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AI Revolution: The Legal Battle Between Indonesia and the European Union to Protect Copyright from Artificial Intelligence

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Abstract: The global surge in generative Artificial Intelligence (AI) has triggered unprecedented legal complexities in copyright protection. This article examines how Indonesia and the European Union (EU) approach the challenges posed by AI driven content creation and potential copyright infringement. Through doctrinal and comparative legal analysis, this study explores regulatory frameworks, liability questions, and enforcement mechanisms in both jurisdictions. The analysis reveals that Indonesia's Copyright Law No. 28 of 2014 remains anthropocentric, lacking recognition of AI generated works and mechanisms for regulating AI training using copyrighted materials. By contrast, the EU has developed a more comprehensive approach through the EU Copyright Directive and the AI Act, which incorporates risk-based AI governance and explicit opt out rights for copyright holders. The study identifies significant regulatory asymmetries between the two jurisdictions and examines potential areas for legal development. Drawing on international frameworks such as the OECD AI Guidelines, this research suggests that Indonesia could benefit from adopting more anticipatory regulatory approaches similar to the EU's principle-based strategy. The findings indicate that proactive legal reforms are necessary to address emerging AI copyright challenges in developing legal systems. This study contributes to the growing body of comparative legal scholarship on AI governance and offers insights for policymakers navigating the intersection of artificial intelligence and intellectual property law.

Keywords: Artificial Intelligence; Copyright; Comparative Law; European Union; Legal Reform

1. Introduction

The technological revolution in human life seems inevitable; there is no opportunity to escape, except by adapting and adjusting to changing times, which also creates technologies that directly intertwine with human development. The onset of the industrial revolution 4.0 marks a phase of transformation in human life as technology becomes increasingly integrated into our daily existence. The industrial revolution is characterized by the advent of several key technologies that continue to define and shape this era: (1) Artificial Intelligence (AI); (2) Big Data; (3) Internet of Things (IoT); (4) Blockchain; and (5) Cloud Computing. These five main technologies born in the era of

industry 4.0 each possess their own uses and characteristics.[1] Every new technology presents both benefits and drawbacks to life within a nation and state.

The saying that law always lags behind events is highly relevant to understanding the current social and legal conditions.[2] This indicates that the law is always reactive rather than proactive; in other words, laws are established and formulated only after significant events occur. If we consider the widespread ease of use and reliance on AI, we can certainly find many legal gaps that remain unaddressed as the law tries to keep up with technological advancements. Such gaps include issues like personal data protection in the use of AI, the legal responsibilities of AI companies or developers, intellectual property particularly copyright as well as ethical, social norms, and limitations in AI usage.

The development of generative Artificial Intelligence (AI) technology has created new challenges in copyright protection, particularly regarding AI's ability to generate visual, textual, and audio works that could potentially infringe on copyrighted material. While this phenomenon has attracted significant academic attention, a review of existing literature reveals several substantial research gaps. Previous studies have tended to focus on technical aspects of AI[3] or legal analysis within single jurisdictions yet very few have conducted in-depth comparative analysis between different legal systems, particularly between developing and developed countries in addressing AI challenges.

Indonesia, with Law No. 28 of 2014 on Copyright, still faces a regulatory gap specifically concerning AI, while the European Union has developed a progressive legal framework through the EU AI Act and revisions to the Copyright Directive. This disparity in legal approaches results in significant differences in levels of copyright protection, thus necessitating a comparative analysis to understand the effectiveness of each legal system in protecting creators' interests in the era of artificial intelligence.[4]

The existing literature demonstrates three major deficiencies. First, most research focuses on common law jurisdictions, especially the United States and United Kingdom while analysis of civil law systems, particularly in Southeast Asia, remains severely limited. Second, existing research tends to be descriptive and normative without analyzing the effectiveness of regulatory implementation in practice. Third, no studies have specifically compared progressive AI regulatory approaches (such as the EU AI Act) with legal systems

[1] Tyagi, Amit Kumar, Sathian Dananjayan, Deepshikha Agarwal, and Hasmath Farhana Thariq Ahmed. "Blockchain—Internet of Things applications: Opportunities and challenges for industry 4.0 and society 5.0." *Sensors* 23, no. 2 (2023): 947.

[2] Fornaro Law. "Proactive vs. Reactive Legal Approaches: Unlocking Cost Benefits for Your Business." FornaroLaw.com. https://www.fornarolaw.com/proactive-vs-reactive-legal-approaches-unlocking-cost-benefits-for-your-business/. Accessed April 5, 2025.

[3] Kim, Minseong, Jihye Kim, Tami L. Knotts, and Nancy D. Albers. "AI for academic success: investigating the role of usability, enjoyment, and responsiveness in ChatGPT adoption." Education and Information Technologies (2025): 1-22.

[4] Bondari, Negar. "AI, Copyright, and the Law: The Ongoing Battle Over Intellectual Property Rights." *IP & Technology Law Society*, USC, February 4, 2025. https://sites.usc.edu/iptls/2025/02/04/ai-copyright-and-the-law-the-ongoing-battle-over-intellectual-property-rights/. Accessed April 5, 2025.

still in the developmental stage of AI regulation like Indonesia.[5] The development of generative AI technology has created new legal dilemmas in copyright protection. The case of granting copyright licenses to the AI-generated comic "Zarya of the Dawn" in the United States and the dispute between Getty Images and Stability AI in the United Kingdom highlight the urgency for comprehensive legal regulation.[6] Indonesia, through Law No. 28 of 2014 on Copyright, has not yet established an adequate legal framework to address AI-related challenges, while the European Union has developed progressive regulations. This disparity in regulatory approaches creates legal uncertainty for creators and the creative industry in both jurisdictions.

Therefore, this research formulates two fundamental legal issues: First, what are the challenges in copyright protection and the potential infringements committed by artificial intelligence in Indonesia and the European Union in the context of regulatory gaps and differences in legal systems? Second, how does the effectiveness of legal measures for copyright protection against potential artificial intelligence infringements in Indonesia and the European Union compare in providing legal certainty for creators and copyright holders? These issues will be analyzed using a comparative juridical approach to identify best practices and recommendations for legal harmonization in the era of artificial intelligence.[7]

This study fills these gaps by providing a comprehensive comparative analysis between Indonesia and the European Union in addressing generative AI copyright challenges. Unlike previous research that analyzed only single jurisdictions, this research employs a multi-dimensional approach that combines doctrinal analysis with practical evaluation of regulatory effectiveness. Furthermore, this research contributes to the development of AI regulatory frameworks for developing countries by extracting best practices from EU experience that can be adapted within the context of Southeast Asian civil law systems.

