



## Intellectual Property Rights and Legal Attribution in AI Generated Works

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### Abstract

The development of Artificial Intelligence (AI) technology has introduced new challenges to the intellectual property law system, particularly with regard to the attribution of copyright over works generated by AI. This study seeks to address two primary legal issues. First, it examines the appropriate legal construction of intellectual property law for AI-based works. Second, it analyzes how a fair and effective copyright attribution mechanism can be implemented in the context of works involving AI.

This research employs a normative juridical method, analyzing statutory regulations, legal literature, and international practices related to intellectual property protection. The findings indicate that a new legal paradigm is required—one that recognizes the role of humans as the primary subjects of authorship while simultaneously considering AI as a supporting technological instrument in the creative process. The proposed attribution mechanism adapts the concepts of joint authorship and work made for hire in order to provide legal certainty and justice for all relevant parties. Accordingly, the results of this study are expected to serve as a foundational basis for the development of intellectual property regulations that are responsive to advancements in AI technology.

**Keywords:** Intellectual Property Rights, Legal Attribution, AI-Generated Works

### Introduction

The advancement of Artificial Intelligence (AI) technology has fundamentally transformed the landscape of creative production and innovation. Generative AI systems are now capable of producing outputs that resemble human creative works, such as texts, images, music, and even technological designs, with a high degree of quality and complexity. These outputs no longer rely on direct human creativity; instead, they originate from algorithmic capabilities to process data, recognize patterns, and autonomously generate new content. This condition has triggered a paradigmatic shift in the concepts of originality and ownership, which have long served as the foundation of intellectual property (IP) law. Established legal systems that position humans as the sole legitimate legal subjects entitled to hold and claim exclusive rights over creative works are now under increasing pressure to reconstruct their juridical boundaries [1].

Within the national intellectual property legal framework, as reflected in Law Number 28 of 2014 on Copyright and Law Number 13 of 2016 on Patents, the recognition of authorship or inventorship is explicitly attached to human legal subjects or specific legal entities [2]. There are no provisions that allow for the recognition of works or inventions generated entirely by non-human systems such as AI. When AI-generated works lack a legal basis to be recognized as protected creations, a legal vacuum emerges, resulting in the absence of legal certainty and protection for creative outputs that may possess significant economic value [3]. This situation creates an anomaly within the IP system, whereby substantial works cannot be legally claimed or defended solely because their creator is not a human subject.

This imbalance gives rise to serious issues concerning ownership justice. Within the ecosystem of AI-based creation, multiple actors play significant roles, including technology developers, training data owners, system

operators, and end users who initiate the creative process. However, the existing legal system has yet to provide sufficient space for proportional recognition of each actor's contribution. As a result, contributors who play an essential role in AI-assisted creation may be excluded from legal recognition and economic benefits, thereby undermining the principle of distributive justice that underpins modern intellectual property law [4].

Conceptually, intellectual property law has long been grounded in the principle of *human authorship*, which presumes that creativity arises exclusively from human cognitive capacity and moral agency. This principle is rooted in natural rights theory as articulated by John Locke, who argued that property rights arise from human labor and effort. This idea was later developed in modern legal thought by scholars such as William Blackstone, who positioned the creator as the primary legal subject holding exclusive rights over creative works [5]. However, the emergence of works generated autonomously by AI—operating without direct human creative intervention—poses a fundamental challenge to this traditional conception. As a non-human entity, AI cannot be recognized as a legal subject and does not fulfill classical notions of creativity, thereby creating legal uncertainty and normative gaps in copyright protection [6].

Accordingly, the reconstruction of intellectual property law becomes imperative to ensure that the legal system can respond adaptively and progressively to technological development without abandoning its core objectives, namely the protection of intellectual works and the provision of incentives for innovation. Such reconstruction demands a paradigm shift from a subjective approach centered on the legal status of the human creator toward a functional approach that evaluates actual roles and contributions within the creative process.

