

ARTIFICIAL INTELLIGENCE AND INTELLECTUAL PROPERTY RIGHTS: FROM CONTENT CREATION TO OWNERSHIP

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ABSTRACT

AI and IP rights have become increasingly complex as AI systems generate works that challenge traditional Intellectual Property (IP) law. As the issues surrounding copyright of AI continue to arise, it questions the long-standing belief that creativity and authorship are purely human endeavors. Who owns AI-generated content? This article delves into legal and philosophical dilemmas regarding the ownership of AI-generated content and its growing role in different fields, including literature, art, and music. It brings into discussion the concerns regarding AI copyright infringement, ownership of AI-generated work, and the legal status of AI creations. Through a comparative analysis of AI-related frameworks for Intellectual Property rights in the EU, US, UK, and Singapore, the article highlights inconsistencies in these legal frameworks by evaluating their legal measures for addressing AI's creative contributions. The article concludes by advocating for the creation of a unified international legal structure to protect human creators' rights while embracing the innovative potential of AI creations.

Keywords: Artificial Intelligence, Intellectual Property Rights, Trademark, Copyright, Ownership, Patents.

INTRODUCTION

Artificial Intelligence (AI) is emerging as a transformative force in the field of Intellectual Property (IP) law, offering new possibilities while simultaneously posing profound challenges for human inventors. As AI systems advance from functioning as mere tools to becoming autonomous agents capable of producing inventions, literature, art, and music, the questions of authorship and ownership have grown increasingly complex. Historically, IP law

has centered around the notion of the "author," a concept intrinsically linked to human creativity and expression. The introduction of AI-generated works disrupts this traditional understanding and raises critical inquiries: Who holds the rights to creations produced by AI? Should ownership reside with the AI's developers, operators, users, or could AI itself be recognized as a rights-holder? These issues underscore a fundamental tension—

the existing legal framework that was not designed to accommodate non-human creators.

This essay examines the ethical and legal implications of AI's expanding role in the creation of intellectual property. It begins by exploring the central question of ownership in the context of AI-generated works, particularly as AI systems demonstrate increasing levels of autonomous creativity. It then turns to the legal challenges that arise, notably the problem posed by AI's lack of legal personhood, which currently precludes it from owning property or exercising legal rights. Furthermore, the essay critically assesses the difficulties in applying traditional IP concepts, such as originality and creativity, to works produced by AI. This discussion extends to the broader consequences of potentially granting intellectual property rights to AI, considering how such developments could reshape the global IP regime. A comparative analysis is offered, examining the approaches taken by different jurisdictions—including the United States, United Kingdom, Singapore, and the European Union—toward the intersection of IP law and AI innovation. The essay ultimately argues for enhanced international collaboration and the establishment of a unified global framework to ensure that IP law evolves in step with the realities of AI-driven creativity, particularly with emerging AI-related legislation and AI ownership laws.

1. Artificial Intelligence and Its Creation: Who Owns Intellectual Property?

Intellectual property (IP) is a collection of legal rights—patents, copyrights, trademarks, etc.—that allow creators and inventors to control and benefit from their intellectual works (Hughes et al., 1988). International agreements such as the Berne Convention and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) reflect a global consensus on protecting intellectual labor and rewarding creativity (WIPO, 2020). However, the rapid advancement of AI now poses profound challenges to these traditional frameworks, particularly concerning AI-generated patents and copyrights. AI systems

can autonomously generate literary, artistic, and inventive works, blurring the once-clear boundary between human and non-human creators.

These developments force a re-examination of fundamental IP concepts: Should output produced by AI receive IP protection, and if so, who should hold the rights—the AI's developers, the operators, or perhaps no one at all? The rise of artificial intelligence law reform efforts highlights the urgent need for updating our traditional notions of intellectual property protection for AI-generated inventions and creative works.