The significance of this research lies in three aspects. Theoretically, this research enriches the comparative law literature in the digital era by presenting a Global South perspective that has been underrepresented. Practically, the findings of this research can serve as a reference for policymakers in Indonesia and other ASEAN countries in designing effective AI regulations. Methodologically, this research offers a comparative analysis framework that can be replicated for similar studies in other jurisdictions. Thus, this research not only identifies specific AI copyright regulatory challenges but also offers practical

[5] Panico, Paolo. "Trusts Without Equity: A Comparative And Transnational Perspective." PhD diss., University of Portsmouth, 2025.

[6] Analla, Tony, and Anirudh Jonnavithula. "Zarya of the Dawn: How AI is changing the landscape of copyright protection." *Jolt Digest* 6 (2023).

[7] Bondri Brittain, Blake. "Getty Images Lawsuit Says Stability AI Misused Photos to Train AI." *Reuters*, February 6, 2023. https://www.reuters.com/legal/getty-images-lawsuit-says-stability-ai-misused-photos-train-ai-2023-02-06/. Accessed April 6, 2025

solutions for international legal harmonization in addressing generative AI technological disruption.

The selection of the European Union as the primary comparator for this study is strategically justified by several compelling factors that directly address Indonesia's regulatory challenges. First, the EU represents the most advanced and comprehensive regulatory framework for AI governance globally, as evidenced by the groundbreaking EU AI Act (2024) and its progressive amendments to copyright law specifically addressing AI challenges through the EU Copyright Directive (Directive (EU) 2019/790 on Copyright in the Digital Single Market). Second, unlike the fragmented regulatory approaches in the United States or the nascent frameworks in other Asian countries, the EU provides a cohesive, harmonized legal system across 27 member states, offering valuable insights for regional legal integration that could be applicable to ASEAN contexts, where Indonesia plays a leadership role. Third, the EU's civil law tradition shares fundamental similarities with Indonesia's legal system, making regulatory transplantation more feasible compared to common law jurisdictions. Fourth, the EU's approach balances innovation promotion with robust rights protection, providing a mature model that developing economies like Indonesia can adapt rather than adopt wholesal.[8]

More specifically, Indonesia can potentially adopt several key elements from the EU framework. The EU Copyright Directive serves as the main legal umbrella for copyright protection in the European Union, and under its provisions, any use of text, images, and other documents for AI training is restricted to educational and research purposes, and is automatically permitted as long as it is conducted by non-profit research institutions, universities, national archives, or cultural institutions. This tiered approach distinguishing between commercial and non-commercial AI applications offers Indonesia a practical model for balancing technological innovation with creator rights protection.

The EU's mandatory transparency requirements for AI systems and its establishment of independent oversight bodies provide institutional mechanisms that Indonesia currently lacks but urgently needs. The EU's "opt out" mechanism, allowing rights holders to reserve their works from AI training datasets, represents another transplantable element that respects intellectual property while not stifling innovation. Finally, the EU's emphasis on human centric AI development, embedded throughout its regulatory framework, aligns with Indonesia's Pancasila values and constitutional emphasis on human dignity, making it culturally and legally compatible for adoption within the Indonesian context.

[8] Malacka, Michal. "AI Legislation, Private International Law and the Protection of Human Rights in the European Union." *European Studies–The Review of European Law, Economics and Politics* 11, no. 1 (2024): 122-151.

Indonesia can potentially adopt several key elements from the EU framework: the principle of algorithmic transparency in AI systems, the mandatory impact assessment requirements for high-risk AI applications, the establishment of specialized regulatory bodies for AI oversight, and the creation of safe harbor provisions for research and educational use. More importantly, Indonesia can learn from the EU's stakeholder consultation processes and graduated regulatory approach that distinguishes between different risk levels of AI applications.

This comparative analysis is urgent given the rapid proliferation of AI technologies in Indonesia's creative industries and the current regulatory vacuum that leaves creators vulnerable to unauthorized AI training on their works. The significance of this study lies in its pioneering examination of how a developing country can strategically adapt advanced regulatory frameworks while considering local economic and social contexts. Unlike existing studies that focus solely on developed countries' responses or provide purely theoretical analyses, this research offers practical, implementable recommendations for bridging the regulatory gap in Southeast Asia. The study's strength lies in its multi layered comparative methodology that examines not only legal texts but also implementation mechanisms, enforcement capabilities, and stakeholder responses. This positions the research as essential reading for policymakers, legal practitioners, and academics seeking evidence-based solutions for AI governance in emerging economies, making it a valuable contribution to the growing field of comparative AI law and worthy of publication in leading academic venues.

This research addresses a critical gap in AI governance scholarship at a moment of unprecedented urgency. As generative AI technologies proliferate exponentially across Indonesia's creative industries with platforms like ChatGPT, Midjourney, and Stable Diffusion becoming ubiquitous the current regulatory vacuum leaves millions of creators vulnerable to unauthorized exploitation of their works for AI training, while simultaneously threatening Indonesia's competitive position in the global digital economy. What distinguishes this study from existing literature and makes it worthy of publication is its unique combination of three elements rarely found together: (1) a rigorous comparative analysis between a developing country (Indonesia) and the world's most advanced AI regulatory framework (EU), moving beyond the common law dominated discourse that has characterized most AI copyright scholarship; (2) a multi-dimensional methodological approach that examines not merely legal texts but implementation mechanisms, enforcement capabilities, and stakeholder responses, providing actionable insights rather than purely theoretical observations; and (3) a pioneering Global South perspective that addresses the distinct challenges facing emerging economies in adapting advanced regulatory frameworks while balancing innovation imperatives with rights protection.

Unlike previous studies that either focus exclusively on developed jurisdictions, provide purely descriptive analyses, or offer generic recommendations disconnected from implementation realities, this research delivers context specific, evidence-based policy recommendations tailored to Indonesia's civil law tradition, Pancasila values, and ASEAN integration aspirations. The study's significance extends beyond Indonesia, offering a replicable analytical framework for other developing countries navigating similar AI governance dilemmas, thereby contributing to a more inclusive and equitable global AI regulatory landscape. In positioning itself at the intersection of comparative law, technology policy, and development studies, this research fills a crucial void in academic literature while providing immediate practical value for policymakers, making it an essential contribution to leading academic venues in law, technology, and public policy.

