developers do not control the final expression of each generated work; therefore, the connection between the developer and

UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.58.

³⁶ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.26.

³⁷ Junaidi., The Urgency of Regulating Copyright of Artificial Intelligence Works With the Fair Use Principle From the Perspective of Development Law Theory, In *Ethical, Regulatory, and Intellectual Property Impacts on AI Development*, Pennsylvania, IGI Global Scientific Publishing, 2026, page.276.

	works.	AI systems.	individual works is weak.
Platform Ownership	Platform providers supply the digital infrastructure, AI models, and regulate rights through terms of service.	Facilitates licensing and commercial exploitation through contractual arrangements.	Contractual terms bind only the contracting parties and cannot replace copyright ownership rules established under national copyright law.
Joint Authorship / <i>Sui Generis</i> Rights	Treats AI-generated works as collaborative creations between humans and AI or establishes a separate legal regime outside conventional copyright law.	Attempts to accommodate the unique characteristics of AI-generated works that cannot be fully addressed by traditional copyright principles.	Joint authorship is difficult to apply because AI is not a legal person. A <i>sui generis</i> regime may create overlapping protection and weaken the principle of human authorship.

Sumber: Lee (2021); Sun (2022); Subagiyo & Wibisono (2024); Mayana et al. (2024); Hoshier & Kiran (2024); Cervera et al. (2025); Gaidartzi & Stamatoudi (2025); Praja et al. (2025); Sanjaya & Rajavenkatesan (2025); Baker (2026); Massadeh et al. (2024).

The first model positions the AI user as the copyright holder because the user determines the creative intent through developing prompts, selecting parameters, evaluating outputs, and determining the final result. This approach views AI as a tool, thus retaining copyright with the human who makes a substantial creative contribution, while maintaining the principle of human authorship.³⁸ However, this model faces weaknesses when user contributions consist only of simple instructions, necessitating objective legal criteria to measure substantial human creative contribution.³⁹

The second model grants ownership to the AI developer, arguing that the AI's ability to produce works is the result of intellectual and technical investments in algorithm development, machine learning, and training data. Consequently, several Chinese rulings have begun to link the protection of AI works to the system

³⁸ Axell Cervera, Erik Obiol, and José Rolando Cardenas-Gonzales., Derechos de autor y calidad de las instrucciones en obras generadas por inteligencia artificial, *Nuevo Derecho*, Vol.21, no.37, 2025, page.18. See too, Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.60; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.159.

³⁹ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.30. See too, Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.370.

developer.⁴⁰ However, this approach is weak because developers generally do not determine the theme, purpose, or final expression of each work. Their contributions are more accurately viewed as those of the technology creator, rather than the individual creator of the work. Automatically granting rights to developers also has the potential to disregard users' creative contributions and create monopolies that contradict the objectives of copyright law.⁴¹

The third model links ownership to AI platform providers through terms of service, which regulate rights to AI output. Some platforms grant rights to users, while others retain specific licenses for the output. This approach provides certainty in contractual relationships and facilitates licensing and commercialization of works.⁴² However, terms of service cannot replace national copyright laws because they only bind the parties. In disputes with third parties, contractual clauses may not be sufficient to prove authorship or copyright ownership of AI works.⁴³

The fourth model proposes joint authorship or sui generis rights. Joint authorship views AI works as the result of collaboration between humans and AI, while sui generis offers a special protection regime because the characteristics of AI works are deemed not fully in line with conventional copyright regimes.⁴⁴ However, both models face conceptual obstacles. AI is not a legal subject, making it difficult to recognize as a co-creator, while the sui generis regime has the potential to create dual protection and contradicts the principle of human authorship, which remains

⁴⁰ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.28. See too, Singh Hoshier, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work, In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.8; Ruihan Sun, and Shuhuan Zhou., How much human contribution is needed for "ownership" of AI-generated content: A comparison of copyright determination for generative AI in China and the United States, *The Journal of World Intellectual Property*.

⁴¹ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.290.

⁴² Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.58.

⁴³ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.32.

⁴⁴ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.291. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.55; Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights A copyright perspective, *Journal of Intellectual Property Rights*, Vol.30, no.1, 2025, page.28; Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.141.

the basis of the Berne Convention and the TRIPS Agreement.⁴⁵

Based on this evaluation, no single ownership model is capable of comprehensively resolving the issue of copyright in AI works. The user ownership model risks recognizing too minimal contributions, the developer model ignores users' creative expression, the platform model has only contractual force, while joint authorship and sui generis rights face conceptual obstacles and face challenges in harmonizing with the principle of human authorship in international copyright law.⁴⁶ The main problem is not simply determining who holds the copyright, but rather the lack of objective legal parameters for assessing the level of human creative contribution in the AI-assisted creation process. This normative vacuum impacts certainty of ownership, licensing, transfer of rights, protection of moral rights, law enforcement, and commercial transactions in the creative industry. Therefore, legal reconstruction needs to be directed at formulating criteria for substantial human creative contribution as a basis for determining copyright ownership. This approach maintains the principle of human authorship while providing legal certainty that is more consistent with the philosophy of the Indonesian Copyright Law and developments in international practice.⁴⁷

3.3. Reconstructing a Human-Centered Copyright Ownership Model for AI-Generated Works: A Comparative Perspective

The development of generative artificial intelligence demonstrates that the primary issue in copyright law is no longer whether AI-based works can be protected, but

⁴⁵ Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.26. See too, Pratiti Nayak, and Kiyemet Tunca Çalıyurt., Addressing Copyright Challenges in the Era of AI-Generated Content: What Are the Legal Implications?, In *A Multidisciplinary Approach to KIIT Horizons, Volume 1: Exploring Artificial Intelligence Across Disciplines*, Singapore, Springer Nature Singapore, 2025, page.4.

⁴⁶ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.292. See too, Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.61; Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.56; Ghazali Hasan Nasakti, and Rianda Dirkareshza., Generative artificial intelligence is not a mere tool: Revisiting Indonesian Copyright Law, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.347.

⁴⁷ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.31. See too, Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.58; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.160; Zehra Özkan Üner, and Pınar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.59.

rather how to determine the subjects who are legally entitled to copyright.⁴⁸ Most modern legal regimes maintain the principle of human authorship, so AI is not recognized as a creator because it lacks legal personality, consciousness, will, or the ability to bear legal rights and obligations.⁴⁹ On the other hand, the development of generative AI has changed the pattern of creation, where part of the creative process is carried out through computing systems capable of generating new expressions based on training large amounts of data. This situation creates a normative vacuum in determining copyright ownership for works produced with the assistance of AI, particularly in the Indonesian legal system, which is still built on the paradigm of the creator as a human.⁵⁰

Various approaches have been developed in the literature to address this issue, but each still suffers from conceptual and normative weaknesses. The joint authorship approach considers AI works as the result of collaboration between humans and AI, but this concept is difficult to implement because AI is not a legal entity capable of possessing moral or economic rights as required by the copyright regime.⁵¹ The work-made-for-hire approach grants rights to those who control or regulate the use of AI, as developed in the UK. However, this model is more suited to contractual relationships and is not fully capable of addressing the open nature of generative AI used by millions of users without an employment relationship with

⁴⁸ Mohammad Abdallah, and Mousa Salah., Artificial intelligence and intellectual properties: Legal and ethical considerations, *International Journal of Intelligent Systems and Applications in Engineering*, Vol.12, no.1, 2024, page.370. See too, Ilyos Abdullayev, Kira Vagner, Olesya Tereshchenko, Alexey Nedelkin, and Vitalii Vasyukov., Opportunities for Developing Natural Language Models in Building Artificial Intelligence Systems to Enhance Educational Process Support, *Pakistan Journal of Life & Social Sciences*, Vol.22, no.2, 2024, page.343.

⁴⁹ Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.63. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.420; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.372; Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.59.

⁵⁰ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.34. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.142; Kacper Szkalej, and Martin Senftleben., Generative AI and creative commons licences: the application of share alike obligations to trained models, curated datasets and AI output, *Journal of Intellectual Property, Information Technology and E-Commerce Law*, Vol.15, 2024, page.313.

⁵¹ Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights A copyright perspective, *Journal of Intellectual Property Rights*, Vol.30, no.1, 2025, page.30. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.143.

the AI developer.⁵² Meanwhile, the sui generis approach offers a new legal regime separate from conventional copyright, but requires the creation of a new intellectual property rights system that has not yet achieved international consensus and has the potential to reduce harmonization with the principles of the Berne Convention and the TRIPS Agreement.⁵³ A comparison of the three approaches is presented in Table 3.

Table 3. Comparison of Copyright Ownership Models for Artificial Intelligence Works

Model	Core Principle	Strengths	Limitations	Relevance to Indonesia
Joint Authorship	AI and humans are treated as joint contributors to the creation of a work.	Accommodates collaborative human–AI creation.	AI is not a legal subject and therefore cannot hold moral or economic rights.	Less compatible with Indonesian Copyright Law (Law No. 28 of 2014).
Work Made for Hire	Copyright is assigned to the party that controls or initiates the creation process.	Provides greater legal certainty regarding ownership.	More suitable for employment or contractual relationships than for open generative AI systems.	May be adopted with limited application.
Sui Generis Protection	Establishes a separate legal regime specifically for	Flexible in responding to technological developments.	Introduces a new intellectual property	Requires extensive legislative reform.

⁵² Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.25. See too, Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.162.

⁵³ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.293. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.56; Pratiti Nayak, and Kiymet Tunca Çaliyurt., Addressing Copyright Challenges in the Era of AI-Generated Content: What Are the Legal Implications?, In *A Multidisciplinary Approach to KIIT Horizons, Volume 1: Exploring Artificial Intelligence Across Disciplines*, Singapore, Springer Nature Singapore, 2025, page.5; Eleni Tzoulia., IP Protection for AI-Generated Content in the "Post-AI Act" Era, In *EU Digital Law in the AI Era*, Cham, Springer Nature Switzerland, 2025, page.137.

	AI-generated works.		regime and lacks international consensus.	
Human-Centered Copyright Ownership	Copyright is granted to the human who makes a substantial creative contribution, while AI is treated solely as a creative tool.	Consistent with the principles of human authorship, the Berne Convention, and Indonesian Copyright Law; provides greater legal certainty.	Requires objective criteria to assess substantial human creative contribution.	The most appropriate model as the foundation for copyright law reform in Indonesia.

In contrast to these approaches, this study proposes the Human-Centered Copyright Ownership (HCCO) model as a form of legal reconstruction that maintains the basic principle of copyright: that exclusive rights arise from human creativity, while positioning AI as an instrument or creative tool, rather than as the creator or copyright holder. This model is more consistent with the international copyright philosophy that places human creativity as the basis for protection, while also accommodating the use of AI in modern creative processes without altering the basic structure of the Indonesian copyright system.⁵⁴

The primary advantage of the HCCO model lies in its ability to maintain a balance between legal certainty and the development of innovation. This model does not reject the use of AI in the creative process, but also does not grant legal recognition to AI as the creator. Thus, copyright remains vested in humans as long as it can be demonstrated that the work represents a substantial human creative contribution. This approach aligns with established practices in the United States, the European Union, Japan, Australia, and most countries that continue to require human creative contribution as a basis for copyright protection, although there is

⁵⁴ Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.421. See too, Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.59; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.373; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.114.

variation in the degree of human involvement required.⁵⁵

The concept of substantial human creative contribution (SHCC) is central to the proposed model. Unlike the concept of "use of AI," SHCC emphasizes the dominance of human intellectual decisions throughout the entire creation process. Therefore, the use of AI does not automatically eliminate a person's status as creator. The basis for protection is the extent to which humans control, shape, select, modify, and refine the AI-generated output so that the final work truly reflects human intellectual expression.⁵⁶

In order for this concept to be applied objectively in judicial practice, this study proposes several indicators for assessing substantial human creative contribution, namely: (1) humans determine the main ideas, objectives, themes, and concepts of the work; (2) humans actively control the process of using AI, including the preparation, development, and refinement of prompts; (3) humans make creative selections from various alternative AI outputs; (4) humans make substantial modifications, revisions, editing, or developments to the AI output; (5) the final form of the work is the result of human creative choices, not automatic reproduction of AI; and (6) humans are responsible for the content, use, and economic exploitation of the work. All of these indicators are summarized in Table 4.

Table 4. Substantial Human Creative Contribution Assessment Indicators

Indicator	Assessment Parameter
Concept Development	The human determines the core idea, purpose, theme, structure, and principal characteristics of the work.
Process Control	The human actively directs, refines, and controls the use of AI throughout the creative process.

⁵⁵ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.121. See too, Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.358; Chenyu Lin, and Junming Gong., Artificial intelligence for text generation: copyright analysis and intellectual property development, In *International Conference on AI-Generated Content (AIGC 2024)*, SPIE, 2025, page.101; Hernán Núñez Rocha., Artificial Intelligence and Copyright Law, Notes on Content Generation, *Boletín mexicano de derecho comparado*, Vol.58, no.174, 2025, page.324; Seiya S. Takeuchi., Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.327.

⁵⁶ Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.359. See too, Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.64; Komalavalli C., Rinki Bhati, R., Akhilesh Kumar Khan, and Arun Kumar Tripathi., *Smart contracts for AI-generated art rights*, *ShodhKosh: Journal of Visual and Performing Arts*, Vol.6, no.1, 2025, page.46; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.164.

Output Selection	The human selects AI-generated outputs based on independent creative judgment.
Substantial Modification	The human significantly revises, edits, combines, or further develops the AI-generated output.
Final Creative Decision	The final form of the work reflects the human's intellectual choices rather than the AI's automatic generation.
Legal Responsibility	The human assumes legal responsibility for the content, use, and commercial exploitation of the work.

Through these indicators, the assessment of copyright ownership no longer solely focuses on the presence or absence of AI in the creative process, but rather on the level of human intellectual contribution in shaping the final expression of a work. For example, if an illustrator uses AI to generate several alternative designs, then selects one design, changes the visual composition, adds artistic elements, makes substantial edits, and determines the final character of the work, then the human creative contribution remains dominant and the illustrator deserves to be recognized as the creator and copyright holder. Conversely, if someone only enters one or two prompt sentences and immediately uses the AI output without any creative choices, process control, or substantial modifications, then the relationship between the work and human creativity becomes too weak to meet the principles of originality and human authorship as the basis for copyright protection.⁵⁷

The HCCO model also provides greater legal certainty than other alternative models. First, AI users gain certainty regarding the requirements for obtaining copyright, so the use of AI does not automatically eliminate legal protection.⁵⁸ Second, AI developers do not automatically acquire copyright over all output from AI systems unless there is a separate legal relationship through a contract or other provisions. Third, judges gain more objective parameters in determining copyright ownership status, thereby reducing disparities in decisions. Fourth, creative industry players gain certainty regarding the boundary between the use of AI as

⁵⁷ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.122. See too, Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.359; Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, no.2, 2025, page.221; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.119; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.167.

⁵⁸ Michelle Azuaje Pirela., Legal protection of artificial intelligence products in the intellectual property system, *Revista Jurídica Austral*, Vol.1, 2020, page.319.

an assistive tool and the use of AI that produces automated works without copyright protection.⁵⁹

For this model to be effectively implemented, reform of Law Number 28 of 2014 concerning Copyright is required. This reform does not require changes to the basic philosophy of copyright, but rather simply refines the norms to accommodate the development of generative AI. First, Article 1, concerning the definition of creator, needs to be expanded to include the concept of AI-assisted works and emphasize that creators remain humans who make substantive creative contributions. Second, Article 5, concerning moral rights, needs to emphasize that moral rights are inherent only to humans even if the work is produced with the assistance of AI. Third, Articles 8 and 9, concerning economic rights, need to provide the basis that economic rights to AI-assisted works are granted to humans who meet the SHCC standards. Fourth, Article 40, concerning objects of creation, needs to be expanded to accommodate AI-assisted works as a category of works that can still receive protection as long as they meet the requirements for human creative contributions. Fifth, new provisions need to be added that regulate SHCC assessment indicators as a legal standard in examining AI-based copyright disputes. These reform strategies are summarized in Table 5.

