



ISSN: 2583-7753

LAWFOYER INTERNATIONAL JOURNAL OF DOCTRINAL LEGAL RESEARCH

[ISSN: 2583-7753]

Volume 4 | Issue 1

2026

DOI: <https://doi.org/10.70183/lijdlr.2026.v04.132>

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INTELLECTUAL PROPERTY IN THE AGE OF ARTIFICIAL INTELLIGENCE: A STUDY OF FASHION AND COSMETIC INDUSTRIES

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I. ABSTRACT

*The rapid integration of AI into the fashion and beauty industries is transforming traditional ideas about creativity, innovation, and ownership. Fashion designers and cosmetic formulators increasingly use AI technologies to create fashion designs, predict trends, and formulate cosmetics. This is shifting from a creative process that centres on human beings and uses algorithms to create products. As this evolution continues to occur, there are enormous implications for the ways in which these industries and nations that foster them protect their respective forms of intellectual property (IP). The existing IP systems have been developed based upon the principles of human authorship and human invention; this has created barriers to the recognition of AI-generated outputs as IP under the current IP frameworks of copyright, design and patent. Through a careful examination of relevant judicial decisions (e.g., *Thaler v. Vidal* and *Naruto v. Slater*) and the provisions of Indian law (i.e., *Eastern Book Company v. D.B. Modak*), it is evident that there are significant limitations to what the existing IP framework can offer to protect AI-generated outputs. A comparison of the different ways in which AI is legally recognized in the U.S., UK, EU, and India shows a lack of recognition across all jurisdictions of AI as an author or inventor. This article has noted that there are still many unanswered questions regarding things like ownership, originality and liability as they relate to intellectual property rights (IPRs), and it has suggested that there is a need for an adaptable and flexible law regime (including a new type of protection - *sui generis*), to cover these areas. The article concludes that without speedy changes to existing IPR laws, they will become inadequate because of developments associated with artificial intelligence.*

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II. KEYWORDS

Artificial Intelligence, Intellectual Property Rights, Fashion Industry, Cosmetic Industry, AI-Generated Works.

III. INTRODUCTION

A. Background

The rapid advancement of artificial intelligence (AI) across different sectors has significantly changed production, ownership, and innovation. One of the most affected sectors is the fashion and cosmetic industry, which has previously depended on the human ability and experience of the creator, and the judgment of the industry expert. The development of AI tools is starting to change the industry's foundational assumptions as these tools provide algorithmic creativity for tasks previously done by humans.

AI is also being used in the fashion sector for designing original pieces, predicting trends, and for virtual fashion shows. *The Fabricant and Calla- AI* are examples of companies that use machine learning to create digital clothing and to assist human designers in creating a new collection. AI's ability to analyse a large amount of data including, but not limited to, previous fashion trends, consumer buying behaviour, and social media, is used to create a new collection that would be impossible to create by human designers. With the rise of digital fashion in virtual worlds and the meta-verse, and the protection of creative works, there are also many questions on the rights and ownership of human and machine creativity.²

Just like the other industries, the cosmetic industry has changed significantly with the implementation of Artificial Intelligence. An example of this is the L'Oreal AI innovation called ModiFace that gives real-time individualized skincare recommendations based on the facial analysis. AI is also used in making cosmetic products by predicting how the ingredients will chemically interact and how to obtain the desired results by optimizing the end product formulations. This increases the

² The Fabricant, <https://www.thefabricant.com> (last visited Mar. 25, 2026); see also Kal Raustiala & Christopher Sprigman, *The Piracy Paradox Revisited*, 61 *Stan. L. Rev.* 1201 (2009).

efficiency of product creation, and more innovatively, allows for the creation of entirely new products. This showcases AI's full capacity of being of an innovator.³

The algorithm systems being used in these industries are becoming more and more reliant on electronic systems, meaning that there is a definitive move away from a people-centred system of creativity toward a more hybrid, and in some cases, fully machine-operated creativity. This raises the validity of the premise upon which the system of Intellectual Property (IP) laws is built on. This system is built on the assumption, and therefore the basis, of there being a human author or inventor for each of the creations. There is also the concern that the existing laws that are to govern the use of these types of technologies will be defunct and will therefore be almost impossible to use or create new laws in relation to these technologies if AI systems continue to operate autonomously.

B. Problem Statement

1. Certain laws about intellectual property, including some about copyright, patents, and design protection, operate on the assumption that the outputs of creativity and invention come from people. The terms “author” in copyright law and “inventor” in patent law, assume people, agency, intent and creativity.⁴ However, the emergence of outputs created by AI challenges those very fundamentals.
2. A primary concern brought about by AI technology is determining ownership rights. If a machine designs a custom outfit or creates a new makeup formulation, because it is done autonomously, it is unclear who should be credited as the owner of the intellectual property. AI ownership lawsuits could be pointed to the creator of the AI, the contractor who trained the AI, or the business that implemented the AI. Without legislation, it leaves the ownership rights to IP unclear, potentially stalling new products from being created.

³ L'Oréal, ModiFace AI Technology, <https://www.loreal.com> (last visited Mar. 25, 2026); World Intellectual Property Organization (WIPO), WIPO Technology Trends 2019: Artificial Intelligence (2019).

⁴ Copyright Act, 1957, § 2(d) (India); Patents Act, 1970, § 2(1)(y) (India).

3. Another issue remains the same as the AI technology. This is the issue of maintaining a level of copyright law's originality.⁵ In the weeds of copyright law, there are extensive measures that, at a minimum, encompass a human being. This is where the stranglehold of the law is present. With AI, this issue is especially pronounced.
4. Lastly, AI technology has created the issue of liability. If an AI-generated design uses an image that is already under copyright, it may have the unintended consequence of posting a copyrighted image. If this occurs, who is to blame? Is it the programmer? Is it the contractor? Perhaps it is the AI itself? Because the law is so vague, it diminishes the effectiveness of laws governing IP or the resolution of the issue at hand.