Without a fair and measurable legal attribution mechanism, AI-generated works are at risk of being monopolized by

certain entities, while other contributors involved in the creative process lose their bargaining position. This situation weakens the principle of distributive justice in intellectual property law and creates structural inequality in the distribution of benefits derived from high-technology innovation [7]. Furthermore, the current construction of intellectual property law remains unable to accommodate the complexity of actors and processes involved in AI-based creation, ranging from algorithm developers and data providers to users who initiate and direct creative outputs. This incompatibility generates legal uncertainty, ownership disputes, and may ultimately hinder a healthy innovation ecosystem [8].

Therefore, the reconstruction of intellectual property law must be grounded in the principles of substantive justice, legal certainty, and social utility, ensuring that all contributions—whether from humans or AI as a technological instrument—are recognized proportionally and fairly within the intellectual property system. In this context, a flexible and responsive attribution mechanism is required to reflect the collaborative reality between humans and machines while preventing potential monopolization or injustice. Accordingly, this study aims to explore and formulate a legal construction of intellectual property law that is relevant to the dynamics of AI technology and to design a fair and effective model of rights attribution capable of maintaining a balance between legal protection and technological progress.

Based on the foregoing considerations, the central research questions addressed in this study are: how intellectual property law can be reconstructed to become responsive to the creation of works by AI?, and how a fair and proportional attribution mechanism can be implemented in AI-based creative works.? Through this discussion, the study seeks to provide normative solutions capable of harmoniously integrating technological innovation with the fundamental principles of intellectual property law.

### Research Methodology

This research employs a normative juridical method, focusing on the study of legal norms and doctrines governing intellectual property rights in relation to the development of Artificial Intelligence (AI). The normative juridical approach is chosen because this research does not aim to measure empirical phenomena, but rather to analyze, interpret, and reconstruct legal norms in order to address emerging legal issues arising from technological advancement, particularly in the field of AI-generated works [9].

The primary legal materials used in this study consist of statutory regulations related to intellectual property and information technology. These include Law Number 28 of 2014 on Copyright, which regulates the protection of works and the attribution of authorship; Law Number 13 of 2016 on Patents, which governs inventorship and technological innovation; and Law Number 11 of 2008 on Electronic Information and Transactions, which provides a legal framework for electronic systems and digital activities. These statutes are analyzed to assess their capacity to accommodate works generated or assisted by AI technology.

In addition to national legislation, this research also examines relevant 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). These international agreements are used as normative benchmarks to evaluate the compatibility of national intellectual property law with international standards and to identify interpretative flexibility that may be utilized in addressing AI-generated works.

Secondary legal materials are derived from academic journals, scholarly books, legal commentaries, policy papers, and comparative law studies that discuss intellectual property law, artificial intelligence, and the intersection between law and technology. These materials provide doctrinal perspectives and theoretical foundations necessary to support the legal analysis and the formulation of normative arguments within this study.

The collection of legal materials is conducted through library research and systematic document analysis. All relevant legal sources are examined critically to identify legal gaps, inconsistencies, and limitations in the existing regulatory framework concerning the attribution and protection of AI-generated works. This analysis is aimed at revealing normative weaknesses that necessitate legal reconstruction.

Furthermore, this research applies a conceptual and comparative approach. Conceptual analysis is used to examine key legal concepts such as authorship, ownership, and attribution within the context of AI-assisted creation. Comparative analysis is conducted by reviewing regulatory approaches and legal practices in several jurisdictions, including the United Kingdom, the United States, and China, which have begun addressing intellectual property issues related to AI. This comparative perspective is intended to provide alternative legal models and insights that may be adapted to the Indonesian legal system.

Through this methodological framework, the research seeks to produce normative conclusions and recommendations that contribute to the development of a fair, certain, and adaptive intellectual property regime capable of responding to the challenges posed by Artificial Intelligence.

