

## Article

# Intellectual Property in the Age of Generative Artificial Intelligence: Rethinking the Legal Dimensions of Innovation and Protection

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**Abstract:** The abrupt advancement of generative artificial intelligence (AI) has created notable challenges for the traditional intellectual property (IP) frameworks. Traditional legal concepts, particularly related to copyright, patent, and trademark law, are based on the notion of human authorship and invention. Generative AI systems, which can generate literary, artistic, and technological outputs merely by giving instructions or prompts are erasing the boundaries between human and machine creativity. Current study explores the core components of IP law, the history and background of generative AI technology and the interlinkage between these two. It also discusses the issues pertaining to AI and IP from legal perspective, highlighting international agreements such as Berne Convention and the TRIPS Agreement, and the US and EU jurisprudence on these issues. It also looks into the innovation, its protection and policy gaps to endure that IP laws are effective in the age of AI. To make sure that IP laws foster creativity in the era of AI, this study recommends to create a global legal framework that supports innovation advanced by AI that ensures equity and fairness.

**Keywords:** artificial intelligence; intellectual property; innovation; copyright; Indian IP laws

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## 1. Introduction

The rise of artificial intelligence (AI) starting from defined and task-specific applications to the advanced generative systems able to produce unique and creative outputs according to the given prompts, has drastically changed the intellectual property (IP) law globally. The generative AI, such as the Open AI GPT series, DALL-E, and Stable Diffusion can generate text, images, music, and designs. Such developments have initiated a critical rethinking of the unique ideas of ownership, authorship and accountability in IP law, which are currently based on the characteristic such as invention, creativity, uniqueness, and non-obviousness.

Historically, IP statutes of copyright, patent, trademarks, and designs have been based on the principle that a legally recognized person or any entity having control over such ideas, designs or marks has exclusive or monopolistic rights over such creations. These rights safeguard the creations of the human intellect such as innovations, literary, musical and artistic works, designs, symbols, logos, and images used for trading and commerce purpose (Mehrotra 2024). In India, patent law mandates that an innovation has to be attributed to a real person. Similarly, copyright law recognizes the author as the person responsible for the creation of literary, artistic, musical or dramatic work. Such rights encourage the creators of such IPs by granting a monopoly over their creation and help get financial benefits for a specific period of time. Generative AI escalates the risk of infringement of IP.

European Union (EU) and United States (US) have different approach to regulate AI generated contents. The EU is moving towards a comprehensive legal framework to address the implications of AI through EU's proposed Artificial Intelligence Act. US has regulated it through court rulings such as (Thaler v. Hirshfeld 2021)<sup>1</sup> and (Thaler v. Vidal 2022)<sup>2</sup> where the courts held that only a natural person qualifies as an inventor under US patent law. The World Intellectual Property Organization (WIPO) urges to have globally uniform strategies for addressing the combination of AI and IP.

This research emphasizes the importance of maintaining legal system capable of safeguarding the innovation and rights of human creators while establishing the mechanism that address the

<sup>1</sup> Thaler v. Hirshfeld (558 F. Supp. 3d 238 (E.D. Va. 2021)).

<sup>2</sup> Thaler v. Vidal (2022) (43 F.4th 1207 (Fed. Cir. 2022)). Available online: <https://www.wipo.int/wipolex/en/judgments/details/2098> (Accessed on May 15, 2025)

novel challenges of generative AI. It also talks about the need for harmonized domestic and international approaches to ensure that IP law remains relevant and effective in the growing era of generative AI.

## 2. Concept and Core Components of IP Law

Intellectual Property Rights (IPRs) refer to exclusive rights granted to the creator of the work. Innovation, literary, musical, artistic work, design, and symbols is such intangible assets which can be protected under IP laws if these meet certain prescribed norms. (Reema 2023). IPRs promote creativity and innovation by granting creators the exclusive right to their intellectual creations for a specific period of time (Bharati 2024). IPRs allow their creators profit from the information and intellectual goods they have created. These financial incentives boost innovation, depending on the degree of protection provided to innovators (Dhokare and Gaikwad 2022).

Patents, copyrights, and trademarks are the main pillars of IP law, each having its unique function in safeguarding original and creative works and ensure that innovation, creativity, and commercial identity receive adequate legal recognition and protection. The Paris Convention for the Protection of Industrial Property 1883, and the Berne Convention for the Protection of Literary and Artistic Works 1886, are the foundations for current IP laws. These international agreements established fundamental concepts for IP, which have since been extended and expanded by other national laws and international treaties.

One of the most significant categories of IPR is patents. As per section 2(1)(m) of The Patents Act, 1970, patent is defined as “a patent for any invention granted under this Act”.<sup>3</sup> The patent owner has a title or right for a predetermined time, particularly having the power to prevent others from using, creating, or selling an invention. People or organizations approach the patent office, and provide details as prescribed about the product or process which they have invented. The patent office examines all patent applications according to rules framed under the patent act, and the persons who have invented the unique product or process they will get protection for their ‘property’ in exchange for a fees as prescribed under the act.