In the Indian context, the challenges are worsened by the lack of clear legislative provisions on works generated by artificial intelligence. The Copyright Act of 1957 and the Patents Act of 1970, as applicable, have no provisions for non-human authors, thus sustaining a legal void. This absence of provisions, coupled with the rapid pace of AI innovation, requires a thorough evaluation of the appropriateness of existing laws in the Indian fashion and cosmetic sectors.

C. Research Questions

This study seeks to address several critical legal questions:

1. The first research question examines whether AI-generated fashion designs are eligible for copyright protection under the existing legal framework? It further considers whether such designs satisfy the requirement of originality and, if so, who may be identified as the author, whether the AI system, the user, or another stakeholder?
2. The study also addresses the issue of ownership in cases where AI systems generate novel cosmetic formulations?
3. In this context, it evaluates whether patent law, which is premised on human inventorship, can appropriately attribute inventorship where the inventive contribution is primarily made by an AI system?

⁵ Eastern Book Co. v. D.B. Modak, (2008) 1 S.C.C. 1 (India).

4. Finally, the study assesses whether the existing intellectual property framework in India adequately addresses AI-driven creativity in the fashion and cosmetic industries?

Collectively, these questions explore the intersection between artificial intelligence and intellectual property law, with particular reference to the fashion and cosmetic sectors.

D. Research Gap

1. Although artificial intelligence and intellectual property have become subjects of extensive global discourse, the corresponding legal debate in India remains underdeveloped. Other places, like the US, the UK, and much of Europe, are already building new rules and court decisions for AI-created stuff. India, though, still lacks a solid legal framework for this.
2. There is a pressing need for comprehensive research and substantive legal reform in this area. Indian courts have not yet substantively addressed the question of authorship or inventorship in the context of AI-generated outputs. Consequently, there is a lack of clear legal guidance on this issue. In contrast, courts in jurisdictions such as the United Kingdom and the United States have explicitly rejected the recognition of AI as an inventor. In contrast cases like *Thaler v. Comptroller-General of Patents* in the UK and *Thaler v. Vidal* in the US have clearly said no to AI as an inventor. This demonstrates that existing intellectual property frameworks remain fundamentally grounded in human authorship and inventorship.⁶
3. Current legal frameworks do not adequately address the allocation of rights among multiple stakeholders involved in the development and deployment of AI systems. Such uncertainty may hinder the commercialization and advancement of AI-driven innovations. Moreover, much of the existing scholarship on AI and intellectual property remains general in nature. There is limited analysis focusing on specific industries such as fashion and

⁶ *Thaler v. Comptroller-General of Patents, Designs and Trademarks*, [2023] UKSC 49; *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022).

cosmetics. However, these industries possess distinct characteristics that necessitate tailored legal analysis. The fashion industry is characterized by rapid innovation cycles, while the cosmetic industry involves significant scientific and technical complexity. Both sectors therefore require specialized legal approaches beyond general intellectual property discourse.

This research aims to address these gaps. It focuses on the challenges posed by artificial intelligence to intellectual property law in the fashion and cosmetic industries, with particular reference to the Indian legal framework.

E. Hypothesis

This study is based on the following hypothesis:

1. The existing intellectual property framework in India is inadequate to address the legal challenges arising from artificial intelligence generated outputs in the fashion and cosmetic industries.
2. The fashion and cosmetic industries face significant challenges in determining authorship, inventorship, and ownership in relation to artificial intelligence generated outputs.
3. This necessitates the development of a flexible and adaptive legal framework specifically addressing artificial intelligence generated outputs within the fashion and cosmetic sectors.

F. Research Methodology

This study adopts a doctrinal and comparative research methodology to examine the evolving interface between artificial intelligence and intellectual property law, particularly within the fashion and cosmetic industries. The doctrinal method involves a detailed analysis of existing legal frameworks, including statutory provisions such as the Copyright Act, 1957 and the Patents Act, 1970, along with judicial precedents such as *Eastern Book Company v. D.B. Modak*, *Naruto v. Slater*, and *Thaler v. Vidal*. In addition, a comparative approach is employed to evaluate how different jurisdictions, including the United States, the United Kingdom, the European

Union, and India, address the question of authorship and inventorship in AI-generated works. This enables a broader understanding of global legal trends and highlights gaps within the Indian legal system.

The research primarily relies on secondary sources, including case law, statutes, academic literature, policy reports, and publications by international organizations such as the World Intellectual Property Organization. The study is limited to a legal analysis of AI-generated outputs in the fashion and cosmetic sectors and does not include empirical or technical examination of AI systems. While the research aims to provide a comprehensive legal perspective, it is constrained by the evolving nature of jurisprudence in this area and the absence of binding precedents in the Indian context.

G. Objectives of the Study

The main goals of this research are as follows:

1. To look at how the current intellectual property laws work for things made by artificial intelligence systems,
2. To find out what is missing in the laws,
3. To compare what other countries around the globe are doing,
4. To suggest changes to the laws, that can help intellectual property laws work better with artificial intelligence innovation.

IV. AI IN FASHION & COSMETIC INDUSTRY

A. Introduction

The fashion and cosmetic industries are being transformed by artificial intelligence in a major way. Traditional reliance on human creative ability is giving way to algorithmic solutions advocating for innovation based on the data collected about consumers and past trends. Technology that used to simply assist humans to make better choices has now been developed to be able to create its own designs, identify emerging trends, and develop totally new products with little or no human intervention. In addition to creating faster and more personalized products, AI will also cause us to re-evaluate our understanding of ownership of ideas, attribution, and originality as related to various aspects of intellectual property law.

The fashion and cosmetics industries are ideal candidates to observe the transformational impact of AI. Historically, creativity, branding, and pushing the limits of accepted societal norms have been the critical factors for success in both industries—factors for which the field of intellectual property law exists. However, the increasing prevalence of AI in these two industries is creating tremendous uncertainty with regard to whether the final product originated from a human or a machine. This study seeks to explore the operational characteristics of digital tools and how these technologies impact the existing legal framework.