Table 5. Copyright Law Reform Strategy for Artificial Intelligence Works

Provision of Law No. 28 of 2014	Current Issue	Proposed Reform
Article 1(2) (Author/Creator)	Does not accommodate AI-assisted works.	Introduce a definition of AI-assisted works and incorporate the concept of Substantial Human Creative Contribution (SHCC).
Article 5 (Moral Rights)	Does not regulate the use of AI in the creation process.	Clarify that moral rights remain exclusively vested in the human author, regardless of AI assistance.
Articles 8–9 (Economic Rights)	Does not regulate ownership of AI-generated outputs.	Provide that economic rights belong to the human who satisfies the SHCC standard.
Article 40 (Protected	Does not explicitly recognize AI-assisted	Include AI-assisted works as a protected category, provided they

⁵⁹ Anuttama Ghose, SM Aamir Ali, and Sachin Deshmukh., Navigating the legal and ethical framework for generative AI: Fostering responsible global governance, In *Exploring the Ethical Implications of Generative AI*, Pennsylvania: IGI Global Scientific Publishing, 2024, page.169. See too, Amanda M. Horzyk, How AI affects our understanding of musical works that should be protected by copyright, In *2023 international joint conference on neural networks (IJCNN)*, IEEE, 2023, page.7; Singh Hoshiar, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work, In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.9; Nadia Yas, Hani Abdulrahim, Issa Ghassan Rabadi, and Zeana Abdijabar., Protecting the civil rights of the author from the risks of artificial intelligence, *Research Journal in Advanced Humanities*, Vol.6, no.1, 2025, page.25.

Works)	works.	satisfy the requirement of substantial human creative contribution.
New Provision	No legal standard for assessing human creative contribution.	Introduce legal criteria for SHCC as guidance for courts and the Directorate General of Intellectual Property (DGIP) in determining copyright ownership of AI-assisted works.

In addition to changes to the Copyright Law, implementation of this model requires the preparation of interpretive guidelines for judges and the Directorate General of Intellectual Property regarding procedures for proving human creative contributions. Such guidelines may include initial proof of concept, history of prompt development, editing process, documentation of changes to the work, as well as evidence of creative decision making during the creation process. This approach will increase the consistency of decisions, strengthen legal certainty, while reducing subjectivity in determining copyright ownership status for AI-based works.⁶⁰

Thus, the Human-Centered Copyright Ownership model not only fills the normative void in Indonesian copyright law, but also offers a legal reconstruction that remains consistent with the principle of human authorship, is in line with developments in international law, and is more adaptive to advances in AI technology. Compared to joint authorship, work made for hire, or sui generis approaches, this model provides a more proportional solution because it does not change the basic structure of copyright law, but clarifies the parameters of rights ownership through substantial human creative contribution standards that can be applied objectively in judicial practice and policy formation. Therefore, this model is worthy of being used as a basis for updating Law Number 28 of 2014 in order to realize legal certainty, protect human creativity, and encourage sustainable artificial intelligence-based innovation.

4. Conclusion

This research demonstrates that Law Number 28 of 2014 concerning Copyright has not yet provided legal certainty regarding copyright ownership for works produced with the assistance of artificial intelligence (AI). The entire construction

⁶⁰ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.37. See too, Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.59; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.167.

of Indonesian copyright law is still based on the human authorship paradigm, so the concepts of creator, originality, moral rights, and economic rights are entirely linked to human creativity. This situation creates a normative vacuum when AI plays a significant role in the creation process, potentially giving rise to ownership disputes, inconsistent interpretations, and legal uncertainty for creators, AI users, technology developers, and creative industry players.

Theoretically, this research contributes by developing the Human-Centered Copyright Ownership (HCCO) model as a normative reconstruction of copyright ownership for AI-assisted works. Unlike the joint authorship, work-made-for-hire, and sui generis approaches, this model maintains the fundamental principle that copyright arises from human creativity, while AI is positioned as an instrument supporting the creative process. The main novelty of this research lies in the introduction of the concept of substantial human creative contribution as a legal standard for determining whether human involvement remains sufficiently dominant to warrant copyright protection. Thus, this study not only identifies gaps in Indonesian positive law but also offers more objective normative parameters for determining copyright ownership of AI-assisted works.

Practically, the proposed model can serve as a guideline for legislators, judges, the Directorate General of Intellectual Property, and creative industry players in resolving copyright ownership issues for AI-assisted works. Therefore, this study recommends reforming the Copyright Law by adding provisions regarding AI-assisted works, establishing indicators for substantial human creative contribution, and providing clearer guidelines for determining copyright ownership. These reforms are expected to strike a balance between protecting human creativity, legal certainty, and fostering technological innovation, ensuring that Indonesia's copyright legal system remains relevant in the face of future developments in artificial intelligence.

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RECONSTRUCTING COPYRIGHT PROTECTION FOR ARTIFICIAL INTELLIGENCE-GENERATED WORKS

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ABSTRACT

The development of Generative Artificial Intelligence (AI) has transformed the process of intellectual creation and raised issues regarding authorship and copyright ownership. However, Law Number 28 of 2014 concerning Copyright is still based on the human authorship paradigm and therefore does not provide legal certainty for works produced with the help of AI. This study aims to analyze the adequacy of legal protection for AI works, identify weaknesses in the concept of creator in Indonesian copyright law, and formulate a Human-Centered Copyright Ownership model. The study uses a normative legal method with a statutory, conceptual, comparative, and case approach through an analysis of laws and regulations, international instruments, court decisions, doctrines, and scientific literature. The results of the study indicate that Indonesian copyright law still experiences a normative vacuum regarding the ownership of AI works and therefore is unable to provide legal certainty. As a novelty, this study offers a Human-Centered Copyright Ownership model that positions AI as a creative tool, while copyright ownership is determined based on substantial human creative contribution. This model provides more objective normative parameters for determining creators and copyright holders and serves as a basis for reforming the Copyright Law to achieve a balance between protecting human creativity, legal certainty, and technological innovation.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial

intelligence³⁹, has fundamentally transformed the process of creating intellectual works.¹ Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, computer programs, and various other forms of creative expression through machine learning and large language models. This capability makes AI no longer merely a tool but plays an active role in the creative process²⁸. This development raises new issues in copyright law, particularly regarding whether works generated by AI are eligible for legal protection and who should be legally recognized as the creator and copyright holder.²

The international copyright legal framework currently lacks provisions that explicitly accommodate works generated by AI. The Berne Convention for the Protection of Literary and Artistic Works is based on the principle that copyright arises from human intellectual creation, while the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) adopts the Berne standard without specifically addressing AI. Similarly, various discussions within the World Intellectual Property Organization (WIPO) indicate that current international copyright instruments were drafted before the development of generative AI and therefore are unable to address issues regarding authorship and copyright ownership of works autonomously generated by AI.³ Consequently, the resolution of these issues remains up to individual countries, leading to diverse legal approaches.

These differences are evident in the various legal systems currently in development. The United States consistently requires human authorship, making works entirely generated by AI ineligible for copyright protection.⁴ The European

¹ Mohammad Abdallah, and Mousa Salah., Artificial intelligence and intellectual properties: Legal and ethical considerations, *International Journal of Intelligent Systems and Applications in Engineering*, Vol.12, no.1, 2024, page.369. See too, Ilyos Abdullayev, Kira Vagner, Olesya Tereshchenko, Alexey Nedelkin, and Vitalii Vasyukov., Opportunities for Developing Natural Language Models in Building Artificial Intelligence Systems to Enhance Educational Process Support, *Pakistan Journal of Life & Social Sciences*, Vol.22, no.2, 2024, page.343.

² Abed Fayed, Aliaa Zakaria, and Alaa Abouahmed., Innovations of Artificial Intelligence in Light of the Applicable Copyright Law: Realistic Solutions and Future Prospects. A Comparative Study of UAE, Egyptian, and French Laws, *Access to Just, Eastern Europe*, Vol.2, 2025, page.241. See too, Amanda M. Horzyk, How AI affects our understanding of musical works that should be protected by copyright, In *2023 international joint conference on neural networks (IJCNN)*, IEEE, 2023, page.6; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Iran, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.409; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.109.

³ Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.24. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.52; Qingchuan Xie, and Tianxiang He., Battle between 'long'and 'short'videos: Fragmented uses, diversified purposes, and the evolution of China's copyright limitation rules in the AI era, *The Chinese Journal of Comparative Law*, Vol.11, no.3, 2023, page.1.

⁴ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.113. See too,

Union also continues to prioritize human creativity as a key element in assessing the originality of a work.⁵ Conversely, the United Kingdom, through the Copyright, Designs and Patents Act 1988, recognizes computer-generated works by stipulating that the creator is the party who makes the necessary arrangements for the creation process.⁶ On the other hand, several court decisions in China have begun to provide protection for AI works by placing the developer or party controlling the AI system as the copyright holder.⁷ These diverse approaches demonstrate that there is currently no international consensus on the concept of authorship and copyright ownership for AI-generated works.

This issue is even more pressing in the Indonesian context because Law Number 28 of 2014 concerning Copyright is still entirely based on an anthropocentric paradigm that positions humans as the sole creators. The definition of author, the concept of originality, moral rights, and economic rights all assume that a work arises from human creativity. The law does not yet regulate the legal status of AI-generated works, the legal relationship between AI users, AI developers, and AI platform providers, or the mechanism for determining copyright ownership of AI-generated works.⁸ Yet, the use of generative AI applications such as ChatGPT,

¹ Ansagan Aronov, and Sara Idrysheva., Copyright protection on works generated by artificial intelligence, *Science and Innovation*, Vol.21, no.1, 2025, page.115; Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.23; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.410.

⁵ Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.355.

⁶ Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.23. See too, Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.54.

⁷ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.23. See too, Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1216; Sin Zhi Ying, Chia Yuh Bao, Sharon Varghese, Michael Goh, Tee Connie, and Manique Apsara Ephranelle Cooray., AI Dilemma: Copyrighting Creativity in the Age of Artificial Intelligence, *International Journal of Cyber Criminology*, Vol.18, no.2, 2024, page.39.

⁸ Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.42. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.137; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.155.

Gemini, Midjourney, DALL·E, and various similar platforms is increasingly widespread in Indonesia for book development, graphic design, software, learning materials, marketing content, and other creative industries.⁹ If a dispute arises regarding ownership of the work, Indonesian positive law does not yet provide a clear normative basis for determining who has the right to copyright.

This lack of legal certainty has far-reaching implications. If all AI works are granted copyright protection without clear boundaries, companies that control AI technology could potentially monopolize the production of creative works and diminish the economic value of human creativity.¹⁰ Conversely, if all AI works are placed in the public domain, users and industry players will lose legal certainty in commercializing AI-assisted works. This lack of clarity also has the potential to create inconsistencies in judicial practices, licensing, investment, and copyright law enforcement in Indonesia.¹¹ Therefore, determining copyright ownership of AI works is no longer merely an academic issue, but rather an urgent need to ensure legal certainty, support the national creative industry, and maintain a balance between copyright protection and technological development.

Various previous studies have offered various concepts regarding copyright ownership of AI works. Some studies maintain the principle of human authorship by placing human creativity as the primary requirement for copyright protection.¹² Other studies argue that copyright should be granted to AI users because they provide prompts and initiate the creative process.¹³ Still others propose that

⁹ Gaspar Alberto Angulo Matos, Nadia Liz Romero Rodríguez, and Eduardo Andrés Calderón Marengo., *Dos inteligencias y una autoría: chatGPT y el reconocimiento de la personalidad en el marco legal peruano*, *Justicia*, Vol.4, no.3, 2025, page.232.

¹⁰ Minh Le Thi., *Copyright Protection for Works Created by AI Technology under the EU Law and Vietnamese Law*, *Rev. Eur. & Comp. L.* Vol.55, 2023, page.7.

¹¹ Amanda M. Horzyk, *How AI affects our understanding of musical works that should be protected by copyright*, In *2023 International joint conference on neural networks (IJCNN)*, IEEE, 2023, page.7. See too, Singh Hoshiar, and Sharma Kiran., *Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work*. In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.6; Paarth Naithani., *Issues of authorship and ownership in work created by artificial intelligence-Indian copyright law perspective*, *NTUT Journal of Intellectual Property Law and Management*, Vol.11, no.1, 2022, page.8; Rofi Aulia Rahman, Akhmad Al-Farouqi, and Shu Mei Tang., *Should Indonesian Copyright Law be Amended Due to Artificial Intelligence Development?: Lesson Learned from Japan*, *NTUT Journal of Intellectual Property Law and Management*, Vol.9, no.1, 2020, page.38; Nadia Yas, Hani Abdulrahim, Issa Ghassan Rabadi, and Zeana Abdijabar., *Protecting the civil rights of the author from the risks of artificial intelligence*, *Research Journal of Advanced Humanities*, Vol.6, no.1, 2025, page.23.

¹² Ansagan Aronov, and Sara Idrysheva., *Copyright protection on works generated by artificial intelligence*, *Science and Innovation*, Vol.21, no.1, 2025, page.116. See too, Anke Moerland., *Intellectual property law and AI*, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.365; Irene Stamatoudi., *Copyright Protection for AI-Generated Works: Is It Something We Want?*, *Cyprus Review* Vol.38, no.1, 2026, page.11.

¹³ Sk M. Ali, Anuttama Ghose, Shashikant Saurav, and Sachin Deshmukh., *Creativity and Innovation in the Age of Artificial Intelligence: A Copyright Dilemma*, *Padjadjaran Jurnal Ilmu Hukum*, Vol.11, no.2, 2024, page.6. See too, Axell Cervera, Erik Obiol, and José Rolando Cardenas-Gonzales., *Derechos de autor y calidad de las instrucciones en obras generadas por inteligencia artificial*, *Nuevo Derecho*, Vol.21, no.37, 2025, page.17; Anthi Gaidartzi, and Irini Stamatoudi.,

copyright be granted to AI developers or those who undertake technical arrangements for AI systems, as is the UK's necessary arrangements approach.¹⁴ Furthermore, there is also the concept of joint authorship, which views humans and AI as parties that jointly contribute to the creation process, as well as the proposal to establish a sui generis regime because the copyright regime is deemed no longer adequate to regulate AI works.¹⁵ These differences indicate that there is no agreement yet on the concept of authorship or copyright ownership of AI works.

However, these studies still leave several gaps. First, most studies focus on the issue of copyrightability of AI works or comparative studies between countries, but have not specifically reconstructed the concept of copyright ownership within the framework of the Indonesian Copyright Law. Second, various proposed models, such as user ownership, developer ownership, joint authorship, work-made-for-hire, and sui generis, have not been able to accommodate the anthropocentric nature of Indonesian copyright law while simultaneously accommodating the use of AI as a creative instrument. Third, previous research has not formulated clear legal parameters regarding the extent to which human creative contributions can be used as a basis for determining the status of creators and copyright holders of AI-generated works. Consequently, there is currently no normative model that can provide legal certainty while upholding the fundamental

Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.58; Oluwatobi Victoria Taiwo., *Artificial Intelligence Generated Works and the Copyright Dilemma: A Case Study of the United Kingdom and South Africa*, *Contemporary Issues in Intellectual Property Law in Africa*. Routledge, 2024, page.172; Felipe Osorio Umaña., El concepto de originalidad del Tribunal de Justicia de la Unión Europea y la inteligencia artificial, *Revista Justicia y Derecho*, Vol.8, no.1, 2025, page.1.

¹⁴ Singh Hoshier, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work, In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.7. See too, Jyh-An Lee., Computer-generated Works under the CDPA 1988, *Artificial Intelligence and Intellectual Property* (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.25.

¹⁵ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.288. See too, Firas Massadeh, Faye Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.53; Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights A copyright perspective, *Journal of Intellectual Property Rights*, Vol.30, no.1, 2025, page.27; Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.138; Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1218. See too, Jinyang Tian., The Nature and Ownership of Copyright for AI-Generated Works, *NTUT Journal of Intellectual Property Law and Management* Vol.13, no.1, 2024, page.47.

principle that copyright arises from human creativity.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model to reconstruct copyright ownership of AI-generated works within the Indonesian legal system. Unlike the concept of joint authorship, which places AI as part of the authorship process, this model maintains that only humans can be recognized as creators. Unlike the work-made-for-hire approach, which bases ownership on technological control or contractual relationships, and the sui generis concept, which establishes a new rights regime outside of copyright law, the proposed model maintains the existing copyright regime by making substantial human creative contributions the primary parameter in determining creators and copyright holders. Thus, AI is positioned as a creative instrument, not as a legal subject or creator.