A trademark is an identifying symbol that can help consumers in identifying the source of particular goods or services. Section 2(1) (zb) of the Trade Marks Act, 1999 defines trademark as “a mark capable of being represented graphically and which is capable of distinguishing the goods or services of one person from those of others and may include the shape of goods, their packaging and combination of colours”.<sup>4</sup> Text, words, numbers, phrases, symbols, designs, signatures, smells, shapes, sounds, packaging, textures, or combinations of these elements can all be used for commercial purpose. Trademarks enable the consumers to identify the mark with the producer of goods or, in the case of services, the service providers. It helps in reassuring the customers that the goods are of a specific type and standard. (Dhokare and Gaikwad 2022).

A copyright is a monopolistic right granted to the creator of the original work of literary, musical, dramatic, artistic, or architectural nature. The copyright holder has the exclusive right to sell, publish, and reproduce his own creation after the grant of copyright over their creation. Copyright law protects books, novels, poems, plays, movies, computer programs, databases, musical compositions, songs, dance performance, videos, paintings, drawings, photographs, sculpture, architecture, maps, and technical drawings.

## 3. Generative AI: Evolution and Impact

Generative AI is an advanced computational system capable of producing new content as per the inputs given by learning from different datasets available over the web. Generative AI can be traced from rule based algorithms to modern deep learning architectures governed by neural networks. By mimicking complex human cognitive processes and creative thinking, modern models like Open AI's GPT series, Google's Gemini, and picture generators like DALL·E have completely changed the creative landscape. AI fields that include large language models, image creation and video generation, robotics, and autonomous systems have advanced significantly (Bharati 2024). AI has made it possible for the technology to be used in self-driving vehicles and virtual assistants, questioning conventional ideas of creativity and originality. (Bharati 2024). AI has altered the way ideas are generated and exchanged, changing our perceptions of ownership and originality. As AI continues to invent, write, and design, it goes beyond the boundaries of current patent, copyright, and trademark laws. The existing IP regime faces certain challenges as a result of this technological advancement which has redefined the creativity parameters.

For patenting an invention, it must be new, it must be non-obvious for a person skilled in the art, and must get utilized in an industry. As per Section 2(1)(y) and Section 6 (1) of Indian Patent Act, 1970<sup>5</sup>, only a natural person can be recognized as true and first inventor. As a result, ideas for invention produced through AI systems are not patentable, which raises a question regarding ownership and inventorship in this AI driven world. It is difficult to evaluate the inventive step involved in an invention generated through AI because machine lacks human creativity and intellect. It indicates the need for reforms to address inventorship and accountability in AI driven innovations.

Traditional copyright law is based on the concept of human authorship. As per Section 2(d) of the Indian Copyright Act, 1957<sup>6</sup> an author can be considered as a person who has created a work. Berne convention also emphasizes human authorship excluding machine or non-human entities from being recognized as authors. Copyright law, which protects original works of human authorship, struggles to incorporate AI-generated products that do not involve direct human participation. Furthermore, the use of copyrighted works as source material for AI models has triggered international debates around fair use, data licensing, and potential infringement.

<sup>3</sup> Section 2(1)(m) of The Patents Act, 1970. [https://ipindia.gov.in/writereaddata/portal/ipoact/1\\_31\\_1\\_patent-act-1970-11march2015.pdf](https://ipindia.gov.in/writereaddata/portal/ipoact/1_31_1_patent-act-1970-11march2015.pdf)

<sup>4</sup> Section 2(1) (zb) of the Trade Marks Act, 1999. <https://indiankanoon.org/doc/493060/>

<sup>5</sup> Section 2(1)(y) and Section 6 (1) of Indian Patent Act, 1970. [https://ipindia.gov.in/writereaddata/portal/ipoact/1\\_31\\_1\\_patent-act-1970-11march2015.pdf](https://ipindia.gov.in/writereaddata/portal/ipoact/1_31_1_patent-act-1970-11march2015.pdf)

<sup>6</sup> Section 2(d) of the Indian Copyright Act, 1957. <https://copyright.gov.in/documents/copyrightrules1957.pdf>

Regarding the trademarks, generative AI provides automated methods to create logos, brand names, and slogans. However, it also increases the possibility of imitation, brand dilution and the creation of deceptively identical marks, complicating enforcement and consumer protection systems. Generative AI can create logos or brand identities that can easily confuse the consumers or undermine the distinctiveness of reputed brands.

Hence, absence of clear legal recognition for AI generated work creates uncertainty over the innovation, ownership and accountability. AI-generated IP is a complex matter raising legal and strategic concerns. (Ali 2024) Therefore, laws regulating IP should be updated to ensure that AI innovation is protected while maintaining fairness and clarity in the legal system.

