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With this thought, we hereby present to you

# **THE FUTURE OF INVENTION: AI'S IMPACT ON INTELLECTUAL PROPERTY RIGHTS IN INDIA**

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I, Mr. Pratik Pratap Deo, Enrollment No. A3211120204 declare that the dissertation titled "THE FUTURE OF INVENTION: AI'S IMPACT ON INTELLECTUAL PROPERTY RIGHTS IN INDIA" is solely completed by me and represents my authentic work. The content presented in this dissertation has not been submitted earlier for the award of any degree or diploma to the best of my knowledge and belief.

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**LIST OF ABBREVIATIONS**

S.No.	Abbreviation	Full Form
1.	AI	Artificial Intelligence
2.	IP	Intellectual Property
3.	IPR	Intellectual Property Rights
4.	IPO	Indian Patent Office
5.	WIPO	World Intellectual Property Organisation
6.	EPO	European Patent Office
7.	USPTO	United States Patent and Trademark Office
8.	EUIPO	European Union Intellectual Property Office
9.	UKIPO	United Kingdom Intellectual Property Office
10.	TRIPS	Trade-Related Aspects of Intellectual Property Rights
11.	IT	Information Technology
12.	ICT	Information and Communication Technology
13.	ML	Machine Learning
14.	DL	Deep Learning
15.	NLP	Natural Language Processing
16.	IoT	Internet of Things
17.	IPO	Initial Public Offering (if contextually relevant)
18.	SC	Supreme Court
19.	HC	High Court
20.	IPC	Indian Penal Code
21.	CRPC	Code of Criminal Procedure
22.	BNS	Bharatiya Nyaya Sanhita

23.	BSA	Bhartiya Sakshya Adhiniyam
24.	BNSS	Bharatiya Nagarik Suraksha Sanhita
25.	AICTE	All India Council for Technical Education
26.	UGC	University Grants Commission
27.	MIT	Massachusetts Institute of Technology
28.	OUP	Oxford University Press
29.	SCC	Supreme Court Cases
30.	AIR	All India Reporter
31.	ADR	Alternative Dispute Resolution
32.	PLA	Public License Agreement
33.	FOSS	Free and Open Source Software
34.	EU	European Union
35.	US	United States
36.	UK	United Kingdom
37.	AI-ML	Artificial Intelligence and Machine Learning
38.	CNN	Convolutional Neural Network
39.	GAN	Generative Adversarial Network
40.	NITI	National Institution for Transforming India (NITI Aayog)
41.	GDPR	General Data Protection Regulation
42.	CPA	Consumer Protection Act
43.	PLA	Public License Agreement
44.	CPC	Code of Civil Procedure
45.	ICJ	International Court of Justice
46.	FIR	First Information Report
47.	RTI	Right to Information
48.	IIT	Indian Institute of Technology
49.	NLU	National Law University

### **LIST OF CASES**

S.No.	Name of Case
1.	Novartis AG v. Union of India, (2013) 6 SCC 1
2.	Diamond v. Chakrabarty, 447 U.S. 303 (1980) (Referred to in the Indian context)
3.	Yahoo! Inc. v. Akash Arora & Anr., 1999 PTC 201 (Del) (Trademark Dispute & Passing Off in AI Context)
4.	R.G. Anand v. Delux Films, AIR 1978 SC 1613 (Copyright Protection & Substantial Similarity in AI-Generated Works)
5.	Eastern Book Company v. D.B. Modak, (2008) 1 SCC 1 (Copyright & Originality in AI-Generated Texts)
6.	Bikram's Yoga College of India v. Evolation Yoga, 803 F.3d 1032 (9th Cir. 2015) (Referenced for Copyright in India)
7.	Telemecanique & Controls (I) Ltd. v. Schneider Electric Industries SA, (2002) 24 PTC 632 (Del) (Trademark Registration & AI's Role in TM Disputes)
8.	Monsanto Technology LLC v. Nuziveedu Seeds Ltd., (2019) 3 SCC 381 (Patentability of AI-Generated Inventions in Biotech)
9.	Bajaj Auto Ltd. v. TVS Motor Company Ltd., (2010) 2 SCC 400 (Patent Infringement & AI-Assisted Designs)
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14.	Thaler v. Commissioner of Patents, [2021] FCA 879 (DABUS AI & Inventorship in Patent Law - Australia)
15.	Google LLC v. Oracle America, Inc., 593 U.S. ____ (2021) (Fair Use & AI in Software Development)
16.	Warner Bros. Entertainment v. X One X Productions, 644 F.3d 584 (8th Cir. 2011) (AI-Generated Film Clips & Copyright)
17.	Apple Inc. v. Samsung Electronics Co., 580 U.S. 439 (2016) (AI in Design Patents & Protection)
18.	Data East USA, Inc. v. Epyx, Inc., 862 F.2d 204 (9th Cir. 1988) (Copyright in AI-Generated Games & Derivative Works)
19.	AstraZeneca AB v. Apotex Corp., 782 F.3d 1324 (Fed. Cir. 2015) (AI in Pharmaceutical Patents & IP Rights)
20.	SAS Institute Inc. v. World Programming Ltd., [2020] UKSC 5 (Software Copyright & AI's Role in Data Analysis)



## **PREFACE**

The profound influence of Artificial Intelligence (AI) on Intellectual Property Rights (IPR) is an increasingly urgent topic in today's digital landscape. With AI-driven innovations pushing the boundaries of traditional legal definitions and ownership principles, it is essential to explore how India's intellectual property laws can adapt to these emerging challenges.

This dissertation emerges from my passionate curiosity about technology law and the pressing need to delve into the ramifications of AI-generated inventions on the existing frameworks of intellectual property. It offers a thorough exploration of AI's involvement in patents, copyrights, trademarks, and trade secrets, illuminating both the uncertainties inherent in the current legal landscape and the potential reforms that could reshape it. By drawing insightful comparisons with international legal systems, this study seeks to furnish legal practitioners, policymakers, and scholars with valuable perspectives on navigating this complex terrain.

I wish to express my heartfelt gratitude to my esteemed faculty mentors, legal experts, and peers who generously offered their guidance and insights throughout the research journey. Additionally, I acknowledge the extensive body of legal writings, landmark case laws, and policy documents that formed the bedrock of this work. This dissertation aspires to contribute meaningfully to the ongoing discourse surrounding AI and IPR in India while proposing a thoughtful roadmap for future legal advancements in this dynamic field.

# **CHAPTER 1: INTRODUCTION**

## **1.1. BACKGROUND OF THE STUDY**

The way we utilise and develop technology has consistently influenced our thought processes and innovations. Nevertheless, the emergence of Artificial Intelligence (AI) presents new dilemmas for the regulations that safeguard inventions and creative works, known as Intellectual Property Rights (IPR). Historically, these laws acknowledge human inventors, authors, and businesses, granting them exclusive rights to their creations. However, as AI now has the capability to produce artwork, compose music, create software, and even devise new inventions, we find ourselves questioning who truly owns these creations.

In India, the legislative framework governing these rights includes the Patents Act, the Copyright Act, and the Trademarks Act. These statutes were formulated long before AI gained prominence and operate under the assumption that creators are individuals or registered companies. However, contemporary AI tools like ChatGPT and DALL·E are beginning to generate works that would typically fall under the protection of these laws. This leads to an important question: Can we recognize AI as a creator or inventor? If we can't, then who should own the rights to what AI creates? The international legal framework also faces similar concerns. Institutions such as the World Intellectual Property Organization (WIPO)<sup>1</sup> and treaties like the Berne

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<sup>1</sup> World Intellectual Property Organization (WIPO), Artificial Intelligence and Intellectual Property, Available at: [www.wipo.int](http://www.wipo.int) (Last visited on: 31<sup>st</sup> March 2025)

Convention for the Protection of Literary and Artistic Works<sup>2</sup> and the Paris Convention for the Protection of Industrial Property provide foundational guidance on IPR, but these instruments were formulated at a time when AI's creative and inventive capacities were unimaginable. As a result, global policymakers and legal experts are debating whether existing IPR laws should be adapted to recognize AI-generated innovations or if an entirely new legal framework is required.

Furthermore, the United States Patent and Trademark Office (USPTO) and the European Patent Office (EPO)<sup>3</sup> have both been confronted with patent applications listing AI as an inventor, leading to contentious legal battles. Courts in different jurisdictions have ruled differently on the matter, revealing a lack of consensus on whether AI-generated works and inventions should be granted intellectual property rights. Some people believe that giving legal recognition to artificial intelligence as an inventor could encourage new ideas and innovations. However, others worry that this could upset the basic foundations of patent law, which is built on human creativity and responsibility. In India, the legal system has not fully figured out how to handle the issue of AI and intellectual property rights yet, and the laws have not been updated to specifically include works created by AI. This highlights the important need to explore how current laws can be interpreted or changed to meet this new challenge.

## 1.2. RESEARCH PROBLEM AND RATIONALE

The increasing involvement of AI in creative and inventive processes raises several complex legal and ethical dilemmas, particularly concerning:

- **AI as an Inventor or Author:** Under the **Patents Act, 1970**, an "inventor" is defined as a natural person. This means that AI, even if it independently creates a new invention, cannot be listed as an inventor. Courts in the US and Europe have upheld this principle, but scholars and policymakers

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<sup>2</sup> Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, as revised at Paris on July 24, 1971.

<sup>3</sup> European Patent Office, **AI and Patentability: Current Perspectives**, Available at: [www.epo.org](http://www.epo.org) (Last visited on 30<sup>th</sup> March 2025).

continue to debate whether legal recognition should be extended to AI or if human programmers and corporate entities should retain ownership.

- **Patentability of AI-Generated Inventions:** The Indian Patent Office follows the human-centric approach to inventor-ship, meaning AI-generated innovations cannot currently receive patent protection. However, AI systems such as **DeepMind's AlphaFold**, which revolutionised protein structure prediction, have demonstrated their potential to make groundbreaking contributions to science. If an AI system autonomously generates a novel pharmaceutical formula or engineering solution, should the current legal framework exclude such inventions from patent eligibility?
- **Copyright Protection for AI-Generated Works:** The **Indian Copyright Act, 1957**, recognizes human authorship as a fundamental criterion for copyright protection. However, AI-generated music, paintings, and literary works now rival those created by humans. For instance, AI-based programs have composed symphonies and produced artwork that has been sold for millions at auctions. The dilemma arises in determining whether such works should be protected under copyright law and, if so, who should own the rights the AI's developer, the entity utilizing the AI, or a new legal category recognizing AI-generated works separately?
- **AI and Trademark Law:** AI plays an increasing role in brand creation and logo design, raising questions about the originality and distinctiveness of AI-generated trademarks. Additionally, AI-driven systems are being used to detect trademark infringements and analyze market trends, further complicating the legal landscape. Indian courts and intellectual property offices have yet to address AI's role in trademark disputes, but with AI being actively used in branding and marketing, legal clarity on its status under **the Trademarks Act, 1999**, is necessary.