B. AI in the Fashion Industry

- 1. AI-Generated Designs:** AI is shaking up the way fashion gets made. Now, designers and big brands dig through mountains of data—old collections, customer preferences, whatever’s trending on Instagram or Tik-Tok—to help AI cook up something new. There are tools like Cala-AI and The Fabricant that basically let algorithms pull ideas for patterns, textures, and even a whole new silhouette out of thin air, as long as you give them a little nudge.⁷ Most of the magic comes from machine learning, especially generative adversarial networks (GANs). These systems aren’t just recycling existing designs. Sometimes, they spit out stuff that feels almost human, with a twist nobody saw coming. Look at The Fabricant. They don’t bother making actual clothes at all. They build digital outfits—stuff you’ll only ever see on a screen. Some of their pieces even end up as NFTs.⁸ This digital-only route kind of upends how intellectual property law works since most rules were written for physical things people made by hand, not computer-generated images. Then there’s the messy question: who actually owns these AI-made designs? If the computer does the heavy lifting and the human just clicks a button, who gets credit? Courts have wrestled with similar issues. Like in *Naruto v. Slater*, they decided only humans can have

⁷ Cala, AI-Powered Fashion Design Platform, <https://www.cala.com> (last visited Mar. 26, 2026); The Fabricant, Digital Fashion House, <https://www.thefabricant.com> (last visited Mar. 26, 2026).

⁸ See generally The Fabricant, Digital Couture and NFTs, <https://www.thefabricant.com>.

copyrights in the U.S. – not monkeys, not AI.⁹ So, copyright law still belongs to the humans, leaving art made by AI in this fuzzy, uncertain space.

- 2. Trend Prediction & Data Analysis of Trends:** Artificial intelligence isn't just a trend of 2019 but is revolutionizing brands' abilities to predict trends. Heuritech and Edited, for example, are leveraging massive amounts of data from social media platforms like Instagram and Twitter to analyze trends and provide designers with insights regarding whom to design for.¹⁰ As wonderful as this sounds, it does have a downside. The over reliance of the fashion industry on artificial intelligence for inspiration leads to a situation in which all of the collections from various designers become very similar. Essentially, the fashion industry becomes stagnant because each designer is essentially using the same set of statistics to source inspiration. Thus, retailers are stockpiling merchandise that is all too familiar, appearing almost as a knock-off.
- 3. Virtual and Meta-verse Fashion:** Virtual fashion is not limited to gamers anymore. Gucci, for example, and Balenciaga are producing clothing in virtual formats for gaming avatars. In addition, they are hosting fashion shows right now in a virtual environment and implementing new meanings of clothing beyond wearing them physically.¹¹ Artificial Intelligence (AI) is a key part of developing and animating these virtual goods and generates designs that may never be produced in real life. There are many countries where IP (intellectual property) laws still have yet to address the issue of digital assets only. One of the primary areas of uncertainty revolves around whether or not virtual fashion designs can be copyrighted or protected as design. The question of this continuing evolution affects the future of the virtual fashion industry in a major way.

⁹ *Naruto v. Slater*, 888 F.3d 418 (9th Cir. 2018).

¹⁰ Heuritech, AI Trend Forecasting, <https://www.heuritech.com> (last visited Mar. 26, 2026); Edited, Retail Intelligence Platform, <https://edited.com> (last visited Mar. 26, 2026).

¹¹ See generally Matthew Ball, *The Metaverse and Fashion Industry Trends* (2022).

C. Artificial Intelligence and Cosmetics

- 1. AI Formulations for Cosmetics:** Companies such as L'Oréal are using AI to create new formulations for their products based on the analysis of consumer preferences, chemical compositions, and dermatological data. An example of this would be AI labs where companies conduct artificial intelligence-based research that develops new formulations for cosmetics by utilizing machine learning algorithms that predict the effectiveness of various types of ingredients and use that information to optimize their final formulations.¹² Not only is AI being used to create brand new types of cosmetic formulations, but there is also the potential for companies to use it to create novel formulations that will be eligible for patent protection. The use of algorithms and machine learning to create new formulations raises important questions regarding inventorship and who owns the rights to an AI-created formulation. Specifically, if an AI system independently creates a novel formulation, then it becomes difficult to determine who the inventor should be: The Company that created the AI or the person/institution who used it, or the person/institution that used the AI in their business. Non-human inventorship has been resolved in cases such as *Thaler v. Vidal*, where the U.S. Court of Appeals for the Federal Circuit held that only humans are entitled to be inventors under U.S. patent law.¹³ Similar findings were also made by the UK Supreme Court in *Thaler v. Comptroller-General of Patents*, which found that AI-created inventions could not be attributed to the AI creator.¹⁴ These cases demonstrate that the current patent system is ill-equipped to support the growing number of inventors using AI to produce new inventions.
- 2. Skin analysis and beauty tailored to an individual's needs:** Skin analysis tools powered by AI, like ModiFace from L'Oréal, are using computer vision and machine learning capabilities to analyse different skin types and

¹² L'Oréal, Research & Innovation and AI, <https://www.loreal.com> (last visited Mar. 26, 2026).

¹³ *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022).

¹⁴ *Thaler v. Comptroller-General of Patents, Designs and Trademarks*, [2023] UKSC 49.

conditions so they can recommend the right products for individuals.¹⁵ These solutions utilize large amounts of data and predictive algorithms to deliver personalized solutions to consumers, thereby improving their overall experience. Although these applications are typically limited to processing data and recommending products, they can also create new products and formulations. The use of AI within the personalized beauty sector raises some additional issues relating to data ownership, user privacy, and the extent of how much user input contributes to new ideas.

- 3. Automation and innovation in the development of cosmetics:** AI has enabled the cosmetic industry to significantly accelerate the rate of innovation in its product offerings by automating various parts of product development, including the selection of ingredients, testing for functionality and quality control. The result has been an explosion of new products on the market, increasing the level of competition among brands and the importance of protecting intellectual property. But with this high level of innovation and change occurring so quickly, manufacturers and suppliers of cosmetics face challenges as a result of the rapid growth of AI in the industry. The lack of clarity regarding the source and authorship of AI-generated output can make the process of identifying a patent infringement and pursuing an enforcement action very difficult. These issues become of particular concern within the cosmetics sector where product formulations can be easily changed.