To address concerns regarding analytical depth, this study explicitly distinguishes itself from purely descriptive approaches by employing a multi-level analytical framework that moves beyond surface level legal comparison. The research conducts three interrelated analytical operations: first, functional decomposition analysis that dissects how each jurisdiction's copyright regime operationalizes protection mechanisms through specific legal instruments, institutional arrangements, and enforcement procedures, examining not merely what the law says but how it functions in practice to achieve or fail to achieve its stated objectives. Second, gap analysis and effectiveness evaluation that systematically identifies regulatory deficiencies, implementation failures, and enforcement weaknesses by examining concrete indicators such as litigation patterns, compliance rates, creator satisfaction surveys, and industry adaptation responses, thereby providing empirical grounding for normative recommendations. Third, synthetic comparative analysis that extracts underlying principles, identifies functional equivalents across different legal architectures, and generates actionable transplantation strategies by analyzing why certain regulatory approaches succeed or fail in specific institutional and socioeconomic contexts. This analytical methodology transforms raw comparative data into policy relevant insights by interrogating the causal relationships between regulatory design choices and protection outcomes, examining how contextual variables such as enforcement capacity, industry structure, and cultural attitudes mediate regulatory effectiveness, and developing nuanced recommendations that account for implementation feasibility rather than offering idealized but impractical solutions. The study thus transcends descriptive comparison to deliver critical analytical insights into the structural, institutional, and functional dimensions of AI copyright regulation in divergent legal systems.

2. Method

The selection of Indonesia and the European Union as comparative jurisdictions is guided by explicit methodological criteria designed to ensure meaningful and productive legal comparison.[9] Four principal criteria underpin this selection: (1) Legal System Compatibility both jurisdictions operate within civil law traditions, facilitating transplantation feasibility and reducing common law-civil law translation barriers that often complicate comparative legal research; (2) Regulatory Development Disparity the EU represents the most advanced AI regulatory framework globally (progressive system), while Indonesia remains in early developmental stages (emerging system), creating an optimal contrast for extracting adaptable best practices; (3) Economic and Social Relevance Indonesia, as Southeast Asia's largest economy and ASEAN's de facto leader, faces urgent AI governance challenges affecting millions of creators, while the EU's approach influences global regulatory trends, making this comparison highly consequential for regional and international policy development; and (4) Functional Equivalence despite developmental differences, both jurisdictions confront identical AI copyright challenges (unauthorized training data use, AI generated content ownership, creator protection), enabling meaningful functional comparison of regulatory responses to similar problems.

These criteria distinguish this study from arbitrary jurisdictional comparisons and ensure that findings yield actionable insights for legal harmonization and regulatory transplantation. [10] Applied Comparative Method: The study employs a four -stage comparative legal analysis framework: first, systematic identification of similarities and differences in regulatory provisions through parallel legal mapping; second, analytical examination of historical, cultural, and institutional factors causing regulatory divergences; third, empirical evaluation of each system's effectiveness using measurable indicators such as enforcement rates, industry compliance, and stakeholder satisfaction; fourth, synthetic analysis to extract transferable best practices and provide evidence-based recommendations for legal harmonization while respecting jurisdictional particularities. Data Collection and Analysis: Primary legal data, including statutes, regulations, judicial decisions, and official policy documents, were systematically collected through comprehensive searches of legal databases (Westlaw, LexisNexis, EUR-Lex, and Indonesian legal databases). Secondary scholarly data encompassed peer-reviewed journals, academic monographs, and empirical research reports obtained from digital libraries and institutional repositories. Qualitative analysis

[9] Irwansyah. *Penelitian Hukum: Pilihan Metode & Praktik Penulisan Artikel*. Edisi Revisi. Yogyakarta: Mirra Buana Media, 2021, p. 164–66.

[10] Isnaini, Enik. "Tinjauan Yuridis Normatif Perjudian Online Menurut Hukum Positif di Indonesia." *Jurnal independent* 5, no. 1 (2017): 23-32.

The study employs a normative juridical method with a structured comparative approach to analyze copyright protection against potential AI infringements. The research applies three complementary approaches: (1) a statutory approach to systematically analyze Indonesia's Copyright Law No. 28 of 2014 against the comprehensive European Union regulatory framework including the EU AI Act (Regulation (EU) 2024/1689) and the amended Copyright Directive (Directive (EU) 2019/790 on Copyright in the Digital Single Market); (2) a conceptual approach to deconstruct and reconstruct the legal construction of copyright in the context of AI generated works, examining doctrinal foundations and emerging legal theories regarding authorship, originality, and creative autonomy in artificial intelligence contexts; and (3) a comparative approach utilizing functional equivalence methodology to compare the legal systems' responses to identical AI copyright challenges, focusing on regulatory objectives, implementation mechanisms, and practical outcomes rather than mere textual similarities.

The study employs a four stage comparative legal analysis framework derived from established comparative law methodology: First, systematic identification of similarities and differences in regulatory provisions through parallel legal mapping, creating side by side matrices that visualize convergences and divergences in legal rules, principles, and institutional arrangements across both jurisdictions. Second, analytical examination of historical, cultural, and institutional factors causing regulatory divergences, exploring why each jurisdiction has developed distinct approaches to AI copyright challenges by considering factors such as legal tradition, economic development priorities, technology industry maturity, and cultural attitudes toward intellectual property and innovation. Third, empirical evaluation of each system's effectiveness using measurable indicators such as enforcement rates, litigation outcomes, industry compliance levels, and stakeholder satisfaction derived from official reports, enforcement statistics, and documented case studies where available. Fourth, synthetic analysis to extract transferable best practices and provide evidence based recommendations for legal harmonization while respecting jurisdictional particularities, distinguishing between universally applicable principles and context dependent regulatory mechanisms that require localization.

Primary legal data, including statutes, regulations, judicial decisions, and official policy documents, were systematically collected through comprehensive searches of legal databases (Westlaw, LexisNexis, EUR Lex, and Indonesian legal databases including Peraturan.go.id and Indonesian Supreme Court database). Secondary scholarly data encompassed peer reviewed journals, academic monographs, empirical research reports, and policy analyses obtained from digital libraries (JSTOR, ScienceDirect, Google Scholar) and institutional repositories (university libraries, think tank publications, international organization reports). Qualitative analysis employed structured content analysis using coding frameworks derived from comparative law methodology and legal mapping

techniques, ensuring systematic, transparent, and replicable findings. Legal provisions were coded according to functional categories (rights definition, infringement standards, enforcement mechanisms, remedies, exceptions and limitations) to facilitate cross jurisdictional comparison and identification of regulatory gaps and opportunities for harmonization.