2. The Creation of Artificial Intelligence and Its Legal Challenges

Beyond IP, AI also poses challenges throughout the legal system. For instance, questions of legal agency and liability arise when autonomous AI systems perform tasks traditionally done by human agents; issues of bias and due process emerge when algorithms influence decisions in areas like finance or criminal justice; and procedural doctrines of jurisdiction and evidence must adapt to the complexities of AI. In the IP context, these challenges are particularly acute because AI can generate content in ways that defy the traditional assumption of human creative input. As noted in a recent AI law handbook, AI's capacity to autonomously produce literary, artistic, and inventive works tests the core criteria of IP protection, prompting a re-examination of authorship, ownership, and the fundamental purpose of IP law in the age of intelligent machines. Legal scholars are increasingly debating the implications of AI-generated content copyright and AI patent laws as regulators struggle to keep pace with technological innovation.

3. Artificial Intelligence: Both a Creation and a Creator

Artificial Intelligence can be viewed both as a human-created product and as an autonomous creator. On one hand, as a creation of human ingenuity, AI systems and algorithms can be protected using existing IP mechanisms—patents for novel processes, copyrights for software code, trade secret protection for proprietary data and

models, and so on (Adesanya & Imran, 2024). On the other hand, AI is increasingly acting as a creator of outputs that mirror human creativity, challenging the baseline assumption that inventiveness and authorship require human intellect. Traditional IP law does not easily accommodate non-human creators: an inventor or author is generally assumed to be a natural person with conscious intent.

No jurisdiction currently recognizes AI as the legal creator of an invention or work, which raises the question of whether the law should adapt or whether AI-generated works should remain unprotected to preserve the human-centric focus of intellectual property. The ongoing discussions surrounding AI copyright ownership and machine-generated intellectual property reflect the growing urgency of rethinking legal models to address these emerging realities.

4. The problem of Ownership: Denial of Intellectual Property Rights to Artificial Intelligence

A. AI Lacks Legal Personhood

A primary obstacle to recognizing AI as an IP rights-holder is that AI lacks legal personhood. An entity with no legal status cannot own property or bear legal responsibilities. No matter how sophisticated an AI system may be, it is ultimately a tool without consciousness or intent (Hashimy, 2022). Legal scholars argue that granting IP rights to a machine would conflict with the fundamental principle that intellectual property rewards human creative labor and moral agency (Matulionyte & Lee, 2022). In this view, an AI is akin to a camera or copier—no more an author than the device used to create a work—and its outputs should not receive independent protection (Matulionyte & Lee, 2022). The denial of intellectual property rights to AI highlights the challenges associated with artificial intelligence ownership laws and questions of AI-generated inventions and copyright regulation.

B. Lack of Innate Creativity and Originality

Another concern is that AI lacks the innate creativity and judgment of human creators. AI-

generated works, produced without human inspiration or intent, arguably do not meet the traditional standards of originality. Furthermore, AI systems often rely on training data derived from human work, raising questions about whether their outputs are truly novel or merely regurgitations of existing content. Some experts caution that extending rights to AI-generated material could dilute the value of human creativity and upset the balance that IP law strikes between incentivizing creators and benefiting society (Clifford, 1997). Thus far, the consensus has been to keep IP law's focus on human innovation, leaving AI-generated works largely unprotected or addressed through the rights of human stakeholders who use the AI. These concerns are critical to understanding the evolving landscape of intellectual property law and AI, especially in relation to AI patent rights and creative ownership by AI.

C. Implications of Allocating Intellectual Property Rights to Artificial Intelligence Systems

Granting intellectual property rights (IPRs) to AI systems presents a transformative opportunity to promote technological advancement, stimulate economic growth, and cultivate a dynamic AI ecosystem. Proponents of this approach emphasize that providing legal protection for AI-generated outputs could serve as a significant catalyst for encouraging investment, driving innovation, and positioning nations at the forefront of AI development and deployment. However, while these potential benefits are compelling, the legal, economic, and societal implications of extending IPRs to AI also present complex challenges that must be critically examined. First, the conferral of IPRs upon AI systems is likely to incentivize greater investment in AI research and development. Legal protection acts as a powerful motivator for companies, entrepreneurs, and academic institutions to allocate substantial resources toward advancing AI technologies. With the assurance that their investments are legally safeguarded, stakeholders are more willing to engage in long-term, capital-intensive research initiatives. This surge in

investment would not only accelerate progress within the AI sector itself but also have a cascading effect across various industries, as AI applications permeate sectors such as healthcare, finance, education, manufacturing, and logistics.