D. Autonomous vs. Assisted Creation: Nature of AI Output

To fully understand how AI will affect IP law, it's critical to differentiate assisted vs. autonomous AI systems. Assisted AI is a tool that helps to improve and supplement human creativity with most of an output made up of human-created work; this means determining authorship/inventorship is fairly straightforward.

On the other hand, autonomous AI systems can create outputs on their own or to a very large degree independently of any human involvement. Autonomous AI

¹⁵ L'Oréal, ModiFace AI Technology, <https://www.loreal.com>.

introduces non-human actors into a creative process and creates a fundamental challenge to the traditional legal framework for IP by increasing the importance of how much time and human involvement was necessary for human-created works to qualify for protection under the law.

In 2023, the U.S. Copyright Office released guidance on AI-created works, which continues to support their conclusion that copyright protection is only available for works created with sufficient amounts of human authorship.¹⁶ This reinforces the notion that human contributions are very important in determining whether or not an output created by AI is eligible for protection.

E. The Relationship between the Law and AI and New Concerns

As the use of Artificial Intelligence continues to grow in both the fashion and cosmetics fields, many legal implications are arising, especially in relation to the fundamental principles of IP (Intellectual Property) law. There are challenges regarding the originalities, authorship, and inventor-ship requirements under IP law due to the creation of algorithmically created content.

Therefore, with AI generating outputs based upon existing data, it becomes more difficult to determine whether those outputs are truly "original" or just "derivative". In addition to the concerns mentioned above, there are currently no legal guidelines that provide for clearly defined rights and responsibilities of the various stakeholders (i.e., designers, developers, and companies) involved with AI-generated works, which adds to the uncertainty and will likely inhibit the development of new innovations and investment onto the development of AI technologies. Additionally, there are continuing discussions among various agencies/organizations regarding what (if any) institutional reforms need to occur within IP law so that outputs created by AI may be addressed. The World Intellectual Property Organization (WIPO), among others, has begun to hold dialogues regarding AI and IP, demonstrating how

¹⁶ U.S. Copyright Office, Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence (2023).

the need to address the innovative capabilities of AI must be balanced with the creators' rights.¹⁷

V. COPYRIGHT AND DESIGN LAW CHALLENGES IN AI-GENERATED FASHION

A. Introduction

Artificial intelligence (AI) has contributed to the friction that had long existed over intellectual property laws (particularly copyright and the protection of designs) and how those laws apply to the fashion industry, as copyright and design law are grounded in the ideas of human creativity, originality and a clear author. The way that AI creates fashion designs, oftentimes with little or no human involvement, provides new challenges to these core assumptions of intellectual property law. It also creates uncertainty around the protection, ownership, and enforcement of rights in those creations.

This chapter will discuss how copyright and design law might apply to fashion products created by AI, with a focus on key judicial developments in India and elsewhere. Much of the analysis will provide an understanding of the existing limitations in the current legal framework and examine how the courts have interpreted terms such as author, original and creativity in situations that increasingly contain non-human agents.

B. Copyright Protection and AI-Generated Fashion Designs

- 1. Requirement of Human Authorship:** As currently structured, copyright law has always only recognized natural persons as the creators of copyrighted material. As defined in Section 2(d) of the Indian Copyright Act, 1957, the term "author" is defined in relation to different categories of copyright works but assumes that the author is a natural person.¹⁸ This creates challenges to the concept of the author as it relates to fashion design in general when that fashion design is created by an AI system. One of the

¹⁷ World Intellectual Property Organization (WIPO), WIPO Conversation on Intellectual Property and Artificial Intelligence (2019-ongoing).

¹⁸ Copyright Act, 1957, § 2(d) (India).

most important cases in India regarding originality is *Eastern Book Company v. D.B. Modak*, where the Supreme Court rejected the doctrine of “sweat of the brow” and adopted a standard of “modicum of creativity.”¹⁹ The Court stated: “In order to claim copyright, it is required that there is substantial variation and it is not just a trivial variation...a sufficient exercise of skill and/or judgment is required.” This begs the question: Can an AI system exercise “skill” and/or “judgment” (as defined by law) while creating a work? Although AI can simulate creative acts, it has no legal personality or intention, both of which are essential to the concept of authorship.

2. **Jurisprudence Working with Non-author Works by Nonhumans:**

Nonhuman authorship has also been a major subject of analysis for courts outside the United States. The following cases present evidence to support Indian courts' advancement of nonhuman authorship from prior legal authorities. In *Naruto v. Slater*, the Ninth Circuit ruled a monkey could not be an author under United States copyright law²⁰. The Court stated: “[M]ore broadly, animals other than humans lack statutory standing to sue under the Copyright Act.” (*Naruto v. Slater*, 888 F.3d 418, 426 (9th Cir. 2018)). Even though *Naruto* was specifically addressing a monkey, the rationale in this case can be applied as well to AI, reinforcing the idea that an AI or other nonhuman author is not entitled to copyright protection. More recently, the U.S. Copyright Office, in its 2023 guidance, clarified that works generated entirely by AI without human input are not eligible for copyright protection.²¹ It stated that protection would only extend to the human-authored elements of a work.

3. **The Thaler Cases Related to What Constitutes Creativity:** The issue of AI authorship has also been addressed through examining Stephen Thaler's attempts to secure IP protection for AI-generated works. *Thaler v. Vidal* was

¹⁹ *Eastern Book Co. v. D.B. Modak*, (2008) 1 S.C.C. 1 (India).

²⁰ *Naruto v. Slater*, 888 F.3d 418 (9th Cir. 2018).

²¹ U.S. Copyright Office, *Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence* (2023).

a patent case, and the United States Court of Appeals for the Federal Circuit held: 'The Patent Act requires that inventors must be natural persons; that is, human beings.'²² Similarly, in the UK decision of *Thaler v. Comptroller-General of Patents*, the Supreme Court reaffirmed that: "An inventor must be a natural person... DABUS is not a person at all."²³ By analogy, these rulings support the conclusion that AI cannot be recognized as an author, thereby excluding purely AI-generated fashion designs from copyright protection.