This research is expected to provide theoretical and practical contributions to the development of Indonesian copyright law. Theoretically, this research offers a reconstruction of the concept of copyright ownership that maintains the principle of human authorship but accommodates the development of generative AI. Practically, the proposed model is expected to serve as a basis for legislators, judges, legal practitioners, creative industry players, and AI developers in realizing legal certainty regarding copyright ownership of AI-generated works. Based on these objectives, this research aims to answer three main questions:

1. Does current Indonesian copyright law provide protection for AI-generated works?
2. Why the concept of creator in the Copyright Law is no longer adequate to regulate ownership of AI works?
3. How can the Human-Centered Copyright Ownership model be reconstructed within the Indonesian copyright legal system?

2. Research Methods

This research is a normative legal research (doctrinal legal research) aimed at evaluating the adequacy of Indonesian copyright regulations in accommodating works produced by Artificial Intelligence (AI), identifying gaps and inconsistencies in norms, and reconstructing a copyright ownership model that aligns with the development of AI without neglecting the basic principles of Indonesian copyright law. This research is prescriptive in nature, as it not only analyzes positive law but also formulates a Human-Centered Copyright Ownership model as a recommendation for legal reform. To address the research questions, the research utilizes four complementary approaches. The first question, concerning legal protection for AI works, is analyzed through a statutory and case-based approach. The second question, concerning weaknesses in the concept of creator, is analyzed through a conceptual approach, examining theories of authorship, originality, human creativity, moral rights, and economic rights. The third question, concerning the reconstruction of the copyright ownership model, is analyzed through a comparative legal approach, combining the results of normative, conceptual, and case-based analyses to produce a comprehensive reconstruction model.

A doctrinal approach is used to assess the suitability of Indonesian positive law to the development of AI through an analysis of Law Number 28 of 2014 concerning Copyright, specifically provisions concerning creators, copyright ownership, moral rights, economic rights, originality, and protection of creations. This analysis is linked to international instruments that form the foundation of the copyright system, namely the Berne Convention for the Protection of Literary and Artistic Works, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), and documents and recommendations of the World Intellectual Property Organization (WIPO) regarding intellectual property and AI. Moreover, a conceptual approach is used to analyze copyright legal doctrine regarding authorship, originality, human creativity, moral rights, economic rights, theories of intellectual property ownership, and the relationship between humans and AI in the creation process. This analysis aims to formulate legal parameters for substantial human creative contribution as a basis for determining creators and copyright holders of AI-assisted works. Lastly, a comparative legal approach is used to compare AI copyright regulations in the United States, the United Kingdom, the European Union, Japan, Singapore, and China. The comparison is conducted to identify legal principles, best practices, and regulatory alternatives relevant to the reconstruction of Indonesian copyright law, not to conduct legal transplantation.

The legal materials consist of primary legal materials (statutory regulations, international instruments, court decisions, and official documents), secondary legal materials (books, scientific articles, research results, and doctrines), and tertiary legal materials (legal dictionaries and encyclopedias). All materials are analyzed qualitatively through inventory, classification, grammatical, systematic, comparative, and teleological interpretation, then compiled using legal reasoning to identify gaps, conflicts, and inadequacies of norms as the basis for formulating a Human-Centered Copyright Ownership model for Indonesian copyright law reform.

3. Results and Discussion

3.1. Legal Protection for Works Generated by Artificial Intelligence: A Doctrinal Perspective

The development of generative artificial intelligence has changed the paradigm of intellectual creation. Unlike conventional software, which only executes instructions deterministically, generative AI is capable of generating text, images, music, video, software, and even graphic designs through machine learning and large language models.¹⁶ This change raises fundamental questions regarding whether AI-generated works can be protected by copyright, who can be recognized as the creator, and how the economic and moral rights to these works

¹⁶ Jacopo Ciani., Learning from monkeys: authorship issues arising from AI technology, In *EPIA Conference on Artificial Intelligence*. Cham, Springer International Publishing, 2019, page.278. See too, Ekaterina A. Sviridova., The problem of determining the subject of copyright for works created by artificial intelligence, *Gosudarstvo i pravo*, Vol.2, 2021, page.97.

should be allocated.¹⁷

In copyright law, protection for AI-generated works is not only concerned with recognition of the creation but also includes determining who is entitled to the economic and moral rights to the work. Therefore, discussions about AI cannot be separated from the three fundamental concepts of copyright law: authorship, originality, and copyright ownership. Most copyright regimes worldwide continue to place humans at the center of the protection system (human-centered authorship), so that works are only protected if they are the result of human intellectual expression manifested in a tangible form.¹⁸

This principle also underpins various international instruments. The Berne Convention for the Protection of Literary and Artistic Works requires that works be the result of the intellectual expression of the creator, while the TRIPS Agreement adopts protection principles based on the provisions of the Berne Convention. Although neither instrument explicitly regulates works produced by AI, both are built on the assumption that the creator is human. Likewise, various discussions developed by the World Intellectual Property Organization (WIPO) to date have not produced a specific international instrument regarding copyright ownership of AI works, so that the resolution still depends on the interpretation of each country.¹⁹

¹⁷ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.24. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.412; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.367; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.112.

¹⁸ Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.59. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.413; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.368; Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*, Global Scientific Publishing, 2025, page.58.

¹⁹ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.24. See too, Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.25; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.414; Qingchuan Xie, and Tianxiang He., Battle between 'long' and 'short' videos: Fragmented uses, diversified purposes, and the evolution of China's copyright limitation rules in the AI era, *The Chinese Journal of Comparative Law*, Vol.43, no.3, 2023, page.3; Shuang Yang., Optimizing Copyright Subject and Originality Rules for AI-Generated Software, In *Proceedings of the 2025 International Conference on Computer Technology, Digital Media and Communication*, 2025, page.544.

In the Indonesian context, this construction is clearly reflected in Law Number 28 of 2014 concerning Copyright. Article 1 number (2) defines a creator as a person or several people who, individually or collectively, produce a work that is unique and personal. This provision demonstrates that Indonesian copyright law is built on three main elements: the existence of a human legal subject, the existence of human intellectual capacity that gives rise to the creation, and the existence of a personal relationship between the creator and the work they produce. Consequently, moral rights as regulated in Article 5 and economic rights in Articles 8 and 9 can only be attached to humans as rights holders. Thus, AI, as a computing system that lacks legal personality, consciousness, will, or legal responsibility, cannot be recognized as a creator according to the construction of Indonesian positive law.²⁰

However, the primary issue lies not in whether AI can be recognized as a creator, but rather in whether the concept of creator as formulated in the Copyright Law remains adequate when the creative process is no longer entirely human-driven. Doctrinally,¹⁹ the entire structure of Indonesian copyright law is assumed to be based on a direct relationship between human intellectual activity and the resulting expression. This assumption becomes inadequate when AI is capable of composing music, producing illustrations, writing scientific articles, or creating software autonomously based on computational processes not entirely controlled by humans. In other words, the problem that arises is not a lack of objects of protection, but a lack of norms in determining the legal relationship between humans, AI, and their creations.²¹

This normative gap becomes even more apparent when linked to the principle of originality. In copyright law, originality is not defined as absolute novelty, as in

²⁰ Laurensia Andriani., Redesigning Indonesia Copyright Act to Accommodate Autonomous Intelligent System: Status Quo and Room for Improvement, *Asian Journal of Law and Economics*, Vol.9, no.3, 2018, page.21813. See too, Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.43; Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.139; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.156.

²¹ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.28. See too, Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.44; Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, no.2, 2025, page.218.

patent law, but rather as the result of human intellectual choice and creativity (independent intellectual creation). Therefore, the measure of originality¹⁹ is always related to the extent to which the final expression is a manifestation of human creativity. In entirely AI-generated works, this relationship becomes blurred because the final expression is formed through statistical and algorithmic processes carried out by the AI system, rather than through direct human creative choices.²² Consequently, even if a work appears novel and has economic value, it may not necessarily meet the requirements of originality as required by the copyright regime.

The international debate demonstrates the lack of a uniform approach to protecting AI works. The United States consistently requires human authorship, thus denying copyright protection to works generated entirely by AI. The European Union maintains a similar approach, placing human creativity as the primary criterion for originality. Conversely, the United Kingdom, through the Copyright, Designs and Patents Act 1988, recognizes computer-generated works by granting authorship to those who make necessary arrangements for the creation process. In China, several court decisions have begun to provide protection for AI works by attributing ownership to the developer or the party controlling the AI system. These differences in approach (Table 1) indicate that the primary issue is no longer the ability of AI to produce works, but rather the legal basis for determining who is entitled to copyright protection.²³

²² Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.356. See too, Komalavalli C., Rini Shati, R., Akhilesh Kumar Khan, and Arun Kumar Tripathi., *Smart contracts for AI-generated art rights*, *ShodhKosh: Journal of Visual and Performing Arts*, Vol.6, no.1, 2025, page.43; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.415; Hernán Núñez Rocha., Artificial Intelligence and Copyright Law, Notes on Content Generation, *Boletín mexicano de derecho comparado*, Vol.58, no.174, 2025, page.323; Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, no.2, 2025, page.219.

²³ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.114. See too, Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.25; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.417; Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.26; Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1217; Seiya S. Takeuchi., Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.325.

Table 1. Comparative Approaches to Copyright Protection for AI-Generated Works Across Selected Jurisdictions

Jurisdiction	Approach	Key Features	Protection Status	Sources
United States	Human Authorship	Requires human authorship; AI-generated works are not eligible for copyright protection.	⁴⁵ Purely AI-generated works are not protected.	Furqan et al. (2026); Kumar & Yadav (2024); Ampovska (2025) ²⁴
European Union	Human Creativity	Emphasizes human creativity and originality; AI-generated works generally do not qualify for copyright protection.	Protection requires substantial human creative contribution.	Kumar & Yadav (2024); Ampovska (2025) ²⁵
United Kingdom	Necessary Arrangements	Recognizes <i>computer-generated works</i> under the Copyright, Designs and Patents Act 1988, assigning authorship to the	Copyright is granted to the person responsible for organizing the creation process.	Lee (2021); Ampovska (2025); Üner & Aksoy (2025); Praja et al. (2025) ²⁶

²⁴ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.115. See too, Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.26; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.41⁸

²⁵ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.116. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.418. ⁸

²⁶ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.117. See too, Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and

		person making the necessary arrangements.		
Japan	Human Creativity	Balances the protection of human creativity with incentives for AI innovation.	AI is not recognized as an author; human contribution remains the primary basis for protection.	Takeuchi (2025) ²⁷
China	Judicial Approach	Several courts have recognized copyright protection for AI-generated works, attributing ownership to AI developers or controllers in specific cases.	Protection may be granted to AI developers or controllers under particular judicial circumstances.	Sun (2022); Dang (2026) ²⁸
Indonesia	Human-Centered Authorship	Copyright law remains human-centered and does not recognize AI as an author, although academic discussions have	No explicit legal regulation governing AI-generated works.	Praja et al. (2025); Subagiyo & Wibisono (2024); Mayana et al. (2024) ²⁹

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Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.26; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.154; Zehra Ozkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.57.

²⁷ Seiya S. Takeuchi., Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.326.

²⁸ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.25. See too, Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1218.

²⁹ Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and*

		explored <i>joint authorship</i> models.		
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Various countries have also begun offering alternatives beyond conventional copyright regimes. One such approach is the concept of sui generis rights, which establishes a new intellectual property rights regime specifically governing works generated by AI without altering the concept of creatorship in copyright law. This approach aims to provide legal certainty for AI works that do not meet the requirements of human authorship. However, the sui generis approach remains controversial because it has the potential to create a dualistic protection regime and obscure the copyright philosophy, which was originally established to protect human creativity.³⁰

In the Indonesian context, establishing a sui generis regime is also not the most appropriate option, as it would require fundamental changes to the existing copyright legal system. The main problem lies in the lack of normative parameters to determine when the use of AI can still be considered part of the human creative process. Therefore, according to this study, protection for AI-based works should not be determined based on the presence or absence of AI use, but rather on substantial human creative contribution. These contributions can be assessed through several initial indicators, namely: (1) humans determine the main creative ideas, goals, and concepts; (2) humans carry out substantive and repeated selection, arrangement, or modification of prompts; (3) humans control the selection and revision process of AI output; (4) humans provide creative editing that influences the final form of the work; and (5) the final expression reflects

Blockchain Conference, 2024; page.47. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.140; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.158; Sikun Zhao., The Role of Copyright Authentication in AI-Generated Visual Content: Constructing Trust in AIGC Media Environments and the Impact of Copyright Ambiguity on Perceived Authenticity, *Studies in Media and Communication*, Vol.14, 1, 2026, page.339.

³⁰ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.289. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.54; Pratiti Nayak, and Kıymet Tunca Çaliyurt., Addressing Copyright Challenges in the Era of AI-Generated Content: What Are the Legal Implications?, In *A Multidisciplinary Approach to KIIT Horizons, Volume 1: Exploring Artificial Intelligence Across Disciplines*, Singapore, Springer Nature Singapore, 2025, page.3; Eleni Tzoulia., IP Protection for AI-Generated Content in the "Post-AI Act" Era, In *EU Digital Law in the AI Era*, Cham, Springer Nature Switzerland, 2025, page.136.

human intellectual choices, not merely the automatic results of the AI system. Conversely, if the human role is limited to providing simple commands (simple prompts) without further creative involvement, then the personal relationship between the creator and the creation becomes very weak, making it difficult to fulfill the authorship and originality requirements in the Copyright Law.

Thus, the main problem with Indonesian copyright law is not the recognition of AI as a creator, but rather the absence of norms that can measure the level of human creative contribution in the AI-based creation process. This gap causes Law Number 28 of 2014 to be unable to provide legal certainty regarding the status of copyright protection, ownership, or the boundaries between the use of AI as a creative aid and AI as the party that predominantly produces the expression of the work.

3.2. Human Authorship and the Creator Concept in AI-Generated Works: A Conceptual Approach

Law Number 28 of 2014 concerning Copyright comprehensively regulates creators, copyright holders, moral rights, and economic rights. However, this entire structure is based on the assumption that every creation is the result of human intellectual expression. Therefore, the relationship between creators and copyright holders is fundamentally inseparable from the existence of humans as legal subjects. This anthropocentric assumption is sufficient when the entire creation process is carried out by humans, but becomes problematic when works are produced through the involvement of generative Artificial Intelligence (AI), which is capable of autonomously generating creative expression based on machine learning processes and large language models.³¹

The key issue is not simply whether works produced by AI can obtain copyright protection, but rather whether the concept of "creator" in Indonesian copyright law remains sufficient to determine copyright ownership when the creative process involves more than one actor. In practice, the creation of AI-based works involves at least four parties: the user who formulates the prompt and determines the creative goal; the developer who designs the algorithm and trains the AI model; the platform provider who provides the computing infrastructure and terms of service; and the AI system that produces the final expression of the work. The complexity of these relationships was never anticipated in the construction of the Copyright Law, resulting in the lack of normative parameters to determine who is legally entitled to be the copyright holder.³²

³¹ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.27. See too, Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.45; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.369.

³² Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.118. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union,

This ambiguity creates a normative vacuum that directly impacts legal certainty. From a doctrinal perspective, certainty regarding copyright holders is a prerequisite for the exercise of both economic and moral rights. Without the identification of legitimate rights holders, licensing, transfer of rights, royalty payments, enforcement of infringement laws, and dispute resolution become difficult. For example, companies purchasing AI-generated illustrations or software have no assurance that the licensing party is truly the legitimate rights holder. This situation increases transaction risks, hinders investment in the creative industry, and reduces the effectiveness of copyright protection in Indonesia.³³

Various jurisdictions have developed different approaches to address this issue, but there is no international consensus. The United States and the European Union continue to uphold the principle of human authorship, so works generated entirely by AI do not qualify for copyright protection because they lack sufficient human creativity.³⁴ In contrast, the United Kingdom has adopted a computer-generated works approach through the concept of necessary arrangements, which places the party initiating the creation process as the copyright holder.³⁵ Meanwhile, several

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- ⁴⁰ the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.419; Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.29; Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.56.
- ³³ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.30. See too, Ziana Mahfuzzah, Putri Rumondang Siagaian, Yeryl Patriana Yuswar, Muhammad Citra Ramadhan, and Dametken Medikhanovna Turekulova., Reforming the fair use doctrine in Indonesian intellectual property law: Addressing AI and digital activity through Islamic legal perspectives, *Jurnal Ilmiah Mizani*, Vol.13. no.1, 2026, page.454; Bernard Nainggolan, Agus Joko Pramono, and Stefan Koos., Legal Protection of Intellectual Property for Digital Works by Utilizing Emerging Technologies, *Jurnal Hukum UNISSULA*, Vol.41, no.4, 2025, page.899; Deslaely Putranti, Uni Tsulasi Putri, Adhi Prahara, and Muh Syah Quddus., Proposing digital copyright infringements enforcement through internet court in Indonesia: fostering the existing E-Court system, In *E3S Web of Conferences*, EDP Sciences, 2025, page.3006; Syafrinaldi Syafrinaldi, Kim Hyeonsoo, Rani Fadhila Syafrinaldi, and David Hardiogo., Artificial Intelligence, Innovation, and Copyright: Comparing Intellectual Property Law in Indonesia and South Korea, *Lex Scientia Law Review*, Vol.8, no.2, 2024, page.1148.
- ³⁴ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.119. See too, Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.357; Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.29; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.419.
- ³⁵ Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press,

court decisions in China have begun to recognize protection for AI works by attributing ownership to the developer or party controlling the AI system, although AI itself remains unrecognized as a legal subject.³⁶ These differences indicate that the primary issue is not the recognition of AI as an author, but rather the determination of the legal relationship between human contributions and the results produced by AI.

Various literature shows that until now there is no lack of consensus on who should hold copyright over works produced through Artificial Intelligence (AI).³⁷ These differences have given rise to at least four ownership models that have developed in the literature and practice of several jurisdictions: user ownership, developer ownership, platform ownership, and collaborative ownership or special regimes (joint authorship and sui generis rights) (Table 2). Each model is based on different legal arguments but also has limitations when applied to a copyright system that maintains the principle of human authorship, as is the case in Indonesia.

Table 2. Comparison of Copyright Ownership Models for AI-Generated Works

Ownership Model	Underlying Rationale	Strengths	Limitations
User Ownership	The user determines the creative objective through prompts, selects parameters, revises outputs, and decides the final result.	Provides incentives for creators using AI while maintaining the principle that human creativity remains the foundation of copyright.	Not all prompts reflect sufficient creativity. If human involvement is limited to simple instructions, it is difficult to establish originality and meaningful intellectual expression.
Developer Ownership	The developer designs the algorithms, AI models, and machine learning systems that enable AI to generate works.	Recognizes the intellectual investment, technological innovation, and development costs involved in creating AI systems.	Developers do not control the final expression of each generated work; therefore, the connection between the developer and individual works is

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2021), *Ti* Chinese University of Hong Kong Faculty of Law Research Paper 2021-65, 2021, page.26; Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives* the Nexus of AI and Copyright. IGI Global Scientific Publishing, 2025, page.58.

³⁶ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulator ³²ends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.26.

³⁷ Junaidi., The Urgency of Regulating Copyright of Artificial Intelligence Works With the Fair Use Principle From the Perspective of Development Law Theory, In *Ethical, Regulatory, and Intellectual Property Impacts on AI Development*, Pennsylvania, IGI Global Scientific Publishing, 2026, page.276.

			weak.
Platform Ownership	Platform providers supply the digital infrastructure, AI models, and regulate rights through terms of service.	Facilitates licensing and commercial exploitation through contractual arrangements.	Contractual terms bind only the contracting parties and cannot replace copyright ownership rules established under national copyright law.
Joint Authorship / <i>Sui Generis</i> Rights	Treats AI-generated works as collaborative creations between humans and AI or establishes a separate legal regime outside conventional copyright law.	Attempts to accommodate the unique characteristics of AI-generated works that cannot be fully addressed by traditional copyright principles.	Joint authorship is difficult to apply because AI is not a legal person. A <i>sui generis</i> regime may create overlapping protection and weaken the principle of human authorship.

Sumber: Lee (2021); Sun (2022); Subagiyo & Wibisono (2024); Mayana et al. (2024); Hoshier & Kiran (2024); Cervera et al. (2025); Gaidartzi & Stamatoudi (2025); Praja et al. (2025); Sanjaya & Rajavenkatesan (2025); Baker (2026); Massadeh et al. (2024).

The first model positions the AI user as the copyright holder because the user determines the creative intent through developing prompts, selecting parameters, evaluating outputs, and determining the final result. This approach views AI as a tool, thus retaining copyright with the human who makes a substantial creative contribution, while maintaining the principle of human authorship.³⁸ However, this model faces weaknesses when user contributions consist only of simple instructions, necessitating objective legal criteria to measure substantial human creative contribution.³⁹

The second model grants ownership to the AI developer, arguing that the AI's ability to produce works is the result of intellectual and technical investments in

³⁸ Axell Cervera, Erik Obiol, and José Rolando Cardenas-Gonzales., Derechos de autor y calidad de las instrucciones en obras generadas por inteligencia artificial, *Nuevo Derecho*, Vol.21, no.37, 2025, page.18. See too, Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.60; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.159.

³⁹ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.30. See too, Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.370.

algorithm development, machine learning, and training data. Consequently, several Chinese rulings have begun to link the protection of AI works to the system developer.⁴⁰ However, this approach is weak because developers generally do not determine the theme, purpose, or final expression of each work. Their contributions are more accurately viewed as those of the technology creator, rather than the individual creator of the work. Automatically granting rights to developers also has the potential to disregard users' creative contributions and create monopolies that contradict the objectives of copyright law.⁴¹

The third model links ownership to AI platform providers through terms of service, which regulate rights to AI output. Some platforms grant rights to users, while others retain specific licenses for the output. This approach provides certainty in contractual relationships and facilitates licensing and commercialization of works.⁴² However, terms of service cannot replace national copyright laws because they only bind the parties. In disputes with third parties, contractual clauses may not be sufficient to prove authorship or copyright ownership of AI works.⁴³

The fourth model proposes joint authorship or sui generis rights. Joint authorship views AI works as the result of collaboration between humans and AI, while sui generis offers a special protection regime because the characteristics of AI works are deemed not fully in line with conventional copyright regimes.⁴⁴ However, both models face conceptual obstacles. AI is not a legal subject, making it difficult to recognize as a co-creator, while the sui generis regime has the potential to create dual protection and contradicts the principle of human authorship, which remains

⁴⁰ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.28. See too, Singh Hoshiar, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work, In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.8; Ruihan Sun, and Shuhuan Zhou., How much human contribution is needed for "ownership" of AI-generated content: A comparison of copyright determination for generative AI in China and the United States, *The Journal of World Intellectual Property*.

⁴¹ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.290.

⁴² Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.58.

⁴³ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.32.

⁴⁴ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.291. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.55; Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights: A copyright perspective, *Journal of Intellectual Property Rights*, Vol.30, no.1, 2025, page.28; Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.141.

the basis of the Berne Convention and the TRIPS Agreement.⁴⁵

Based on this evaluation, no single ownership model is capable of comprehensively resolving the issue of copyright in AI works. The user ownership model risks recognizing too minimal contributions, the developer model ignores users' creative expression, the platform model has only contractual force, while joint authorship and sui generis rights face conceptual obstacles and face challenges in harmonizing with the principle of human authorship in international copyright law.⁴⁶ The main problem is not simply determining who holds the copyright, but rather the lack of objective legal parameters for assessing the level of human creative contribution in the AI-assisted creation process. This normative vacuum impacts certainty of ownership, licensing, transfer of rights, protection of moral rights, law enforcement, and commercial transactions in the creative industry. Therefore, legal reconstruction needs to be directed at formulating criteria for substantial human creative contribution as a basis for determining copyright ownership. This approach maintains the principle of human authorship while providing legal certainty that is more consistent with the philosophy of the Indonesian Copyright Law and developments in international practice.⁴⁷

3.3. Reconstructing a Human-Centered Copyright Ownership Model for AI-Generated Works: A Comparative Perspective

The development of generative artificial intelligence demonstrates that the primary

⁴⁵ Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.26. See too, Pratiti Nayak, and Kymet Tunca Çaliyurt., Addressing Copyright Challenges in the Era of AI-Generated Content: What Are the Legal Implications?, In *A Multidisciplinary Approach to KIIT Horizons, Volume 1: Exploring Artificial Intelligence Across Disciplines*, Singapore, Springer Nature Singapore, 2025, page.4.

⁴⁶ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.292. See too, Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.61; Firas Massadeh, Faye Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.56; Ghazali Hasan Nasakti, and Rianda Dirkareshza., Generative artificial intelligence is not a mere tool: Revisiting Indonesian Copyright Law, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.347.

⁴⁷ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.31. See too, Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.58; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.160; Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.59.

issue in copyright law is no longer whether AI-based works can be protected, but rather how to determine the subjects who are legally entitled to copyright.⁴⁸ Most modern legal regimes maintain the principle of human authorship, so AI is not recognized as a creator because it lacks legal personality, consciousness, will, or the ability to bear legal rights and obligations.⁴⁹ On the other hand, the development of generative AI has changed the pattern of creation, where part of the creative process is carried out through computing systems capable of generating new expressions based on training large amounts of data. This situation creates a normative vacuum in determining copyright ownership for works produced with the assistance of AI, particularly in the Indonesian legal system, which is still built on the paradigm of the creator as a human.⁵⁰

Various approaches have been developed in the literature to address this issue, but each still suffers from conceptual and normative weaknesses. The joint authorship approach considers AI works as the result of collaboration between humans and AI, but this concept is difficult to implement because AI is not a legal entity capable of possessing moral or economic rights as required by the copyright regime.⁵¹ The work-made-for-hire approach grants rights to those who control or regulate the use of AI, as developed in the UK. However, this model is more suited to contractual relationships and is not fully capable of addressing the open nature of generative AI used by millions of users without an employment relationship with

⁴⁸ Mohammad Abdallah, and Mousa Salah., Artificial intelligence and intellectual properties: Legal and ethical considerations, *International Journal of Intelligent Systems and Applications in Engineering*, Vol.12, no.1, 2024, page.370. See too, Ilyas Abdullayev, Kira Vagner, Olesya Tereshchenko, Alexey Nedelkin, and Vitalii Vasyukov., Opportunities for Developing Natural Language Models in Building Artificial Intelligence Systems to Enhance Educational Process Report, *Pakistan Journal of Life & Social Sciences*, Vol.22, no.2, 2024, page.343.

⁴⁹ Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.63. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.420; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.372; Zehra Özkan Üner, and Pınar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*, Global Scientific Publishing, 2025, page.59.

⁵⁰ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.34. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.142; Kacper Szkalej, and Martin Senftleben., Generative AI and creative commons licences: the application of share alike obligations to trained models, curated datasets and AI output, *Journal of Intellectual Property, Information Technology and E-Commerce Law*, Vol.15, 2024, page.313.

⁵¹ Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights A copyright perspective, *Journal of Intellectual Property Rights*, Vol.30, no.1, 2025, page.30. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.143.

the AI developer.⁵² Meanwhile, the sui generis approach offers a new legal regime separate from conventional copyright, but requires the creation of a new intellectual property rights system that has not yet achieved international consensus and has the potential to reduce harmonization with the principles of the Berne Convention and the TRIPS Agreement.⁵³ A comparison of the three approaches is presented in Table 3.

Table 3. Comparison of Copyright Ownership Models for Artificial Intelligence Works

Model	Core Principle	Strengths	Limitations	Relevance to Indonesia
Joint Authorship	AI and humans are treated as joint contributors to the creation of a work.	Accommodates collaborative human-AI creation.	AI is not a legal subject and therefore cannot hold moral or economic rights.	Less compatible with Indonesian Copyright Law (Law No. 28 of 2014).
Work Made for Hire	Copyright is assigned to the party that controls or initiates the creation process.	Provides greater legal certainty regarding ownership.	More suitable for employment or contractual relationships than for open generative AI systems.	May be adopted with limited application.
Sui Generis	Establishes a separate legal	Flexible in responding to	Introduces a new	Requires extensive

⁵² Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.25. See too, Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.162.

⁵³ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.293. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.56; Pratiti Nayak, and Kıymet Tunca Çaliyurt., Addressing Copyright Challenges in the Era of AI-Generated Content: What Are the Legal Implications?, In *A Multidisciplinary Approach to KIIT Horizons, Volume 1: Exploring Artificial Intelligence Across Disciplines*, Singapore, Springer Nature Singapore, 2025, page.5; Eleni Tzoulia., IP Protection for AI-Generated Content in the "Post-AI Act" Era, In *EU Digital Law in the AI Era*, Cham, Springer Nature Switzerland, 2025, page.137.

Protection	regime specifically for AI-generated works.	technological developments.	intellectual property regime and lacks international consensus.	legislative reform.
Human-Centered Copyright Ownership	Copyright is granted to the human who makes a substantial creative contribution, while AI is treated solely as a creative tool.	Consistent with the principles of human authorship, the Berne Convention, and Indonesian Copyright Law; provides greater legal certainty.	Requires objective criteria to assess substantial human creative contribution.	The most appropriate model as the foundation for copyright law reform in Indonesia.

In contrast to these approaches, this study proposes the Human-Centered Copyright Ownership (HCCO) model as a form of legal reconstruction that maintains the basic principle of copyright: that exclusive rights arise from human creativity, while positioning AI as an instrument or creative tool, rather than as the creator or copyright holder. This ⁴⁷ model is more consistent with the international copyright philosophy that places human creativity as the basis for protection, while also accommodating the use of AI in modern creative processes without altering the basic structure of the Indonesian copyright system.⁵⁴

The primary advantage of the HCCO model lies in its ability to maintain a ⁵² balance between legal certainty and the development of innovation. This model does not reject the use of AI in the creative process, but also does not grant legal recognition to AI as the creator. Thus, copyright remains vested in humans as long as it can be demonstrated that the work represents a substantial ³⁴ human creative contribution. This approach aligns with established practices in the United States, the European Union, Japan, Australia, and most countries that continue to require human creative contribution as a basis for copyright protection, although there is variation in the degree of human involvement required.⁵⁵

² ⁵⁴ Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.421. See too, Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.59; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.373; Irene Stamatoudi., Copyright Protection for AI-Generated Works: ⁸ Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.114.

⁵⁵ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.121. See too,

The concept of substantial human creative contribution (SHCC) is central to the proposed model. Unlike the concept of "use of AI," SHCC emphasizes the dominance of human intellectual decisions throughout the entire creation process. Therefore, the use of AI does not automatically eliminate a person's status as creator. The basis for protection is the extent to which humans control, shape, select, modify, and refine the AI-generated output so that the final work truly reflects human intellectual expression.⁵⁶

In order for this concept to be applied objectively in judicial practice, this study proposes several indicators for assessing substantial human creative contribution, namely: (1) humans determine the main ideas, objectives, themes, and concepts of the work; (2) humans actively control the process of using AI, including the preparation, development, and refinement of prompts; (3) humans make creative selections from various alternative AI outputs; (4) humans make substantial modifications, revisions, editing, or developments to the AI output; (5) the final form of the work is the result of human creative choices, not automatic reproduction of AI; and (6) humans are responsible for the content, use, and economic exploitation of the work. All of these indicators are summarized in Table 4.

Table 4. Substantial Human Creative Contribution Assessment Indicators

Indicator	Assessment Parameter
Concept Development	The human determines the core idea, purpose, theme, structure, and principal characteristics of the work.
Process Control	The human actively directs, refines, and controls the use of AI throughout the creative process.
Output Selection	The human selects AI-generated outputs based on independent creative judgment.

Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.358; Chenyu Lin, and Junming Gong., Artificial intelligence for text generation: copyright analysis and intellectual property development, In *International Conference on AI-Generated Content (AIGC 2024)*, SPIE, 2025, page.101; Hernán Núñez Rocha., Artificial Intelligence and Copyright Law, Notes on Content Generation, *Boletín mexicano de derecho comparado*, Vol.58, no.174, 2025, page.324; Seiya S. Takeuchi., Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.327.

⁵⁶ Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.359. See too, Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.64; Komalavalli C., Rinki Bhati, R., Akhilesh Kumar Khan, and Arun Kumar Tripathi., *Smart contracts for AI-generated art rights*, *ShodhKosh: Journal of Visual and Performing Arts*, Vol.6, no.1, 2025, page.46; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.164.

Substantial Modification	The human significantly revises, edits, combines, or further develops the AI-generated output.
Final Creative Decision	The final form of the work reflects the human's intellectual choices rather than the AI's automatic generation.
Legal Responsibility	The human assumes legal responsibility for the content, use, and commercial exploitation of the work.

Through these indicators, the assessment of copyright ownership no longer solely focuses on the presence or absence of AI in the creative process, but rather on the level of human intellectual contribution in shaping the final expression of a work. For example, if an illustrator uses AI to generate several alternative designs, then selects one design, changes the visual composition, adds artistic elements, makes substantial edits, and determines the final character of the work, then the human creative contribution remains dominant and the illustrator deserves to be recognized as the creator and copyright holder. Conversely, if someone only enters one or two prompt sentences and immediately uses the AI output without any creative choices, process control, or substantial modifications, then the relationship between the work and human creativity becomes too weak to meet the principles of originality and human authorship as the basis for copyright protection.⁵⁷

The HCCO model also provides greater legal certainty than other alternative models. First, AI users gain certainty regarding the requirements for obtaining copyright, so the use of AI does not automatically eliminate legal protection.⁵⁸ Second, AI developers do not automatically acquire copyright over all output from AI systems unless there is a separate legal relationship through a contract or other provisions. Third, judges gain more objective parameters in determining copyright ownership status, thereby reducing disparities in decisions. Fourth, creative industry players gain certainty regarding the boundary between the use of AI as an assistive tool and the use of AI that produces automated works without copyright protection.⁵⁹

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⁵⁷ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.122. See too, Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.359; Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Cundrum, *Jurnal Hukum Bisnis Bonum Commune*, no.2, 2025, page.221; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.119; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.167.

⁵⁸ Michelle Azuaje Pirela., Legal protection of artificial intelligence products in the intellectual property system, *Revista Jurídica Austral*, Vol.1, 2020, page.319.

⁵⁹ Anuttama Ghose, SM Aamir Ali, and Sachin Deshmukh., Navigating the legal and ethical framework for generative AI: Fostering responsible global governance, In *Exploring the Ethical Implications of Generative AI*, Pennsylvania: IGI Global Scientific Publishing, 2024, page.169. See too, Amanda M. Horzyk, How AI affects our understanding of musical works that should be

For this model to be effectively implemented, reform of Law Number 28 of 2014 concerning Copyright is required. This reform does not require changes to the basic philosophy of copyright, but rather simply refines the norms to accommodate the development of generative AI. First, Article 1, concerning the definition of creator, needs to be expanded to include the concept of AI-assisted works and emphasize that creators remain humans who make substantive creative contributions. Second, Article 5, concerning moral rights, needs to emphasize that moral rights are inherent only to humans even if the work is produced with the assistance of AI. Third, Articles 8 and 9, concerning economic rights, need to provide the basis that economic rights to AI-assisted works are granted to humans who meet the SHCC standards. Fourth, Article 40, concerning objects of creation, needs to be expanded to accommodate AI-assisted works as a category of works that can still receive protection as long as they meet the requirements for human creative contributions. Fifth, new provisions need to be added that regulate SHCC assessment indicators as a legal standard in examining AI-based copyright disputes. These reform strategies are summarized in Table 5.

Table 5. Copyright Law Reform Strategy for Artificial Intelligence Works

Provision of Law No. 28 of 2014	Current Issue	Proposed Reform
Article 1(2) (Author/Creator)	Does not accommodate AI-assisted works.	Introduce a definition of AI-assisted works and incorporate the concept of Substantial Human Creative Contribution (SHCC).
Article 5 (Moral Rights)	Does not regulate the use of AI in the creation process.	Clarify that moral rights remain exclusively vested in the human author, regardless of AI assistance.
Articles 8–9 (Economic Rights)	Does not regulate ownership of AI-generated outputs.	Provide that economic rights belong to the human who satisfies the SHCC standard.
Article 40 (Protected Works)	Does not explicitly recognize AI-assisted works.	Include AI-assisted works as a protected category, provided they satisfy the requirement of substantial human creative contribution.

² protected by copyright, In 2023 International joint conference on neural networks (IJCNN), IEEE, 2023, page.7; Singh Hoshiar, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work, In 2024 ITU Kaleidoscope: Innovations and Digital Transformation for a Sustainable World (ITU K), New York City, IEEE, 2024, page.9; Nadia Yas, Hani Abdulrahim, Issa Ghassan Rabadi, and Zeana Abdijabar, Protecting the civil rights of the author from the risks of artificial intelligence, *Research Journal in Advanced Humanities*, Vol.6, no.1, 2025, page.25.

New Provision	No legal standard for assessing human creative contribution.	Introduce legal criteria for SHCC as guidance for courts and the Directorate General of Intellectual Property (DGIP) in determining copyright ownership of AI-assisted works.
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In addition to changes to the Copyright Law, implementation of this model requires the preparation of interpretive guidelines for judges and the Directorate General of Intellectual Property regarding procedures for proving human creative contributions. Such guidelines may include initial proof of concept, history of prompt development, editing process, documentation of changes to the work, as well as evidence of creative decision making during the creation process. This approach will increase the consistency of decisions, strengthen legal certainty, while reducing subjectivity in determining copyright ownership status for AI-based works.⁶⁰

Thus, the Human-Centered Copyright Ownership model not only fills the normative void in Indonesian copyright law, but also offers a legal reconstruction that remains consistent with the principle of human authorship, is in line with developments in international law, and is more adaptive to advances in AI technology. Compared to joint authorship, work made for hire, or sui generis approaches, this model provides a more proportional solution because it does not change the basic structure of copyright law, but clarifies the parameters of rights ownership through substantial human creative contribution standards that can be applied objectively in judicial practice and policy formation. Therefore, this model is worthy of being used as a basis for updating Law Number 28 of 2014 in order to realize legal certainty, protect human creativity, and encourage sustainable artificial intelligence-based innovation.

4. Conclusion

This research demonstrates that Law Number 28 of 2014 concerning Copyright has not yet provided legal certainty regarding copyright ownership for works produced with the assistance of artificial intelligence (AI). The entire construction of Indonesian copyright law is still based on the human authorship paradigm, so the concepts of creator, originality, moral rights, and economic rights are entirely linked to human creativity. This situation creates a normative vacuum when AI plays a significant role in the creation process, potentially giving rise to ownership disputes, inconsistent interpretations, and legal uncertainty for creators, AI users, technology developers, and creative industry players.

⁴ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.37. See too, Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.59; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.167.

Theoretically, this research contributes by developing the Human-Centered Copyright Ownership (HCCO) model as a normative reconstruction of copyright ownership for AI-assisted works. Unlike the joint authorship, work-made-for-hire, and sui generis approaches, this model maintains the fundamental principle that copyright arises from human creativity, while AI is positioned as an instrument supporting the creative process. The main novelty of this research lies in the introduction of the concept of substantial human creative contribution as a legal standard for determining whether human involvement remains sufficiently dominant to warrant copyright protection. Thus, this study not only identifies gaps in Indonesian positive law but also offers more objective normative parameters for determining copyright ownership of AI-assisted works.

Practically, the proposed model can serve as a guideline for legislators, judges, the Directorate General of Intellectual Property, and creative industry players in resolving copyright ownership issues for AI-assisted works. Therefore, this study recommends reforming the Copyright Law by adding provisions regarding AI-assisted works, establishing indicators for substantial human creative contribution, and providing clearer guidelines for determining copyright ownership. These reforms are expected to strike a balance between protecting human creativity, legal certainty, and fostering technological innovation, ensuring that Indonesia's copyright legal system remains relevant in the face of future developments in artificial intelligence.

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RECONSTRUCTING COPYRIGHT PROTECTION FOR ARTIFICIAL INTELLIGENCE-GENERATED WORKS

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ABSTRACT

The development of Generative Artificial Intelligence (AI) has transformed the process of intellectual creation and raised issues regarding authorship and copyright ownership. However, Law Number 28 of 2014 concerning Copyright is still based on the human authorship paradigm and therefore does not provide legal certainty for works produced with the help of AI. This study aims to analyze the adequacy of legal protection for AI works, identify weaknesses in the concept of creator in Indonesian copyright law, and formulate a Human-Centered Copyright Ownership model. The study uses a normative legal method with a statutory, conceptual, comparative, and case approach through an analysis of laws and regulations, international instruments, court decisions, doctrines, and scientific literature. The results of the study indicate that Indonesian copyright law still experiences a normative vacuum regarding the ownership of AI works and therefore is unable to provide legal certainty. As a novelty, this study offers a Human-Centered Copyright Ownership model that positions AI as a creative tool, while copyright ownership is determined based on substantial human creative contribution. This model provides more objective normative parameters for determining creators and copyright holders and serves as a basis for reforming the Copyright Law to achieve a balance between protecting human creativity, legal certainty, and technological innovation.

1. Introduction

The development of Artificial Intelligence (AI), particularly generative artificial

intelligence, has fundamentally transformed the process of creating intellectual works.¹ Unlike conventional software that merely executes user instructions deterministically, generative AI is capable of generating text, images, music, videos, computer programs, and various other forms of creative expression through machine learning and large language models. This capability makes AI no longer merely a tool but plays an active role in the creative process. This development raises new issues in copyright law, particularly regarding whether works generated by AI are eligible for legal protection and who should be legally recognized as the creator and copyright holder.²

The international copyright legal framework currently lacks provisions that explicitly accommodate works generated by AI. The Berne Convention for the Protection of Literary and Artistic Works is based on the principle that copyright arises from human intellectual creation, while the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) adopts the Berne standard without specifically addressing AI. Similarly, various discussions within the World Intellectual Property Organization (WIPO) indicate that current international copyright instruments were drafted before the development of generative AI and therefore are unable to address issues regarding authorship and copyright ownership of works autonomously generated by AI.³ Consequently, the resolution of these issues remains up to individual countries, leading to diverse legal approaches.

These differences are evident in the various legal systems currently in development. The United States consistently requires human authorship, making works entirely generated by AI ineligible for copyright protection.⁴ The European

¹ Mohammad Abdallah, and Mousa Salah., Artificial intelligence and intellectual properties: Legal and ethical considerations, *International Journal of Intelligent Systems and Applications in Engineering*, Vol.12, no.1, 2024, page.369. See too, Ilyos Abdullayev, Kira Vagner, Olesya Tereshchenko, Alexey Nedelkin, and Vitalii Vasyukov., Opportunities for Developing Natural Language Models in Building Artificial Intelligence Systems to Enhance Educational Process Support, *Pakistan Journal of Life & Social Sciences*, Vol.22, no.2, 2024, page.343.

² Abed Fayed, Aliaa Zakaria, and Alaa Abouahmed., Innovations of Artificial Intelligence in Light of the Applicable Copyright Law: Realistic Solutions and Future Prospects. A Comparative Study of UAE, Egyptian, and French Laws, *Access to Just, Eastern Euroope*, Vol.2, 2025, page.241. See too, Amanda M. Horzyk, How AI affects our understanding of musical works that should be protected by copyright, In *2023 international joint conference on neural networks (IJCNN)*, IEEE, 2023, page.6; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.409; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.109.

³ Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.24. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.52; Qingchuan Xie, and Tianxiang He., Battle between 'long'and 'short'videos: Fragmented uses, diversified purposes, and the evolution of China's copyright limitation rules in the AI era, *The Chinese Journal of Comparative Law*, Vol.11, no.3, 2023, page.1.

⁴ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.113. See too,

Union also continues to prioritize human creativity as a key element in assessing the originality of a work.⁵ Conversely, the United Kingdom, through the Copyright, Designs and Patents Act 1988, recognizes computer-generated works by stipulating that the creator is the party who makes the necessary arrangements for the creation process.⁶ On the other hand, several court decisions in China have begun to provide protection for AI works by placing the developer or party controlling the AI system as the copyright holder.⁷ These diverse approaches demonstrate that there is currently no international consensus on the concept of authorship and copyright ownership for AI-generated works.

This issue is even more pressing in the Indonesian context because Law Number 28 of 2014 concerning Copyright is still entirely based on an anthropocentric paradigm that positions humans as the sole creators. The definition of author, the concept of originality, moral rights, and economic rights all assume that a work arises from human creativity. The law does not yet regulate the legal status of AI-generated works, the legal relationship between AI users, AI developers, and AI platform providers, or the mechanism for determining copyright ownership of AI-generated works.⁸ Yet, the use of generative AI applications such as ChatGPT,

Ansagan Aronov, and Sara Idrysheva., Copyright protection on works generated by artificial intelligence, *Science and Innovation*, Vol.21, no.1, 2025, page.115; Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.23; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.410.

⁵ Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.355.

⁶ Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.23. See too, Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.54.

⁷ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.23. See too, Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1216; Sin Zhi Ying, Chia Yuh Bao, Sharon Varghese, Michael Goh, Tee Connie, and Manique Apsara Ephranella Cooray., AI Dilemma: Copyrighting Creativity in the Age of Artificial Intelligence, *International Journal of Cyber Criminology*, Vol.18, no.2, 2024, page.39.

⁸ Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.42. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.137; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.155.

Gemini, Midjourney, DALL·E, and various similar platforms is increasingly widespread in Indonesia for book development, graphic design, software, learning materials, marketing content, and other creative industries.⁹ If a dispute arises regarding ownership of the work, Indonesian positive law does not yet provide a clear normative basis for determining who has the right to copyright.

This lack of legal certainty has far-reaching implications. If all AI works are granted copyright protection without clear boundaries, companies that control AI technology could potentially monopolize the production of creative works and diminish the economic value of human creativity.¹⁰ Conversely, if all AI works are placed in the public domain, users and industry players will lose legal certainty in commercializing AI-assisted works. This lack of clarity also has the potential to create inconsistencies in judicial practices, licensing, investment, and copyright law enforcement in Indonesia.¹¹ Therefore, determining copyright ownership of AI works is no longer merely an academic issue, but rather an urgent need to ensure legal certainty, support the national creative industry, and maintain a balance between copyright protection and technological development.

Various previous studies have offered various concepts regarding copyright ownership of AI works. Some studies maintain the principle of human authorship by placing human creativity as the primary requirement for copyright protection.¹² Other studies argue that copyright should be granted to AI users because they provide prompts and initiate the creative process.¹³ Still others propose that

⁹ Gaspar Alberto Angulo Matos, Nadia Liz Romero Rodríguez, and Eduardo Andrés Calderón Marengo., Dos inteligencias y una autoría: chatGPT y el reconocimiento de la personalidad en el marco legal peruano, *Justicia*, Vol.4, no.3, 2025, page.232.

¹⁰ Minh Le Thi., Copyright Protection for Works Created by AI Technology under the EU Law and Vietnamese Law, *Rev. Eur. & Comp. L.* Vol.55, 2023, page.7.

¹¹ Amanda M. Horzyk, How AI affects our understanding of musical works that should be protected by copyright, In *2023 international joint conference on neural networks (IJCNN)*, IEEE, 2023, page.7. See too, Singh Hoshier, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work. In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.6; Paarth Naithani., Issues of authorship and ownership in work created by artificial intelligence-Indian copyright law perspective, *NTUT Journal of Intellectual Property Law and Management*, Vol.11, no.1, 2022, page.8; Rofi Aulia Rahman, Akhmad Al-Farouqi, and Shu Mei Tang., Should Indonesian Copyright Law be Amended Due to Artificial Intelligence Development?: Lesson Learned from Japan, *NTUT Journal of Intellectual Property Law and Management*, Vol.9, no.1, 2020, page.38; Nadia Yas, Hani Abdulrahim, Issa Ghassan Rabadi, and Zeana Abdijabar., Protecting the civil rights of the author from the risks of artificial intelligence, *Research Journal in Advanced Humanities*, Vol.6, no.1, 2025, page.23.