### Reconstruction of Intellectual Property Law in Response to AI-Generated Works

The rapid advancement of Artificial Intelligence (AI) technology has fundamentally challenged the traditional construction of intellectual property law, particularly with regard to the legal concepts of authorship, inventorship, and ownership. Conventional intellectual property regimes are predominantly grounded in an anthropocentric paradigm that presumes creative and inventive activities to be the exclusive product of human intellectual labor. This paradigm is not only reflected in legal doctrine but is also explicitly embedded in positive law at both the national and international levels [10].

From a theoretical perspective, the human-centered orientation of intellectual property law is closely associated with John Locke's labor theory, which posits that property rights arise from the application of human labor. In the context of intellectual creations, this theory has long been used to justify exclusive rights as a moral and legal reward for human intellectual effort [11]. This conception is further reinforced by William Blackstone's theory of authorship, which emphasizes the personal and proprietary bond between a human creator and the resulting work. Collectively, these theories form the normative foundation of modern doctrines of authorship and inventorship [12].

However, the emergence of AI-generated works exposes significant limitations within this classical framework. Contemporary AI systems are capable of producing outputs that satisfy conventional standards of originality, novelty, and utility through autonomous algorithmic processes, including machine learning and data-driven pattern recognition<sup>[13]</sup>. Once an AI system has been designed and trained, these processes may operate without direct human intervention at the point of output generation. As a result, the causal relationship between human labor and the final creative output becomes indirect, fragmented, and increasingly difficult to trace.

This doctrinal tension is clearly reflected in Indonesia's positive intellectual property law. Under Article 1 point 2 of Law Number 28 of 2014 on Copyright (UU Hak Cipta), an author (*Pencipta*) is defined as "one or more persons who individually or jointly produce a creation that is unique and personal in nature." In addition, Article 1 point 3 defines a creation (*Ciptaan*) as a work produced by an author based on inspiration, ability, thought, imagination, skill, or expertise. These statutory definitions clearly presuppose human creative capacity and implicitly exclude non-human entities such as AI from recognition as authors<sup>[14]</sup>.

A similar anthropocentric construction is found in Law Number 13 of 2016 on Patents. Article 1 point 2 defines an inventor as "one or more persons who jointly implement ideas that result in an invention<sup>[15]</sup>." The explicit reference to "persons" (*orang*) confines inventorship to natural persons, thereby excluding inventions generated autonomously by AI systems from patent protection, regardless of their technical novelty or industrial applicability. Consequently, AI-generated inventions occupy a legally uncertain position within the existing patent regime.

At the international level, this human-centered orientation is reinforced by the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Although TRIPS does not explicitly define the concepts of authorship or inventorship, its provisions implicitly assume human agency. Article 9 TRIPS, which incorporates the Berne Convention, protects the rights of "authors of literary and artistic works," while Article 27 TRIPS mandates patent protection for inventions "in all fields of technology" without addressing the possibility of non-human inventorship<sup>[16]</sup>. The silence of TRIPS on AI-generated works reflects the historical context in which the agreement was drafted and leaves member states with limited normative guidance for addressing AI-related intellectual property challenges.

The cumulative effect of these legal constructions is the emergence of a normative gap in intellectual property law. AI-generated works, despite their economic value and social relevance, lack clear legal recognition because they do not conform to statutory definitions of authorship or inventorship. This gap undermines the fundamental objectives of intellectual property law, including the promotion of innovation, the provision of legal certainty, and the equitable allocation of rights and incentives.

In response to this challenge, a reconstruction of intellectual property law is both necessary and unavoidable. Such reconstruction does not require recognizing AI as a legal subject or granting it independent rights, as this would contradict foundational principles of legal personality and legal responsibility<sup>[17]</sup>. Rather, reconstruction should focus

on reinterpreting authorship and inventorship through a functional and contribution-based approach that remains consistent with existing legal principles.

From a legal functionalism perspective, law must evolve in response to social and technological change. In the context of AI-assisted or AI-generated creation, creative output emerges from a complex ecosystem involving multiple human actors, including system developers, algorithm designers, data curators, operators, and users who exercise control and direction over AI systems. Within this framework, AI functions as a technological instrument that mediates and amplifies human intellectual activity, rather than as an autonomous legal subject.