The diffusion of AI technologies into diverse domains could thus foster widespread innovation and modernization across the broader economy. Secondly, securing IP protection for AI-generated inventions and works has the potential to make jurisdictions more attractive to global companies and investors seeking to develop and commercialize AI technologies. Enhanced legal protections offer the predictability and stability that investors prioritize when selecting locations for research and development operations. Increased foreign and domestic investment would drive economic expansion, generate high-skilled employment opportunities, and stimulate entrepreneurial activity within a digital economy. Furthermore, the localization of AI expertise and the establishment of AI development hubs would enhance a nation's competitiveness in the global technological landscape. Moreover, granting IPRs to AI can help create a supportive environment for AI-driven innovation by establishing clearer market expectations and legal certainty. Businesses are more likely to engage in AI-related ventures when they can confidently rely on a well-defined system of IP protection to secure the fruits of their investments. Such legal certainty attracts AI-focused startups, research institutions, and talent, and it also facilitates cross-sector collaborations and public-private partnerships. In turn, a vibrant and interconnected AI ecosystem promotes knowledge-sharing, technological spillovers, and the overall strengthening of national AI capabilities. These developments would also push governments to reevaluate AI copyright and patent reforms, intellectual property rights for AI-generated works, and regulatory frameworks for machine-generated creations.

For all these potential benefits, significant legal and social challenges arise. Traditional IP concepts struggle with questions of authorship and ownership for AI-generated works, the

enforcement of rights, and the interpretation of originality and inventorship. Unclear standards in these areas could lead to legal uncertainty and frequent disputes, potentially undermining the very incentives that IP rights aim to create. Moreover, from a societal perspective, the rapid automation enabled by AI could disrupt labor markets and concentrate economic power in the hands of a few technology companies. If AI-generated outputs were monopolized through exclusive rights, it might exacerbate income inequality and limit broader access to the benefits of innovation. Policymakers will need to balance the promotion of AI-driven innovation with the protection of broader societal interests, likely by introducing careful legal reforms (if any) alongside supportive measures such as workforce retraining and education initiatives. While granting IP rights to AI systems offers promising avenues for technological leadership and economic development, it also presents profound legal, economic, and ethical difficulties. A balanced approach that carefully integrates legal innovation with broader social policy considerations is essential to ensure that the extension of IP rights to AI serves the long-term interests of innovation, equity, and societal well-being.

7. An Inclusive approach to AI development

For those exploring the philosophical and jurisprudential foundations of intellectual property (IP) in the context of AI, scholars highlight the need to revisit core theories of IP ownership and creativity. Holzer (2022) underscores the importance of critically engaging with evolving concepts of ownership and protection for intangible assets in an era of automation. Complementing this perspective, Peter Drahos's seminal work *A Philosophy of Intellectual Property* offers a historical and normative analysis of the theories that have shaped IP law (Drahos, 2016). Drahos discusses foundational justifications for IP rights—such as the incentive theory (promoting innovation by rewarding creators), the labor theory (viewing IP as a reward for an individual's effort), and the personality/creative theory (valuing the personal creative expression of authors). He challenges

the assumption that ever-broader property rights necessarily yield greater societal benefits, inviting a rethinking of how IP systems can better align with objectives like equitable access to knowledge, cultural enrichment, and technological advancement. In re-evaluating what counts as "creative" or "original" in the age of AI, researchers like Simon Colton argue that assessments of computational creativity should consider the process and mechanism of creation, not merely the final artifact (Colton, 2008). Colton's process-based approach suggests that if an AI's creative process is sufficiently transparent and innovative, the outcome might merit consideration like a human-created work. Building on this idea, some propose that AI-generated works could be accompanied by documentation of the AI's production process, allowing a more informed evaluation of originality and inventive contribution. Such transparency could strengthen arguments for conferring limited forms of IP protection on AI outputs by demonstrating a clear, novel process behind the creation. The argument for granting IPRs to AI is grounded in acknowledging the substantial contributions autonomous AI can make to innovation and society.