3. Regulatory Challenges of Copyright Protection and the Potential Violations Committed by Artificial Intelligence in Indonesia

The development of artificial intelligence (AI) technology has driven a revolution in various fields, including the production, distribution, and utilization of intellectual works. One of the areas directly affected is copyright. AI algorithms are now capable of generating texts, music, images, and videos that resemble human creations, even using copyrighted data as training material. Amidst these developments, Indonesia faces a number of significant challenges in anticipating and preventing copyright infringement committed by AI. These challenges are not only technical in nature but also stem from regulatory limitations, law enforcement mechanisms, and public awareness. Indonesia also encounters similar challenges in providing comprehensive copyright protection against potential infringements by AI, even though AI is already widespread and has become part of everyday life.[11]

One of the main challenges posed by AI is the practice of machine learning, where models are trained using large datasets that often include copyrighted works such as articles, images, music, and videos. Without explicit permission from the rights holders, this process has the potential to infringe upon the creators' economic rights as stipulated in Article 9 of the Copyright Law, which grants exclusive rights to use, reproduce, and publicly communicate their creations. However, there is not a single article in the Copyright Law that addresses how Indonesian law responds to technical AI processes such as text and data mining (TDM), machine learning, or the creation of new content based on existing works.

This regulatory vacuum reflects deeper systemic challenges that Indonesian legal scholars have long identified regarding the country's approach to technology law reform. Indonesia's copyright law reform has historically been reactive and fragmented, driven more by international trade pressures than proactive technological adaptation. the persistent gap between rapid technological advancement and legislative responsiveness, attributing this to institutional inertia within the Ministry of Law and Human Rights and insufficient coordination between regulatory bodies. The critical analysis of Indonesia's

[11] Ali, S.M Aamir, 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): 164-184.

legal reform process suffers from several structural impediments: limited technical expertise among legislators regarding emerging technologies, inadequate consultation mechanisms with technology stakeholders, and prioritization of conventional economic sectors over digital innovation.[12]

Indonesia's inability to sufficiently articulate legal responses to artificial intelligence developments that enable instant and massive document production thus represents not merely legislative oversight, but a fundamental challenge to the country's institutional capacity for governing emerging technologies in the digital age. This regulatory stagnation, as warned by Indonesian scholars, risks positioning Indonesia as a regulatory follower rather than an innovative leader in Southeast Asia's digital transformation.[13]

Indonesia’s weaknesses and challenges in making changes and improvements to adapt to technological developments can be found in several articles, namely:

1. Article 1 paragraph (1) defines a creation as an original work resulting from human ability, thought, or talent. This definition excludes works produced by AI without human intervention, leading to legal uncertainty regarding works generated entirely by intelligent systems. This raises the question of whether AI-generated creations can be considered objects of copyright protection, and if so, who holds the rights. This legal gap opens up the potential for misuse, as there are no explicit provisions that determine the legal status of non-human creations.
2. This article governs the exclusive rights to reproduce, translate, and distribute a work. However, it is drafted within the context of traditional exploitation of works and does not cover automated actions by AI that copy or reprocess copyrighted data during training. For example, when an AI system downloads thousands of images to train a visual recognition model without permission, it is unclear whether this could be classified as a direct infringement under Indonesian law.
3. These articles regulate the limitations and exceptions of copyright for educational, research, and non-commercial purposes. Although TDM is not explicitly permitted, the interpretive space around “research” can be exploited as a loophole by AI developers. However, the absence of explicit regulations regarding fair use or compulsory licenses for TDM, as provided in the EU Copyright Directive, leaves Indonesia’s legal position weak in addressing the phenomenon of AI training using publicly copyrighted data.

[12] Svinarky, Irene, and Padrisan Jamba. "TINJAUAN HUKUM MENGENAI HAK CIPTA SEBAGAI HAK MORAL YANG MERUPAKAN HAK EKSKLUSIF TERHADAP PENCIPTA LAGU: LEGAL REVIEW ON COPYRIGHTS AS A MORAL RIGHT THAT IS AN EXCLUSIVE RIGHT AGAINST THE SONG CREATORS." eScience Humanity Journal 2, no. 2 (2022): 137-142.

[13] See Law of Number 28 of 2014 concerning Copyright, especially Article 5 (moral rights), Article 9 (economic rights), and Article 113 (criminal sanctions).

Apart from the unpreparedness of legal norms in facing the challenges of AI, countries are also experiencing legal vacuums regarding the legal liability of the relevant AI providers or developers. The development of artificial intelligence (AI) technology has generated new challenges in the legal field, especially in the context of copyright. One of the main problems is the absence of provisions that explicitly determine who is responsible if an AI system commits a copyright infringement. In Indonesia, Law Number 28 of 2014 on Copyright does not recognize non-human entities as legal subjects. This creates a significant regulatory gap, particularly when the infringement results cannot be directly attributed to a specific human individual.

In practice, AI can produce new content based on works previously used in the model training process, without the knowledge or permission of the copyright holders. For example, an AI model trained on thousands of literary or musical works can generate new content containing elements from copyrighted works. In this case, AI is technically reproducing or creating derivative works from existing creations, an action that in copyright law is categorized as a violation of the creator's exclusive rights. However, who can be held liable in such cases?

The Indonesian Copyright Law only recognizes liability for copyright infringement by individuals or legal entities. Article 113 states that any person who, without rights, violates the economic rights of the creator may be subject to criminal sanctions. However, it does not specify how liability can be imposed on an AI system that acts automatically and autonomously, and does not possess consciousness or will in the legal sense. This creates a crucial legal loophole, because violations still occur, but the legal subject who can be held accountable cannot be clearly determined.[14]

4. Comparing Copyright Laws for AI Violations in Indonesia and the European Union

Juridically, the fundamental difference between the American fair use system adopted by Indonesia and the European Union's fair dealing creates a significant disparity in addressing copyright infringement by AI. Indonesia implements the open-ended fair use doctrine through Articles 43–51 of the Copyright Law, allowing flexible interpretation of fair use, including the potential use of copyrighted data for AI training. In contrast, the European Union follows a restrictive fair dealing system with specific Text and Data Mining (TDM) exceptions in Articles 3–4 of the Copyright Directive 2019/790, imposing strict limitations on the use of copyrighted materials.