Accordingly, the reconstruction of intellectual property law should emphasize human control, initiative, and responsibility as the primary criteria for legal attribution, rather than direct manual creation alone. This interpretative approach remains consistent with the underlying objectives of Copyrights Law, Patent Law, and TRIPS, all of which are designed to protect human intellectual effort, while allowing sufficient flexibility to accommodate technological mediation.

Furthermore, such reconstruction must be guided by the principles of legal certainty and distributive justice. Legal certainty requires clear normative standards to prevent ambiguity in ownership claims over AI-generated works. Distributive justice, as articulated by John Rawls, demands proportional recognition of contributions and the prevention of unjust monopolization by dominant actors within the AI ecosystem. Without such safeguards, intellectual property law risks reinforcing structural inequality and undermining its role as an instrument for fair and sustainable innovation. Therefore, the reconstruction of intellectual property law in response to AI-generated works must integrate statutory interpretation, legal doctrine, and principles of justice into a coherent normative framework. By adopting a contribution-based and function-oriented approach grounded in positive law, intellectual property regimes can provide legal certainty, uphold fairness, and remain responsive to the transformative impact of Artificial Intelligence.

### Legal Attribution of Rights in AI-Generated Works

The attribution of intellectual property rights constitutes the core legal problem in relation to AI-generated works. Unlike conventional creative works, AI-generated outputs are not produced through a single, direct act of human creativity, but rather through a complex technological process involving multiple human actors and an autonomous system. This condition challenges the traditional attribution model under intellectual property law, which is predominantly based on the identification of a single human author or inventor<sup>[18]</sup>.

Under Copyright Law, authorship is legally restricted to human persons. This limitation is evident from statutory provisions that define an author as one or more *persons* who produce a creation based on intellectual ability, imagination, skill, or expertise<sup>[19]</sup>. These elements reflect a clear assumption that creative activity originates from human cognitive processes. Consequently, when a work is generated autonomously by an AI system, such output cannot independently satisfy the formal requirement of authorship, even though copyright protection arises automatically upon fixation. In the absence of a legally recognizable human author, the attribution of copyright becomes legally uncertain.

This legal uncertainty is further compounded by the multi-actor structure of AI-based creation. In practice, AI-generated works involve several categories of human participation, including system developers who design the algorithms, data providers who curate and supply training datasets, operators who configure and maintain the system, and users who initiate or direct the generation process through prompts or instructions [20]. However, Copyright Law does not provide explicit criteria for determining which of these actors may be regarded as the author when creative output is generated through AI mediation.

A rigid interpretation that denies copyright protection to all AI-generated works would be inconsistent with the fundamental objectives of Copyright Law, particularly its incentive function. Copyright protection is intended to encourage creative activity and investment by providing legal certainty and economic rewards. Excluding AI-generated works solely due to the absence of direct human creation would undermine these objectives, especially in light of the growing economic significance of AI-assisted creativity.

To address this issue, attribution must be approached through a functional interpretation of authorship, grounded in human control and responsibility rather than physical or manual creation. In this context, the concept of joint authorship offers a relevant doctrinal framework. Copyright doctrine recognizes joint authorship where a work results from the collaboration of two or more authors who contribute creatively to the final output. Although originally formulated for human collaboration, this concept may be extended to AI-assisted creation where multiple human actors exercise meaningful control over the creative process. Joint attribution allows copyright to be allocated proportionally and prevents exclusive appropriation by a single actor whose contribution may be primarily technical or administrative.

In addition, the attribution logic underlying the work made for hire doctrine provides further normative guidance. This doctrine, widely recognized in comparative copyright systems, attributes ownership based on control, commissioning authority, and responsibility rather than direct creative expression. Applied to AI-generated works, this model supports attributing rights to the party that exercises decisive control over the AI system and bears legal and economic responsibility for its outputs, such as an employer, commissioning entity, or system operator acting under contractual arrangements.