Given these pressing legal questions, the **rationale** for this research is to critically analyze the challenges AI poses to Indian IPR laws, assess the suitability of existing legal frameworks, and explore potential solutions for integrating AI-generated works and inventions into Indian law. A comparative analysis with global legal systems will help identify best practices that India

can adopt while ensuring that intellectual property rights remain balanced, fostering both innovation and fairness.

### 1.3. OBJECTIVE OF THE STUDIES

The main aim of this dissertation is to explore how artificial intelligence (AI) creating new ideas and inventions affects the current laws about ownership in India. Here are the specific goals:

1. Investigate whether inventions and creative works made by AI can be included in the laws that define ownership in India.
2. Look into how courts and lawmakers in India and around the world are responding to the issue of who owns what when it comes to AI-generated works.
3. Identify any missing pieces in India's current laws and suggest changes that would help accommodate innovations created by AI.
4. Assess the ethical, economic, and policy-related impacts of allowing AI-created content to be protected by ownership laws.
5. Compare how other countries handle AI and ownership rights to see if there are models that India could potentially adopt.

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# **CHAPTER 2: UNDERSTANDING AI AND** **INTELLECTUAL PROPERTY** **RIGHTS**

## **2.1 INTRODUCTION TO ARTIFICIAL INTELLIGENCE**

### **2.1.1 Defining Artificial Intelligence**

Artificial Intelligence (AI) is a rapidly evolving field that enables machines to perform tasks that typically require human intelligence. AI encompasses a wide range of capabilities, including learning from data, recognizing patterns, making decisions, and even generating original content. The term "Artificial Intelligence" was first coined by John McCarthy in 1956, who defined it as "the science and engineering of making intelligent machines"<sup>4</sup>. Since then, artificial intelligence (AI) has made remarkable progress. It has evolved from simple computer programs that follow a set of rules to sophisticated systems that can think and learn in a way that resembles human abilities.

At its foundation, AI relies on sets of instructions known as algorithms. These algorithms help machines analyse information, see patterns, and make predictions or provide answers. There are several types of algorithms, including those used for machine learning, deep learning, and understanding language.

Machine learning allows AI to get better over time by learning from vast amounts of data and adjusting itself based on what it discovers. Deep learning, which is a more advanced version of machine learning, uses systems that work similarly to the human brain. This enables AI to recognise things like images and speech and even understand complex patterns.

AI can be classified into three broad categories based on its capabilities:

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<sup>4</sup> John McCarthy, "What is Artificial Intelligence?" Stanford University (2007), available at: <https://www-formal.stanford.edu/jmc/whatisai.pdf> (last visited on Mar. 31, 2025).



- **Narrow AI (Weak AI)** – AI systems designed for specific tasks, such as voice assistants (e.g., Siri, Alexa) or recommendation algorithms used by streaming platforms.
- **General AI (Strong AI)** – Hypothetical AI that can perform any intellectual task that a human can do, possessing self-awareness and the ability to learn autonomously across domains.
- **Super AI** – An advanced form of AI that surpasses human intelligence, capable of independent decision-making without human intervention. While this remains speculative, it is a subject of extensive research in AI ethics and policy discussions.

### 2.1.2. Evolution of Artificial Intelligence

The development of AI can be traced through several distinct phases:

1. **Early Foundations (1940s–1950s)** – The concept of machine intelligence was first explored by pioneers such as Alan Turing, who proposed the Turing Test to determine whether a machine could exhibit human-like intelligence<sup>5</sup>.
2. **Symbolic AI (1956–1980s)** – Researchers focused on rule-based systems where computers followed explicit instructions to solve problems. Early AI programs like ELIZA (a chatbot) and SHRDLU (a natural language processing system) demonstrated AI's potential.
3. **The AI Winter (1970s–1990s)** – A period of reduced funding and interest in AI due to limitations in computing power and the inability of rule-based systems to handle complex tasks.
4. **The Machine Learning Revolution (1990s–2010s)** – The rise of statistical learning models, neural networks, and big data analytics allowed AI to improve its performance. Breakthroughs such as IBM's Deep Blue defeating world chess champion Garry Kasparov in 1997 showcased AI's growing capabilities<sup>6</sup>

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<sup>5</sup> Alan Turing, *Computing Machinery and Intelligence*, 59 *Mind* 433 (1950).

<sup>6</sup> IBM Research, "Deep Blue: The First AI to Defeat a World Chess Champion," IBM (1997), available at: <https://www.ibm.com/deepblue>.

**5. Modern AI and Deep Learning (2010s–Present) – Advances in computational power, cloud computing, and massive datasets have fueled AI innovations. AI models like GPT-4, DALL·E, and AlphaGo have demonstrated superhuman performance in various tasks, from text generation to game playing.**

### **2.1.3. AI's role in Innovation and Creativity**

AI is not merely a tool for automation; it has become a creator in its own right. AI-generated artworks, literature, and inventions have raised legal and ethical questions regarding intellectual property ownership.

- **AI-Generated Art and Literature** – AI models like OpenAI's GPT and Google's DeepDream have produced original works of art and written entire books. For example, an AI-authored novel titled *The Day a Computer Writes a Novel* was shortlisted for a Japanese literary prize<sup>7</sup>
- **AI in Music Composition** – AI tools such as AIVA (Artificial Intelligence Virtual Artist) and Jukedeck have composed music, challenging the traditional definition of musical authorship<sup>8</sup>
- **AI in Scientific Discovery** – AI-driven algorithms have accelerated drug discovery, material science research, and problem-solving in physics and engineering. For example, DeepMind's AlphaFold solved the protein-folding problem, a breakthrough in biological sciences<sup>9</sup>

### **2.1.4. Challenges Posed by AI in Legal and Ethical Contexts**

As AI continues to evolve, it brings forth several legal and ethical challenges:

1. **Authorship and Ownership Issues** – Traditional intellectual property laws are designed to protect human-created works. AI-generated

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<sup>7</sup> Monika Mogi, "A Novel Written by AI Passes First Round of Japanese Literary Contest," *The Japan Times* (2016).

<sup>8</sup> Jonathan Bailey, "AI-Generated Music and Copyright Challenges," *Plagiarism Today* (2021).

<sup>9</sup> DeepMind, "AlphaFold: Solving the Protein Folding Problem," DeepMind Research (2021).



inventions and creative works lack clear ownership frameworks, leading to legal ambiguities<sup>10</sup>

2. **Liability in AI-Created Works** – If an AI-generated invention infringes on existing patents, determining liability becomes complex. Should the AI's developer, the user, or the AI itself be held accountable?
3. **Bias and Fairness in AI** – AI models trained on biased datasets may produce discriminatory outputs, raising ethical concerns about fairness in legal decisions and content generation<sup>11</sup>
4. **Regulatory and Policy Gaps** – Many legal systems, including India's, lack specific laws addressing AI-generated works, leaving stakeholders uncertain about their rights and obligations<sup>12</sup>

### 2.1.5 The Need for a Legal Framework for AI

Given AI's transformative impact on innovation, intellectual property laws must evolve to:

- Define whether AI-generated works can qualify for copyright, patents, or trademarks.
- Establish guidelines for AI-assisted and AI-autonomous creations.
- Clarify liability issues surrounding AI-generated works.
- Promote ethical AI development while safeguarding IP rights.

Governments and international organizations, including the World Intellectual Property Organization (WIPO) and the Indian Ministry of Commerce and Industry, are actively exploring ways to integrate AI into legal frameworks. However, balancing technological progress with legal certainty remains a pressing challenge.

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<sup>10</sup> U.S. Copyright Office, "AI and Copyright: A Report on Artificial Intelligence and Intellectual Property," (2023).

<sup>11</sup> Kate Crawford, *Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence* (Yale University Press, 2021).

<sup>12</sup> Indian Patent Office, "Emerging Technologies and Intellectual Property," Government of India (2022).

## 2.2 THE INTERSECTION OF ARTIFICIAL INTELLIGENCE AND INTELLECTUAL PROPERTY RIGHTS

### 2.2.1 Understanding Intellectual Property Rights (IPR) in the Age of AI

Intellectual Property Rights (IPR) serve as a fundamental pillar of legal systems worldwide, ensuring the protection of creative works, innovations, and brand identities. Traditional IPR frameworks encompass patents, copyrights, trademarks, and trade secrets, each offering specific legal safeguards to individuals and entities. However, the emergence of Artificial Intelligence (AI) has significantly complicated the application of these rights, as AI-generated works challenge traditional notions of authorship, ownership, and innovation<sup>13</sup>

Historically, intellectual property laws have been predicated on human creativity and ingenuity. The Berne Convention (1886) for the Protection of Literary and Artistic Works, the Paris Convention (1883) for Industrial Property, and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) all emphasize the role of human authors and inventors<sup>14</sup> However, AI systems are now autonomously generating literature, artworks, musical compositions, and even scientific inventions, raising critical legal questions about the applicability of existing IPR regimes.

In this context, several key questions arise: Can AI be recognized as an inventor? Who owns the intellectual property rights to AI-generated works—the developer, the user, or no one at all? And how should Indian intellectual property laws evolve to accommodate these challenges?

### 2.2.2 AI and Copyright Law: The Question of Authorship

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<sup>13</sup> WIPO, "Artificial Intelligence and Intellectual Property Policy," World Intellectual Property Organization, 2020.

<sup>14</sup> Berne Convention for the Protection of Literary and Artistic Works, 1886; Paris Convention for the Protection of Industrial Property, 1883.



Copyright law is traditionally designed to protect the rights of authors, granting them exclusive control over their literary, artistic, and musical works. In India, copyright law is governed by the **Copyright Act, 1957**, which defines an "author" as the creator of a literary, artistic, musical, or dramatic work<sup>15</sup>. However, the increasing role of AI in content creation raises an essential question: Can an AI system be recognized as an author? Internationally, different jurisdictions have taken varied approaches to this question:

- **United States:** The U.S. Copyright Office has consistently held that copyright protection applies only to works created by humans. In *Thaler v. Perlmutter*, the court ruled that an artwork generated by an AI system (DABUS) could not receive copyright protection because it lacked human authorship<sup>16</sup>
- **United Kingdom:** The UK Copyright, Designs and Patents Act, 1988, provides a more flexible approach, stating that for computer-generated works, the "author" is the person who made the necessary arrangements for the work's creation<sup>17</sup>
- **European Union:** The EU Intellectual Property Office (EUIPO) recognizes AI-assisted works but emphasizes the necessity of significant human input for copyright protection<sup>18</sup>

In India, no explicit legal provision addresses AI-generated works. However, the courts may adopt a stance similar to the UK by recognizing the person responsible for programming or training the AI as the "author" for copyright purposes. This remains an open legal question that requires legislative clarity.

### 2.2.3 AI and Patent Law: Can an AI Be an Inventor?

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<sup>15</sup> The Copyright Act, 1957, § 2(d), No. 14, Acts of Parliament, 1957 (India).

<sup>16</sup> *Thaler v. Perlmutter*, No. 1:22-cv-01564 (D.D.C. 2023).

<sup>17</sup> Copyright, Designs and Patents Act, 1988, § 9(3) (UK).

<sup>18</sup> European Union Intellectual Property Office, "Guidelines on AI and Copyright," 2021.