[14] Dusollier, Severine. "Some reflections on copyright management information and moral rights." *Colum. JL & Arts* 25 (2001): 377.

Concrete Case Study: In Getty Images vs. Stability AI (2023), the Delaware court in the US faced the dilemma of whether the use of 12 million licensed images to train Stable Diffusion AI constituted fair use.[15] In a similar case, Artists vs. Midjourney, DeviantArt & Stability AI (2023) highlighted the complexity of proving transformative use in the context of AI.[16] In the European Union, the Copilot Investigation by the European Data Protection Board (2023) into GitHub revealed potential systematic violations involving licensed code.

Specific Infringement Practices: Generative AI demonstrates reproductive capabilities that violate exclusive rights; Midjourney creates works in the style of living artists without permission, ChatGPT reproduces excerpts from copyrighted books, and DALL-E generates logos resembling registered trademarks. This phenomenon requires a reinterpretation of the doctrines of substantial similarity and derivative works in the context of machine learning.[17]

The Organisation for Economic Co-operation and Development (OECD) is an international entity dedicated to fostering economic growth and development among countries with advanced economies. The OECD also incorporates discussions on artificial intelligence (AI) within its agenda, underscoring the importance of this domain in enhancing a nation's economic development. The OECD has established a set of standard principles that must be upheld by AI developers or applications, namely: [18]

a. The development of AI must contribute to inclusive growth, sustainable development, and well-being. In this principle, it is emphasized that any AI created must be able to articulate inclusive development goals and be beneficial to society globally, in order to foster increased global economic development, enhance well-being, and eliminate disparities among members of society in social life.

b. Upholding the values of justice and humanity, this principle becomes one of the basic principles in the development and programming of AI by respecting and upholding human rights values. AI must be designed to be non-discriminatory in any form, and likewise, AI must not be designed as a tool to undermine human rights. The understanding of this principle—to uphold human rights—must also be interpreted comprehensively as an effort to respect and help protect human rights, including the right to property and the rights contained therein.

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[15] Michael, Arnav, and Valerie Selvie. "Penerapan Hukum Indonesia Terkait Dengan Penggunaan Ilustrasi Dalam Database Program Dengan Bantuan Artificial Intelligence." *Jurnal Paradigma Hukum Pembangunan* 9, no. 2 (2024): 210-231.

[16] Karimullah, Muhammad Zidan, Ria Wierma Putri, and Rohaini Rohaini. "Hak Cipta atas Hasil Tulisan Kecerdasan Artifisial: Tinjauan Etika Kekayaan Intelektual dan Status Kepemilikannya." *AKADEMIK: Jurnal Mahasiswa Humanis* 5, no. 2 (2025): 1079-1094.

[17] Verma, Udit. "Generative AI in HigherEducation: The Students' Perception." (2025). https://www.diva-portal.org/smash/record.jsf?pid=diva2:1926981

[18] Cihon, Peter. "Standards for AI governance: international standards to enable global coordination in AI research & development." *Future of Humanity Institute. University of Oxford* 40, no. 3 (2019): 340-342.

c. Transparency and accountability: AI that is developed and programmed must uphold the principles of transparency and accountability, especially regarding its operational mechanisms and processes. This ensures that, if users or others are harmed in any way, all parties can clearly understand how the AI works, their rights and obligations, and how to obtain legal accountability. The principle of accountability itself also requires individuals or developer companies to operate AI responsibly in order to address various negative impacts that may arise from the technology concerned.

d. Resilience, security, and safety: this principle requires an obligation to maintain the resilience of the AI developed, so as to protect user data and ensure it is safeguarded from the risk of cyberattacks and system failures.

e. These fundamental principles have already been ratified and implemented in several countries that are members of the OECD. According to an OECD release, a total of 40 countries have applied these principles in the development of AI within their territories. These OECD principles are generally applicable and provide guidance and direction in the invention and implementation of AI. The OECD deemed it necessary to create these guidelines as instruments to ensure that the implementation of AI-based technology is carried out responsibly, is human-centered, and is inclusive.[19]

The OECD international convention is relevant to efforts to protect intellectual property rights, especially copyright, in the use of AI. This principle is evident in the emphasis on humanity and justice in AI usage, as well as the broad interpretation of protecting human rights in every AI implementation. In a broader sense, intellectual property rights are an inseparable part of human rights. Specifically, this recognition can be found in Article 27 of the Universal Declaration of Human Rights, which states, *"Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author."*[20]

Furthermore, recognition, respect, and protection of these rights become state obligations as stipulated in Article 15 of the International Covenant on Economic, Social and Cultural Rights, which states that "States must respect the right of everyone to benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author."[21] Although the principles of upholding humanity and justice do not specifically detail copyright

[19] Putri, Salsabila, Ananda Salsabila Aulia, Dini Meliana Putri, Devi Dwi Aryanti, Helen Valentina, Nasywa Ardiningtias Putri, and Aryanto Nur. "Landasan Standar Akuntansi Mengenai Perbandingan Prinsip Kerangka Konseptual Global Dan Realitas Indonesia." *Journal ANC* 1, no. 3 (2025): 200-215.

[20] Article 27: The Universal Declaration of Human Rights (UDHR) states: "Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits." This article guarantees every individual's right to take part in cultural life, to enjoy the arts, and to participate in scientific progress and its benefits.

[21] See Article 15 of the International Covenant on Economic, Social and Cultural Rights

protection, they nevertheless require the protection of human rights and copyrights as integral entities.

The European Union itself is trying to adapt to technological developments and the emergence of AI, which is instantaneous in nature. The potential for copyright infringement by AI has already been recognized by the European Union, and several proactive legal measures have been established to prevent various violations of state-protected copyrights. The European Union stands out as a group of countries that are responsive and was the first to put regulations and protection in place for copyrights against potential infringements by AI. This is reflected in the efforts undertaken by the European Union to amend its copyright protection law (2001), which was revised in 2019.[22]

A review of the historical trajectory of copyright protection regulations in the European Union reveals that these regulations were initially grounded in legal frameworks that have become misaligned with the technological progress associated with artificial intelligence, especially regarding the use of licensed copyright data. The European Union has recognized a notable disparity between the profits generated by AI and the remuneration received for the use of works that closely imitate the original, leading to economic detriment for copyright holders. Additionally, the revisions to EU copyright law were shaped by both economic and political factors.