- 4. AI Generated Fashion and Its Implications:** As AI does not allow for the attribution of authorship, there is a confusing situation where the work of the algorithm may not have an identifiable human author. Thus, without any identifiable creator, the work may be in the public domain and, therefore, could be reproduced freely by anyone who sees it. This places enormous pressure on the fashion industry because of the susceptibility of fashion designs to duplication. The collaborative nature of how AI systems operate also poses attribution challenges for designers. The designer inputs prompts or parameters to the AI system, but the actual output is typically developed independently through the algorithm. Therefore, the line between whether there is enough creativity associated with that input to be attributed to the designer is unknown.

C. AI Created Works: A Study of Originality

- 1. The Indian Legal Test for Originality:** The Indian standard for determining originality as defined in *Eastern Book Company* requires a modicum of creativity through the application of skill and judgment.²⁴ Although the Indian standard defining "originality" is lower than the threshold of "creativity" in some other jurisdictions, the standard still deals with a creation being attributed to a human intellect. The originality standard for AI created artwork is challenged in two ways:

²² *Thaler v. Vidal*, 43 F.4th 1207, 1213 (Fed. Cir. 2022).

²³ *Thaler v. Comptroller-General of Patents, Designs and Trademarks*, [2023] UKSC 49, ¶ 56.

²⁴ *Eastern Book Co.*, (2008) 1 S.C.C. 1.

- AI Created Artwork May Be Product of Little or No Direct Human Creativity
- AI Created Artwork May Be Derived from a Pre-existing Dataset.

This raises the difficult question of whether these types of works are true originals or derivatives.

2. Derivative Nature of AI Outputs: Large datasets are used to train AI systems, incorporating possibly protected media, typically producing an output that occurs as an addition to or a significant portion of an output that may exist. This raises the potential risk of an infringement occurring in the fashion industry because of the frequent existence of similar designs. The issue of whether there is substantial similarity is not yet subject to a decision in relation to AI in India, although substantial similarity has been the subject of legal judgement in India with respect to design output, *R.G. Anand v. Deluxe Films*.²⁵ In the judgement made by the Supreme Court, their Lordships ruled: “Where a common source of source material is used to develop an idea in a different way, it is to be expected that an overlap will be found.” However, their Lordships further ruled that copyright infringement occurs where there has been the copying of expression, not where ideas have simply been developed. Determining and applying that principle in respect of designs developed by AI will be complicated to the extent to which the difference between copying and obtaining inspiration from a pre-existing design is increasingly becoming less distinguishable.

D. Design Law and Protection of Fashion Designs

1. The Designs Act of 2000 as Applicable to Fashion Design: The Design Act of 2000 is often the legislation relied upon for the protection of fashion designs in India. The Designs Act 2000 applies to any design that protects visual features and design-related elements of a design including shape, configuration, pattern and ornamentation.²⁶ However, in terms of whether

²⁵ *R.G. Anand v. Deluxe Films*, (1978) 4 S.C.C. 118 (India).

²⁶ Designs Act, 2000, § 2(d) (India).

a design meets the requirements to be protected by the Designs Act, the Act requires that the design be:

- New or Original
- Has not previously been published

AI-generated designs may not be successfully developed as new or original, as a result, AI-generated fashions may have difficulty satisfying the requirements of the Designs Act, 2000 and will therefore not be eligible for design protection under the Designs Act, 2000.

- 2. Interpretation of the Term "Original Design" by the Courts:** In *Bharat Glass Tube Ltd. v. Gopal Glass Works Ltd.*, the Supreme Court determined: "The term 'original' refers to the fact that the design must have originated from the author of the design and must not have been copied."²⁷ This therefore raises another issue of authorship because if there is an AI-generated design, can it be regarded as having originated from a human?
- 3. Functional As Opposed to Aesthetic:** In relation to design law, there are two basic categories; the functional elements and the aesthetic elements. Since AI-generated fashion designs include both functional and aesthetic elements, this makes it hard to qualify for protection under the law. In *MicroFibres Inc v Girdhar & Co (Delhi H.C.)*, the Delhi High Court described the interaction of copyright and design law: Under Section 15(2) of the Copyright Act, 1957, copyright protection in a design that is capable of registration under the Designs Act ceases once the design is industrially reproduced more than fifty times without such registration, and in such cases, the design is left without protection unless it is separately registered under the Designs Act, 2000. This situation adds another layer of difficulty to the AI-generated designs considering that these are mass-produced fashion designs.

²⁷ *Bharat Glass Tube Ltd. v. Gopal Glass Works Ltd.*, (2008) 10 S.C.C. 657, ¶ 29.

VI. PATENT LAW AND AI IN THE COSMETIC INDUSTRY

A. Introduction

The introduction of AI into the cosmetic industry has transformed how cosmetics are researched, developed and created. Unlike fashion, which is governed by copyright and design laws, the cosmetic industry primarily relies on patent protection to protect new formulations, new compounds or new processes. As AI-enabled technology continues to advance, it is now possible for these systems to discover entirely new combinations of chemicals, predict how effective a product will be and to create optimised formulations with very little human input.

These technological changes present significant challenges for patent law, particularly with respect to inventorship, ownership and patentability. The traditional patent system is based on the idea that the inventor is the human inventor. However, the contribution of AI systems, especially those that can autonomously make decisions, creates challenges to the notion that the inventor must always be a human being.

Chapter 4 will analyse the relationship between AI and patent law in the cosmetic industry, including litigation relating to **DABUS**, comparative global patent law and the Indian legal system.

B. AI in Cosmetic Innovation

1. Role of AI in Cosmetic Formulations

Most recent developments regarding the development of cosmetic formulations through the application of artificial intelligence (AI) can be attributed to AI's ability to examine a significant amount of data (e.g., chemical compositions of products, research on skin types and skin diseases, and consumer preferences) and combine relevant pieces of that information to produce innovative products faster than previously could have been accomplished through traditional experimental methods. Major brands in the industry, such as Estée Lauder and L'Oréal, have now employed AI in an integrated approach with their research and development teams (R&D) to provide them with:

- A way of predicting how different ingredients will interact when combined; and
- a method of developing product formulations based on optimizing ingredient combinations for specific skin types; and
- a faster rate at which to complete their R&D cycles²⁸ using AI and machine learning algorithms to produce new product formulations that may not have been previously thought of by simply using traditional experimentation.