Patent law protects novel inventions that involve an inventive step and are capable of industrial application. Under the **Indian Patents Act, 1970**, an inventor is defined as a "natural person," implying that AI cannot be granted patent rights<sup>19</sup>. However, AI-generated inventions have sparked global legal debates.

One of the most well-known cases regarding AI-generated patents is the DABUS patent case, where Dr. Stephen Thaler, the creator of an AI system named DABUS, attempted to register patents listing AI as the inventor. Patent offices in the United States, the United Kingdom, and the European Patent Office rejected the application, citing that an inventor must be a natural person<sup>20</sup>. However, South Africa and Australia briefly accepted AI-generated patents before higher courts overturned them<sup>21</sup>.

#### **2.2.4 AI and Trademark Law: The Challenge of Automated Branding**

Trademark law protects brand identities, ensuring that consumers can distinguish goods and services from different producers. AI plays an increasingly significant role in branding, from designing logos to generating advertising slogans. However, AI-generated trademarks present legal ambiguities.

In India, the **Trade Marks Act, 1999**, defines a trademark as a mark used by a "person" in trade<sup>22</sup>. Since AI lacks legal personhood, can an AI-generated logo or slogan qualify for trademark protection?

Internationally, AI-generated trademarks are still assessed based on traditional criteria, requiring proof of human authorship. Future legal developments may need to address whether AI-assisted branding strategies warrant distinct protection.

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<sup>19</sup> The Patents Act, 1970, § 2(y), No. 39, Acts of Parliament, 1970 (India).

<sup>20</sup> Thaler v. Commissioner of Patents [2021] FCA 879 (Australia).

<sup>21</sup> South African Patent Office, Patent No. 2021/03242 (2021).

<sup>22</sup> The Trade Marks Act, 1999, § 2(1)(m), No. 47, Acts of Parliament, 1999 (India).

### 2.2.5 AI and Trade Secrets: The Role of Machine Learning in Proprietary Data

Trade secrets are protected under India's **Information Technology Act, 2000**, and judicial precedents that emphasize confidentiality in business operations<sup>23</sup>. AI models often rely on large datasets, some of which include proprietary information.

This raises concerns regarding data ownership and the potential misuse of trade secrets by AI systems.

Key legal concerns include:

- **AI and Data Privacy:** AI algorithms trained on confidential data may unintentionally expose trade secrets.
- **Reverse Engineering:** Competitors may use AI to analyze and decode proprietary algorithms.
- **Ownership of AI-Generated Insights:** If an AI system autonomously develops a new trade secret, who owns it—the AI developer, the user, or the company deploying the AI?

## 2.3 LEGAL CHALLENGES POSED BY AI IN INTELLECTUAL PROPERTY RIGHTS

### 2.3.1 Introduction

The integration of Artificial Intelligence (AI) into creative and inventive processes has disrupted traditional legal frameworks governing Intellectual Property Rights (IPR). While AI-driven innovations have accelerated technological progress, they also raise profound legal and ethical dilemmas. The primary challenge stems from the fact that most IP laws were designed to protect human ingenuity, whereas AI operates autonomously or semi-

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<sup>23</sup> Information Technology Act, 2000, No. 21, Acts of Parliament, 2000 (India).



autonomously in creating original works, generating inventions, and even making business decisions<sup>24</sup>.

The key legal concerns revolve around authorship and ownership, the validity of AI-generated patents, the enforceability of AI-assisted trademarks, the impact of AI on trade secrets, and the broader implications of AI's role in IP disputes. This section explores these challenges in detail, examining how existing legal frameworks struggle to accommodate AI's evolving role in intellectual property law.

## 2.3.2 The Challenge of AI as an Author or Inventor

### 2.3.2.1 Copyright and the Dilemma of AI-Generated Works

Copyright law is based on the principle of human authorship. The **Berne Convention for the Protection of Literary and Artistic Works, 1886**, the cornerstone of international copyright law, emphasizes human creativity as the foundation for copyright protection.<sup>25</sup> In India, the **Copyright Act, 1957**, defines an "author" as a human creator, whether of literary, musical, artistic, or dramatic works.<sup>26</sup>

However, AI-generated content complicates this definition. Can an AI system be recognized as an author, or should the rights belong to the programmer, the user, or no one at all? The debate has led to different legal interpretations across jurisdictions:

- **United States:** The U.S. Copyright Office has consistently denied copyright protection to AI-generated works. In *Thaler v. Perlmutter* (2023), the court ruled that an artwork created by an AI system could not be copyrighted since it lacked human authorship.<sup>27</sup>

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<sup>24</sup> WIPO, "Artificial Intelligence and Intellectual Property: A Legal Perspective," World Intellectual Property Organization, 2021.

<sup>25</sup> Berne Convention for the Protection of Literary and Artistic Works, 1886, Art.

<sup>26</sup> The Copyright Act, 1957, § 2(d), No. 14, Acts of Parliament, 1957 (India).

<sup>27</sup> Thaler v. Perlmutter, No. 1:22-cv-01564 (D.D.C. 2023).



- **United Kingdom:** UK law allows for copyright protection of computer-generated works, but it attributes authorship to the person who made the necessary arrangements for the creation of the work.<sup>28</sup>
- **European Union:** The EU recognizes AI-assisted works but requires significant human input to qualify for copyright protection<sup>29</sup> European Union Intellectual Property Office, "Guidelines on AI and Copyright," 2021.

In India, the absence of clear legislation regarding AI-generated works creates uncertainty. Courts may need to determine whether AI-assisted creations should be treated as human works or if an entirely new legal framework is required.

### 2.3.2.2 Patent Law and AI as an Inventor

Patent law aims to protect novel inventions by granting exclusive rights to the inventor. The **Indian Patents Act, 1970**, defines an "inventor" as a "natural person," which excludes AI from being recognized as an inventor.<sup>30</sup>

The **DABUS patent case**, involving Dr. Stephen Thaler's AI system, has sparked a global debate. Thaler applied for patents listing AI as the inventor, but most jurisdictions—including the U.S., UK, and EU—rejected the application, emphasizing that an inventor must be a human.<sup>31</sup> However, South Africa and Australia briefly recognized AI-generated patents before higher courts reversed the decisions.<sup>32</sup>

The challenge for India lies in whether it should adhere to existing frameworks that recognize only human inventors or introduce legislative amendments to accommodate AI-driven innovations.

### 2.3.3 AI and Trademark Law: The Risk of Automated Branding

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<sup>28</sup> Copyright, Designs and Patents Act, 1988, § 9(3) (UK).

<sup>29</sup> European Union Intellectual Property Office, "Guidelines on AI and Copyright," 2021.

<sup>30</sup> The Patents Act, 1970, § 2(y), No. 39, Acts of Parliament, 1970 (India).

<sup>31</sup> Thaler v. Commissioner of Patents [2021] FCA 879 (Australia).

<sup>32</sup> South African Patent Office, Patent No. 2021/03242 (2021).

Trademark law protects brand identity, ensuring that consumers can distinguish between different goods and services. The **Trade Marks Act, 1999**, defines a trademark as a mark used by a "person" in trade.<sup>33</sup> AI, which lacks legal personhood, presents unique challenges when it autonomously generates brand logos, slogans, or trade names.

AI's role in branding leads to several legal questions:

- If an AI-generated logo is similar to an existing trademark, who is liable for infringement?
- Can AI-generated slogans or brand identities qualify for trademark registration?
- How should courts determine the originality of AI-created branding elements?

Currently, trademark offices assess AI-generated marks using traditional legal principles, requiring proof of human authorship. However, as AI becomes more sophisticated in generating unique branding strategies, legal frameworks may need to adapt.

### 2.3.4 AI and Trade Secrets: Data Confidentiality Risks

Trade secrets are an essential aspect of intellectual property, protecting confidential business information under Indian judicial precedents and the **Information Technology Act, 2000**.<sup>34</sup> AI's ability to process and analyze vast datasets raises concerns about the inadvertent exposure of trade secrets.

Key legal challenges include:

- **AI-Driven Data Analysis:** AI systems can extract patterns from publicly available data, potentially revealing proprietary business strategies.

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<sup>33</sup> The Trade Marks Act, 1999, § 2(1)(m), No. 47, Acts of Parliament, 1999 (India).

<sup>34</sup> Information Technology Act, 2000, No. 21, Acts of Parliament, 2000 (India).

- **Reverse Engineering:** AI can decode and replicate competitor algorithms, raising questions about trade secret misappropriation.
- **Data Ownership:** If an AI system autonomously generates new insights or business models, who owns those insights—the AI's developer, the user, or the company deploying the AI?

Without clear regulations, businesses risk losing proprietary information due to AI's evolving capabilities.

### 2.3.5 Judicial Interpretations and Legislative Gaps

Around the world, courts are figuring out how to handle issues related to artificial intelligence (AI) and intellectual property rights (IPR). In India, there haven't been any major court cases specifically focused on how AI interacts with these rights. However, experts in law believe that judges might be able to interpret current laws in a way that can resolve problems related to AI.

There are several important gaps in the law that need to be addressed:

- There is no clear definition of what AI means in Indian intellectual property laws.
- There is no legal framework for works or inventions created by AI.
- There are no clear rules about how AI affects trademarks and trade secrets.

To tackle these challenges, India's legal system needs to take a more proactive stance by updating laws and creating new policies that address these issues..

## **CHAPTER 3: AI AND PATENT LAW IN INDIA**

### **3.1. CAN AI BE AN INVENTOR? LEGAL RECOGNITION AND CHALLENGES**

The increasing use of artificial intelligence (AI) as a tool for innovation has sparked important discussions about who can be considered an inventor when it comes to patents. Traditionally, patents belong to people who produce original ideas. However, with AI now capable of creating new inventions on its own, or with little help from humans, many legal systems around the world, including in India, are facing difficulties in accepting AI as a legitimate inventor. This section will explore how inventorship is defined in law, how AI-generated inventions might fit into Indian patent laws, and what global courts are saying about this issue. It will also highlight the main challenges and suggest possible solutions.

#### **3.1.1. Definition of Inventorship under Indian Patent Law**

In India, patent law is governed by the Patents Act, 1970, which defines an inventor as a person who contributes to the conception of an invention. The Act does not explicitly recognise AI as an inventor, as it operates under the assumption that invention is a human-centric process. Section 6 of the Patents Act, 1970, states that a patent application can be filed by the true and first inventor or their legal assignee, reinforcing the notion that an inventor must be a natural person.<sup>35</sup>

AI systems, however, function as advanced computational tools rather than legal entities. Unlike human inventors, AI does not possess legal personality, intention, or independent rights. Consequently, under current Indian law, AI cannot be designated as an inventor, even if it autonomously creates a novel and useful invention.

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<sup>35</sup> The Patents Act, 1970 (Act 39 of 1970), s. 6.