¹² Ansagan Aronov, and Sara Idrysheva., Copyright protection on works generated by artificial intelligence, *Science and Innovation*, Vol.21, no.1, 2025, page.116. See too, Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.365; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.111.

¹³ Sk M. Ali, Anuttama Ghose, Shashikant Saurav, and Sachin Deshmukh., Creativity and Innovation in the Age of Artificial Intelligence: A Copyright Dilemma, *Padjadjaran Jurnal Ilmu Hukum*, Vol.11, no.2, 2024, page.6. See too, Axell Cervera, Erik Obiol, and José Rolando Cardenas-Gonzales., Derechos de autor y calidad de las instrucciones en obras generadas por inteligencia artificial, *Nuevo Derecho*, Vol.21, no.37, 2025, page.17; Anthi Gaidartzi, and Irini Stamatoudi.,

copyright be granted to AI developers or those who undertake technical arrangements for AI systems, as is the UK's necessary arrangements approach.¹⁴ Furthermore, there is also the concept of joint authorship, which views humans and AI as parties that jointly contribute to the creation process, as well as the proposal to establish a sui generis regime because the copyright regime is deemed no longer adequate to regulate AI works.¹⁵ These differences indicate that there is no agreement yet on the concept of authorship or copyright ownership of AI works.

However, these studies still leave several gaps. First, most studies focus on the issue of copyrightability of AI works or on comparative studies between countries, but have not specifically reconstructed the concept of copyright ownership within the framework of the Indonesian Copyright Law. Second, various proposed models, such as user ownership, developer ownership, joint authorship, work-made-for-hire, and sui generis, have not been able to accommodate the anthropocentric nature of Indonesian copyright law while simultaneously accommodating the use of AI as a creative instrument. Third, previous research has not formulated clear legal parameters regarding the extent to which human creative contributions can be used as a basis for determining the status of creators and copyright holders of AI-generated works. Consequently, there is currently no normative model that can provide legal certainty while upholding the fundamental

Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.58; Oluwatobi Victoria Taiwo., Artificial Intelligence Generated Works and the Copyright Dilemma: A Case Study of the United Kingdom and South Africa, In *Contemporary Issues in Intellectual Property Law in Africa*. Routledge, 2024, page.172; Felipe Osorio Umaña., El concepto de originalidad del Tribunal de Justicia de la Unión Europea y la inteligencia artificial, *Revista Justicia y Derecho*, Vol.8, no.1, 2025, page.1.

¹⁴ Singh Hoshiar, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work, In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.7. See too, Jyh-An Lee., Computer-generated Works under the CIPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.25.

¹⁵ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.288. See too, Firas Massadeh, Fayed Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.53; Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights A copyright perspective, *Journal of Intellectual Property Rights*, Vol.30, no.1, 2025, page.27; Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.138; Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1218. See too, Jinyang Tian., The Nature and Ownership of Copyright for AI-Generated Works, *NTUT Journal of Intellectual Property Law and Management* Vol.13, no.1, 2024, page.47.

principle that copyright arises from human creativity.

Based on these gaps, this study proposes a Human-Centered Copyright Ownership model to reconstruct copyright ownership of AI-generated works within the Indonesian legal system. Unlike the concept of joint authorship, which places AI as part of the authorship process, this model maintains that only humans can be recognized as creators. Unlike the work-made-for-hire approach, which bases ownership on technological control or contractual relationships, and the *sui generis* concept, which establishes a new rights regime outside of copyright law, the proposed model maintains the existing copyright regime by making substantial human creative contributions the primary parameter in determining creators and copyright holders. Thus, AI is positioned as a creative instrument, not as a legal subject or creator.

This research is expected to provide theoretical and practical contributions to the development of Indonesian copyright law. Theoretically, this research offers a reconstruction of the concept of copyright ownership that maintains the principle of human authorship but accommodates the development of generative AI. Practically, the proposed model is expected to serve as a basis for legislators, judges, legal practitioners, creative industry players, and AI developers in realizing legal certainty regarding copyright ownership of AI-generated works. Based on these objectives, this research aims to answer three main questions:

1. Does current Indonesian copyright law provide protection for AI-generated works?
2. Why the concept of creator in the Copyright Law is no longer adequate to regulate ownership of AI works?
3. How can the Human-Centered Copyright Ownership model be reconstructed within the Indonesian copyright legal system?

2. Research Methods

This research is a normative legal research (doctrinal legal research) aimed at evaluating the adequacy of Indonesian copyright regulations in accommodating works produced by Artificial Intelligence (AI), identifying gaps and inconsistencies in norms, and reconstructing a copyright ownership model that aligns with the development of AI without neglecting the basic principles of Indonesian copyright law. This research is prescriptive in nature, as it not only analyzes positive law but also formulates a Human-Centered Copyright Ownership model as a recommendation for legal reform. To address the research questions, the research utilizes four complementary approaches. The first question, concerning legal protection for AI works, is analyzed through a statutory and case-based approach. The second question, concerning weaknesses in the concept of creator, is analyzed through a conceptual approach, examining theories of authorship, originality, human creativity, moral rights, and economic rights. The third question, concerning the reconstruction of the copyright ownership model, is analyzed through a comparative legal approach, combining the results of normative, conceptual, and case-based analyses to produce a comprehensive reconstruction model.

A doctrinal approach is used to assess the suitability of Indonesian positive law to the development of AI through an analysis of Law Number 28 of 2014 concerning Copyright, specifically provisions concerning creators, copyright ownership, moral rights, economic rights, originality, and protection of creations. This analysis is linked to international instruments that form the foundation of the copyright system, namely the Berne Convention for the Protection of Literary and Artistic Works, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), and documents and recommendations of the World Intellectual Property Organization (WIPO) regarding intellectual property and AI. Moreover, a conceptual approach is used to analyze copyright legal doctrine regarding authorship, originality, human creativity, moral rights, economic rights, theories of intellectual property ownership, and the relationship between humans and AI in the creation process. This analysis aims to formulate legal parameters for substantial human creative contribution as a basis for determining creators and copyright holders of AI-assisted works. Lastly, a comparative legal approach is used to compare AI copyright regulations in the United States, the United Kingdom, the European Union, Japan, Singapore, and China. The comparison is conducted to identify legal principles, best practices, and regulatory alternatives relevant to the reconstruction of Indonesian copyright law, not to conduct legal transplantation.

The legal materials consist of primary legal materials (statutory regulations, international instruments, court decisions, and official documents), secondary legal materials (books, scientific articles, research results, and doctrines), and tertiary legal materials (legal dictionaries and encyclopedias). All materials are analyzed qualitatively through inventory, classification, grammatical, systematic, comparative, and teleological interpretation, then compiled using legal reasoning to identify gaps, conflicts, and inadequacies of norms as the basis for formulating a Human-Centered Copyright Ownership model for Indonesian copyright law reform.

3. Results and Discussion

3.1. Legal Protection for Works Generated by Artificial Intelligence: A Doctrinal Perspective

The development of generative artificial intelligence has changed the paradigm of intellectual creation. Unlike conventional software, which only executes instructions deterministically, generative AI is capable of generating text, images, music, video, software, and even graphic designs through machine learning and large language models.¹⁶ This change raises fundamental questions regarding whether AI-generated works can be protected by copyright, who can be recognized as the creator, and how the economic and moral rights to these works

¹⁶ Jacopo Ciani., Learning from monkeys: authorship issues arising from AI technology, In *EPIA Conference on Artificial Intelligence*. Cham, Springer International Publishing, 2019, page.278. See too, Ekaterina A. Sviridova., The problem of determining the subject of copyright for works created by artificial intelligence, *Gosudarstvo i pravo*, Vol.2, 2021, page.97.

should be allocated.¹⁷

In copyright law, protection for AI-generated works is not only concerned with recognition of the creation but also includes determining who is entitled to the economic and moral rights to the work. Therefore, discussions about AI cannot be separated from the three fundamental concepts of copyright law: authorship, originality, and copyright ownership. Most copyright regimes worldwide continue to place humans at the center of the protection system (human-centered authorship), so that works are only protected if they are the result of human intellectual expression manifested in a tangible form.¹⁸

This principle also underpins various international instruments. The Berne Convention for the Protection of Literary and Artistic Works requires that works be the result of the intellectual expression of the creator, while the TRIPS Agreement adopts protection principles based on the provisions of the Berne Convention. Although neither instrument explicitly regulates works produced by AI, both are built on the assumption that the creator is human. Likewise, various discussions developed by the World Intellectual Property Organization (WIPO) to date have not produced a specific international instrument regarding copyright ownership of AI works, so that the resolution still depends on the interpretation of each country.¹⁹

¹⁷ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.24. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.412; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.367; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.112.

¹⁸ Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.59. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.413; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.368; Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.58.

¹⁹ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.24. See too, Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.25; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.414; Qingchuan Xie, and Tianxiang He., Battle between 'long'and 'short'videos: Fragmented uses, diversified purposes, and the evolution of China's copyright limitation rules in the AI era, *The Chinese Journal of Comparative Law*, Vol.11, no.3, 2023, page.3; Shuang Yang., Optimizing Copyright Subject and Originality Rules for AI-Generated Software, In *Proceedings of the 2025 International Conference on Computer Technology, Digital Media and Communication*, 2025, page.544.

In the Indonesian context, this construction is clearly reflected in Law Number 28 of 2014 concerning Copyright. Article 1 number (2) defines a creator as a person or several people who, individually or collectively, produce a work that is unique and personal. This provision demonstrates that Indonesian copyright law is built on three main elements: the existence of a human legal subject, the existence of human intellectual capacity that gives rise to the creation, and the existence of a personal relationship between the creator and the work they produce. Consequently, moral rights as regulated in Article 5 and economic rights in Articles 8 and 9 can only be attached to humans as rights holders. Thus, AI, as a computing system that lacks legal personality, consciousness, will, or legal responsibility, cannot be recognized as a creator according to the construction of Indonesian positive law.²⁰

However, the primary issue lies not in whether AI can be recognized as a creator, but rather in whether the concept of creator as formulated in the Copyright Law remains adequate when the creative process is no longer entirely human-driven. Doctrinally, the entire structure of Indonesian copyright law is assumed to be based on a direct relationship between human intellectual activity and the resulting expression. This assumption becomes inadequate when AI is capable of composing music, producing illustrations, writing scientific articles, or creating software autonomously based on computational processes not entirely controlled by humans. In other words, the problem that arises is not a lack of objects of protection, but a lack of norms in determining the legal relationship between humans, AI, and their creations.²¹

This normative gap becomes even more apparent when linked to the principle of originality. In copyright law, originality is not defined as absolute novelty, as in

²⁰ Laurensia Andrini., Redesigning Indonesia Copyright Act to Accommodate Autonomous Intelligent System: Status Quo and Room for Improvement, *Asian Journal of Law and Economics*, Vol.9, no.3, 2018, page.21813. See too, Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.43; Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.139; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.156.

²¹ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.28. See too, Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.44; Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, no.2, 2025, page.218.

patent law, but rather as the result of human intellectual choice and creativity (independent intellectual creation). Therefore, the measure of originality is always related to the extent to which the final expression is a manifestation of human creativity. In entirely AI-generated works, this relationship becomes blurred because the final expression is formed through statistical and algorithmic processes carried out by the AI system, rather than through direct human creative choices.²² Consequently, even if a work appears novel and has economic value, it may not necessarily meet the requirements of originality as required by the copyright regime.

The international debate demonstrates the lack of a uniform approach to protecting AI works. The United States consistently requires human authorship, thus denying copyright protection to works generated entirely by AI. The European Union maintains a similar approach, placing human creativity as the primary criterion for originality. Conversely, the United Kingdom, through the Copyright, Designs and Patents Act 1988, recognizes computer-generated works by granting authorship to those who make necessary arrangements for the creation process. In China, several court decisions have begun to provide protection for AI works by attributing ownership to the developer or the party controlling the AI system. These differences in approach (Table 1) indicate that the primary issue is no longer the ability of AI to produce works, but rather the legal basis for determining who is entitled to copyright protection.²³

²² Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.356. See too, Komalavalli C., Rinki Bhati, R., Akhilesh Kumar Khan, and Arun Kumar Tripathi., *Smart contracts for AI-generated art rights*, *ShodhKosh: Journal of Visual and Performing Arts*, Vol.6, no.1, 2025, page.43; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.415; Hernán Núñez Rocha., Artificial Intelligence and Copyright Law, Notes on Content Generation, *Boletín mexicano de derecho comparado*, Vol.58, no.174, 2025, page.323; Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, no.2, 2025, page.219.

²³ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.114. See too, Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.25; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.417; Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.26; Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1217; Seiya S. Takeuchi., Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.325.

Table 1. Comparative Approaches to Copyright Protection for AI-Generated Works Across Selected Jurisdictions

Jurisdiction	Approach	Key Features	Protection Status	Sources
United States	Human Authorship	Requires human authorship; AI-generated works are not eligible for copyright protection.	Purely AI-generated works are not protected.	Furqan et al. (2026); Kumar & Yadav (2024); Ampovska (2025) ²⁴
European Union	Human Creativity	Emphasizes human creativity and originality; AI-generated works generally do not qualify for copyright protection.	Protection requires substantial human creative contribution.	Kumar & Yadav (2024); Ampovska (2025) ²⁵
United Kingdom	Necessary Arrangements	Recognizes <i>computer-generated works</i> under the Copyright, Designs and Patents Act 1988, assigning authorship to the	Copyright is granted to the person responsible for organizing the creation process.	Lee (2021); Ampovska (2025); Ünler & Aksoy (2025); Praja et al. (2025) ²⁶

²⁴ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.115. See too, Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.26; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.419.

²⁵ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.116. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.418.

²⁶ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.117. See too, Jyh-An Lee., Computer-generated Works under the CDPA 1988, *Artificial Intelligence and*

		person making the necessary arrangements.		
Japan	Human Creativity	Balances the protection of human creativity with incentives for AI innovation.	AI is not recognized as an author; human contribution remains the primary basis for protection.	Takeuchi (2025) ²⁷
China	Judicial Approach	Several courts have recognized copyright protection for AI-generated works, attributing ownership to AI developers or controllers in specific cases.	Protection may be granted to AI developers or controllers under particular judicial circumstances.	Sun (2022); Dang (2026) ²⁸
Indonesia	Human-Centered Authorship	Copyright law remains human-centered and does not recognize AI as an author, although academic discussions have	No explicit legal regulation governing AI-generated works.	Praja et al. (2025); Subagiyo & Wibisono (2024); Mayana et al. (2024) ²⁹

Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.26; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.154; Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.57.

²⁷ Seiya S. Takeuchi., Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.326.

²⁸ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.25. See too, Haochen Sun., Redesigning copyright protection in the era of artificial intelligence, *Iowa Law Review*, Vol.107, 2022, page.1218.

²⁹ Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and*

		explored <i>joint</i> <i>authorship</i> models.		
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Various countries have also begun offering alternatives beyond conventional copyright regimes. One such approach is the concept of sui generis rights, which establishes a new intellectual property rights regime specifically governing works generated by AI without altering the concept of creatorship in copyright law. This approach aims to provide legal certainty for AI works that do not meet the requirements of human authorship. However, the sui generis approach remains controversial because it has the potential to create a dualistic protection regime and obscure the copyright philosophy, which was originally established to protect human creativity.³⁰

In the Indonesian context, establishing a sui generis regime is also not the most appropriate option, as it would require fundamental changes to the existing copyright legal system. The main problem lies in the lack of normative parameters to determine when the use of AI can still be considered part of the human creative process. Therefore, according to this study, protection for AI-based works should not be determined based on the presence or absence of AI use, but rather on substantial human creative contribution. These contributions can be assessed through several initial indicators, namely: (1) humans determine the main creative ideas, goals, and concepts; (2) humans carry out substantive and repeated selection, arrangement, or modification of prompts; (3) humans control the selection and revision process of AI output; (4) humans provide creative editing that influences the final form of the work; and (5) the final expression reflects

Blockchain Conference, 2024; page.47. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.140; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.158; Sikun Zhao., The Role of Copyright Authentication in AI-Generated Visual Content: Constructing Trust in AIGC Media Environments and the Impact of Copyright Ambiguity on Perceived Authenticity, *Studies in Media and Communication*, Vol.14, no.1, 2026, page.339.

