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Reconstruction of regulations and responsibility models in the Indonesian perspectives on legal protection of Artificial Intelligence creations

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Abstract
The development of artificial intelligence (AI) technology has created significant disruption in Indonesia's traditional copyright legal system, which is still based on anthropocentric principles. This normative research aims to analyze regulatory gaps in the Copyright Law and the Electronic Information and Transactions Law, and to formulate a comprehensive legal protection model for AI-generated creative works. Thru a document analysis approach and comparative legal studies across various jurisdictions, this research reveals that the Copyright Law does not yet accommodate autonomous AI works because it requires humans as the sole legal subject, while the Electronic Information and Transactions Law does not cover the substantive aspects of digital work creation. This legal uncertainty has the potential to hinder innovation and investment in Indonesia's digital creative economy. As a solution, the research recommends limited amendments to the Copyright Act by introducing a definition of "generative works," assigning ownership to users with significant creative intervention, developing a sui generis scheme with a protection duration of 10-15 years, and harmonizing the Electronic Information and Transactions Act with the principles of algorithmic accountability. Implementing this policy requires political commitment and multidisciplinary collaboration to create legal certainty that fosters innovation while protecting the interests of all stakeholders in the digital ecosystem. This research makes an original contribution by formulating a hybrid policy model and a roadmap for layered legal reconstruction that is contextualized with the Indonesian socio-legal landscape, a breakthrough that has not been widely proposed in similar studies before.

Keywords: Artificial intelligence, copyright, legal reconstruction, legal responsibility, indonesian regulations

Introduction

The Industrial Revolution 4.0 has positioned artificial intelligence (AI) as a transformative technology that is changing the conventional paradigm in the creation of intellectual works (Santoso, 2023) [18]. In the last decade, the development of generative AI has gone beyond its function as a mere tool, evolving into an entity capable of independently creating works with a level of creativity and originality comparable to human work (Gervais, 2022) [4]. This transformation poses fundamental legal challenges to the Indonesian copyright system, which has traditionally been built on anthropocentric foundations (Rahardjo, 2020) [17].

The ability of contemporary generative AI to produce various forms of creative works, from visual art and literature to musical compositions and programming code, has deconstructed conventional understandings of the concepts of creation and creativity (Huang & Wang, 2023) [8]. The painting "Portrait of Edmond de Belamy," created entirely by a Generative Adversarial Network (GAN) algorithm, achieved a spectacular auction price of USD 432,500 in 2018 at Christie's, provides concrete empirical evidence of the economic and cultural value that AI-created works can bring (Abbas, 2023) [1].

In the Indonesian context, the adoption of generative AI has shown A significant growth trend. A report by the Indonesian Internet Service Providers Association (APJII, 2023) [13] noted a 45% increase in the use of generative AI tools among digital creative businesses in the past two years. Furthermore, the emergence of local startups focused on developing AI models, as well as the widespread use of AI for content creation in the advertising, music, and publishing industries (Google, Temasek, & Bain, 2023) [24], further reinforces the urgency of clear regulatory arrangements. This phenomenon emphasizes that legal uncertainty is no longer merely a theoretical issue, but a practical challenge that directly impacts the pulse of the national digital creative economy.

In the context of the Indonesian legal system, copyright is regulated by Law Number 28 of 2014 [9] concerning Copyright (UUHC), which explicitly requires that the creator must be "a person or persons" (Article 1 number 2). This subjective requirement creates a legal vacuum when AI acts as the primary creator, given that AI is not yet recognized as a legal subject in the Indonesian legal system (Setyawan, 2023). Meanwhile, Law Number 19 of 2016 [10, 20] concerning Electronic Information and Transactions (ITE Law) has been amended by Law No. Number 27 of 2022 [11] concerning Personal Data Protection does not specifically regulate copyright for works produced by AI (Kusuma, 2023) [14].