As a result, there is confusion around whether an AI-generated invention could ever qualify for patent protection if the creation of that invention was primarily the result of actions undertaken by an AI system – rather than by a human inventor. This issue is central to the current discussion regarding the role of AI in cosmetic innovations.

2. Characteristics of AI-Created Innovations

Case in point, AI-created innovations could consist of:

- New skincare formulations
- Anti-aging compounds
- Personalized cosmetic products

The central issue involves who should be considered the inventor of an AI-created innovation. In particular, if the AI system was significant in the development of an AI-created innovation, who is the inventor? This issue lies at the crux of the continuing conversation surrounding AI and patent law.

C. Patenting Standards and AI Issues

Under the majority of all patent laws, including in India under The Patents Act, 1970, each patent should have three basic requirements:

- Novelty
- Inventive Step (non-obvious)

²⁸ L'Oréal, Research & Innovation and Artificial Intelligence, <https://www.loreal.com> (last visited Mar. 27, 2026).

- Industrial Use²⁹

Patent application will be confused for AI-created innovations under these requirements.

- **Novelty:** Since AI systems generate some outputs that are based on datasets collected from previous systems, there is an argument to be made that these innovations are not new but are merely re-combinations of previous art.
- **Inventive Step:** The notion of inventive step relies on the creativity of the inventor. If the innovation was created and produced by an AI system through its algorithmic processes, it will therefore be difficult to demonstrate that the innovation includes non-obviousness from the perspective of a "skilled artisan."
- **Industrial Use:** This is typically the requirement that is most easily met, since most AI-created cosmetic formulations would fall under able to have an industrial application.

D. The DABUS Case: A Landmark in AI and Patent Law

1. **DABUS Overview:** The DABUS (Device for the Autonomous Bootstrapping of Unified Sentience) case represents a watershed moment in the ongoing discussion surrounding artificial intelligence (AI) inventorship. Developed by Dr. Stephen Thaler, DABUS is an autonomous-intelligence software program that purportedly created inventions on its own accord. Although Thaler tried to patent these inventions in several jurisdictions, he listed DABUS as the inventor.
2. **DABUS Inventor - Thaler v. Vidal (US):** In *Thaler v. Vidal*, the United States Court of Appeals for the Federal Circuit published an opinion that stated: "The Patent Act requires inventors to be individuals."³⁰ The Court interpreted relevant statutes and indicated that the words "individual" or "whoever" refer specifically to humans under the Patent Act. Because of

²⁹ Patents Act, 1970, §§ 2(1)(j), 2(1)(ja) (India).

³⁰ *Thaler v. Vidal*, 43 F.4th 1207, 1213 (Fed. Cir. 2022).

this interpretation, the application was denied because DABUS could not be considered an inventor.

3. The Thaler v. Comptroller-General Case in the United Kingdom: The UK Supreme Court ruled similarly to the Lower Court and held: *"An inventor as defined by the Act must be a natural person... DABUS is not a person..."*³¹ In addition, the Court stated that ownership of an invention cannot arise from ownership of the underlying AI system, and therefore rejected the argument that the creator of an AI could automatically claim to invent something created by the AI.

4. The European Union's Position: The European Patent Office (EPO) also rejected DABUS applications, stating:

- The inventor must be a natural person
- An AI system lacks legal personality

The result is a consistent global policy rejecting AI from the definition of inventor.

5. Importance of the DABUS Decisions

The DABUS cases establish a clear legal principle:

An AI cannot be recognized as an inventor under existing patent law.

Yet these decisions have highlighted a significant gap:

- If an invention is created entirely by an AI and there is no human inventor, the invention may never receive a patent.
- This has potential negative consequences on the ability to invent through AI and therefore discourage innovation and investment in AI technology.

E. The Indian Perspective on Patent Law

1. Statutory Framework

The term "inventor" in India is legally defined by the Patents Act of 1970 to refer to the one who is both the "true and first" inventor of the relevant invention.³² While there is

³¹ Thaler v. Comptroller-General of Patents, Designs and Trademarks, [2023] UKSC 49, ¶ 56.

³² Patents Act, 1970, § 2(1)(y) (India).

no legal definition of the term "person" in the Act, it should normally be interpreted as meaning a "natural person."

In Section 6 of the Act, three categories of individuals are capable of filing applications for a patent. These are:

- The true and first inventor
- The assignee of the inventor
- A legal representative of a deceased inventor

Accordingly, it is apparent from the statutory and case law that only human individuals can file patent applications in India. Thus, the current legislative and case law framework for the patent system in India cannot accommodate any inventions that are generated by AI.

2. The Absence of Judicial Precedent

India is one of the few countries in the world that has not yet had any cases or disputes over the question of whether or not AI can be classified as an inventor. In the absence of such case law, there are a number of examples from Indian court decisions which define inventiveness as an exercise of human ingenuity.

The Supreme Court of India in its decision in *Biswanath Prasad Radhey Shyam v. Hindustan Metal Industries* (1979) 2 SCC 511 stated that:

"The object of patenting legislation is to promote the growth of scientific research, to stimulate advances in new and emerging technology and to foster the development of industry."³³

The rationale behind the above statement is that innovation is always the result of human endeavour.

3. Practices of the Patent Office in India

There have been no specific guidelines from the Indian Patent Office on the treatment of AI-generated inventions. However, there is current practice whereby:

- All patent applications must have a human inventor

³³ *Biswanath Prasad Radhey Shyam v. Hindustan Metal Indus.*, (1979) 2 S.C.C. 511 (India).

- An AI cannot be identified as an inventor in any patent application

As such, the treatment of AI-generated inventions thus represents real and genuine difficulties for those attempting to patent the application of AI as a means of developing new cosmetic products.