#### 4. Comparative Legal Perspective

The courts and legislature are now debating the legal aspect pertaining to AI and IP. A document on AI and patent eligibility was released in 2019 by the US Patent and Trademark Office (USPTO). Later in 2024, it also issued updated guidance explicitly addressing AI inventions to assist USPTO personnel and the stakeholders in deciding whether AI outcomes qualify as subject matter under patent law (United States Patent and Trademark Office 2024). According to this publication, AI generated ideas can be patented if these meet the specific criteria such as novelty, utility and non-obviousness.

In Europe, several guidelines pertaining to AI and IP have been released by the European Commission (EC). EC published a statement titled "Artificial Intelligence for Europe" in 2019. According to the statement, EC will examine the need for new legislation on the legal status of AI systems, including their potential status as inventors or authors. (European Commission 2018). EC also released various guidelines on the use of AI with IP pointing out the need to increase investment preparing for social and economic changes ensuring that all member states have an ethical and trustworthy AI framework. This guideline includes the patentability of AI generated ideas, the copyright protection of AI generated work and the trademark protection for AI enabled products and services.

The legal framework for AI and IP in India is still in its early stages. Although AI generated works are not specifically defined in the Indian Patent Law, Copyright Act, Trademark law, and certain existing laws pertaining to computer generated works and original works of authorship offer limited protection to such creations. Indian government has emphasized the need to protect IP in its 2019 draft AI policy. The policy emphasized the importance of ensuring an equal distribution of AI advantages through effective IPR protection mechanism. However, there is still no clear agreement on how India should handle the IP and AI issues. While some analysts have argued that India should take a more proactive approach, others have advised that the country should adopt a "wait and see" strategy. (Dakshana 2024).

This comparative analysis for AI and IP laws across the USA, EU and India highlights a global shift towards adapting traditional legal frameworks to the realm of AI driven innovation. USA and EU have already started formulating guidelines to address authorship and inventorship. India is still at its early stage, cautiously exploring the approach to authorship and inventorship. As AI continues to cross the lines between human and machine creativity, the need for unified and advanced IP laws becomes increasingly essential to ensure fairness, guarantee justice and accountable on global scale.

#### 5. Balancing Human Creation v. AI Innovation

AI can create creative and artistic works which are eligible for patent protection, eligible for copyright protection as well as protected through trademarks, challenges the traditional concept of authorship and inventorship. Secondly, AI system require huge volume of data to work effectively which often necessitates use of copyrighted information. This raises a question about copyright infringement and fair usage. The AI's predictive power is also being utilized to get an idea about the current trends in patent law and to assess the probability of IP issues. Lastly AI powered solutions are supporting IP management by keeping it easier to detect and prevent counterfeiting. (Ali 2024) Following decisions like (Thaler v. Australian Commissioner of Patents 2022)<sup>7</sup> and the South African Patent Office's recognition of AI as an inventor, the discussion around the granting of intellectual property rights to AI has drawn more attention. These concept is complicated by issues from the context of accountability and liability. It is believed that new creations, innovations or developments through human should be acknowledged as co-inventors or assignees to maintain accountability for the reason that AI cannot accept responsibility or incur legal consequences. Also, AI cannot be held liable for the infringement suit. Courts might take into account who holds the control over AI's actions. For this, some argue that the creators should bear the liability as similar to the vicarious liability where the act done by the employee the employer would be held liable. The legal doctrines such as product liability and vicarious liability help to better understand this concept. (Ali 2024) Therefore, even if AI encourages innovation and creativity, human oversight is still necessary to guarantee justice, responsibility, and moral application in the developing field of artificial intelligence and intellectual property law.

#### 6. Conclusions

Generative AI marks a new era of creativity and innovation; however, it also challenges the basic foundation of existing IP laws. As AI continues to generate inventions, designs, marks, and artistic works by simply giving a prompt, the traditional concepts of authorship, ownership, and accountability under IP laws must also evolve. USA and the EU have begun addressing the concerns posed by AI through various guidelines and policy reforms. India is still in the process of shaping its legal framework to regulate the boundaries between AI and IP. A harmonized global framework for AI and IP is essential to safeguard innovation while preserving the integrity of the legal system in this technology-driven world. India should consider forming a legal and policy maker committee to monitor and address these issues similar to the initiatives taken by the USA and the EU. Establishing best practices and standardizing legal frameworks globally requires close cooperation with institutions such as the World Intellectual Property Organization (WIPO). To ensure that this intricate interaction promotes innovation, ethical considerations, and societal well-being, a cooperative and progressive approach will be crucial.

<sup>7</sup> Thaler v. Australian Commissioner of Patents (2022 FCAFC 62 Austl.)

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