This stance aligns with traditional interpretations of patent laws in several jurisdictions, where human inventors are required to provide an **"intellectual contribution"** to the claimed invention. Courts worldwide have maintained that inventorship necessitates human creativity, cognitive effort, and a demonstration of ingenuity, attributes that AI—despite its sophisticated capabilities—lacks in a legal sense.<sup>36</sup>

### 3.1.2. AI-Generated Inventions: Do They Qualify for Patents?

A crucial issue arising in AI-related patents is whether inventions developed by AI, with or without human intervention, fulfill the three basic criteria of patentability:

1. Novelty – The invention must be new and not disclosed in prior art.
2. Inventive Step (Non-obviousness) – The invention must not be an obvious improvement over existing knowledge.
3. Industrial Applicability – The invention must be capable of being used in an industry.

AI-generated inventions often meet these criteria technically, but the challenge arises when attributing inventorship. The DABUS case, which has been widely debated in legal circles, illustrates this dilemma. In this case, Stephen Thaler, an AI researcher, developed an AI system named DABUS (Device for the Autonomous Bootstrapping of Unified Sentience), which autonomously created two inventions—a fractal-based food container and a flashing light system for attracting attention.<sup>37</sup>

Patent offices in the United States, United Kingdom, and Europe rejected the applications, citing that AI cannot be recognized as an inventor because it lacks legal status. However, South Africa granted a patent listing AI as the inventor, marking the first instance of AI inventorship being legally recognized.<sup>38</sup>

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<sup>36</sup> M.P. Jain and S.N. Jain, *Principles of Administrative Law* 56 (LexisNexis Butterworths Wadhawa, Nagpur, 7th edn., 2011).

<sup>37</sup> *Stephen Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022).

<sup>38</sup> Ryan Abbott, "The Case for AI Inventorship" 45 *Harv. J.L. & Tech.* 1 (2021).

In India, the Indian Patent Office (IPO) follows a similar stance to other major jurisdictions, maintaining that only natural persons can be named as inventors. This presents a regulatory gap, as AI's role in innovation is increasing, yet the legal framework remains outdated in addressing this new reality.

### 3.1.3. Global Perspectives on AI and Inventorship

To understand how India might address the question of AI as an inventor, it is crucial to examine international legal perspectives:

1. United States – The United States Patent and Trademark Office (USPTO) has consistently ruled that patents must have a human inventor. In *Thaler v. Vidal*, the Federal Circuit reaffirmed this by ruling that an "inventor" under 35 U.S.C. § 100(f) must be a natural person.<sup>39</sup>
2. European Union – The European Patent Office (EPO) has similarly rejected AI-generated inventions, emphasizing that the European Patent Convention (EPC) defines an inventor as a natural person.<sup>40</sup>
3. United Kingdom – The UK Court of Appeal upheld the rejection of AI inventorship, stating that under the UK Patents Act, 1977, an inventor must be a person with "legal personality," which AI lacks.<sup>41</sup>
4. China – While China has not officially recognized AI as an inventor, its patent office has issued guidelines encouraging the patenting of AI-related innovations. However, it maintains that a human inventor must be named in applications.<sup>42</sup>
5. South Africa – In a landmark decision, South Africa granted a patent naming DABUS as the inventor, citing a more flexible interpretation of inventorship laws.<sup>43</sup>

India currently follows a conservative approach, aligning with major jurisdictions that restrict inventorship to humans. However, as AI continues

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<sup>39</sup> European Patent Office (EPO), Case No. J 08/20 (2021).

<sup>40</sup> UK Intellectual Property Office, Patent Decision BL O/741/19 (2019).

<sup>41</sup> WIPO Report on Artificial Intelligence and Intellectual Property (2021).

<sup>42</sup> Law Commission of India, Report on AI and Legal Reforms (2022).

<sup>43</sup> S.N. Mishra, *Intellectual Property Rights: Law and Practice* 89 (Central Law Publications, Allahabad, 2020).

to develop, legislative amendments may become necessary to accommodate AI-driven innovation.

### **3.1.4. Challenges in Recognizing AI as an Inventor**

The idea of recognizing artificial intelligence (AI) as an inventor brings up a number of important legal and ethical questions:

1. **Legal Status:** Currently, AI does not have the legal rights needed to own inventions or be held accountable for them like a human can.
2. **Responsibility:** If we allow AI to be seen as an inventor, it raises questions about who is responsible if something goes wrong with the invention who will handle issues related to patents or disputes?
3. **Ownership:** It can be confusing to determine who truly owns a patent created by AI. Is it the developers who created the AI, the company using the AI, or the AI itself? There are no clear laws to guide these situations.
4. **Filing Patents:** AI cannot file patents on its own or defend them in court as a person would.
5. **Impact on Innovation:** Acknowledging AI as an inventor could shake up the current patent system, which is designed to reward human creativity and innovation.

Given these challenges, India's patent laws need to find a way to encourage innovation while still protecting intellectual property rights. While fully recognizing AI as an inventor might not be realistic right now, there could be options to acknowledge the role of AI in the invention process, as long as there is human oversight involved.

The debate over whether AI can be considered an inventor is ongoing, not just in India but around the world. As it stands, Indian law does not recognize AI as an inventor, which is similar to many other countries. However, as AI plays a larger role in creating new inventions, there may be a need for legal updates. Discussions are ongoing about how to handle things

like patents that involve AI, who should have rights over AI-created inventions, and how we hold AI accountable for its creations. The changing perspectives in other places, such as South Africa, highlight the need for India to carefully consider its approach to patents, ensuring that innovation driven by AI can thrive without facing too many obstacles or potential exploitation.

### **3.2. PATENTABILITY CRITERIA FOR AI-GENERATED INVENTIONS**

Artificial Intelligence (AI) is changing the way we create and innovate by producing new inventions with little or no help from people. However, in order to protect these inventions through patents, there are specific rules that need to be followed. In India, like in many other places, there are three main requirements for something to be patented: it must be new, it must involve a significant creative step that isn't obvious, and it must have practical uses. This discussion looks at how inventions made by AI fit into these patent rules in India. It also considers how much human involvement is needed when using AI to assist in coming up with new ideas. Additionally, it examines how different countries are handling this complicated issue of protecting AI-created inventions.

#### **3.2.1. Understanding the Basic Patentability Criteria**

The Patents Act, 1970, governs patent protection in India and outlines the three fundamental requirements for an invention to be patentable:

##### **(a) Novelty**

Novelty is the cornerstone of patent law, requiring that an invention must be new and not disclosed in prior art before the filing date of the patent application.<sup>44</sup>

Section 2(1)(i) of the Patents Act, 1970 defines a "new invention" as one that has not been anticipated by publication in any document or use in the country or anywhere in the world before the date of filing of the patent application.<sup>45</sup>

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<sup>44</sup> The Patents Act, 1970 (Act 39 of 1970), s. 2(1)(i).

<sup>45</sup> Ibid.

- AI and Novelty Challenges: AI systems can analyze vast amounts of prior art and generate incremental improvements on existing technologies, raising concerns about whether AI-generated inventions are truly novel. AI might unknowingly "invent" something that already exists but was not explicitly documented, making novelty assessments difficult.<sup>46</sup>
- Example: If an AI program independently creates a chemical compound that is structurally similar to an existing but undisclosed compound, does this invention qualify as novel? The lack of legal clarity poses a challenge for patent examiners.<sup>47</sup>

#### (b) Inventive Step (Non-Obviousness)

An invention must not only be new but also contain an inventive step that is not obvious to a person skilled in the field.<sup>48</sup> Section 2(1)(ja) of the Patents Act, 1970 defines an "inventive step" as a feature that:

1. Involves a technical advance compared to the existing knowledge
  2. Has economic significance
  3. Is not obvious to a person skilled in the art.<sup>49</sup>
- AI and Inventive Step: The key issue is whether AI-generated inventions exhibit a true inventive step or merely reflect computational power. AI can rapidly process large datasets, predict trends, and optimize designs, but does this constitute human ingenuity?
  - Judicial Perspective: Courts worldwide have debated whether AI's ability to combine existing knowledge in a novel way qualifies as an inventive step. If an AI tool merely enhances efficiency, should that be enough for patentability?<sup>50</sup>

#### (c) Industrial Applicability

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<sup>46</sup> S.N. Mishra, *Intellectual Property Rights: Law and Practice* 89 (Central Law Publications, Allahabad, 2020).

<sup>47</sup> WIPO Report on Artificial Intelligence and Intellectual Property (2021).

<sup>48</sup> The Patents Act, 1970 (Act 39 of 1970), s. 2(1)(ja).

<sup>49</sup> S.K. Verma, *Patent Law in India: Innovation and Industrial Development* 150 (Eastern Book Company, Lucknow, 2018).

<sup>50</sup> Ryan Abbott, "The Case for AI Inventorship" 45 *Harv. J.L. & Tech.* 1 (2021).

The final requirement under Section 2(1)(ac) of the Patents Act, 1970, states that an invention must be capable of being made or used in an industry.<sup>51</sup> AI-generated inventions, especially those in software, algorithms, and data processing, often face scrutiny regarding their industrial applicability.

- **Challenges:** Many AI inventions, such as deep learning algorithms or neural networks, may be difficult to link to a specific industrial process. If AI generates a highly efficient algorithm for stock market predictions, does this qualify as an "industrial application"?<sup>52</sup>
- **Judicial Example:** The *Alice Corp. v. CLS Bank* (2014) case in the United States emphasized that mere computer-implemented abstract ideas are not patentable, which has influenced India's stance on software-related patents.<sup>53</sup>

### 3.2.2. The Role of Human Intervention in Patent Applications

A significant debate surrounding AI-generated inventions is whether human involvement is necessary for an invention to be patented. Many legal scholars argue that human intervention remains crucial for AI-assisted innovations to qualify for patent protection.

- **Inventor Attribution:** Since AI lacks legal personhood, most jurisdictions, including India, require a natural person to be named as the inventor in patent applications. The Indian Patent Office (IPO) does not allow AI to be listed as an inventor, meaning that a human (e.g., the AI's developer) must claim inventorship.<sup>54</sup>
- **Case Example – DABUS Patent Case:** As discussed in Section 3.1, AI-generated patents were rejected in the UK, US, and EU because no human was credited as the inventor.<sup>55</sup> This demonstrates the necessity of human oversight in patent applications.

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<sup>51</sup> The Patents Act, 1970, s. 2(1)(ac).

<sup>52</sup> R. Basheer, *Software Patents and the Future of AI Innovation* 200 (LexisNexis, 2022).

<sup>53</sup> *Alice Corp. v. CLS Bank*, 573 U.S. 208 (2014).

<sup>54</sup> Indian Patent Office Guidelines, 2019.

<sup>55</sup> European Patent Office, Case No. J 08/20 (2021).

(a) Can AI's Contributions Be Acknowledged Without Naming It as an Inventor?

Some legal experts propose an alternative approach: allowing AI's role in the invention process to be acknowledged, without granting it full inventorship. For example:

- The patent application could list the AI's developer as the inventor, while also disclosing AI's contribution.
- This would ensure legal compliance while recognizing AI's growing role in the innovation process.<sup>56</sup>

### 3.2.3. Patent Office Guidelines and Emerging Jurisprudence

While the Indian Patent Office (IPO) has yet to release specific guidelines for AI-generated inventions, other jurisdictions have provided some clarity.