F. AI Driven Cosmetic Patent Challenges

- 1. Who is the Inventor:** When considering AI driven cosmetic patents, determining the inventor is complicated. There are three potential inventors of AI-Based cosmetic inventions:
 - Developers of the AI
 - Users of the AI
 - Companies developing the AI
- 2. Uncertainty of Ownership:** Ownership comes from the inventor. Therefore, if it is unclear who the inventor is, it will also be difficult to determine ownership.
- 3. Non-Patentability Risk:** Inventions created purely by AI may not be eligible for patent protection and will result in:
 - Lack of commercial motivation for AI-created cosmetic inventions
 - More reliance on trade secrets.
- 4. Ever greening of Patents Thinks & Incremental Innovations:** AI may produce minor changes to existing formulations and will result in concerns over:
 - Evergreening patents
 - Misusing the patent system

G. Trade Secrets and Hybrid Models as Alternatives

Because there are limitations regarding patent law, cosmetic companies may increasingly use:

- Trade secrets to protect AI-created formulations
- Hybrid ownership models that recognize the joint creation of AI and humans.

Unfortunately, the exclusivity of trade secrets cannot be compared to patents meaning there is no substantial substitute.

VII. COMPARATIVE ANALYSIS, RECENT DEVELOPMENTS, AND WAY FORWARD

A. Introduction

In previous chapters, we have shown that introducing AI into fashion and cosmetics presents real-world issues for current intellectual property (IP) systems. The issues, however, are not limited to only 1 country; they reflect a worldwide legal issue created by the conflict between laws that focus on humans and creativity produced by machines.

This chapter will examine these issues by comparing some major countries' laws, looking at new developments in law and policy, and suggesting new reforms to fix the problems we identified. We want to determine if existing policies are adequate; if they are not adequate, we will propose a legal structure to regulate fashion and cosmetic products created by AI.

B. A Comparative Study of World IP Laws

1. United States

The USA has adopted a very strict approach to determine authorship/inventorship in both copyright and patent laws.

- The US Copyright office (2023) has taken the position that:
- "Copyright only exists for works that can be made only by a person".³⁴

That position was reaffirmed in the case of *Thaler v. Vidal* where the United States Court of Appeals for the Federal Circuit ruled that only natural persons could be inventors. As such:

- Works made solely by AI are not considered copyrighted.

³⁴ U.S. Copyright Office, Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence (2023).

- Copyright exists only for works where the person who created them is a person.

2. UK and Copyright Law

Copyright in the UK is more nuanced. The Copyright, Designs and Patent Act 1988 states that:

In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.” (Copyright, Designs and Patents Act 1988, c. 48, § 9(3) (UK)).

The legislation appears to indirectly recognize works that do not have human authors by attributing authorship to the human who facilitated the creation of the work. Recent case law established in the case of *Thaler v Comptroller-General* reinforces the idea that:

- AI cannot be an inventor.
- There has to be some human involvement.³⁵

Thus, while there is some flexibility under the UK’s system; it is still predominantly based on human creations.

3. EU and Artificial Intelligence

The EU has taken the approach of developing regulations, rather than developing its system of ownership. The EU Artificial Intelligence Act, gives priority to risk classification of AI systems, the need for transparency and accountability in the use of AI and the ethical use of AI.³⁶

At present, there are no specific provisions in the EU concerning authorship and inventorship related to AI-generated works. The EPO also follows the worldwide trend by denying that AI can be an inventor, as evidenced by its decisions on DABUS.

³⁵ *Thaler v. Comptroller-General of Patents, Designs and Trademarks*, [2023] UKSC 49.

³⁶ European Parliament, Artificial Intelligence Act, 2024.

This indicates that the EU focuses on governance and regulatory frameworks rather than on re-defining the ownership of intellectual property (IP).

4. India

In India, there is no specific legal framework to govern the relationship between artificial intelligence (AI) and intellectual property (IP) at this time. The existing laws such as the Copyright Act, 1957 and the Patents Act, 1970 are applied with the presumption that an entity has human authorship and inventorship. To date, there is:

- No statutory recognition of works created by AI;
- No case law to conclusively establish whether or not AI can be considered an inventor; and
- No guidance on how to approach issues of IP and AI.

While policy initiatives by the NITI Aayog and the Ministry of Electronics and Information Technology (MeitY) have emphasised the relevance of AI in society, neither provides sufficient guidance on issues relating to ownership of IP.³⁷

C. Key Comparative Insights

The following trends are evident from this comparative review:

1. There is a uniform rejection of AI as a legal author/inventor in all jurisdictions.
2. Jurisdictions continue to use human-focused legal doctrines as the basis for their decision-making.
3. There is a lack of harmonized approaches to addressing the issue of AI-generated output.
4. There has been a shift in focus for jurisdictions from revising ownership laws toward regulation of AI.

These insights point out that while jurisdictions are aware of and understand how AI could disrupt established legal principles, they remain cautious about making any significant changes to these foundational legal principles at this time.

³⁷ NITI Aayog, National Strategy for Artificial Intelligence (2018).

D. Updates on Legal and Policy Issues: The WIPO Concerning Initiatives

The World Intellectual Property Organization (WIPO) has started an international consultation about issues regarding "AI and IP" in order to start up the world-wide discussion about those issues, including:

1. how authorship and inventorship will happen
2. ownership of content generated by AI
3. the best policy options for countries

There have been no binding international agreements discovered.

E. Developments by the U.S. Copyright Office

Since the release of its guidance in 2023, the U.S. Copyright Office continues to expand its position on AI-generated content by its administrative decisions, including, among other things:

1. identifying AI-generated content
2. identifying the human contribution(s)

This represents a trend that emphasizes transparency-based regulations.

F. EU AI Regulation, 2024

The EU AI Regulation marks a significant advancement in AI governance, although the Regulation does not specifically address the ownership of an invention created using an AI system. The EU AI Regulation also establishes requirements for:

1. High-risk AI systems.
2. Data quality and accountability.

Because the Regulation creates a framework for developing, implementing, and regulating AI systems, it will indirectly affect the ownership of inventions developed using AI.

As there is a lack of clear legal guidelines for AI-driven creativity, various industry stakeholders are using alternative approaches to address their intellectual property (IP) concerns.