The misalignment between the acceleration of technological innovation and the existing legal framework creates legal uncertainty that has the potential to hinder innovation and investment in the AI-based creative economy sector (Prasetyo, 2022) [16]. On the one hand, AI developers, creative industry players, and investors face significant legal risks related to the ownership of their digital assets (Yunus, 2023) [25]. On the other hand, the lack of a clear accountability regime for copyright infringement involving AI works can harm the interests of human creators and create distortions in the digital creative market (Wibowo,

2022) [22]. If not anticipated immediately, Indonesia has the potential to be left behind in utilizing AI-based digital economic opportunities and lose the strategic opportunity to become a pioneer in establishing responsive AI governance at the regional level (Zhang & Chen, 2023) [26].

Based on the identification of problems in the background, this study formulates two basic research questions:

1. What are the characteristics and implications of regulatory gaps in the Copyright Law and the Electronic Information and Transactions Law in regulating the legal status and ownership of copyrighted works produced autonomously by artificial intelligence?
2. How can an effective and comprehensive legal protection and liability model be formulated to regulate AI creations in the Indonesian legal system?

Consistent with the established problem formulation, this research has two main objectives:

1. Critically analyze the gaps and misalignments in regulations in the Copyright Law and the Electronic Information and Transactions Law regarding the regulation of AI-generated copyrighted works.
2. Formulating a comprehensive and futuristic legal protection and liability model to reconstruct Indonesia's intellectual property legal framework in facing the era of artificial intelligence.

Research methods

This research uses a normative legal research method (doctrinal legal research) by applying a multidisciplinary approach that includes philosophical, conceptual, statutory, and comparative legal approaches (Irianto, 2022) [12]. A philosophical approach is used to explore the philosophical basis of anthropocentric principles in copyright law and reconstruct them in the context of the development of AI technology (Rahardjo, 2020) [17]. A conceptual approach is applied to analyze key concepts such as "creator," "work," and "originality" from the perspective of a legal system that accommodates AI creations (Wibowo, 2022) [22].

The statutory approach is conducted through an in-depth analysis of the provisions of the Copyright Law, the Electronic Information and Transactions Law, and other relevant laws and regulations. Meanwhile, a comparative legal approach is used to compare AI-related policies and regulations across several jurisdictions, namely the European Union, the United Kingdom, and the United States, to draw lessons and best practices that can be contextually adopted within the Indonesian legal system (Zhang & Chen, 2023) [26].

Data collection techniques were conducted through comprehensive library research on two primary data source categories (Nurjaya, 2021) [15]. Primary legal sources included Law Number 28 of 2014 [9] concerning Copyright, Law Number 19 of 2016 [10] concerning Electronic Information and Transactions, and Law Number 27 of 2022 [11] concerning Personal Data Protection. and various international legal instruments, such as the draft EU Artificial Intelligence Act (European Commission, 2022) [3]. Secondary legal sources include recent national and international scientific journals, academic textbooks, expert commentaries, court decisions (including Supreme Court Decision No. 3222/K/Pdt/2019) [21], academic papers, and recent research reports on the interaction between law and technology (Setyawan, 2023) [8].

Data analysis was conducted qualitatively. The analysis process focused on constructing legal arguments through (1) legal interpretation of the norms in the Copyright Law and the Electronic Information and Transactions Law to uncover the meaning, intent, and gaps in their application to AI works; (2) legal construction to form new concepts and norms such as "generative works" and "layered accountability models" needed to fill the legal gap; and (3) vertical and horizontal synchronization between laws and regulations to create a harmonized regulatory framework. This stage was carried out systematically through data reduction, thematic data presentation, and drawing verification conclusions to ensure the accuracy and validity of the research findings (Kusuma, 2023; Prasetyo, 2022; Yunus, 2023) [13, 16, 25].