From the perspective of Patent Law, the attribution problem arises in a different but related form. Patent Law defines an inventor as a *person* who implements an idea resulting in an invention. While AI-generated inventions may fulfill substantive patentability requirements—namely novelty, inventive step, and industrial applicability—the absence of a human inventor renders such inventions legally problematic. Patent Law thus prioritizes human inventorship as a formal requirement, regardless of the technological sophistication of the invention itself [21].

In this context, attribution under Patent Law must also be interpreted functionally. Human actors who exercise control over the inventive process—such as those who design the AI system, determine its objectives, select training data, and validate outputs—may be considered the legal inventors, provided their involvement demonstrates intellectual contribution and responsibility. This approach preserves the

human-centered structure of Patent Law while preventing the exclusion of technologically valuable inventions from patent protection.

At the international level, the TRIPS Agreement provides limited guidance on attribution. While TRIPS mandates the protection of authors and inventors, it does not address the attribution of rights in cases involving AI-generated works [22]. This silence implicitly reinforces the assumption of human authorship and inventorship, leaving attribution questions to domestic legal interpretation. As a result, national legal systems retain discretion to develop attribution models that remain consistent with TRIPS while responding to technological developments.

From the standpoint of distributive justice, a fair attribution mechanism must ensure that intellectual property rights are not concentrated exclusively in the hands of dominant technological actors, such as platform owners or system developers, without regard to actual contribution. Attribution should reflect the degree of human control, decision-making authority, and responsibility exercised in the creative or inventive process. This approach aligns with the normative objective of intellectual property law to balance private rights with broader social and economic interests.

Accordingly, this study argues that the attribution of rights in AI-generated works should adopt a contribution-based model, under which authorship or inventorship is assigned to human actors who demonstrate substantive control and intellectual involvement in the generation process. Within this framework, AI remains legally positioned as a technological instrument rather than a rights-bearing subject. Such an approach provides legal certainty, preserves the anthropocentric foundation of intellectual property law, and ensures a fair distribution of rights in the context of AI-driven innovation.

### **Comparative Legal Approaches to the Attribution of Rights in AI-Generated Works**

Comparative legal analysis demonstrates that there is no unified international approach to the attribution of intellectual property rights in AI-generated works. Different jurisdictions adopt distinct normative positions, reflecting varying balances between legal certainty, technological innovation, and the preservation of human authorship as the cornerstone of intellectual property law. This diversity highlights both the limitations of existing frameworks and the range of interpretative strategies available to national legal systems.

#### **The United Kingdom: Attribution Based on Human Arrangement and Control**

The United Kingdom represents one of the few jurisdictions that explicitly addresses computer-generated works within its copyright framework. Under UK copyright legislation, authorship of a computer-generated work is attributed to the person who makes “the arrangements necessary for the creation of the work.” This provision does not require direct human creativity in the expressive sense, but rather focuses on human initiative, organization, and control over the generative process.

From a normative perspective, the UK approach adopts a functional attribution model. It avoids recognizing AI as a legal subject while ensuring that AI-generated works are not excluded from copyright protection. By grounding

authorship in the act of arranging and directing the technological process, the law preserves the anthropocentric structure of copyright while accommodating technologically mediated creation<sup>[23]</sup>.

However, this approach is not without criticism. The concept of “necessary arrangements” is inherently broad and may lead to over-attribution of rights to system owners or platform operators who exercise structural control but contribute little to the substantive creative outcome. Without additional criteria to assess the quality and intensity of human involvement, the UK model risks privileging economic power over genuine intellectual contribution. Nevertheless, it provides a pragmatic solution that prioritizes legal certainty and market functionality.