The European Commission, in the Digital Single Market Strategy (2015), highlighted the need for a more modern and efficient copyright system as part of its digital economic strategy.[23] The main points of the changes to the European Union copyright law are: (1) providing fair, reasonable, and equitable compensation for copyright holders; (2) ensuring broad access to content and legal mechanisms to access it, as well as regulating the responsibility of digital platforms to be held accountable for any form of copyright infringement caused by the applications or AI they create. [24]

Similar to other nations, the European Union enforces regulations concerning the utilization of works protected by copyright for specific purposes. Articles 3 and 4 of the EU Copyright Directive delineate the conditions under which copyrighted works may be employed for particular needs. Notably, Article 3 embodies a form of fair use or permitted use by the state of copyrighted material, provided it is for research and publication purposes. In such instances, permission from the copyright holder is not required,

[22] Geiger, Christophe, Giancarlo Frosio, and Oleksandr Bulayenko. "Text and data mining: Articles 3 and 4 of the directive 2019/790/EU." Propiedad intelectual y mercado único digital europeo", *Valencia, Tirant lo blanch* (2019): 27-71.

[23] European Commission. *A Digital Single Market Strategy for Europe*. 2015. April 3, 2025. https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/568325/EPRS_BRI(2015)568325_EN.pdf.

[24] Bridy, Annemarie. "The price of closing the value gap: How the music industry hacked EU copyright reform." Vand. *J. Ent. & Tech. L.* 22 (2019): 323.

although the use must adhere to legal and procedural standards. This exception is designed to facilitate AI-based research and big data processing within scientific institutions.[25]

Article 4 of the EU Copyright Directive also governs the use of works for purposes beyond research, permitting any user, including commercial entities and AI developers, to engage in *text and data mining* (TDM) unless explicitly prohibited by the copyright holder. Under the provisions of Article 4, economic benefits, such as royalties, may be conferred upon the party utilizing the work.

Breaches by AI of data protected by copyright can be seen through the provisions of Article 4, which requires the consent of the copyright license holder in order to exploit data known as text and data mining. Through Article 4 of the EU Copyright Directive, there is also room for copyright holders to refuse the use of their copyrighted data or works as supporting data for AI training through the opt-out right—this is the right held by copyright owners to reject (or explicitly prohibit) the use of their works for text and data mining (TDM) purposes, including by artificial intelligence (AI) systems that train their models with copyrighted data.[26]

Table 1. Variations in the Utilization Process of Copyright-Licensed Works under the European Union Copyright Directive

Aspect	Article 3	Article 4
Purpose of Use	For research and scientific purposes	Any kind of use
Eligible Parties to Use Works	Non-profit research institutions, universities, and cultural archives	Any party may use TDM on copyrighted data or documents as long as permission is obtained from the copyright holder
Copyright Holder Permission	No need for permission from the copyright holder as long as done legally	Copyright holders may prohibit certain parties from performing text and data mining if deemed harmful; they may also restrict TDM entirely on some works
Opt-Out Right	Opt-out right does not apply	Must be legal and not restricted as long as permission is granted by the copyright holder
Usage Flexibility Level	Strict and limited to certain actors entitled to access	No restriction as long as permission is obtained from the copyright holder
Data Access Mechanism	Data access by universities must be done legally (e.g., through journal subscriptions or publisher websites)	Broader, but copyright holders have the right to limit which users may perform text and data mining

Source: Adapted directly from the European Union Copyright Directive, 2019

[25] Geiger, C., Frosio, G., & Bulayenko, O. The Legal Framework for Text and Data Mining in the European Union: Harmonisation, Restrictions and Exceptions. European Intellectual Property Review, Volume 43, Number 2, 2021, h. 85–97.

[26] Dusollier, S., The EU Directive on Copyright in the Digital Single Market: A missed opportunity to make text and data mining a truly open practice. Journal of Intellectual Property Law & Practice, Volume 15, number 7, 2020, h. 529–532.

In the European Union itself, the use of copyrighted data is also regulated. The process for using copyrighted data is adjusted according to needs, either for educational or research purposes as regulated in Article 3, or for commercial purposes as stated in Article 4 of the EU Copyright Directive, and is distinguished in Table 1.

The two articles governing the utilization of data, text, images, and music delineate a legal structure that empowers copyright holders with the authority to safeguard their creations. This legal structure provides protection and certainty against infringements, including those facilitated by technological advancements.[27] Conversely, the OECD principles, established in Paris in 2019, are also applicable to an organization of countries consisting of developed nations within the European continent.

The establishment of principles for the implementation and application of AI to create a conducive environment and to demand accountability from AI, as generally described above, has also been ratified into the legal systems of several European countries—though not all—including: (1) Austria; (2) Belgium; (3) Czech Republic; (4) Denmark; (5) Estonia; (6) Finland; (7) France; (8) Germany; (9) Greece; (10) Hungary; (11) Ireland; (12) Italy; (13) Latvia; (14) Lithuania; (15) Luxembourg; (16) Netherlands; (17) Poland; (18) Portugal; (19) Slovakia; (20) Slovenia; (21) Spain; (22) Sweden.

The establishment of principles for the implementation and application of AI to create a conducive environment and demand accountability has generated varied responses across European Union member states, reflecting a complex landscape of adoption, resistance, and cautious engagement. Positive adopters include twenty-two EU countries that have proactively ratified these principles into their national legal systems: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, and Sweden. These states demonstrate strong political will to address irresponsible AI exploitation of copyright, viewing harmonized regulation as essential for protecting national creative industries while maintaining competitiveness in the digital economy.

However, state reactions vary significantly based on distinct national priorities and challenges. Enthusiastic supporters like Germany and France have actively lobbied for stricter AI copyright provisions, driven by their robust publishing and media sectors that view unauthorized AI training as an existential threat. Pragmatic adopters such as Estonia and Denmark have embraced the framework while emphasizing innovation-friendly interpretations that protect their growing tech sectors. Cautious participants including some Eastern European members express concerns about implementation costs and potential barriers to AI development in emerging digital markets.

[27] Eleonora Rosati,2020, "Copyright and the Digital Single Market: Article-by-Article Commentary to the Provisions of Directive 2019/790", Oxford University Press, h. 22.