As AI systems become increasingly capable of independently producing outputs with significant novelty, utility, or aesthetic value, the traditional rationales for IP protection—encouraging innovation, promoting creative advancement, and protecting valuable creations—are being revisited through the lens of emerging AI innovation laws and machine-generated intellectual property frameworks.

8. Jurisdictional Approaches to AI and Intellectual Property Law

Given the challenges AI poses to intellectual property (IP) systems, various jurisdictions have taken differing approaches to regulating AI-generated works.

A. European Union Law and Artificial Intelligence

European patent law operates under a complex framework, including national laws, the European Patent Convention (EPC) of 1973, and EU

directives. While European patents are centrally granted by the European Patent Office (EPO), protection must still be validated individually in each member state. Recent years have seen a surge in AI-related patent filings, reflecting a global trend toward AI innovation (Latham & Strange, 2019). Until recently, the EPO offered limited guidance on AI inventions, but the 2018 Guidelines for Examination provided needed clarity.

The EPO's Guidelines reaffirm that mathematical methods, including many AI algorithms, lack technical character unless they contribute to solving a technical problem (Cupitt, 2019). Two safe harbors allow patentability: technical application and technical implementation. For instance, a neural network deployed in a heart-monitoring device can qualify, while pure classification of literary texts does not (Bruus & Jorgensen, 2018). Additionally, the EPO, consistent with other jurisdictions, mandates that inventorship be limited to natural people, as reinforced by rejections of DABUS AI's patent applications. Although Europe is advancing mechanisms like the Unified Patent Court, broader issues, such as AI authorship in copyright law, remain unsettled. European law still requires human authorship, leaving AI-created works unprotected unless attributed to a human, a topic likely to gain attention as AI-generated content grows.

B. United States Law and Artificial Intelligence

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C. Singapore Law and Artificial Intelligence

Singapore boasts a sophisticated IP system aligned with global standards like TRIPS. Its Patents Act requires inventions to demonstrate novelty, inventive step, and industrial applicability. In 2019, Singapore introduced the Accelerated Initiative for Artificial Intelligence (AI²) to fast-track AI-related patent applications, targeting a six-month turnaround for qualifying cases (Intellectual Property Office of Singapore, 2018). Eligibility under AI² demands AI-specific subject matter and initial filing with IPOS. Like Europe, Singapore excludes pure mathematical methods from protection but allows AI innovations that solve technical problems (Intellectual Property Office of Singapore, 2019). Although current law presumes human inventorship and authorship, Singapore's Copyright Act adopts a model akin to the UK's Section 9(3) CDPA: for computer-generated works, the author is deemed to

be the person making necessary arrangements. Thus, AI-created works can be attributed to humans, preventing a rights vacuum even as AI autonomy increases.

D. United Kingdom Law and Artificial Intelligence

Under the Copyright, Designs and Patents Act 1988 (CDPA), UK law assigns authorship of computer-generated works to the person undertaking necessary arrangements (Section 9(3)). However advanced, AI systems cannot be inventors or authors (Buiten et al., 2023). The case of *Thaler v. Comptroller General of Patents* confirmed that only natural people qualify as inventors under the Patents Act 1977 (Galasso & Lou, 2022). DABUS's inability to be named as an inventor led the UK Intellectual Property Office to affirm that a human must always be listed. Courts emphasized that patent rights do not automatically vest in the owner of an AI device and must originate from human creativity (Burchardi & Harlé, 2018). The UK has engaged in consultations on AI and IP, reflecting caution about reform. Although Section 9(3) CDPA provides a rare mechanism for attributing copyright to humans for computer-generated works, this still ultimately preserves human-centred IP structures. The UK's approach balances tradition and adaptability, reinforcing human creativity while cautiously preparing for AI's growing role.