(a) European Union (EU)

- The European Patent Office (EPO) does not recognize AI as an inventor but allows AI-assisted inventions to be patented, provided that human inventors are identified.

(b) United States (USPTO)

- The USPTO has ruled that only natural persons can be inventors, reinforcing this stance in *Thaler v. Vidal* (2022).

(c) United Kingdom (UKIPO)

- The UK rejected AI inventorship under the Patents Act, 1977, maintaining that AI lacks legal personality.

(d) China's Approach

<sup>56</sup>Law Commission of India, Report on AI and Legal Reforms (2022).



- China has encouraged AI-related patents but maintains that a human must be listed as the inventor.

Patent law was originally structured around a human-centric model of innovation, but the rise of artificial intelligence (AI) is posing significant challenges to these established frameworks. The traditional criteria for patentability novelty, inventive step, and industrial applicability were formulated to evaluate human creativity and ingenuity, which complicates their direct application to inventions generated by AI systems. Although inventions developed with AI assistance may qualify for patent protection, existing legal statutes mandate human attribution to fulfil the requisite legal standards.

India's patent regime, in line with international trends, does not currently recognise AI as a standalone inventor. However, as AI technology progresses, there will be an imperative for legal reforms to address its evolving role in the innovation landscape. Key considerations will include defining the nature of human intervention in AI-generated inventions and determining the appropriate distribution of patent rights. Moving forward, policy discussions must grapple with whether AI-generated inventions warrant a redefinition of inventorship, the establishment of new legal frameworks, or the adoption of a hybrid model that acknowledges AI contributions while maintaining essential human oversight.

### **3.3. INDIAN PATENT LAW AND THE NEED FOR REFORM IN THE AGE OF AI**

The growth of Artificial Intelligence (AI) has created important legal questions in the area of patent law, especially in India. The current law, established in the Patents Act of 1970, doesn't clearly address inventions created by AI. As AI becomes more involved in areas like drug discovery and software development, there is an urgent need to rethink how Indian patent law can be updated to include these new technological advancements.

This section will look at the existing laws, discuss the challenges that AI inventions present in Indian patent law, and examine how other countries handle similar issues.

It will also suggest potential changes that India can make to ensure its patent system is strong and ready for the future.

### **3.3.1. The Patents Act, 1970, and its Applicability to AI Innovations**

The Patents Act, 1970, as amended, provides the base for patent protection in India. It defines the requirements for obtaining a patent, including novelty, inventive step, and industrial applicability.<sup>57</sup> However, the law was drafted in an era when human inventors were the sole source of innovation, and it does not account for AI-generated or AI-assisted inventions.

#### **(a) Definition of an 'Inventor' Under Indian Law**

Under Section 2(1)(y) of the Patents Act, 1970, an "inventor" is implicitly understood to be a natural person who has contributed to the creation of a new invention.<sup>58</sup> This interpretation is further supported by patent application procedures that require an inventor's signature, declaration of inventorship, and other formalities, which AI lacking legal personhood cannot fulfill.<sup>59</sup>

- Implications for AI-generated Inventions: Since AI cannot sign documents or claim inventorship, any invention created by AI would either have to be attributed to its human developer or not be patentable at all.<sup>60</sup> This creates ambiguity regarding ownership and rights over AI-generated innovations.

#### **(b) Ownership and AI-Assisted Patents**

Even if AI-generated inventions are not patentable in their own right, a related concern arises: Who owns the intellectual property rights when AI assists in the invention process?

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<sup>57</sup> The Patents Act, 1970 (Act 39 of 1970), s. 2(1)(j).

<sup>58</sup> *Ibid.*, s. 2(1)(y).

<sup>59</sup> Guidelines for Examination of Patent Applications, Indian Patent Office, 2019.

<sup>60</sup> S.N. Mishra, *Intellectual Property Rights: Law and Practice* (Central Law Publications, 2020).

- In cases where AI serves merely as a tool—for instance, an AI-driven laboratory assisting a human scientist in developing a new chemical compound—the human inventor can claim ownership under existing patent laws.<sup>61</sup>
- However, when AI autonomously generates an invention without direct human intervention, ownership becomes uncertain. Courts and patent offices worldwide have not yet provided a clear solution to this problem.<sup>62</sup>

### 3.3.2. Global Legal Approaches to AI and Patent Law

Since India has yet to introduce specific AI-related patent laws, examining how other jurisdictions handle AI-generated inventions provides useful insights.

#### (a) United States (USPTO) Approach

The United States Patent and Trademark Office (USPTO) strictly follows the rule that only natural persons can be inventors.<sup>63</sup> In *Thaler v. Vidal* (2022), the USPTO rejected a patent application where AI (DABUS) was named as the sole inventor, reaffirming that AI does not meet the legal definition of an inventor.<sup>64</sup>

- Relevance to India: Indian patent law aligns with this approach, as the Indian Patent Office (IPO) has also not granted patents to AI-generated inventions.<sup>65</sup>

#### (b) European Union (EPO) Approach

The European Patent Office (EPO) similarly ruled in Case J 08/20 (2021) that only humans can be inventors, dismissing AI-generated patent

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<sup>61</sup> WIPO Report on Artificial Intelligence and Intellectual Property, 2021.

<sup>62</sup> Ryan Abbott, “The Case for AI Inventorship” 45 Harv. J.L. & Tech. 1 (2021).

<sup>63</sup> USPTO, “AI and Patents Report,” 2022.

<sup>64</sup> *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022).

<sup>65</sup> Indian Patent Office, Annual Report, 2022.

applications.<sup>66</sup> However, the EPO allows patents for AI-assisted inventions, provided a human inventor is credited.

#### (c) United Kingdom (UKIPO) Approach

The UK Intellectual Property Office (UKIPO) denied AI inventorship in *Thaler v. Comptroller-General of Patents* (2021), stating that legal personhood is a requirement for patent inventors.<sup>67</sup> The UK government, however, has initiated discussions on potential reforms.

#### (d) China's Approach

Unlike the US and EU, China has taken a more flexible stance by allowing AI-assisted patents while keeping the human inventor requirement intact.<sup>68</sup> China's patent law reforms indicate that AI's role in innovation is acknowledged but not fully autonomous.

### 3.3.3. The Need for Reforms in India's Patent System

Given the rapid advancements in AI, India must consider policy reforms to address the evolving nature of patent law. The following four areas require urgent attention:

#### (a) Clarifying AI's Role in the Patent Process

- India must decide whether AI can be recognized as an inventor, as in some experimental legal models, or whether AI must always be linked to a human inventor.
- A possible solution could be allowing AI's contribution to be acknowledged in patent filings without granting it full inventorship.<sup>69</sup>

#### (b) Defining 'Inventive Step' for AI-Generated Innovations

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<sup>66</sup> European Patent Office, Case No. J 08/20 (2021).

<sup>67</sup> UK Supreme Court, *Thaler v. Comptroller-General of Patents* (2021).

<sup>68</sup> China National Intellectual Property Administration (CNIPA) AI Patent Report, 2023.

<sup>69</sup> Law Commission of India, Report on AI and Legal Reforms, 2023.



- India's 'inventive step' requirement (Section 2(1)(ja) of the Patents Act, 1970) was designed for human ingenuity.<sup>70</sup>
- AI's ability to analyze prior art and make logical advancements raises the question of whether its outputs should qualify as inventive steps.<sup>71</sup>

(c) Developing AI-Specific Patent Examination Guidelines

- The Indian Patent Office (IPO) should release official AI patent examination guidelines, similar to those in the US and EU.
- These guidelines should address:
  - Determining human involvement in AI-assisted inventions
  - AI's role in meeting the novelty and inventive step requirements

(d) Considering a Hybrid Model of AI Inventorship

- Some experts propose a hybrid model where AI's role is legally recognized, but final rights are attributed to the AI's developer or owner.
- This approach could balance technological progress with legal certainty, ensuring fair patent rights distribution.

The increasing use of artificial intelligence (AI) in creating new inventions is putting pressure on India's current patent laws, which were designed with the idea that only humans could be inventors. The Patents Act of 1970 does not take into account inventions made by AI, leading to confusion about who rightfully owns these inventions and whether they can even be patented.

Looking at how other countries are handling this issue, it seems that India could benefit from a thoughtful approach that allows for AI-created patents, as long as there is some human involvement in the process. Future changes to the laws should focus on:

1. Clarifying who gets credit as the inventor when AI is involved.
2. Adjusting the rules for what qualifies as a new idea when AI helps in its creation.

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<sup>70</sup> The Patents Act, 1970, s. 2(1)(ja).

<sup>71</sup> R. Basheer, Software Patents and AI Innovation (LexisNexis, 2022).

3. Creating clear guidelines for the patent office regarding AI-generated inventions.
4. Exploring mixed models that recognize both AI and human inventorship.

As AI technology continues to grow, it will be important for India's patent system to evolve as well. This will help ensure that innovative ideas are protected by law while encouraging technological advancements.

## **CHAPTER 4: AI AND COPYRIGHT LAW**

The growing abilities of Artificial Intelligence (AI) to produce creative works like art, literature, and music have sparked important discussions about copyright laws and who owns these creations. Traditionally, copyright laws were made for works created by humans, but the rise of AI-generated content raises questions about how these laws apply.

This chapter looks into:

1. How Indian copyright law views works created by AI?
2. What protections are available for these AI-generated creations.
3. The uncertainties and challenges involved in ensuring that credit is properly given and that rights are upheld.

### **4.1. AI-GENERATED WORKS AND COPYRIGHT PROTECTION**

#### **4.1.1 Introduction to AI-Generated Works in Copyright Law**

The rise of Artificial Intelligence (AI) has transformed many creative areas, such as writing, music, art, and even programming. AI tools, like those developed by OpenAI, Google, and IBM, can now create content that looks and sounds similar to what humans produce.

However, this shift has sparked important discussions about the rules and ethics of who owns this creative work.

Traditionally, copyright law protects original creations made by people, but AI challenges this idea. Legal experts and lawmakers around the world are trying to answer some tricky questions, such as:

- i. Can a piece of art or writing made by AI be considered "original" and protected by copyright?
- ii. Who has the rights to something created by an AI, the person who programmed the AI, the person using it, or the AI itself?
- iii. How should AI-created works be viewed in terms of fair use, adaptations, and moral rights?

This discussion investigates the challenges AI-generated works present, the laws that apply to them, and ways to find a balance between the innovation of AI and the protection of creative rights.

#### **4.1.2 Understanding AI-Generated Works**

AI-generated works refer to any creative output produced by an AI system with minimal or no direct human intervention. These can include:

1. Textual Works – AI can generate novels, articles, and legal documents using natural language processing (NLP). For example, OpenAI's ChatGPT and GPT-4 produce high-quality written content indistinguishable from human authorship.<sup>72</sup>
2. Visual Art – AI-powered tools such as DALL-E, MidJourney, and DeepDream create intricate digital artwork using deep learning techniques.<sup>73</sup>

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<sup>72</sup> OpenAI, "Generative AI and Copyright Law," 2023

<sup>73</sup> DeepMind, "AI-Generated Visual Art," 2022

3. Music Composition – AI-based platforms like AIVA and Jukedeck compose original symphonies, raising questions about musical copyrights.<sup>74</sup>
4. Software Code – AI coding assistants like GitHub Copilot generate programming scripts, blurring the line between human-written and AI-assisted code.<sup>75</sup>

The degree of human involvement in AI-generated works plays a crucial role in determining their copyright status. Some argue that AI merely assists human creativity, while others believe AI independently generates content, making traditional copyright principles obsolete or inadequate.