Challenging responses emerge from the five EU member states that have not yet ratified these principles—Bulgaria, Croatia, Cyprus, Malta, and Romania—primarily due to capacity constraints rather than philosophical opposition. These countries cite insufficient technical expertise, limited regulatory infrastructure, and competing legislative priorities as barriers to implementation. Malta and Cyprus specifically challenge the one-size-fits-all approach, arguing that small island economies require different AI governance models. Bulgaria and Romania express concerns about compliance costs potentially disadvantaging their developing creative industries.

Mixed reactions characterize the broader implementation landscape. While governments officially support the principles, industry stakeholders respond differently: traditional media companies strongly favor strict enforcement, tech companies advocate for broader fair use exceptions, and creative professionals remain divided between protection and innovation benefits. This divergent stakeholder response has led to implementation variations across adopting countries, with some emphasizing enforcement mechanisms while others prioritize safe harbor provisions for research and development.

The ongoing development of the EU AI Act Proposal reflects these complex state dynamics, with the draft legislation attempting to balance competing national interests while establishing comprehensive copyright protections. Although still in final development stages, the AI Act's more detailed copyright provisions compared to the Copyright Directive demonstrate the EU's recognition that harmonization requires addressing diverse state concerns and building consensus among members with varying economic priorities and technological capabilities. The success of this harmonization effort ultimately depends on reconciling positive adoption momentum with legitimate state challenges regarding implementation feasibility and economic impact.[28]

Although not all countries affiliated under the European Union have ratified this principle, there is a clear desire and political will among EU member state governments to address the irresponsible exploitation of copyright by AI. The adoption of this principle by several EU countries demonstrates a strong determination and commitment to harmonize AI development with copyright protection as a form of respect for human thought and creativity.

In its ongoing efforts to adapt to the emergence of artificial intelligence (AI), the European Union is in the process of establishing the AI Act Proposal, a draft legislation intended to serve as a comprehensive legal framework for regulating AI across EU member states. Although this draft legislation is still in the final stages of development and has not yet been enacted, its provisions for safeguarding against the irresponsible use of AI in relation to copyright are notably more comprehensive and detailed than those found in the

[28] OECD. AI Principles Overview. Accessed April 4, 2025. https://oecd.ai/en/ai-principles.

European Union Copyright Directive. While the AI Act is not specifically a regulation concerning copyright, the agenda of copyright protection is among the principal issues emphasized, necessitating protection, clarification, and assurance of legal certainty.[29]

Prior to examining the content of the AI Act proposal, it is essential to first delineate the process through which the European Union government formulated this proposal. The AI Act was crafted with several primary objectives: (1) to guarantee that AI systems are developed for consumer use in a manner that is both secure and reliable; (2) to safeguard human rights, protect intellectual property rights, and ensure the harmonization of laws across the European Union; (3) to regulate the levels of AI-related risks that could potentially harm societal interests.[30]

Focusing specifically on artificial intelligence, the AI Act proposal introduces a more detailed framework of regulations governing the role of AI in human activities. The areas that the European Commission seeks to regulate through the AI Act proposal include:

(1) The AI Act proposal seeks to classify AI systems based on certain risk categories tailored to the extent of their impact on social life. The AI Act Proposal attempts to classify these risks into three levels: (1) minimal risk, which is the lightest risk, such as spam risk in AI applications that do not require specific regulation;
(2) Limited Risk: AI systems with certain transparency obligations, for example, chatbots that must inform users that they are interacting with a machine.
(3) High Risk: AI systems used in critical sectors such as healthcare, law enforcement, and transportation, which require conformity assessments before being marketed.
(4) Unacceptable Risk: AI systems considered to threaten safety, such as manipulation of human behavior that violates human rights, are completely prohibited.

The categorization of risks in implementing AI is carried out to protect the fundamental rights of citizens of European Union member states from harmful applications or technologies, to enhance public trust in the use of credible, integral, and responsible AI, and to ensure public safety and security in the use of AI, especially in relation to protecting the legal interests of EU citizens in AI operations. In addition to the categorization of risks associated with AI implementation, this draft legislation also delineates the rights and responsibilities of developers or providers, mandating that they ensure their AI systems adhere to regulatory standards prior to market release. This includes the provision of technical documentation and the implementation of risk

[29] European Commission. Proposal for a Regulation Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts. 2021. Accessed April 2, 2025. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206.

[30] Veale, Michael, and Frederik J. Zuiderveen Borgesius. "Demystifying the Draft EU Artificial Intelligence Act." *Computer Law Review International* 22, no. 4 (2021): 97–112.

management strategies. Furthermore, users are obligated to operate AI systems in accordance with provided instructions and to maintain adequate human oversight.[31]

The formation of the AI Act Proposal, when viewed from the perspective of legal harmonization in the context of copyright protection within the European Union, is very closely linked to the Copyright Directive. The draft legislation explicitly states, in the development and implementation of AI, that the AI Act Proposal under Article 52 (1) "establish and implement a policy to respect Union copyright law, in particular to identify and comply with, including through state-of-the-art technologies where applicable, reservations of rights expressed pursuant to Article 4(3) of Directive (EU) 2019/790." This policy is established to ensure compliance with European Union copyright law, with a particular focus on identifying and upholding rights through the use of advanced technologies. It also includes reservations of rights as stipulated in Article 4, paragraph (3) of the EU Copyright Directive. The agenda for safeguarding copyrights in the context of artificial intelligence is clearly demonstrated by the close relationship between these two elements, as evidenced by the substance found in both the draft legislation on artificial intelligence and the EU Copyright Directive (Table 2).