9. Policy Recommendations: The Need for Reform

Navigating the uncharted territory of AI-generated intellectual property requires a forward-looking yet pragmatic set of recommendations. The goal is to reconcile the need to encourage innovation and recognize AI's contributions with the imperative of preserving the human-centered values at the core of IP systems. Below are key recommendations for policymakers and international bodies to consider in shaping the future legal landscape:

A. The establishment of a Global Framework

There is a pressing need for international collaboration to develop a unified framework or set of principles addressing AI and IP. As AI-generated works increasingly cross borders (for example, an AI in one country creates content used globally), inconsistent national laws can lead to uncertainty and forum-shopping. International

organizations like WIPO should continue to lead discussions to forge consensus on issues such as authorship, inventorship, and the protection of AI-generated works. A harmonized approach might take the form of an international treaty or soft law guidelines that outline how member states could recognize and treat AI-assisted or AI-generated creations. Such a framework should aim to prevent a patchwork of conflicting rules and ensure that creators and innovators—human or otherwise—operate under clear and fair expectations globally. It should also explicitly affirm the necessity of human stewardship, ensuring that AI remains a tool within the IP system rather than an independent actor with its rights.

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C. The Need to Maintain Human Oversight and Responsibility

In the near to medium term, IP laws should continue to require human involvement as a condition of protection, but with clarity on how

that involvement is defined. Legislatures and IP offices could refine definitions of "author" and "inventor" to explicitly address AI. For example, patent laws might clarify that an inventor is the person who uses AI to arrive at an invention or who conceives the inventive concept underlying an AI's output. Copyright laws might codify rules (like the UK's) for computer-generated works, making it explicit that when AI produces a work, the legal author is the person who undertook the arrangements for the creation (such as providing the prompt or building the model). This maintains accountability and ensures there is always a legal entity (individual or corporation) responsible for exercising and enforcing IP rights. Such measures encourage the use of AI as an innovative tool while preventing any legal vacuum or ambiguity about ownership. At the same time, guidelines can encourage disclosure of AI involvement in the creation process when registering IP rights, to build a dataset of how much AI is contributing and perhaps to monitor any patterns that need addressing.

D. The Consideration of Sui Generis for AI-Generated Works

Policymakers should explore the possibility of introducing sui generis forms of protection for AI-generated works that do not meet traditional authorship criteria. One model to draw from is the EU's sui generis database right, which protects substantial investments in databases even absent creativity. Similarly, a new category of rights could protect certain AI-generated outputs (particularly those that result from significant investment or that have social value) for a limited term and scope, without equating them fully to human-created works. For instance, lawmakers could enact that purely AI-generated artistic or literary works (with no human author) are protected against wholesale commercial copying for a short period (say, 5-10 years), to allow the entity that produced them a head start in monetizing them. After that, such works could enter the public domain. This approach would incentivize investments in creative AI and prevent immediate exploitation by competitors, yet it avoids long-term monopolies over content that no human creatively authored. Any sui generis right should

be carefully bounded so it doesn't undermine the public domain or human creators' market—perhaps by excluding AI-generated works from eligibility for the full term of copyright or patent unless a human contribution is present.

E. The Significance of Enhancing Transparency

As suggested in the inclusive approach discussion, requiring transparency about the role of AI in the creative or inventive process is crucial. IP offices could implement requirements that applicants disclose when an invention or work was developed with significant AI assistance or autonomously by AI. While this might initially be just for data gathering, in the future it could feed into substantive examination; for example, if an invention was generated by AI, examiners might scrutinize obviousness differently (since an AI can combine prior art in ways humans might not). For copyright registrations, disclosing AI involvement can help delineate which parts of a work are human-authored and which AI-generated. This transparency will also aid courts in infringement cases to properly assess issues like similarity (e.g., knowing that a piece of art was AI-generated might prompt an inquiry into the training data to see if the output inadvertently copied from existing works). Over time, standardized documentation (perhaps even logs from AI systems showing their creative process) could become part of best practices, supporting claims of originality or inventiveness of AI-assisted works.