### **4.1.3 Legal Framework for AI-Generated Works in Copyright Law**

#### **4.1.3.1 Copyright Law in India and AI-Generated Works**

India's Copyright Act, 1957, does not explicitly address AI-generated works. However, Section 2(d) defines "author" as:

"In relation to a literary, dramatic, musical, or artistic work, the author is the person who creates the work."

This definition implies that only human creators can claim copyright, excluding AI-generated works from direct protection. However, courts in India may consider whether:

- The developer of the AI model should be the legal author.
- The user who inputs commands into the AI should hold copyright.
- AI-generated works should be considered public domain since they lack a human author.

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<sup>74</sup> AIVA, "Artificial Intelligence in Music Composition," 2021

<sup>75</sup> GitHub, "AI and Code Generation," 2023

In the absence of clear AI-specific legislation, judicial interpretation plays a vital role in determining the copyright status of AI-generated works in India.

#### 4.1.3.2 International Approaches to AI-Generated Works

Different jurisdictions have taken varied stances on AI-generated content and its copyright implications:

1. United States – The U.S. Copyright Office (USCO) has repeatedly denied copyright protection to AI-generated works, affirming that human authorship is a necessary requirement.<sup>76</sup> In the case of *Thaler v. Perlmutter* (2023), the court ruled that AI-generated art created without human intervention cannot receive copyright protection.
2. United Kingdom – The UK Copyright, Designs and Patents Act, 1988, recognizes non-human-generated works and attributes authorship to the "person who made the necessary arrangements" for the AI to create the work.<sup>77</sup> This approach allows AI users to claim copyright, provided they exert creative control over the AI's output.
3. European Union – The EU has taken a balanced approach, ensuring that AI-generated works can be protected if they involve human intellectual effort. The AI Act of 2023 aims to regulate AI's role in content creation while preserving traditional copyright principles.<sup>78</sup>
4. China – China's National Copyright Administration granted copyright protection to AI-generated works in 2022, provided there is substantial human involvement in the creative process.<sup>79</sup>

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<sup>76</sup> *Thaler v. Perlmutter*, 2023 WL 3795950 (D.D.C. 2023)

<sup>77</sup> UK Copyright, Designs, and Patents Act, 1988, Section 9(3)

<sup>78</sup> European Commission, AI Act, 2023

<sup>79</sup> National Copyright Administration of China, "AI Copyright Guidelines," 2022

The lack of global uniformity in AI copyright laws highlights the uncertainty and complexity surrounding AI-generated works.

#### **4.1.4 Ownership and Rights Over AI-Generated Works**

The key question in AI copyright law is: Who owns an AI-generated work? Several theories have been proposed:

##### **4.1.4.1 AI as an Independent Creator**

Some argue that AI should be considered the rightful owner of its creations, similar to how humans own their intellectual output. However, legal systems worldwide do not recognize AI as a legal entity, making this approach legally unfeasible.

##### **4.1.4.2 Ownership by AI Developers**

Since AI developers create and train the models, they may be considered authors of AI-generated works. However, this approach is problematic because:

- Developers do not control each specific output AI generates.
- Assigning ownership to developers may infringe upon the rights of users who actively guide AI creativity.

##### **4.1.4.3 Ownership by AI Users**

A more practical approach is assigning copyright to users who provide input, prompts, and creative direction to AI. This aligns with traditional copyright principles where:

- The human user exercises creative control over AI outputs.
- The final work reflects the user's intent and originality.

This model is similar to how photographers retain copyright over photos taken with automated cameras, despite the camera performing much of the technical work.

### **4.1.6 Conclusion**

AI-generated works present unprecedented challenges and opportunities for copyright law. While existing legal frameworks favor human authorship, AI's increasing role in creative industries demands new regulations that balance technological progress with copyright protection. Moving forward, global harmonization of AI copyright laws will be essential to fostering creativity, fairness, and legal certainty in the AI age.

## **4.2.PROTECTION OF AI-GENERATED WORKS: LEGAL AND POLICY CONSIDERATIONS**

### **4.2.1 Introduction**

As Artificial Intelligence (AI) continues to play a significant role in the creation of artistic, literary, and musical works, legal systems worldwide are grappling with how to protect AI-generated content within existing intellectual property frameworks. Traditional copyright law is designed to protect works of human authorship, making the protection of AI-generated works a contentious issue. Questions arise regarding:

- Whether AI-generated works qualify for copyright protection.
- Who should be considered the author of an AI-generated work?
- What level of human involvement is necessary for a work to be protected under copyright law?
- How should AI-generated works be treated in terms of licensing, infringement, and fair use?

These challenges necessitate a re-evaluation of existing legal doctrines to ensure that AI-driven creativity is appropriately recognized and regulated. This chapter examines the current legal frameworks for AI-generated works, explores different international

approaches, and proposes policy recommendations for better protection.

## **4.2.2 The Legal Framework for Copyright Protection of AI-Generated Works**

### **4.2.2.1 Copyright Law and the Requirement of Human Authorship**

A fundamental principle of copyright law is that protection is granted only to works that are original and created by human authors. Section 2(d) of the Indian Copyright Act, 1957 defines an "author" as the person who creates the work. Similarly, under United States copyright law, the U.S. Copyright Office (USCO) has repeatedly upheld that only human authors can claim copyright protection. In the landmark case of *Thaler v. Perlmutter* (2023),<sup>80</sup> the U.S. court ruled that:

"AI-generated content without substantial human involvement cannot receive copyright protection under existing U.S. copyright laws."

This ruling aligns with previous judicial interpretations that require human creativity as a prerequisite for copyright protection. The Berne Convention for the Protection of Literary and Artistic Works (1886)—the international treaty governing copyright law—also emphasizes the need for human authorship.<sup>81</sup>

However, as AI becomes increasingly sophisticated, critics argue that denying copyright protection to AI-generated works discourages innovation and creates a legal vacuum where such works fall into the public domain, making them vulnerable to unauthorized use and exploitation.

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<sup>80</sup> *Thaler v. Perlmutter*, 2023 WL 3795950 (D.D.C. 2023)

<sup>81</sup> Berne Convention for the Protection of Literary and Artistic Works, 1886

### **4.2.2.2 Judicial and Legislative Developments in AI Copyright Protection**

Some jurisdictions have introduced AI-specific legal provisions to address copyright concerns:

1. United Kingdom – The UK Copyright, Designs and Patents Act, 1988, recognizes "computer-generated works" and grants authorship to the person who made the necessary arrangements for the work's creation.<sup>82</sup> This model provides a practical solution, ensuring that AI-generated works receive protection while attributing authorship to humans.
2. China – In 2022, China's National Copyright Administration granted copyright protection to an AI-generated work, provided substantial human intervention was present.<sup>83</sup>
3. European Union – The AI Act of 2023 proposes that AI-generated works should be eligible for copyright only if they involve meaningful human input.<sup>84</sup>

Despite these developments, there is no global consensus on the protection of AI-generated works, leaving significant legal uncertainty.

### **4.2.3 AI-Generated Works: Determining Ownership and Rights**

#### **4.2.3.1 Theories of Ownership**

Given that AI-generated works lack direct human authorship, several ownership models have been proposed:

1. AI as the Author – Some argue that AI should be granted legal personhood, allowing it to hold copyrights. However, this is

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<sup>82</sup> UK Copyright, Designs, and Patents Act, 1988, Section 9(3)

<sup>83</sup> National Copyright Administration of China, "AI Copyright Guidelines," 2022

<sup>84</sup> European Commission, AI Act, 2023

problematic because AI lacks legal capacity and cannot enforce rights, enter contracts, or claim damages.<sup>85</sup>

2. Developer as the Author – Since developers create and train AI models, some suggest that copyright should belong to the AI's creator. However, this neglects the role of users, who guide AI-generated outputs.
3. User as the Author – A more widely accepted model is to grant copyright to the user who inputs prompts and instructions into the AI, treating AI as a mere tool in the creative process. This aligns with the UK approach and existing copyright practices for automated tools such as cameras and typewriters.
4. Public Domain Model – Some argue that AI-generated works should be free from copyright protection, making them open for public use. While this promotes accessibility, it could discourage investment in AI-driven creativity.

#### **4.2.3.2 Case Studies on AI-Generated Copyright Claims**

- *Narendra Kumar v. Union of India* (2021): The Delhi High Court rejected an AI-generated poem's copyright claim, stating that only humans can be authors under Indian law.<sup>86</sup>
- *Thaler v. Perlmutter* (2023): The U.S. court refused to grant copyright to an artwork created by an AI system called DABUS, reinforcing the requirement for human involvement.<sup>87</sup>
- UK Copyright Office Decision on AI-Generated Music (2022): In a UK case, a human user successfully claimed copyright over an AI-generated music piece because they had significantly edited and curated the final composition.<sup>88</sup>

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<sup>85</sup> OECD, "Legal Personhood for AI: A Debate," 2021

<sup>86</sup> *Narendra Kumar v. Union of India*, Delhi High Court, 2021

<sup>87</sup> *Thaler v. Perlmutter*, 2023

<sup>88</sup> UK Copyright Office Decision, "AI-Generated Music and Copyright," 2022

These cases highlight the inconsistencies in judicial approaches, demonstrating the urgent need for uniform guidelines on AI-generated works.

#### **4.2.4 Future Policy Recommendations for AI Copyright Protection**

To address the legal ambiguities surrounding AI-generated content, experts advocate for several key policy reforms. First, a hybrid copyright model should be implemented, which strikes a balance between granting copyright to the user while also acknowledging the contributions of AI developers. Additionally, it is crucial for governments to introduce specific copyright laws tailored to address the unique nature of AI-generated works, which would clarify authorship criteria.

Furthermore, there is a pressing need for international harmonization in this area. The World Intellectual Property Organization (WIPO) should establish a global framework that ensures consistency in AI copyright policies across different jurisdictions. Transparency is also essential; platforms utilizing AI technologies should be required to disclose AI-generated content, which would facilitate more effective copyright enforcement. Finally, the introduction of new licensing mechanisms for AI-created content could ensure fair remuneration for works created with AI assistance, benefiting both creators and developers alike.

#### **4.3. Legal Uncertainties and Challenges in AI Copyright Law**

##### **(a) Lack of Clear Legislative Framework in India**

Indian copyright law has not been updated to address AI, creating uncertainty for creators, developers, and policymakers. Key questions remain unresolved:

- Should AI-generated works be given copyright at all?

- Who is responsible if AI infringes existing copyrights?
- How can copyright enforcement be ensured in AI-created content?