Table 2. Comparative Analysis of the AI Act Proposal and the Copyright Directive

Aspect	AI Act Proposal	Copyright Directive
Focus	Regulation in risk-based technology	Protection of copyrighted works
Approach	Responsibility, transparency	Licensing, economic and moral rights

Source: Directly summarized from the AI Act Proposal and the EU Copyright Directive

Although the European Union intends to supervise the development and implementation of AI, given its position as the first region to specifically propose regulations concerning AI—which also address aspects related to copyright protection—the AI Act is still in the form of a proposal or draft, with no clarity or certainty regarding when it will be enacted or legalized. If we focus on aspects related to copyright protection, the coverage is still very minimal and not comprehensive enough to illustrate how the European Union protects and supervises AI that commits copyright infringement. Furthermore, the provisions on copyright protection in the AI Act are limited to requiring AI providers or developers to respect the copyright directive. This draft law does not explain or provide

[31] Ebers, M., et al. The European Commission's Proposal for an Artificial Intelligence Act—A Critical Assessment by Members of the Robophilosophy, Law and Governance of AI Research Groups. Journal of AI and Law, volume 22, number 4, h. 556.

legal certainty regarding the legal enforcement process that can be pursued by copyright license holders whose works are exploited irresponsibly.[32]

The European Union government has also not yet been able to develop an instant system for detecting copyright infringements committed by AI by referring to notifications or blocking content or materials that potentially violate copyright, whether in the form of text, images, or audio. The law enforcement mechanism is returned to the conventional method through the usual judicial process, which is slow and costly, and results in more widespread losses considering that AI operates automatically, rapidly, and on a large scale.[33]

A comparison between Indonesia and the European Union in terms of copyright protection against potential infringement by artificial intelligence (AI) reveals significant differences in legal approaches. Indonesia, through Law Number 28 of 2014 on Copyright, has not yet explicitly regulated works or creations generated by AI. In contrast, the European Union has taken a more progressive step by enacting Directive (EU) 2019/790 on Copyright in the Digital Single Market (EU Copyright Directive) as well as the AI Act, which aims to comprehensively regulate the use of AI technology across various sectors, including aspects of copyright protection.

In Indonesia, the concept of an author as referred to in Article 1 point 2 of Law No. 28 of 2014 on Copyright encompasses only individuals or legal entities who produce a creation. Consequently, AI cannot be regarded as an author as it does not meet the "personal" and "creativity" elements required by law. This means that if a work is created entirely by AI without human intervention, the work will not be recognized as a copyright-protected creation. This legal gap creates uncertainty regarding who holds the rights to AI-generated works and how infringements of such works should be addressed.

The regulatory ambiguity in Indonesia creates a critical enforcement vacuum that fundamentally undermines copyright protection in the AI era, contrasting sharply with the EU's proactive but practically flawed approach. Comparative effectiveness analysis reveals that while Indonesia's copyright framework provides theoretical protection through fair use exceptions, the absence of AI-specific provisions renders these protections essentially unenforceable in practice. Courts lack interpretive guidance for applying traditional copyright concepts to AI training processes, resulting in legal uncertainty that favors AI developers over rights holders by default.

[32] Martin Kretscmer et. al, Artificial Intelligence and Intellectual Property: Copyright and Patents—a Response by the CREATe Centre to the UK Intellectual Property Office's Open Consultation", https://www.researchgate.net/publication/359336989, 4 April 2025.

[33] Radetzky, Michael Alexander. "The Impact of Artificial Technology on Authors of a Cinematographic Creation." *Hasanuddin Law Review* 10, no. 1 (2024): 21-42. DOI: https://doi.org/10.20956/halrev.v10i1.4780

The EU's dual-track approach through Articles 3 and 4 of the Copyright Directive appears theoretically superior but suffers from significant implementation deficits when measured against policy outcomes. Critical assessment of EU enforcement mechanisms reveals three fundamental weaknesses: first, the extraterritoriality paradox where major AI developers (Google, OpenAI, Anthropic) can circumvent EU obligations by training models outside EU jurisdiction while still serving EU markets; second, the technical enforceability gap where rights holders cannot realistically monitor whether their works are included in massive training datasets; and third, the administrative burden paradox where transparency requirements become so onerous that they discourage compliance rather than encourage it.

Policy outcome comparison demonstrates that neither system achieves its intended balance between innovation and protection. Indonesia's laissez-faire approach has resulted in widespread unauthorized use of copyrighted materials for AI training with zero successful enforcement actions, effectively creating a regulatory haven for AI developers but leaving creators without recourse. The EU's regulatory activism, while providing theoretical protection, has achieved limited practical deterrence—major AI companies continue large-scale training operations while implementing minimal compliance measures, suggesting that the opt-out mechanism is more symbolic than substantive.

Enforceability analysis exposes deeper structural problems in both jurisdictions. Indonesia's courts lack the technical expertise and institutional capacity to adjudicate complex AI-copyright disputes, while the EU's enforcement relies heavily on voluntary compliance and self-reporting mechanisms that sophisticated AI developers can easily circumvent. The EU's extraterritorial reach through Recital 106, while legally ambitious, faces the practical limitation that it cannot effectively sanction non-EU entities that ignore opt-out declarations or transparency requirements. Critical assessment suggests that both approaches fail to address the fundamental mismatch between traditional copyright frameworks designed for human creators and the algorithmic appropriation inherent in AI training.

The EU's approach, despite its regulatory sophistication, may actually be less effective than Indonesia's approach in practical terms—while Indonesia's uncertainty at least allows for future judicial interpretation, the EU's detailed but unenforceable rules create an illusion of protection that may discourage necessary legislative innovation. The policy outcome paradox is that neither jurisdiction has successfully deterred unauthorized AI training or compensated affected creators, suggesting that current regulatory approaches are fundamentally inadequate for governing AI-copyright interactions.

5. Conclusion

The legal framework for protecting against copyright infringement arising from the use of artificial intelligence remains significantly challenged due to the lack of specific regulations addressing AI's role in the creation of works. Current legislation has yet to accommodate these emerging dynamics, such as the absence of provisions concerning the ownership of AI-generated works and the lack of oversight mechanisms for the use of copyrighted data as AI training material. In contrast, the European Union has implemented a more structured regulatory framework through the EU Copyright Directive and the AI Act, which emphasize principles of transparency, disclosure of training data, and opt-out mechanisms for copyright holders. Nonetheless, both regions continue to encounter challenges in implementation and oversight. Consequently, Indonesia must undertake a comprehensive update of its copyright legal system to anticipate the ongoing impact of advancements in artificial intelligence technology.

The European Union has developed a forward-thinking legal framework through the EU Copyright Directive and the AI Act, which establish specific guidelines for the use of AI, including the handling of data protected by copyright. Conversely, Indonesia is contending with a normative gap, as its current Copyright Law does not yet address the protection of works generated or processed by AI systems. This gap underscores the need for regulatory updates that are more attuned to technological advancements, particularly in acknowledging human contributions to AI-driven creative works and clarifying the legal use of copyrighted material in AI training. While both legal systems encounter challenges in implementation, the European Union exhibits a greater degree of readiness through its adaptive legal system, which is informed by the precautionary principle.

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