Table 1: Challenges and Recommendations in Regulating AI and IP in Fashion & Cosmetic Industry

S. No.	Key Challenges	Explanation	Recommendations / Way Forward
1	Legal Vacuum for AI-Generated Works	Purely AI-generated designs and formulations may not qualify for protection due to lack of human authorship/inventorship	Introduce a sui generis IP regime specifically for AI-generated works
2	Ownership Ambiguity	Uncertainty whether rights belong to AI developer, user, or company	Establish clear statutory guidelines based on control, contribution, and contractual arrangements
3	Lack of Recognition of AI as Author/Inventor	Current laws only recognize natural persons, excluding AI-generated outputs	Recognize AI-assisted authorship and define thresholds of human involvement
4	Difficulty in Proving Originality	AI outputs are often derived from existing datasets, raising concerns of derivation vs originality	Develop new originality standards tailored for AI-generated content
5	Enforcement Challenges	Difficulty in identifying liability in case of infringement (developer vs user vs deployer)	Define liability frameworks allocating responsibility among stakeholders

6	Sector-Specific Issues (Fashion)	Fast fashion leads to rapid copying and weak protection for designs	Strengthen design protection laws and introduce faster enforcement mechanisms
7	Sector-Specific Issues (Cosmetics)	AI-generated formulations create patentability and evergreening concerns	Issue AI-specific patent examination guidelines to prevent abuse and ensure genuine innovation
8	Over-Reliance on Trade Secrets	Companies may avoid patents due to uncertainty, reducing public disclosure	Encourage balanced protection by improving patent clarity and incentives
9	Lack of Indian Legal Framework	No specific legislation or judicial precedent addressing AI and IP	Develop a comprehensive national AI-IP policy integrating global best practices
10	Global Inconsistency in Laws	Different jurisdictions follow different approaches, creating uncertainty	Promote international harmonization through WIPO or multilateral agreements

VIII. SUGGESTIONS AND RECOMMENDATIONS

In light of the challenges identified in the preceding analysis, there is a pressing need for a coherent and forward-looking legal framework in India to address the

implications of artificial intelligence on intellectual property rights, particularly within the fashion and cosmetic industries.

1. It is recommended that the legislature consider introducing a sui generis regime for the protection of artificial intelligence generated works. Such a framework could provide limited and conditional protection to AI-generated outputs, particularly in cases where traditional requirements of human authorship or inventorship are not satisfied, while ensuring that the balance between innovation and public access is maintained.
2. Targeted amendments to existing statutes, including the Copyright Act, 1957 and the Patents Act, 1970, should be undertaken to clarify the status of AI-assisted and AI-generated works. This may include the introduction of provisions defining the threshold of human involvement required for authorship or inventorship, as well as the recognition of joint or hybrid creation models involving both human and artificial intelligence contributions.
3. The Indian Patent Office and the Copyright Office should issue detailed administrative guidelines addressing the treatment of AI-generated outputs. Such guidelines would assist in standardizing examination practices, particularly in relation to inventorship disclosures, originality assessments, and the identification of human contribution in AI-assisted works.
4. A clear framework for the allocation of ownership and liability among stakeholders, including developers, users, and deploying entities, should be established through statutory reform or regulatory clarification. This would reduce uncertainty and facilitate the commercialization of AI-driven innovations. Fifth, sector-specific regulatory approaches should be considered for industries such as fashion and cosmetics, where the pace of innovation and the nature of creative output differ significantly. This may include expedited design protection mechanisms for the fashion industry and specialized patent examination guidelines for AI-generated cosmetic formulations.
5. India should actively participate in international efforts, particularly through forums such as the World Intellectual Property Organization, to contribute to the development of harmonized global standards on artificial intelligence and

intellectual property. Such engagement would ensure that domestic legal reforms remain consistent with emerging international best practices. These recommendations collectively aim to address the existing legal gaps while fostering an environment conducive to innovation, legal certainty, and equitable protection of rights in the age of artificial intelligence.

IX. CONCLUSION

Artificial intelligence and intellectual property law have emerged as one of the biggest legal challenges of our time. The disruption posed by AI to traditional concepts of creation, authorship and innovation is most clearly evident in the fashion and cosmetic firms studied herein.

The reluctance among jurisdictions to legally recognize AI as an author or inventor can be seen in comparative analysis, where this approach maintains doctrinal consistency, but does not respond to the fact that creation and innovation through AI occurs in its own right, creating uncertainty; thus, reducing incentives and complicating enforcement.

In India, the lack of a legislative framework means that these problems are compounded. However, there is a need for legislators to be proactive and adaptable to the changing environment brought about by AI's continued growth. This requires an acknowledgment of AI's role in the creative process and a clarification of rules surrounding ownership, along with sector-specific solutions.

The evolution of IP law will ultimately hinge upon the ability of IP law to strike a balance between technological innovation and legal certainty. Failure to evolve will result in the obsolescence of current frameworks, while thoughtful reform can allow the law to continue fostering creativity and innovation during the era of AI.

X. REFERENCES

1. *Eastern Book Co. v. D.B. Modak*, (2008) 1 S.C.C. 1 (India).
2. *R.G. Anand v. Deluxe Films*, (1978) 4 S.C.C. 118 (India).
3. *Bharat Glass Tube Ltd. v. Gopal Glass Works Ltd.*, (2008) 10 S.C.C. 657 (India).
4. *Microfibres Inc. v. Girdhar & Co.*, 2009 SCC OnLine Del 150 (India).

5. Biswanath Prasad Radhey Shyam v. Hindustan Metal Indus., (1979) 2 S.C.C. 511 (India).
6. *Naruto v. Slater*, 888 F.3d 418 (9th Cir. 2018).
7. *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022).
8. *Thaler v. Comptroller-General of Patents, Designs and Trademarks*, [2023] UKSC 49.
9. Copyright Act, 1957 (India).
10. Patents Act, 1970 (India).
11. Copyright, Designs and Patents Act 1988, c. 48 (UK).
12. U.S. Copyright Office, *Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence* (2023).
13. World Intellectual Property Organization (WIPO), *WIPO Technology Trends 2019: Artificial Intelligence* (2019).
14. World Intellectual Property Organization (WIPO), *WIPO Conversation on Intellectual Property and Artificial Intelligence* (Ongoing).
15. European Parliament, *Artificial Intelligence Act, 2024*.