Discussion and Research Results

1. Anatomy of Regulatory Gaps in the Copyright Law and the Electronic Information and Transactions Law

A comprehensive analysis of the Copyright Law reveals that the regulatory gaps are both structural and philosophical (Santoso, 2023) [18]. The anthropocentric principle adopted is not only reflected in the formal definition of Article 1 number 2, but has become the soul that animates the entire normative framework of the Copyright Law. Article 4 of the Copyright Law explicitly states that "Copyright is an exclusive right consisting of moral rights and economic rights." The concept of moral rights, which includes the right to be named as the creator and the right to maintain the integrity of the work, is a right inherent in humans and is, in principle, non-transferable (Gervais, 2022) [4]. This characteristic of moral rights raises significant conceptual difficulties when dealing with AI entities that lack legal personhood and moral capacity (Huang & Wang, 2023) [8].

Indonesian jurisprudence, as reflected in Supreme Court Decision No. 3222/K/Pdt/2019 [21], has reinforced this anthropocentric position by asserting that copyright protection is granted only to works born of human intellectual ability, feeling, and will. This decision affirms a conceptual approach to the possibility of recognizing works produced autonomously by non-human systems (Setyawan, 2023) [20].

On the other hand, the Electronic Information and Transactions Law is not designed to address substantive issues regarding the creation of digital works. The scope of the Electronic Information and Transactions Law's regulations focuses more on the instrumental aspects of electronic systems and digital transactions, without addressing fundamental issues regarding the legal status and ownership of intellectual property generated by these digital tools. The articles in the Electronic Information and Transactions Law concerning Electronic Signatures, Electronic Certification, and domain name regulations do not directly correlate with the fundamental question: "Who should be recognized as the creator when a work is independently generated by an AI system?"

The inability of these two laws to "talk" to each other in regulating the digital intellectual property domain further widens the regulatory gap and creates a grey area that has the potential to give rise to legal uncertainty and disputes in the future.

2. Copyright Ownership Options for AI Works: A Multi-Perspective Analysis

Based on a comprehensive document analysis, this study identifies at least four potential legal subjects who can be considered as copyright holders for AI works, each with its own philosophical and legal arguments and implementation weaknesses (Huang & Wang, 2023) [8].

Table 1: Comprehensive Analysis of Copyright Ownership Options for AI Works

Legal Subject	Supporting Arguments	Substantive Weaknesses	Jurisdictional Support
AI as Creator	Recognition of AI's creative autonomy; a futuristic approach that recognizes the independence of systems	Contrary to the doctrine of natural law; practical problems of legal responsibility and legal capacity	None (consistently rejected in almost all jurisdictions) (Gervais, 2022) [4]
Algorithm Developer	The creator of initial "creative potential" through the process of programming and system design	Weakens significantly when AI develops self-learning capabilities (deep learning) beyond the initial program-ming code.	Considered in academic discussions and theoretical studies (Abbas, 2023) [1]
AI User	Providing substantive creative interventions through the construction of specific prompts and parameters	The level of creative intervention can vary widely and is difficult to measure objectively.	UK (Copyright, Designs and Patents Act 1988 Section 9(3)) (Zhang & Chen, 2023) [26]
Training Data Owner	Essential and determinative data contribution to the AI training process	Potential conflict with copyright of works contained in the training dataset	European Union (in discussions on the development of a sui generis scheme) (European Commission, 2022) [3]

In the context of the Indonesian legal system, the absence of specific provisions that regulate comprehensively leaves these four options in a gray area that is prone to triggering complex and protracted ownership disputes.

3. Critical Deconstruction of Anthropocentric Principles in the Copyright Legal System

The anthropocentric principle that underpins the Indonesian Copyright Law has been a major obstacle to the recognition and legal protection of AI-created works. However, rapid technological developments demand a critical deconstruction of this principle without neglecting the protection of human creativity, the original essence of copyright law. A transformative approach is needed to recognize the economic and cultural value of AI works while maintaining substantive protection for human creative expression.

The fundamental requirement of originality in the Indonesian copyright legal system, which stems from the civil law tradition, requires the presence of an imprint of personality of the human creator. AI-generated works, even if they meet the objective criteria of novelty and distinctiveness, are often deemed to lack the human creative "soul" (the sweat of the brow versus the flash of genius). In common law jurisdictions like the United States, the US Copyright Office consistently rejects registration of works produced by non-human entities, as stated in the Compendium of U.S. Copyright Office Practices, which emphasizes that works must be created by humans.