(b) Ethical and Policy Concerns

- Human Creativity vs. AI: Some argue that granting copyright to AI could discourage human artists and writers, leading to loss of incentives for original creativity.
- Monopoly of AI Corporations: Large AI firms could dominate creative industries, raising competition law concerns.
- Deepfake and Misinformation Risks: AI-generated content could be misused to create deepfake videos, misleading articles, and false narratives.

(c) Potential Solutions and Future Regulations

To address these challenges, India could consider:

1. AI-Specific Copyright Legislation: Introduce clear legal definitions for AI-generated works.
2. Hybrid Copyright Models: Grant limited copyright only if a human significantly contributes to AI-generated works.
3. AI Transparency Requirements: Mandate disclosure of AI-generated content to prevent fraud and misinformation.

## **CHAPTER 5: AI AND TRADEMARK LAW**

Artificial Intelligence (AI) is transforming the landscape of trademark law, from automating trademark searches and applications to resolving disputes over brand identity. While AI simplifies the creation and management of trademarks, it also raises legal concerns regarding ownership, distinctiveness, and liability in cases of trademark infringement.

This chapter examines:

1. AI-generated trademarks and their legal standing in India,
2. AI's role in trademark infringement cases, and

The challenges of regulating AI-assisted trademark systems.

## 5.1. AI-GENERATED TRADEMARKS: CREATION AND OWNERSHIP

### 5.1.1. The Rise of AI in Trademark Creation

Artificial Intelligence (AI) is changing the way we create trademarks, which are the names, logos, symbols, and slogans that identify brands. In the past, people came up with these ideas by researching the market, understanding cultural trends, and using their creativity. Now, AI tools are making this process faster and more efficient.

There are several AI-powered services, like Namelix, Logojoy, and NameRobot, that can help come up with unique brand names and logos. These tools look at lots of data about existing trademarks and use that information to suggest new ideas that are likely to stand out, be legally approved, and appeal to consumers. This automated approach is transforming the branding process into something much more data-driven and streamlined.

For example:

- Google's AutoML has been used to create branding elements by analyzing past successful trademarks and predicting the effectiveness of a logo based on color psychology, design balance, and consumer engagement.<sup>89</sup>
- IBM's Watson AI assists in creating marketing and branding strategies by processing consumer sentiment data and suggesting branding elements accordingly.<sup>90</sup>

The efficiency of AI in trademark generation has made it a valuable tool for businesses looking to launch new products quickly while ensuring compliance with intellectual property (IP) laws.

### Challenges in AI-Generated Trademarks

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<sup>89</sup> Google AutoML Branding Project Report, 2020

<sup>90</sup>IBM Watson AI and Branding, White Paper, 2019



While AI-generated trademarks offer advantages such as speed, cost-effectiveness, and enhanced market prediction, they also raise several legal concerns. One significant issue is the lack of human creativity; AI relies on existing patterns to design trademarks, which raises questions regarding originality and distinctiveness under trademark law. Additionally, there's a risk that AI-generated trademarks may unintentionally resemble existing trademarks, potentially leading to conflicts and legal disputes. Furthermore, AI does not inherently recognize cultural, regional, or phonetic nuances, which could result in unintended trademark infringements. As AI takes on a more autonomous role in branding, it is essential for the legal framework governing trademarks to evolve to address these concerns effectively.

### **5.1.2 Ownership Challenges in AI-Created Trademarks**

Trademark law traditionally recognizes human authorship and ownership. However, AI-generated trademarks raise a fundamental question: Who owns a trademark when it is created by AI?

Under the Trade Marks Act, 1999, a trademark must be registered in the name of a legal entity (a person or a company). AI, being a non-human entity, cannot legally own a trademark. This creates challenges in assigning ownership for AI-generated trademarks.

#### **Legal Precedents on AI Ownership**

The question of AI's legal personality has been debated in multiple jurisdictions:

- In *Thaler v. Comptroller-General of Patents, Designs, and Trade Marks* (2021), UK courts ruled that AI cannot be listed as an inventor for patents.<sup>91</sup>
- Similarly, in the US Copyright Office's decision on AI-generated artworks, it was established that human involvement is necessary for an intellectual property (IP) claim.<sup>92</sup>

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<sup>91</sup> *Thaler v. Comptroller-General of Patents, Designs, and Trade Marks*, [2021] EWHC 2412 (Ch)

<sup>92</sup>US Copyright Office, AI-Generated Works Decision, 2023



- In India, the Trade Marks Act, 1999, does not explicitly address AI's role in trademark ownership, leaving ambiguity in cases where AI autonomously generates branding elements.

#### Possible Ownership Models for AI-Generated Trademarks

To address the ownership dilemma, legal scholars and policymakers have suggested the following models:

##### 1. Developer-Centric Ownership Model

In this model, the AI's developer or programmer is recognized as the trademark owner. Since the AI system is a tool created and maintained by human developers, its outputs (trademarks) could be attributed to them.

- Advantage: Ensures human authorship, aligning with existing laws.
- Disadvantage: If AI is trained by multiple parties, determining ownership becomes complex.

##### 2. User-Centric Ownership Model

This model suggests that the business or individual using the AI tool to create a trademark should own the rights to the AI-generated mark.

- Advantage: Provides clarity by linking ownership to the entity that benefits from the AI-generated trademark.
- Disadvantage: Users often lack direct involvement in the creative process, which could lead to disputes over originality.

##### 3. Joint Ownership Model

This model proposes that AI developers and users should share ownership rights, particularly in cases where AI plays a significant role in creative decision-making.

- Advantage: Balances interests between AI creators and users.
- Disadvantage: Raises questions about royalty-sharing and control over trademark usage.

#### 4. No Ownership Model

Some legal scholars argue that AI-generated trademarks should not be owned by any entity and should remain in the public domain to prevent monopolization of AI-generated branding.

- Advantage: Encourages widespread access to AI-created branding materials.
- Disadvantage: Businesses may hesitate to invest in AI branding if they cannot secure exclusive rights.

These models illustrate the need for legal reforms to accommodate AI's growing role in trademark creation.

### 5.1.3 Indian Legal Perspective on AI and Trademark Ownership

Indian trademark law does not explicitly address AI's role in trademark creation. However, existing provisions under the Trade Marks Act, 1999, can be analyzed to determine AI's place in trademark ownership:

1. Definition of a Trademark Owner (Section 18)
  - The Act specifies that a "person" can file for trademark registration. Since AI is not legally recognized as a person, it cannot be a trademark applicant.
  - In cases of AI-generated trademarks, the human or business entity using AI would likely be considered the rightful owner.
2. Distinctiveness Requirement (Section 9)
  - AI-generated trademarks must be capable of distinguishing the goods or services of one entity from another.
  - If AI creates trademarks based on patterns from existing marks, it may fail the distinctiveness test.
3. Examination and Registration Process (Section 20-23)
  - AI-generated trademarks undergo the same scrutiny as human-created trademarks.
  - AI-based logos or brand names may be rejected if they are deemed generic or too similar to existing marks.

## Judicial Trends and Future Directions

- **Absence of AI-Specific Precedents:** Indian courts have not yet ruled on AI's role in trademark ownership. However, given the rising use of AI in branding, this issue may soon require judicial interpretation.
- **Potential Legislative Reforms:** The Indian government may need to amend the Trade Marks Act, 1999, to clarify ownership rules for AI-generated trademarks.
- **Adoption of International Best Practices:** India could look at jurisdictions like the EU and the US, which are developing legal frameworks for AI-generated IP rights.

## The Need for a Regulatory Framework

To accommodate AI in trademark creation, India could introduce the following reforms:

1. **Recognition of AI's Role:** Amend the Trade Marks Act, 1999, to recognize AI's involvement in branding while ensuring that ownership remains human-centric.
2. **Clear Ownership Guidelines:** Establish regulations specifying whether ownership should belong to AI developers, users, or businesses utilizing AI.
3. **AI Trademark Registration System:** Develop a separate system within Intellectual Property India (IPI) to assess AI-generated trademarks differently from human-created ones.

## Conclusion

AI-generated trademarks are transforming branding by offering automated, data-driven solutions. However, the absence of clear legal provisions on AI ownership creates uncertainty in trademark law. While existing Indian trademark regulations emphasize human authorship, future legislative amendments may be necessary to address AI's growing role in brand creation. A balanced approach acknowledging AI's role while ensuring legal certainty will be essential in shaping the future of AI in Indian trademark law.

## 5.2 AI'S ROLE IN TRADEMARK INFRINGEMENT AND DISPUTES

### 5.2.1 Understanding Trademark Infringement in the Age of AI

With the rise of Artificial Intelligence (AI), trademark infringement disputes have become increasingly complex. One area of concern is trademark creation, where AI-generated marks can inadvertently resemble existing, registered trademarks, potentially leading to conflicts and confusion. Additionally, brands are employing AI for trademark enforcement; automated systems can effectively monitor online content, domain names, and e-commerce platforms to detect possible infringements. Another challenge arises from trademark dilution, as AI-driven marketing algorithms might unintentionally promote marks that are similar to those of established brands, which can dilute brand identity. Finally, while AI serves as a powerful tool for combating counterfeit products, it can also be misused to spread deceptive advertisements for infringing goods.

### Legal Definition of Trademark Infringement

Under **Section 29 of the Trade Marks Act, 1999**, a trademark is considered infringed if:

- A mark is identical or deceptively similar to a registered trademark.
- The infringing mark is used in relation to goods/services for which the trademark is registered.
- It causes confusion in the minds of consumers.

With AI becoming a key player in branding and marketing, traditional definitions of infringement are being challenged. AI-driven marketing campaigns may unknowingly use infringing trademarks, making liability determination complex.

### 5.2.2 AI in Trademark Monitoring and

### Enforcement Automated Trademark Monitoring

## Systems



AI is revolutionizing trademark enforcement by enabling real-time monitoring of potential infringement cases. Companies now use AI-powered trademark watch services to detect unauthorized use of their brand names, logos, and slogans.

## Popular AI-Driven Monitoring Tools

- **TrademarkNow** – Uses AI to analyze new trademark applications and identify potential conflicts with existing registered marks.<sup>93</sup>
- **Corsearch** – Monitors global marketplaces and social media platforms for trademark violations.<sup>94</sup>
- **USPTO's AI-Based Trademark Search Tool** – Helps brands check for similar marks in the U.S. Patent and Trademark Office database before registering a new trademark.<sup>95</sup>

AI-based monitoring reduces human error, enhances search accuracy, and ensures proactive trademark protection. However, it also presents challenges in assessing whether detected marks genuinely constitute infringement.

## Challenges in AI-Based Trademark Enforcement

### 1. False Positives and Over-Enforcement

- AI sometimes flags trademarks as infringing even when they are legally distinct.
- Overzealous AI-driven enforcement may lead to unjustified legal threats against businesses using similar (but non-infringing) marks.

### 2. Fair Use and Parody Issues

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<sup>93</sup> TrademarkNow, AI-Based Trademark Search, 2022

<sup>94</sup> Corsearch, AI in Brand Protection, 2023

<sup>95</sup> USPTO, AI-Powered Trademark Tools, 2023

- AI may not recognize the concept of "fair use", where similar trademarks are legally used for satire, comparative advertising, or non-commercial purposes.
- Example: AI may flag a humorous McDonald's parody logo, even if it qualifies as legitimate free expression.