F. The Need to Implement Safeguards for Protecting Creations

To prevent the over-concentration of IP rights and to safeguard human creators, any extension of protection to AI outputs should be paired with safeguards. Clear exclusions for works or inventions that are entirely autonomously generated without human creative input (maintaining that those remain unprotectable by traditional IP and possibly free for public use, absent sui generis rights as above). Additionally, exceptions could be crafted so that if an AI-generated work is deemed unprotected, using it would not incur liability, so the public is not confused about

whether they can use AI-generated content that has no human author. Moreover, ensuring that the use of AI to analyze existing works (text and data mining) is facilitated by robust exceptions (as the EU has done with text and data mining exceptions), so that training AIs on data does not itself become an IP infringement bottleneck. Balancing this with the interests of rights holders (perhaps through compulsory licenses or opt-outs) will be important. Perhaps a system of acknowledging when content is human-made could emerge as a sort of "authentic human creation" mark, supported by policy for those who want to differentiate their work from AI-generated content. This is more speculative, but as AI content proliferates, there could be market demand for certifying human creativity, which law and policy could indirectly support (through funding or standards).

G. Continuous Review and Adaptive Governance

The relationship between AI and IP will continue to evolve as AI becomes more advanced (for example, future AI might possess greater autonomy or even elements of creativity that more closely resemble human processes). Governments should establish mechanisms for ongoing review of IP laws considering AI developments. This might involve periodic reports by IP offices, consultations with industry and the public, and perhaps experimental pilot programs (like regulatory sandboxes) to test how new rules might operate. Internationally, forums like WIPO's Conversation on AI and IP should be regular and include voices from diverse fields (legal, technical, ethical, artistic). By continuously monitoring technological progress and its impact on creativity and innovation, the legal system can be updated promptly rather than lagging reality by decades. For example, if strong AI or AGI (artificial general intelligence) emerges that can truly reason and create as a human would, the policy stance might need to shift more fundamentally – something that can only be addressed if lawmakers are keeping pace with AI research.

H. Public Awareness and Ethical Considerations

Finally, any change in law or introduction of new frameworks should be accompanied by efforts to educate stakeholders and the public about how AI is influencing creativity and what the law does or doesn't allow. Misunderstandings in this area could lead to fear or misuse of AI (such as creators wrongly assuming they have no rights if they use AI in their process, or conversely, assuming an AI output is automatically protected). Clear guidelines and perhaps voluntary ethical codes for AI creators can supplement formal law. These could cover things like attribution (giving credit to the human or the AI appropriately), respecting privacy and personal data when AI is trained on such data and avoiding bias or harmful content in AI-generated works. While not strictly an IP law matter, these considerations intersect with IP when we talk about what kinds of creations should be promoted and protected.

In summary, the recommendations aim to strike a balance: protect and incentivize human creativity first and foremost, leverage AI as a powerful tool for innovation, and adapt the legal regime to acknowledge AI contributions without undermining the human-centric foundations of intellectual property. By implementing a combination of international cooperation, legal adaptation, and safeguard measures, lawmakers can ensure that the IP system remains relevant and fair in the age of artificial intelligence.

10. Conclusion

adaptable IP regime will require global cooperation, as the needs of human creators and the realities of AI-driven creativity continue to evolve. The continued development of artificial intelligence will inevitably result in its increased involvement across various industries, including creative sectors.

This means that intellectual property laws must evolve to keep pace with these changes. The ability of AI to produce original works raises complex legal and philosophical issues surrounding authorship, ownership, and originality, which challenge the fundamental principles of intellectual property law. While AI

has the potential to transform fields such as research, technology, and entertainment, many legal questions remain unresolved regarding its integration into the intellectual property system. This article has examined the challenges related to AI's role in the creative process, particularly regarding the intellectual property rights for works created by AI. While different jurisdictions—including the U.S, UK, Singapore, and the EU—are addressing the issue in varying ways, there is a noticeable lack of consistency in approach. The absence of a clear and unified global framework for AI and intellectual property law highlights the urgent need for international collaboration and the creation of comprehensive rules that address the unique challenges posed by AI as both a tool and a creator.

Given these challenges, this paper argues for the establishment of an international framework to standardize the treatment of intellectual property resulting from AI. The central challenge for such a framework is to strike a balance between the rights of human creators and the contributions of AI as an emerging creative agent. International legal systems should engage in dialogue to establish shared principles ensuring that IP law remains relevant and fair in the age of artificial intelligence. Achieving a robust and adaptable IP regime will require global cooperation, as the needs of human creators and the realities of AI-driven creativity continue to evolve.

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