However, this traditional view is beginning to face serious conceptual challenges. Does the concept of "creativity" always and exclusively stem from human consciousness and intention? If a work meets objective standards to be considered new, original, and distinctive, is the source of its creation still a relevant factor?. Some contemporary thinkers argue that the focus of legal regulation should shift from the creation process (which involves humans) to the resulting output (which has social, cultural, and economic value) These fundamental philosophical debates need to be resolved before adequate and sustainable legal solutions can be formulated.

4. Reconstructing a Multi-Layered Legal Liability Model for AI Works

When an AI system produces work that is found to be plagiarized or substantially imitates copyrighted human work, the question of legal liability becomes highly complex and multifaceted. Applying the principle of strict liability (joint and several liability without proof of fault) to AI developers or users will face procedural fairness challenges, as these parties may have made maximum efforts to prevent infringement. On the other hand, allowing no party to be held accountable will create a lawless space that harms the interests of the original creator.

Based on a comprehensive analysis, this study proposes a layered liability model based on the adaptively developed legal liability theory (European Commission, 2022) [3]:

1. User Liability: AI users are legally liable if they knowingly and intentionally use AI to produce copyright-infringing works, or if they negligently disregard warnings and usage guidelines provided by the developer. The level of this responsibility is proportional to the user's level of control and knowledge over the creation process;

2. Developer Liability: Developers of AI algorithms may be held liable based on negligence if the systems they design are highly prone to plagiarism (for example, due to overfitting of training data) and they fail to implement adequate prevention mechanisms. Reasonable due diligence standards should be applied to developers to ensure the integrity of the systems they develop;

3. Industry Insurance Schemes and Compensation Funds: A mandatory insurance scheme or collective compensation fund funded proportionally by the AI industry is needed. This mechanism serves to provide fair remedies to copyright holders whose works are infringed, especially in complex cases where the infringement is difficult to trace and attribute to a specific party;

This multi-layered accountability model aligns with the recommendations in the European Commission report, which emphasizes the importance of a comprehensive and balanced approach in addressing the liability implications arising from the development of AI technology.

1. Implications of the Personal Data Protection Act (PDP Act) on the AI Creation Ecosystem

In addition to the Copyright Law and the Electronic Information and Transactions Law \Law Number 27 of 2022 [11] concerning Personal Data Protection has profound implications for the AI creation ecosystem, particularly regarding the use of training data. AI creation relies heavily on the availability of massive and diverse datasets, which often contain personal data (such as photos, online history, or user preferences) as well as copyrighted works belonging to other parties. The PDP Law, which adheres to the

principles of lawfulness, fairness, and transparency, places a heavy obligation on Data Controllers (which in this context can be AI developers or users) to have a valid legal basis for processing personal data.
The use of personal data to train AI models without meeting the requirements stipulated in the PDP Law, such as obtaining valid consent from the data subject or without sufficient legitimate interest, not only violates the PDP Law but can also taint the legal status of the resulting AI work. Furthermore, the data subject's right to rectification, deletion, and destruction of data can conflict with the rights of trained AI models, creating new technical and legal complexities. Therefore, the PDP Law regime cannot be viewed in isolation from the discourse on copyright in AI works. A comprehensive protection model must consider the integration of intellectual property principles and personal data protection, for example by requiring transparency and accountability regarding the source and composition of training datasets as part of the registration or audit process for AI works.

2. Comprehensive and Implementable Roadmap and Policy Recommendations
Based on an in-depth discussion of all aspects of the problem, this study recommends a comprehensive legal reconstruction roadmap for the protection of AI copyright works in Indonesia.