³⁰ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.289. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.54; Pratiti Nayak, and Kiymet Tunca Çaliyurt., Addressing Copyright Challenges in the Era of AI-Generated Content: What Are the Legal Implications?, In *A Multidisciplinary Approach to KIIT Horizons, Volume 1: Exploring Artificial Intelligence Across Disciplines*, Singapore, Springer Nature Singapore, 2025, page.3; Eleni Tzoulia., IP Protection for AI-Generated Content in the "Post-AI Act" Era, In *EU Digital Law in the AI Era*, Cham, Springer Nature Switzerland, 2025, page.136.

human intellectual choices, not merely the automatic results of the AI system. Conversely, if the human role is limited to providing simple commands (simple prompts) without further creative involvement, then the personal relationship between the creator and the creation becomes very weak, making it difficult to fulfill the authorship and originality requirements in the Copyright Law.

Thus, the main problem with Indonesian copyright law is not the recognition of AI as a creator, but rather the absence of norms that can measure the level of human creative contribution in the AI-based creation process. This gap causes Law Number 28 of 2014 to be unable to provide legal certainty regarding the status of copyright protection, ownership, or the boundaries between the use of AI as a creative aid and AI as the party that predominantly produces the expression of the work.

3.2. Human Authorship and the Creator Concept in AI-Generated Works: A Conceptual Approach

Law Number 28 of 2014 concerning Copyright comprehensively regulates creators, copyright holders, moral rights, and economic rights. However, this entire structure is based on the assumption that every creation is the result of human intellectual expression. Therefore, the relationship between creators and copyright holders is fundamentally inseparable from the existence of humans as legal subjects. This anthropocentric assumption is sufficient when the entire creation process is carried out by humans, but becomes problematic when works are produced through the involvement of generative Artificial Intelligence (AI), which is capable of autonomously generating creative expression based on machine learning processes and large language models.³¹

The key issue is not simply whether works produced by AI can obtain copyright protection, but rather whether the concept of "creator" in Indonesian copyright law remains sufficient to determine copyright ownership when the creative process involves more than one actor. In practice, the creation of AI-based works involves at least four parties: the user who formulates the prompt and determines the creative goal; the developer who designs the algorithm and trains the AI model; the platform provider who provides the computing infrastructure and terms of service; and the AI system that produces the final expression of the work. The complexity of these relationships was never anticipated in the construction of the Copyright Law, resulting in the lack of normative parameters to determine who is legally entitled to be the copyright holder.³²

³¹ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.27. See too, Ranti Fauza Mayana, Thomas Budhyawan Yudhya, Tisni Santika, Ahmad M. Ramli, and Sigid Suseno., Economic & Moral Right for Artificial Intelligence Generated Works: Perspective from Indonesia Copyright Law, In *Proceedings of the 2024 5th International Artificial Intelligence and Blockchain Conference*, 2024; page.45; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.369.

³² Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.118. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the

This ambiguity creates a normative vacuum that directly impacts legal certainty. From a doctrinal perspective, certainty regarding copyright holders is a prerequisite for the exercise of both economic and moral rights. Without the identification of legitimate rights holders, licensing, transfer of rights, royalty payments, enforcement of infringement laws, and dispute resolution become difficult. For example, companies purchasing AI-generated illustrations or software have no assurance that the licensing party is truly the legitimate rights holder. This situation increases transaction risks, hinders investment in the creative industry, and reduces the effectiveness of copyright protection in Indonesia.³³

Various jurisdictions have developed different approaches to address this issue, but there is no international consensus. The United States and the European Union continue to uphold the principle of human authorship, so works generated entirely by AI do not qualify for copyright protection because they lack sufficient human creativity.³⁴ In contrast, the United Kingdom has adopted a computer-generated works approach through the concept of necessary arrangements, which places the party initiating the creation process as the copyright holder.³⁵ Meanwhile, several

European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.419; Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.29; Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.56.

³³ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.30. See too, Ziana Mahfuzzah, Putri Rumondang Siagaian, Cheryl Patriana Yuswar, Muhammad Citra Ramadhan, and Dametken Medikhanovna Turekulova., Reforming the fair use doctrine in Indonesian intellectual property law: Addressing AI and digital creativity through Islamic legal perspectives, *Jurnal Ilmiah Mizani*, Vol.13. no.1, 2026, page.454; Bernard Nainggolan, Agus Joko Pramono, and Stefan Koos., Legal Protection of Intellectual Property for Digital Works by Utilizing Emerging Technologies, *Jurnal Hukum UNISSULA*, Vol.41, no.4, 2025, page.899; Deslaely Putranti, Uni Tsulasi Putri, Adhi Prahara, and Muh Syah Quddus., Proposing digital copyright infringements enforcement through internet court in Indonesia: fostering the existing E-Court system, In *E3S Web of Conferences*, EDP Sciences, 2025, page.3006; Syafrinaldi Syafrinaldi, Kim Hyeonsoo, Rani Fadhila Syafrinaldi, and David Hardiogo., Artificial Intelligence, Innovation, and Copyright: Comparing Intellectual Property Law in Indonesia and South Korea, *Lex Scientia Law Review*, Vol.8, no.2, 2024, page.1148.

³⁴ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.119. See too, Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.357; Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.29; Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.419.

³⁵ Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press,

court decisions in China have begun to recognize protection for AI works by attributing ownership to the developer or party controlling the AI system, although AI itself remains unrecognized as a legal subject.³⁶ These differences indicate that the primary issue is not the recognition of AI as an author, but rather the determination of the legal relationship between human contributions and the results produced by AI.

Various literature shows that until now there is no lack of consensus on who should hold copyright over works produced through Artificial Intelligence (AI).³⁷ These differences have given rise to at least four ownership models that have developed in the literature and practice of several jurisdictions: user ownership, developer ownership, platform ownership, and collaborative ownership or special regimes (joint authorship and sui generis rights) (Table 2). Each model is based on different legal arguments but also has limitations when applied to a copyright system that maintains the principle of human authorship, as is the case in Indonesia.

Table 2. Comparison of Copyright Ownership Models for AI-Generated Works

Ownership Model	Underlying Rationale	Strengths	Limitations
User Ownership	The user determines the creative objective through prompts, selects parameters, revises outputs, and decides the final result.	Provides incentives for creators using AI while maintaining the principle that human creativity remains the foundation of copyright.	Not all prompts reflect sufficient creativity. If human involvement is limited to simple instructions, it is difficult to establish originality and meaningful intellectual expression.
Developer Ownership	The developer designs the algorithms, AI models, and machine learning systems that enable AI to generate works.	Recognizes the intellectual investment, technological innovation, and development costs involved in creating AI systems.	Developers do not control the final expression of each generated work; therefore, the connection between the developer and individual works is

2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.26; Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.58.

³⁶ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.26.

³⁷ Junaidi., The Urgency of Regulating Copyright of Artificial Intelligence Works With the Fair Use Principle From the Perspective of Development Law Theory, In *Ethical, Regulatory, and Intellectual Property Impacts on AI Development*, Pennsylvania, IGI Global Scientific Publishing, 2026, page.276.

			weak.
Platform Ownership	Platform providers supply the digital infrastructure, AI models, and regulate rights through terms of service.	Facilitates licensing and commercial exploitation through contractual arrangements.	Contractual terms bind only the contracting parties and cannot replace copyright ownership rules established under national copyright law.
Joint Authorship / <i>Sui Generis</i> Rights	Treats AI-generated works as collaborative creations between humans and AI or establishes a separate legal regime outside conventional copyright law.	Attempts to accommodate the unique characteristics of AI-generated works that cannot be fully addressed by traditional copyright principles.	Joint authorship is difficult to apply because AI is not a legal person. A <i>sui generis</i> regime may create overlapping protection and weaken the principle of human authorship.

Sumber: Lee (2021); Sun (2022); Subagiyo & Wibisono (2024); Mayana et al. (2024); Hoshier & Kiran (2024); Cervera et al. (2025); Gaidartzi & Stamatoudi (2025); Praja et al. (2025); Sanjaya & Rajavenkatesan (2025); Baker (2026); Massadeh et al. (2024).

The first model positions the AI user as the copyright holder because the user determines the creative intent through developing prompts, selecting parameters, evaluating outputs, and determining the final result. This approach views AI as a tool, thus retaining copyright with the human who makes a substantial creative contribution, while maintaining the principle of human authorship.³⁸ However, this model faces weaknesses when user contributions consist only of simple instructions, necessitating objective legal criteria to measure substantial human creative contribution.³⁹

The second model grants ownership to the AI developer, arguing that the AI's ability to produce works is the result of intellectual and technical investments in

³⁸ Axell Cervera, Erik Obiol, and José Rolando Cardenas-Gonzales., Derechos de autor y calidad de las instrucciones en obras generadas por inteligencia artificial, *Nuevo Derecho*, Vol.21, no.37, 2025, page.18. See too, Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.60; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.159.

³⁹ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.30. See too, Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.370.

algorithm development, machine learning, and training data. Consequently, several Chinese rulings have begun to link the protection of AI works to the system developer.⁴⁰ However, this approach is weak because developers generally do not determine the theme, purpose, or final expression of each work. Their contributions are more accurately viewed as those of the technology creator, rather than the individual creator of the work. Automatically granting rights to developers also has the potential to disregard users' creative contributions and create monopolies that contradict the objectives of copyright law.⁴¹

The third model links ownership to AI platform providers through terms of service, which regulate rights to AI output. Some platforms grant rights to users, while others retain specific licenses for the output. This approach provides certainty in contractual relationships and facilitates licensing and commercialization of works.⁴² However, terms of service cannot replace national copyright laws because they only bind the parties. In disputes with third parties, contractual clauses may not be sufficient to prove authorship or copyright ownership of AI works.⁴³

The fourth model proposes joint authorship or sui generis rights. Joint authorship views AI works as the result of collaboration between humans and AI, while sui generis offers a special protection regime because the characteristics of AI works are deemed not fully in line with conventional copyright regimes.⁴⁴ However, both models face conceptual obstacles. AI is not a legal subject, making it difficult to recognize as a co-creator, while the sui generis regime has the potential to create dual protection and contradicts the principle of human authorship, which remains

⁴⁰ Dang Bui Thi Hai., Copyright protection in the age of generative ai: a comparative study of global regulatory trends and judicial divergence, *Issue*, Vol.2 no.1 2026, page.28. See too, Singh Hoshier, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work, In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.8; Ruihan Sun, and Shuhuan Zhou., How much human contribution is needed for "ownership" of AI-generated content: A comparison of copyright determination for generative AI in China and the United States, *The Journal of World Intellectual Property*.

⁴¹ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.290.

⁴² Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.58.

⁴³ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.32.

⁴⁴ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.291. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.55; Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights A copyright perspective, *Journal of Intellectual Property Rights*, Vol.30, no.1, 2025, page.28; Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.141.

the basis of the Berne Convention and the TRIPS Agreement.⁴⁵

Based on this evaluation, no single ownership model is capable of comprehensively resolving the issue of copyright in AI works. The user ownership model risks recognizing too minimal contributions, the developer model ignores users' creative expression, the platform model has only contractual force, while joint authorship and sui generis rights face conceptual obstacles and face challenges in harmonizing with the principle of human authorship in international copyright law.⁴⁶ The main problem is not simply determining who holds the copyright, but rather the lack of objective legal parameters for assessing the level of human creative contribution in the AI-assisted creation process. This normative vacuum impacts certainty of ownership, licensing, transfer of rights, protection of moral rights, law enforcement, and commercial transactions in the creative industry. Therefore, legal reconstruction needs to be directed at formulating criteria for substantial human creative contribution as a basis for determining copyright ownership. This approach maintains the principle of human authorship while providing legal certainty that is more consistent with the philosophy of the Indonesian Copyright Law and developments in international practice.⁴⁷

3.3. Reconstructing a Human-Centered Copyright Ownership Model for AI-Generated Works: A Comparative Perspective

The development of generative artificial intelligence demonstrates that the primary

⁴⁵ Hafiz Gaffar, and Saleh Albarashdi., Copyright protection for AI-generated works: Exploring originality and ownership in a digital landscape, *Asian Journal of International Law*, Vol.15, no.1, 2025, page.26. See too, Pratiti Nayak, and Kiymet Tunca Çalıyurt., Addressing Copyright Challenges in the Era of AI-Generated Content: What Are the Legal Implications?, In *A Multidisciplinary Approach to KIIT Horizons, Volume 1: Exploring Artificial Intelligence Across Disciplines*, Singapore, Springer Nature Singapore, 2025, page.4.

⁴⁶ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.292. See too, Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.61; Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.56; Ghazali Hasan Nasakti, and Rianda Dirkareshza., Generative artificial intelligence is not a mere tool: Revisiting Indonesian Copyright Law, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.347.

⁴⁷ Tiyyaba Furqan, Hamda M. Aleissae, Nadirah Ghenimi, and Alya A. Arabi., Global laws governing intellectual property rights for AI-generated works, *Discover Artificial Intelligence*, Vol.3, 2026, page.31. See too, Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.58; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.160; Zehra Özkan Üner, and Pınar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.59.

issue in copyright law is no longer whether AI-based works can be protected, but rather how to determine the subjects who are legally entitled to copyright.⁴⁸ Most modern legal regimes maintain the principle of human authorship, so AI is not recognized as a creator because it lacks legal personality, consciousness, will, or the ability to bear legal rights and obligations.⁴⁹ On the other hand, the development of generative AI has changed the pattern of creation, where part of the creative process is carried out through computing systems capable of generating new expressions based on training large amounts of data. This situation creates a normative vacuum in determining copyright ownership for works produced with the assistance of AI, particularly in the Indonesian legal system, which is still built on the paradigm of the creator as a human.⁵⁰

Various approaches have been developed in the literature to address this issue, but each still suffers from conceptual and normative weaknesses. The joint authorship approach considers AI works as the result of collaboration between humans and AI, but this concept is difficult to implement because AI is not a legal entity capable of possessing moral or economic rights as required by the copyright regime.⁵¹ The work-made-for-hire approach grants rights to those who control or regulate the use of AI, as developed in the UK. However, this model is more suited to contractual relationships and is not fully capable of addressing the open nature of generative AI used by millions of users without an employment relationship with

⁴⁸ Mohammad Abdallah, and Mousa Salah., Artificial intelligence and intellectual properties: Legal and ethical considerations, *International Journal of Intelligent Systems and Applications in Engineering*, Vol.12, no.1, 2024, page.370. See too, Ilyos Abdullayev, Kira Vagner, Olesya Tereshchenko, Alexey Nedelkin, and Vitalii Vasyukov., Opportunities for Developing Natural Language Models in Building Artificial Intelligence Systems to Enhance Educational Process Support, *Pakistan Journal of Life & Social Sciences*, Vol.22, no.2, 2024, page.343.

⁴⁹ Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.63. See too, Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.420; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.372; Zehra Özkan Üner, and Pinar Çağlayan Aksoy., Navigating AI and Copyright Law in the UK: Legal Frontiers and Emerging Regulatory Perspectives, In *Legal and Economic Perspectives on the Nexus of AI and Copyright*. IGI Global Scientific Publishing, 2025, page.59.

⁵⁰ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.34. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.142; Kacper Szkalej, and Martin Senftleben., Generative AI and creative commons licences: the application of share alike obligations to trained models, curated datasets and AI output, *Journal of Intellectual Property, Information Technology and E-Commerce Law*, Vol.15, 2024, page.313.