### **The United States: Strict Human Authorship and Legal Exclusion**

In contrast, the United States adopts a rigid and formalistic approach grounded in the requirement of human authorship. Judicial decisions and administrative practice consistently deny copyright protection to works lacking human creative input. AI-generated works produced without sufficient human involvement are therefore excluded from copyright protection, regardless of their originality or economic value. This approach offers a high degree of doctrinal clarity and legal certainty. By drawing a clear boundary around human authorship, U.S. copyright law avoids complex attribution disputes and preserves the traditional moral and philosophical foundations of copyright protection. However, this rigidity comes at a significant cost<sup>[24]</sup>.

Normatively, the exclusion of AI-generated works undermines the incentive function of intellectual property law in a technological environment where AI-assisted creativity is increasingly dominant. By refusing to recognize any form of attribution in purely AI-generated outputs, the U.S. approach risks discouraging investment, innovation, and commercialization in AI-driven creative industries. Moreover, it fails to account for indirect but substantial human contribution through system design, data curation, and process control.

### **China: Flexible Recognition of Human Involvement**

China adopts a comparatively adaptive and pragmatic approach. While maintaining the principle that authorship must be linked to human actors, Chinese legal practice has demonstrated a willingness to recognize copyright protection for AI-generated works where meaningful human involvement can be established. Courts have emphasized factors such as human intent, selection, supervision, and responsibility in determining whether AI-generated outputs qualify for protection.

This approach reflects a hybrid attribution model, combining elements of human authorship with functional evaluation of technological mediation. Rather than focusing exclusively on whether a human directly created the work, Chinese practice assesses whether the AI system operates as a tool under human direction. This allows for a more nuanced and context-sensitive attribution of rights<sup>[25]</sup>.

From a normative standpoint, the Chinese model aligns closely with the contribution-based approach advocated in this study. It preserves the human-centered foundation of intellectual property law while avoiding the exclusionary rigidity observed in other jurisdictions. However, the absence of clear statutory guidelines may lead to

inconsistencies in judicial interpretation, potentially undermining legal predictability.

### **Normative Evaluation and Implications**

Comparative analysis reveals three distinct attribution models:

1. arrangement-based attribution (United Kingdom),
2. strict human authorship exclusion (United States), and
3. flexible contribution-based attribution (China).

Among these models, the rigid exclusionary approach offers the greatest formal certainty but fails to respond adequately to technological realities. The arrangement-based approach ensures protection but risks over-concentration of rights. The flexible contribution-based model, while less predictable, provides the most balanced normative framework by aligning attribution with substantive human involvement and responsibility.

For jurisdictions seeking to regulate AI-generated works without recognizing AI as a legal subject, the comparative analysis suggests that a functional and contribution-oriented attribution framework offers the most coherent solution. Such a framework ensures legal certainty, maintains compliance with international intellectual property obligations, and promotes distributive justice by allocating rights in proportion to actual human contribution.

### **Conclusions**

The rise of AI-generated works reveals structural limitations in contemporary intellectual property law, particularly in the attribution of rights. Existing copyright and patent regimes remain grounded in an anthropocentric paradigm that ties authorship and inventorship exclusively to direct human intellectual activity. As a result, AI-generated outputs—despite meeting substantive standards such as originality, novelty, and utility—face legal uncertainty due to the absence of a clearly identifiable human subject.

This uncertainty is reinforced at the international level, as the TRIPS Agreement provides no explicit guidance on the attribution of rights in AI-generated works, leaving the issue to domestic legal interpretation. Comparative analysis further confirms the lack of a unified global approach, with jurisdictions adopting divergent models ranging from strict human authorship to more flexible, contribution-based frameworks.

In light of these findings, this study concludes that AI-generated works should neither be attributed to AI as a legal subject nor excluded entirely from intellectual property protection. Instead, a contribution-based and functional attribution model offers the most coherent normative solution. Under this model, rights are assigned to human actors who exercise substantive control, decision-making authority, and responsibility in the AI-assisted creative or inventive process, while AI remains a technological instrument.

Such an approach maintains the human-centered foundations of intellectual property law, ensures legal certainty and distributive fairness, and allows the legal system to remain responsive to technological development without abandoning its core principles.

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