Short Term Stage (1-2 Years): Interpretation Strategy and Administrative Regulation.
1. Issuance of Circular Letter of the Director General of Intellectual Property: Issue an official circular letter that guides the registration process for works involving AI, by requiring a transparent declaration regarding the level and form of human intervention in the creation process

2. Preparation of Guidelines by the Ministry of Communication and Information Technology: Developing ethical guidelines for the use of AI for digital content creation that can be used as a reference by industry players under the regulatory umbrella of the Electronic Information and Transactions Law..

3. Medium-Term Stage (2-5 Years): Limited Amendments and Regulatory Harmonization
1. Amendments to the Copyright Law: Introducing a new chapter or article specifically regulating "Generative Works" with the following substantive provisions:

Article 1: Adds an operational definition of “Generative Work” as a work generated through the assistance of an autonomous computing system based on instructions, parameters, and inputs specified by a user;
Article 12: Establishes that the copyright to Generative Works is initially owned by the User, as long as the User can prove that there has been significant creative intervention in the form of prompt construction, parameter determination, and/or the process of curating the final result.;

Article 43: Regulates a mechanism for fair and proportional distribution of rights between Users and Developers through a standard license agreement that takes into account the substantive contributions of each party.

Harmonization of the Electronic Information and Transactions Law: Adding specific provisions on "Algorithmic Accountability" that require developers of generative AI systems to implement audit trail mechanisms, process transparency, and specific explainability requirements.

Long-Term Stage (>5 Years): Development of a Comprehensive Sui Generis Regime
Artificial Intelligence Bill: Establishing a comprehensive legal framework for AI governance, including specific provisions on intellectual property for AI works, with key characteristics;

Legal Subject: Rights holders are registered Users whose creative contributions can be proven.

Duration of Protection: 15 years from the date the work is first publicly disclosed.

Moral Rights: Not inherent in AI works; only economic rights can be transferred and traded.

Registration: Registration is mandatory, along with a transparent description of the AI model and dataset used for auditing and transparency purposes.

Sustainable Multidisciplinary Collaboration: Establish a National AI and IP Taskforce consisting of representatives from the Ministry of Law and Human Rights, the Ministry of Communication and Informatics, the National Agency for Research and Innovation (BRIN), technology industry associations, academic communities, and creative community representatives to continuously monitor developments and revise policies.

Conclusion
Based on a comprehensive analysis, this study concludes with three key findings regarding the legal protection of artificial intelligence works in the Indonesian legal system. First, there is a significant structural-philosophical regulatory gap between the Copyright Law and the Electronic Information and Transactions Law, exacerbated by the lack of integration of substantive considerations from the Personal Data Protection Law into the AI creation ecosystem. The Copyright Law, which strictly adheres to anthropocentric principles, is unable to accommodate works produced autonomously by AI, while the Electronic Information and Transactions Law does not address the substantive aspects of digital creation. Second, of the various options for copyright ownership of AI works, granting rights to users with the requirement of significant creative intervention is the most balanced and implementable approach in the Indonesian context. Third, a multi-layered legal liability model involving user, developer, and industry compensation schemes is needed to address the complexities of legal liability in copyright infringement involving AI works. Overall, this research successfully answers the problem formulation by not only mapping regulatory gaps but also contributing in an original way through the formulation of a hybrid policy model and a concrete, implementable, and contextual legal reconstruction roadmap for Indonesia, while simultaneously filling the gap in legal literature that has so far ignored the

dimension of personal data protection in the discourse on copyright of AI works.

Based on the research findings, three strategic recommendations are proposed. First, the government and legislators should immediately establish a team to accelerate the drafting of amendments to the Copyright Law and the Electronic Information and Transactions Law that integrate regulations for generative AI works. Second, industry players and relevant associations should develop an industry code of ethics and a standard agreement scheme that governs the division of rights and responsibilities within the AI creation ecosystem. Third, for further research, empirical studies are needed on the implementation of the proposed ownership and accountability model, as well as a comprehensive review of the implications of AI for the Indonesian legal system more broadly. Implementation of these recommendations is expected to create legal certainty that encourages sustainable innovation while protecting the interests of all stakeholders in the Indonesian digital ecosystem.

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