AUTHORSHIP AND INVENTORSHIP REVISTED: AI-GENERATED WORKS UNDER INDIAN AND INTERNATIONAL INTELLECTUAL PROPERTY REGIMES

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Introduction

The advancement of artificial intelligence has fundamentally revolutionized content creation and innovation across numerous sectors, thereby necessitating a critical re-evaluation of established intellectual property law. Generative AI systems are now capable of producing complex outputs, including literary works, artistic creations, and technological inventions, which blur the traditional lines of creative and inventive input. The core challenge presented to existing IP regimes is whether these legal structures, designed for human creators, can accommodate output generated partially or entirely by non-human machines. The IP world now faces the fundamental question of who (or what) is the author or inventor of a work of art or technology when a machine performs the core creative or inventive steps.

To navigate the IP landscape effectively, a clear differentiation between two categories of AI involvement was established. **AI-generated works** are those created entirely by machines or through random processes, crucially lacking any significant human intervention or decision-making. The global consensus holds that these works are generally ineligible for copyright or patent protection because they do not stem from human authorship. Conversely, **AI-assisted works** utilize AI tools to enhance the creative or inventive process, but the final output reflects substantial human creativity, control, and intellectual direction.[1] For such works to secure IP protection, human contributions must meet the originality threshold and demonstrate a recognizable level of conceptual contribution, oversight, or creative input. This distinction forms the core interpretive challenge confronting policymakers and courts globally.

This report's focus was primarily fixed upon a comparative analysis across two key intellectual property domains: Copyright (addressing Authorship) and Patents (addressing Inventorship). The statutory regimes of India (The Copyright Act, 1957, and The Patents Act, 1970) were benchmarked against major international jurisdictions, specifically the United States, the

European Union, and the policy discussions convened by WIPO. The analysis integrated a comprehensive review of statutory provisions, key case law from the last five years (2020-2025), and global policy trends to identify the persistent legal uncertainties and structural deficiencies within the existing framework.

Historical Background: The Root Cause of IP Anthropocentrism

The intellectual property system, since its inception, has been intrinsically linked to the contribution of a natural person. In patent law, ownership is based upon inventorship, and the inventor must make an **intellectual contribution** to at least one element of a claim. The improper naming of inventors has historically been sufficient grounds for rendering a patent unenforceable. Similarly, copyright law requires a "work of authorship". While the idea of an author has shifted throughout history—from the publisher to the creative genius to communal efforts—the exclusion of non-human entities has remained consistent across U.S. copyright history. This foundational anthropocentrism dictates that until laws are amended, inventorship remains a role carrying legal and financial responsibility, a role only a human can fulfil.

The rationale underpinning the strict requirement for human involvement is deeply rooted in the incentive theory that justifies intellectual property rights. These rights, whether patents or copyrights, were originally granted to stimulate and reward human effort, encouraging the creation and dissemination of expressive works. The U.S. Court of Appeals for the D.C. Circuit affirmed this position in *Thaler v. Perlmutter*, holding that the Copyright Act required all eligible work to be authored by a human being, reasoning that only human authors needed copyright as an incentive to create.

The exclusion of works generated solely by AI systems is therefore justified on the basis that non-human actors do not respond to economic incentives. If AI-generated works were freely copyrightable, policy analysts observed that this could potentially lead to market dilution from non-infringing AI outputs. Should generative AI serve as a substitute for human creative output, anything that reduces the cost of that technology without proportionally increasing the benefits to human creators would diminish the human creators' market power. This potential for market disruption would, in the long run, negatively affect the dynamic effects on AI development by discouraging the production of new, original human works needed to train future models.

Consequently, the anthropocentric requirement was maintained as a necessary firewall designed to preserve the human creator's market leverage. This observation suggests that legal jurisdictions were less concerned with the philosophical question of *what* AI could create and more focused on *who* would be legally and financially responsible for the output, particularly when considering liability and the crucial right to assign or transfer IP. The requirement for a human face tied to the invention ensures that there is a named individual who carries the legal and financial burden, thereby maintaining systemic accountability.

Analytical Study: Data and Trends of the Last 5 Years (2020-2025)

The period between 2020 and 2025 witnessed a significant and coordinated global response to the intellectual property challenges presented by AI. WIPO established the "WIPO Conversation," an open, multi-stakeholder forum designed to discuss the impact of frontier technologies on all IP rights. This conversation achieved a truly global reach, with nearly 14,000 participants from 172 countries, including academia, IP professionals, and enterprises.[16] Furthermore, the WIPO Standing Committee on Copyright and Related Rights (SCCR) recognized the fundamental impact of generative AI, placing the legal status of AI-generated output and the use of copyrighted content as training data on its standing agenda for multiple sessions, including those in 2023 and 2024. This consistent focus demonstrated a global consensus regarding the urgency of these matters and the need for international governance to prevent fragmentation and the potential weakening of global IP standards.