⁵¹ Karun Sanjaya, and P. R. L. Rajavenkatesan., Artificial intelligence and intellectual property rights A copyright perspective, *Journal of Intellectual Property Rights*, Vol.30, no.1, 2025, page.30. See too, Dwi Tatak Subagiyo, and Hari Wibisono., The urgency of artificial intelligence regulation from a joint authorship perspective on copyright infringement, *Indonesia Private Law Review*, Vol.5, no.2, 2024, page.143.

the AI developer.⁵² Meanwhile, the sui generis approach offers a new legal regime separate from conventional copyright, but requires the creation of a new intellectual property rights system that has not yet achieved international consensus and has the potential to reduce harmonization with the principles of the Berne Convention and the TRIPS Agreement.⁵³ A comparison of the three approaches is presented in Table 3.

Table 3. Comparison of Copyright Ownership Models for Artificial Intelligence Works

Model	Core Principle	Strengths	Limitations	Relevance to Indonesia
Joint Authorship	AI and humans are treated as joint contributors to the creation of a work.	Accommodates collaborative human–AI creation.	AI is not a legal subject and therefore cannot hold moral or economic rights.	Less compatible with Indonesian Copyright Law (Law No. 28 of 2014).
Work Made for Hire	Copyright is assigned to the party that controls or initiates the creation process.	Provides greater legal certainty regarding ownership.	More suitable for employment or contractual relationships than for open generative AI systems.	May be adopted with limited application.
Sui Generis	Establishes a separate legal	Flexible in responding to	Introduces a new	Requires extensive

⁵² Jyh-An Lee., Computer-generated Works under the CDPA 1988, Artificial Intelligence and Intellectual Property (Jyh-An Lee, Reto Hilty & Kung-Chung Liu eds, Oxford University Press, 2021), *The Chinese University of Hong Kong Faculty of Law Research Paper* 2021-65, 2021, page.25. See too, Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.162.

⁵³ Mohammad Abu Baker., Legal Protection for the Use of Artificial Intelligence in Business: Reality and Future Challenges, In *Conference on Sustainability and Cutting-Edge Business Technologies*, Cham, Springer Nature Switzerland, 2025, page.293. See too, Firas Massadeh, Fayez Alnusair, Ali Abdel Mahdi Massadeh, and Mahmoud Ismail., The Legal Protection Of Artificial Intelligence-Generated Work: The Argument For Sui Generis Over Copyright, *Corporate Law & Governance Review*, Vol.6, no.1, 2024, page.56; Pratiti Nayak, and Kiymet Tunca Çaliyurt., Addressing Copyright Challenges in the Era of AI-Generated Content: What Are the Legal Implications?, In *A Multidisciplinary Approach to KIIT Horizons, Volume 1: Exploring Artificial Intelligence Across Disciplines*, Singapore, Springer Nature Singapore, 2025, page.5; Eleni Tzoulia., IP Protection for AI-Generated Content in the "Post-AI Act" Era, In *EU Digital Law in the AI Era*, Cham, Springer Nature Switzerland, 2025, page.137.

Protection	regime specifically for AI-generated works.	technological developments.	intellectual property regime and lacks international consensus.	legislative reform.
Human-Centered Copyright Ownership	Copyright is granted to the human who makes a substantial creative contribution, while AI is treated solely as a creative tool.	Consistent with the principles of human authorship, the Berne Convention, and Indonesian Copyright Law; provides greater legal certainty.	Requires objective criteria to assess substantial human creative contribution.	The most appropriate model as the foundation for copyright law reform in Indonesia.

In contrast to these approaches, this study proposes the Human-Centered Copyright Ownership (HCCO) model as a form of legal reconstruction that maintains the basic principle of copyright: that exclusive rights arise from human creativity, while positioning AI as an instrument or creative tool, rather than as the creator or copyright holder. This model is more consistent with the international copyright philosophy that places human creativity as the basis for protection, while also accommodating the use of AI in modern creative processes without altering the basic structure of the Indonesian copyright system.⁵⁴

The primary advantage of the HCCO model lies in its ability to maintain a balance between legal certainty and the development of innovation. This model does not reject the use of AI in the creative process, but also does not grant legal recognition to AI as the creator. Thus, copyright remains vested in humans as long as it can be demonstrated that the work represents a substantial human creative contribution. This approach aligns with established practices in the United States, the European Union, Japan, Australia, and most countries that continue to require human creative contribution as a basis for copyright protection, although there is

⁵⁴ Satish Kumar, and Akansha Yadav., Recent trends in major world jurisdictions regarding copyright law and works generated by artificial intelligence: A comparative analysis of the European union, the United States, and Japan, In *AIP Conference Proceedings*, AIP Publishing LLC, 2024, page.421. See too, Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.59; Anke Moerland., Intellectual property law and AI, In *The Cambridge Handbook of Private Law and Artificial Intelligence*, Cambridge University Press, 2024, page.373; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.114.

variation in the degree of human involvement required.⁵⁵

The concept of substantial human creative contribution (SHCC) is central to the proposed model. Unlike the concept of "use of AI," SHCC emphasizes the dominance of human intellectual decisions throughout the entire creation process. Therefore, the use of AI does not automatically eliminate a person's status as creator. The basis for protection is the extent to which humans control, shape, select, modify, and refine the AI-generated output so that the final work truly reflects human intellectual expression.⁵⁶

In order for this concept to be applied objectively in judicial practice, this study proposes several indicators for assessing substantial human creative contribution, namely: (1) humans determine the main ideas, objectives, themes, and concepts of the work; (2) humans actively control the process of using AI, including the preparation, development, and refinement of prompts; (3) humans make creative selections from various alternative AI outputs; (4) humans make substantial modifications, revisions, editing, or developments to the AI output; (5) the final form of the work is the result of human creative choices, not automatic reproduction of AI; and (6) humans are responsible for the content, use, and economic exploitation of the work. All of these indicators are summarized in Table 4.

Table 4. Substantial Human Creative Contribution Assessment Indicators

Indicator	Assessment Parameter
Concept Development	The human determines the core idea, purpose, theme, structure, and principal characteristics of the work.
Process Control	The human actively directs, refines, and controls the use

⁵⁵ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.121. See too, Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.358; Chenyu Lin, and Junming Gong., Artificial intelligence for text generation: copyright analysis and intellectual property development, In *International Conference on AI-Generated Content (AIGC 2024)*, SPIE, 2025, page.101; Hernán Núñez Rocha., Artificial Intelligence and Copyright Law, Notes on Content Generation, *Boletín mexicano de derecho comparado*, Vol.58, no.174, 2025, page.324; Seiya S. Takeuchi., Japan's legal framework for copyright protection of AI-generated works: A comparative law analysis exploring the possibility of Japan's adoption of the UK legislative approach, *The Journal of World Intellectual Property*, Vol.28, no.2, 2025, page.327.

⁵⁶ Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.359. See too, Anthi Gaidartzi, and Irini Stamatoudi., Authorship and ownership issues raised by AI-generated works: a comparative analysis, *Laws*, Vol.14, no.4, 2025, page.64; Komalavalli C., Rinki Bhati, R., Akhilesh Kumar Khan, and Arun Kumar Tripathi., *Smart contracts for AI-generated art rights*, *ShodhKosh: Journal of Visual and Performing Arts*, Vol.6, no.1, 2025, page.46; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.164.

	of AI throughout the creative process.
Output Selection	The human selects AI-generated outputs based on independent creative judgment.
Substantial Modification	The human significantly revises, edits, combines, or further develops the AI-generated output.
Final Creative Decision	The final form of the work reflects the human's intellectual choices rather than the AI's automatic generation.
Legal Responsibility	The human assumes legal responsibility for the content, use, and commercial exploitation of the work.

Through these indicators, the assessment of copyright ownership no longer solely focuses on the presence or absence of AI in the creative process, but rather on the level of human intellectual contribution in shaping the final expression of a work. For example, if an illustrator uses AI to generate several alternative designs, then selects one design, changes the visual composition, adds artistic elements, makes substantial edits, and determines the final character of the work, then the human creative contribution remains dominant and the illustrator deserves to be recognized as the creator and copyright holder. Conversely, if someone only enters one or two prompt sentences and immediately uses the AI output without any creative choices, process control, or substantial modifications, then the relationship between the work and human creativity becomes too weak to meet the principles of originality and human authorship as the basis for copyright protection.⁵⁷

The HCCO model also provides greater legal certainty than other alternative models. First, AI users gain certainty regarding the requirements for obtaining copyright, so the use of AI does not automatically eliminate legal protection.⁵⁸ Second, AI developers do not automatically acquire copyright over all output from AI systems unless there is a separate legal relationship through a contract or other provisions. Third, judges gain more objective parameters in determining copyright ownership status, thereby reducing disparities in decisions. Fourth, creative industry players gain certainty regarding the boundary between the use of AI as an assistive tool and the use of AI that produces automated works without

⁵⁷ Marija Ampovska., Judicial Responses to AI-Generated Works: A Comparative Case Law Analysis on Copyright, *Review of European and Comparative Law*, Vol.62, no.3, 2025, page.122. See too, Johannes Fritz., Understanding authorship in Artificial Intelligence-assisted works, *Journal of Intellectual Property Law and Practice*, Vol.20, no.5, 2025, page.359; Kenneth Bradley Sajogo, Fajar Sugianto, and Atsuko Yamamoto., Comparative Analysis Regarding the Copyright Law on AI-Generated Art Between Indonesian and the United States: Unpacking Indonesian Legal Framework Conundrum, *Jurnal Hukum Bisnis Bonum Commune*, no.2, 2025, page.221; Irene Stamatoudi., Copyright Protection for AI-Generated Works: Is It Something We Want?, *Cyprus Review* Vol.38, no.1, 2026, page.119; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.167.

⁵⁸ Michelle Azuaje Pirela., Legal protection of artificial intelligence products in the intellectual property system, *Revista Jurídica Austral*, Vol.1, 2020, page.319.

copyright protection.⁵⁹

For this model to be effectively implemented, reform of Law Number 28 of 2014 concerning Copyright is required. This reform does not require changes to the basic philosophy of copyright, but rather simply refines the norms to accommodate the development of generative AI. First, Article 1, concerning the definition of creator, needs to be expanded to include the concept of AI-assisted works and emphasize that creators remain humans who make substantive creative contributions. Second, Article 5, concerning moral rights, needs to emphasize that moral rights are inherent only to humans even if the work is produced with the assistance of AI. Third, Articles 8 and 9, concerning economic rights, need to provide the basis that economic rights to AI-assisted works are granted to humans who meet the SHCC standards. Fourth, Article 40, concerning objects of creation, needs to be expanded to accommodate AI-assisted works as a category of works that can still receive protection as long as they meet the requirements for human creative contributions. Fifth, new provisions need to be added that regulate SHCC assessment indicators as a legal standard in examining AI-based copyright disputes. These reform strategies are summarized in Table 5.

Table 5. Copyright Law Reform Strategy for Artificial Intelligence Works

Provision of Law No. 28 of 2014	Current Issue	Proposed Reform
Article 1(2) (Author/Creator)	Does not accommodate AI-assisted works.	Introduce a definition of AI-assisted works and incorporate the concept of Substantial Human Creative Contribution (SHCC).
Article 5 (Moral Rights)	Does not regulate the use of AI in the creation process.	Clarify that moral rights remain exclusively vested in the human author, regardless of AI assistance.
Articles 8–9 (Economic Rights)	Does not regulate ownership of AI-generated outputs.	Provide that economic rights belong to the human who satisfies the SHCC standard.
Article 40	Does not explicitly	Include AI-assisted works as a

⁵⁹ Anuttama Ghose, SM Aamir Ali, and Sachin Deshmukh., Navigating the legal and ethical framework for generative AI: Fostering responsible global governance, In *Exploring the Ethical Implications of Generative AI*, Pennsylvania: IGI Global Scientific Publishing, 2024, page.169. See too, Amanda M. Horzyk, How AI affects our understanding of musical works that should be protected by copyright, In *2023 international joint conference on neural networks (IJCNN)*, IEEE, 2023, page.7; Singh Hoshiar, and Sharma Kiran., Copyright in the Age of Artificial Intelligence: Unravelling the Complexities For the Protection of AI-Generated Work, In *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, New York City, IEEE, 2024, page.9; Nadia Yas, Hani Abdulrahim, Issa Ghassan Rabadi, and Zeana Abdijabar., Protecting the civil rights of the author from the risks of artificial intelligence, *Research Journal in Advanced Humanities*, Vol.6, no.1, 2025, page.25.

(Protected Works)	recognize AI-assisted works.	protected category, provided they satisfy the requirement of substantial human creative contribution.
New Provision	No legal standard for assessing human creative contribution.	Introduce legal criteria for SHCC as guidance for courts and the Directorate General of Intellectual Property (DGIP) in determining copyright ownership of AI-assisted works.

In addition to changes to the Copyright Law, implementation of this model requires the preparation of interpretive guidelines for judges and the Directorate General of Intellectual Property regarding procedures for proving human creative contributions. Such guidelines may include initial proof of concept, history of prompt development, editing process, documentation of changes to the work, as well as evidence of creative decision making during the creation process. This approach will increase the consistency of decisions, strengthen legal certainty, while reducing subjectivity in determining copyright ownership status for AI-based works.⁶⁰

Thus, the Human-Centered Copyright Ownership model not only fills the normative void in Indonesian copyright law, but also offers a legal reconstruction that remains consistent with the principle of human authorship, is in line with developments in international law, and is more adaptive to advances in AI technology. Compared to joint authorship, work made for hire, or sui generis approaches, this model provides a more proportional solution because it does not change the basic structure of copyright law, but clarifies the parameters of rights ownership through substantial human creative contribution standards that can be applied objectively in judicial practice and policy formation. Therefore, this model is worthy of being used as a basis for updating Law Number 28 of 2014 in order to realize legal certainty, protect human creativity, and encourage sustainable artificial intelligence-based innovation.

4. Conclusion

This research demonstrates that Law Number 28 of 2014 concerning Copyright has not yet provided legal certainty regarding copyright ownership for works produced with the assistance of artificial intelligence (AI). The entire construction of Indonesian copyright law is still based on the human authorship paradigm, so

⁶⁰ Sitti Fatimah Maddusila, Deni Hendrawan, and Andi Intan Purnamasari., Copyright Restrictions in Social Media Markets: A Legal Enforcement Challenge, *International Journal of Criminal Justice Sciences*, Vol.19, no.2, 2024, page.37. See too, Ranti Fauza Mayana, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M. Ramli., Legal issues of artificial intelligence-generated works: Challenges on Indonesian copyright law, *Law Reform*, Vol.20, no.1, 2024, page.59; Chrisna Bagus Edhita Praja, Budi Agus Riswandi, Sri Wartini, Hary Abdul Hakim, and Gerald Antang Espares., Authorship and Ownership of AI-Generated Works in Indonesia: A Doctrinal and Comparative Review, *Jurnal Media Hukum*, Vol.32, no.1, 2025, page.167.

the concepts of creator, originality, moral rights, and economic rights are entirely linked to human creativity. This situation creates a normative vacuum when AI plays a significant role in the creation process, potentially giving rise to ownership disputes, inconsistent interpretations, and legal uncertainty for creators, AI users, technology developers, and creative industry players.

Theoretically, this research contributes by developing the Human-Centered Copyright Ownership (HCCO) model as a normative reconstruction of copyright ownership for AI-assisted works. Unlike the joint authorship, work-made-for-hire, and sui generis approaches, this model maintains the fundamental principle that copyright arises from human creativity, while AI is positioned as an instrument supporting the creative process. The main novelty of this research lies in the introduction of the concept of substantial human creative contribution as a legal standard for determining whether human involvement remains sufficiently dominant to warrant copyright protection. Thus, this study not only identifies gaps in Indonesian positive law but also offers more objective normative parameters for determining copyright ownership of AI-assisted works.

Practically, the proposed model can serve as a guideline for legislators, judges, the Directorate General of Intellectual Property, and creative industry players in resolving copyright ownership issues for AI-assisted works. Therefore, this study recommends reforming the Copyright Law by adding provisions regarding AI-assisted works, establishing indicators for substantial human creative contribution, and providing clearer guidelines for determining copyright ownership. These reforms are expected to strike a balance between protecting human creativity, legal certainty, and fostering technological innovation, ensuring that Indonesia's copyright legal system remains relevant in the face of future developments in artificial intelligence.

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