In the United States, the Copyright Office (USCO) launched an extensive AI initiative in 2023. This effort included public listening sessions and a Notice of Inquiry that received over 10,000 public comments. The outcome included the release of a comprehensive, multi-part AI Report, with Part 2—addressing copyrightability—published in January 2025. This activity indicated a deep regulatory commitment to defining and reinforcing the scope of human authorship.

Global patent trends during this period revealed a major shift in the use of AI technologies. Research indicated a transition from purely theoretical AI research toward commercialization, demonstrated by a decrease in the ratio of scientific papers to patent filings. This suggests a heightened rate of technological application in commercial products and services. Analysis of patent filings confirmed that machine learning techniques overwhelmingly predominated, representing approximately 40% of all AI-related patents filed and exhibiting a rapid average annual growth rate.

This trend confirmed that AI systems were increasingly becoming essential tools for the technical execution, or "reduction to practice," of inventions. While the conception of an invention remained attributed to the human inventor, the automation of research aspects traditionally undertaken by human labour demonstrated that AI was functionally indispensable in modern innovation.

India experienced a robust surge in overall IP activity during the five years leading up to 2024–2025. Total IP filings increased by 44%, rising significantly from 4,77,533 applications in 2020–21 to 6,89,991 in 2024–25. This substantial growth was attributed to various policy reforms and increased digitization undertaken by the Government to streamline processing and boost innovation. This rapid acceleration of IP filings underscores the growing domestic investment and use of technology in creation and invention.

The simultaneous and rapid acceleration of global AI commercialization and the domestic surge in Indian IP filings placed unprecedented stress on legal frameworks established decades earlier. This high velocity of technological and commercial innovation starkly contrasted with the slower, deliberative nature of international policy development, such as the multi-year WIPO Conversations and the multi-part USCO reporting process. This regulatory mismatch was identified as the direct cause of the administrative inconsistencies observed in domestic jurisdictions, particularly the confusion arising from novel AI applications like the *RAGHAV* case (discussed further in Section 5). The policy lag suggested that India's domestic IP regime risked becoming an impediment to innovation if legislative clarity was not rapidly developed to match the pace of technological adoption and filing growth.

Statutory Provision: The Indian Legal Regime

The Indian Copyright Act of 1957, following a 1994 amendment, provided a limited statutory provision for machine-assisted creation through the concept of “computer-generated artworks”. Section 2(d) of the Act defines the author of such works as "the person who causes the work to be created". This definition has been consistently interpreted to require the involvement of a natural person. Judicial precedent, notably the Supreme Court decision in *Eastern Book Company and Ors. v. D.B. Modak*, established that a degree of originality and intellectual effort must be demonstrated for a work to be copyrighted. Simply using a computer to edit an already existing work does not qualify one as an author under the Act.

The limitations of this definition were critically exposed by the controversy surrounding the artwork created by Ankit Sahni using the AI tool RAGHAV (Robust Artificially Intelligent Graphics and Art Visualizer). Initially, Sahni attempted to register the artwork naming RAGHAV as the sole author, which was denied. Subsequently, the work was mistakenly registered with Ankit Sahni and RAGHAV listed as co-authors. Legal analysts noted that the Indian legal framework contained no provision for granting authorship to an AI tool. The Indian Copyright Office's decision to register the work, even temporarily, demonstrated that the office was at a "predicament in dealing with applications seeking registration" due to a lack of precedent and an adequate legal framework. This administrative confusion, though followed by a notice for removal of the registration, highlighted that the grounds for the work's registration remained vague and risked setting a problematic precedent.

The Indian Patents Act, 1970, strictly requires that a patent application must be filed by a "person" who is the true and first inventor, or an assignee of such inventor (Section 6). The definition of "person" is sourced from the General Clauses Act of 1897, which refers only to a natural or legal entity, thereby categorically excluding AI systems like DABUS from being named as inventors.

Furthermore, for an invention to be patentable, Section 2(1)(j) mandates an "inventive step," defined as a feature of the invention involving technical advance over existing knowledge. This requirement for an inventive step has been consistently interpreted as intrinsically linked to **human ingenuity**, thus strengthening the argument that AI systems cannot be granted patent status under the current legal regime. Recognizing this statutory inadequacy, the Parliamentary Standing Committee's 161st Report suggested that the Department should focus on encouraging AI and related innovations by creating a "separate category of rights for Artificial Intelligence".

The inclusion of the phrase "computer-generated" works in the Indian Copyright Act in 1994 was intended to address works of simple automation, such as databases or routine computer processes. Modern generative AI, however, operates with a degree of creative autonomy that extends far beyond simple human-directed automation. The technology fundamentally challenges the causality implied by the phrase "person who causes the work to be created".

The administrative confusion surrounding the *RAGHAV* application was the practical demonstration of this statutory antiquity. The existing law was prepared for the machine as a

tool directed by a human, but it was wholly unprepared for the machine as a creative contributor that operates without direct, granular human conception. This disparity made it evident that the legal definition of *causality* central to Indian copyright law had been surpassed by the technological capability of modern AI systems.

Comparative Study: Classification and Global Implementation

Regarding patent law, a strict, uniform global consensus was established in response to applications naming the AI system DABUS (Device for the Autonomous Bootstrapping of Unified Sentience) as the inventor. This consensus held unequivocally that only a natural person can be named as an inventor.

- **United States:** The U.S. Patent and Trademark Office (USPTO), affirmed by the Federal Circuit in *Thaler v. Vidal*, held that an inventor must be a natural person under 35 U.S.C. 100(f). USPTO guidance requires that the natural person must have made a **significant contribution to the conception** of the claimed invention. Crucially, the guidance stated that merely owning or overseeing an AI system ("intellectual domination") without providing a significant conceptual contribution does not make that person an inventor, nor can an AI system assign rights.
- **Europe and Asia:** The European Patent Office (EPO) refused the DABUS applications, confirming that an inventor designated in the application must be a human being, not a machine. The German Federal Court of Justice (BGH) and the Japanese IP High Court similarly ruled in 2025 that only natural persons can be named as inventors, emphasizing that a machine lacks legal personality and cannot transfer rights.
- **The Anglo-European Standard:** The EU copyright framework requires a work to reflect the author's "own intellectual creation," mandating human intervention and demonstrable free and creative choices. Similarly, the USCO maintains the "bedrock" requirement of human authorship; works entirely generated by AI are not copyrightable. Even detailed prompting, while representing human effort, does not automatically yield a copyrightable work unless the output reflects significant human creative direction.
- **The Chinese Contrast:** A notable exception to the strict anthropocentric standard was observed in China. Select Chinese courts, in cases involving AI-generated images, have granted copyright protection to the human user who provided the text prompts and selected the final output. This approach, demonstrated by rulings where the infringing

party compensated the plaintiff for economic losses, stands in direct contrast to the USCO's denial of copyright in purely AI-generated works.

The implementation of IP law in the context of AI directly affects societal outcomes, impacting economic incentives and ethical norms. Policy analysis revealed a core tension regarding training data: allowing developers unrestricted access to copyrighted training materials (declaring it fair use) would accelerate AI development with the lowest transaction costs.[15] However, this approach risks undermining the economic incentives of human creators, potentially diminishing their market power and negatively impacting the long-term supply of creative works.

Furthermore, the integration of AI into creation carries significant ethical risks. The academic community, for instance, has observed the generation of fabricated citations and references, necessitating clear policies. To safeguard the credibility of research, disclosure that fosters trust and ensures compliance with AI tool terms of use has been mandated, with clear institutional policies emphasizing transparency, accountability, and human oversight being deemed crucial.

The global unanimity in rejecting AI inventorship was derived largely from legal formalism, which requires a legally accountable person to assign rights and bear liability. However, the subsequent divergence in Authorship policy (the strict US/EU standard versus the more permissive Chinese court rulings) was seen to be driven by distinct governmental prioritizations of market values.

By granting copyright protection, China implicitly prioritized the protection of the economic output and the significant investment made by platform owners and prompt-users in generating content, effectively valuing commercial utility. This contrasts sharply with the US and EU, which prioritized maintaining the integrity of the traditional human creative incentive structure. This fragmented response suggests that the future global IP regime will likely segment based on whether jurisdictions prioritize **maintaining human creative incentives** (preventing market dilution) or **capturing and protecting automated economic value** (encouraging AI platform output).

Conclusion and Suggestions: Addressing Identified Deficiencies

The persistence of the anthropocentric paradigm in both Indian and International IP law was

thoroughly confirmed. Existing legal structures were observed to be fundamentally capable of accommodating AI-assisted works, provided the human input was demonstrated to be significant and conceptual. However, the structures were found fundamentally incapable of legally recognizing purely autonomous AI-generated creations due to the exclusion of non-natural persons from inventorship and authorship definitions. This failure was demonstrated by the administrative uncertainties, such as the *RAGHAV* case, where the Indian Copyright Office struggled to apply archaic statutory language to modern generative technology.

The Indian Parliament was recommended to have passed specific amendments that clearly defined the boundary of "significant human contribution" necessary for an AI-assisted work to qualify for copyright or patent protection. This clarity must address the specific challenges posed by prompt engineering, ensuring that mere suggestion or minimal input was clearly ruled insufficient, aligning with the "significant contribution to conception" criteria applied by international patent offices.

Clear institutional and legal policies requiring the transparent disclosure of AI usage in research, publication, and IP applications were emphasized and directed to have been implemented. This measure was deemed essential to maintain trust, ensure accountability regarding content veracity (e.g., preventing fabricated citations), and ensure ethical compliance within the creative and academic communities.

The development of centralized licensing mechanisms, such as Self-Regulatory Organisations (SROs), was proposed to simplify permission acquisition for text and data mining (TDM). This measure was suggested to have been undertaken to reduce transaction costs for AI developers while simultaneously ensuring that original copyright holders receive fair compensation for the use of their works in training datasets.