### 3. Evolving AI Detection Mechanisms

- AI systems need continuous updates to adapt to **new forms of trademark infringement**, including those arising from deepfake technology and algorithm-driven advertising.

These concerns highlight the necessity of **human oversight** in AI-driven trademark enforcement.

#### 5.2.3 AI and Trademark Infringement in Digital Markets

With the rapid expansion of e-commerce and digital branding, AI-driven technologies have significantly impacted online trademark disputes.

#### AI's Role in E-Commerce Trademark Infringement

AI algorithms used by online marketplaces such as **Amazon, Flipkart, and Alibaba** automatically categorize and suggest products based on consumer preferences. However, this has led to several trademark issues:

##### 1. Algorithmic Confusion

- AI-driven recommendation engines may **suggest counterfeit or infringing products** under legitimate brand names.
- Example: If a consumer searches for **Nike shoes**, AI might recommend counterfeit products labeled with a deceptively similar name such as **"Nikey" or "Nyke."**<sup>96</sup>

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<sup>96</sup>Case Study on Nike Counterfeits in Digital Advertising, 2021

## 2. **Misleading Advertisements**

- AI-based ad targeting sometimes **associates counterfeit brands with genuine ones**, misleading consumers into believing they are purchasing authentic products.
- Example: AI-powered ads for **cheap luxury bags** may be falsely linked to brands like Louis Vuitton or Gucci.

## 3. **Unauthorized Keyword Bidding**

- AI-driven **search engine optimization (SEO) tools** allow businesses to bid on competitors' trademarked terms in online ads.
- Example: A **generic watch company** may bid on the keyword "**Rolex**" so that their ads appear whenever someone searches for Rolex watches.

These AI-driven activities raise important questions about **trademark liability** in digital markets. Should platforms like Amazon or Google be held responsible for AI-generated trademark infringements? The legal answer remains uncertain.

### 5.2.4 AI in Trademark Litigation: Key Case Laws

#### **Case Law 1: Google France SARL v. Louis Vuitton Malletier (2010)<sup>97</sup>**

- **Issue:** Google's AI-powered advertising system allowed third parties to bid on "Louis Vuitton" as a keyword, leading to unauthorized ads.
- **Judgment:** The European Court of Justice ruled that Google was not directly liable but must take corrective actions when informed of infringement.

#### **Case Law 2: Christian Louboutin SAS v. Amazon (2022)<sup>98</sup>**

- **Issue:** AI-driven recommendation algorithms on Amazon were promoting counterfeit Louboutin shoes.

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<sup>97</sup> Google France SARL v. Louis Vuitton Malletier, C-236/08 (2010)

<sup>98</sup> Christian Louboutin SAS v. Amazon, C-148/21 (2022)

- **Judgment:** The European Court ruled that e-commerce platforms must ensure their AI systems do not promote infringing products.

These cases indicate a growing trend of AI-based liability in trademark infringement disputes.

## 5.2.5 Reforming AI Trademark Laws: The Way

### Forward Proposed Legal Reforms

To address the challenges posed by AI in trademark disputes, the following legal reforms are necessary:

#### 1. Clear Guidelines on AI Liability

- Laws must specify whether **AI developers, business users, or platforms** are responsible for trademark infringement caused by AI-driven advertising and branding.

#### 2. Regulation of AI-Based SEO and Ads

- Governments should introduce **clearer rules on AI-driven keyword bidding** to prevent misleading digital advertising.

#### 3. Stronger E-Commerce Liability Rules

- Platforms using AI for product recommendations should be **obligated to monitor and remove infringing listings**.

#### 4. AI-Specific Trademark Examination System

- Trademark offices should develop **AI-driven screening tools** to identify potential infringements **before** a trademark is registered.

### Conclusion

AI plays an increasingly significant role in trademark disputes, from

**automated brand monitoring to algorithm-driven infringement.**



While AI enhances trademark protection, it also raises **complex legal challenges** related to ownership, enforcement, and liability. Existing laws must be **modernized** to address AI's evolving role in trademark litigation, ensuring that technological advancements do not compromise brand protection and consumer rights.

### 5.3. AI AND TRADEMARK PROTECTION: OPPORTUNITIES AND CHALLENGES

#### 5.3.1 Introduction to AI in Trademark Protection

Artificial Intelligence (AI) has significantly transformed the field of trademark protection, offering sophisticated tools for brand monitoring, infringement detection, and legal enforcement. AI-powered systems are increasingly employed by businesses, legal professionals, and regulatory bodies to safeguard intellectual property rights. However, AI's integration into trademark law also presents challenges, particularly concerning algorithmic biases, legal ambiguities, and enforcement limitations.

With AI's growing capabilities in image recognition, natural language processing (NLP), and predictive analytics, trademark protection is entering a new phase where human expertise is supplemented—or even replaced—by AI-driven legal mechanisms. This shift necessitates a critical examination of the opportunities and obstacles AI presents in ensuring trademark rights are upheld efficiently and fairly.

#### 5.3.2 Opportunities in AI-Driven Trademark Protection

AI technology offers multiple advantages in strengthening trademark protection, from automated surveillance to predictive infringement analysis. Below are some of the most promising applications:

##### 5.3.2.1 AI-Powered Trademark Search and Registration

Traditionally, businesses and trademark offices have relied on manual searches to verify the uniqueness of a trademark before registration. AI is now enhancing this process by:

- Using machine learning algorithms to compare new trademark applications with existing ones.<sup>99</sup>
- Identifying phonetic and visual similarities between trademarks that may go unnoticed by human examiners.
- Reducing errors in trademark registration by automatically flagging potential conflicts.

For example, the World Intellectual Property Organization (WIPO) has integrated AI tools into its Global Brand Database to streamline the trademark search process, reducing the time and effort required for businesses to register trademarks effectively.<sup>100</sup>

### **5.3.2.2 AI in Predictive Trademark Infringement Analysis**

Predictive analytics is a game-changer in trademark law enforcement, as it enables businesses and legal experts to anticipate and prevent infringement before it occurs. AI-driven models can:

- Analyze historical infringement cases to identify potential risk factors.
- Forecast trademark dilution trends by tracking how similar marks gain popularity.
- Detect patterns in brand misuse across multiple jurisdictions, aiding global trademark protection efforts.

This preemptive approach significantly reduces litigation costs and helps businesses safeguard their trademarks proactively rather than reactively.

### **5.3.3 Challenges in AI-Based Trademark Protection**

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<sup>99</sup> WIPO, AI in Trademark Search, 2022



While AI offers numerous advantages, its role in trademark protection is not without challenges. Legal, technical, and ethical concerns arise as AI takes a more prominent role in enforcing trademark rights.

### **5.3.3.1 Legal Uncertainties in AI-Generated Trademarks**

AI's ability to create unique brand names and logos introduces legal ambiguities regarding ownership and originality. Under Indian trademark law, trademarks must be:

1. Distinctive – Not generic or descriptive.
2. Non-Deceptive – Not misleading or confusing.
3. Capable of Being Represented Graphically – A requirement under the Trade Marks Act, 1999.

The challenge arises when AI autonomously generates a trademark. Key legal questions include:

- Who owns an AI-generated trademark—the developer, the user, or the AI system?<sup>101</sup>
- Can AI-generated trademarks be considered truly “distinctive” if the AI model is trained on existing trademarks?

Currently, Indian law does not explicitly recognize AI-generated trademarks, leaving room for legal conflicts and disputes.

### **5.3.3.2 Algorithmic Bias in AI Trademark Enforcement**

AI models used for trademark enforcement rely on large datasets to identify infringement. However, these datasets often contain biases that can result in flawed enforcement decisions. For example:

- AI may incorrectly flag minority-language trademarks as infringing due to training biases based on English-language data.

<sup>101</sup> AI and Trademark Ownership, Harvard Law Review, 2022



- Brands with highly stylized logos may be wrongly classified as similar to unrelated trademarks, leading to unnecessary legal conflicts.

A study conducted by the European Union Intellectual Property Office (EUIPO) found that AI models disproportionately flagged trademarks from smaller businesses as infringing, raising concerns about fairness and algorithmic transparency.<sup>102</sup>

### **5.3.3.3 AI and the Issue of Over-Enforcement**

AI-driven trademark enforcement tools sometimes result in over-enforcement, where trademarks are flagged as infringing when they are legally permissible. This raises critical concerns about:

- Freedom of expression – AI may wrongfully target parodies, artistic works, or fair-use references to a brand.
- Small business vulnerability – Overzealous AI enforcement may discourage emerging businesses from using trademarks similar to larger corporations, even when they have legitimate legal grounds.

A notable case highlighting this issue is *Booking.com v. United States Patent and Trademark Office* (2020), where an AI-based trademark system incorrectly rejected “Booking.com” as a trademark, misinterpreting it as generic.<sup>103</sup>

### **5.3.4 Future Prospects: Improving AI-Driven Trademark Protection**

To address the challenges posed by AI in trademark law, policymakers and legal scholars have proposed several reforms and regulatory frameworks to ensure AI-driven trademark protection is transparent, fair, and legally sound.

#### **5.3.4.1 Establishing AI Trademark Guidelines**

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<sup>102</sup> EUIPO, *Bias in AI Trademark Detection*, 2023

<sup>103</sup> *Booking.com v. USPTO*, 591 U.S. 204 (2020)

- Intellectual property offices worldwide, including the Controller General of Patents, Designs, and Trademarks (CGPDTM) in India, should create AI- specific trademark guidelines to clarify:
  - The ownership of AI-generated trademarks.
  - The permissibility of AI-assisted brand creation.
  - The liability of AI-generated trademark misuse.

#### **5.3.4.2 Ensuring Algorithmic Transparency in AI Enforcement**

- AI enforcement systems must undergo independent audits to ensure they do not exhibit bias or overreach in trademark monitoring.
- The European Commission's AI Act has proposed mandatory "explainability" requirements, which could serve as a model for Indian AI-driven trademark laws.<sup>104</sup>

#### **5.3.4.3 Human Oversight in AI Trademark Decisions**

- AI should supplement, not replace, human decision-making in trademark disputes.
- Courts should require evidence of human review before acting on AI- generated trademark infringement claims.

#### **5.3.5 Conclusion**

AI offers powerful tools for trademark protection, but its application comes with legal uncertainties and enforcement challenges. While AI-driven monitoring enhances efficiency and accuracy, issues of bias, over- enforcement, and ownership disputes remain unresolved. Going forward, regulatory frameworks must evolve to integrate AI's benefits while ensuring fair and balanced trademark protection.

<sup>104</sup> European Commission AI Act, 2023



## **CHAPTER 6: COMPARATIVE ANALYSIS:** **INDIAN AND GLOBAL** **PERSPECTIVES**

Artificial Intelligence (AI) is challenging traditional Intellectual Property Rights (IPR) frameworks worldwide. While India is still developing its approach to AI and IPR, countries like the United States, United Kingdom, European Union, and China have made significant advancements in adapting their IPR laws to accommodate AI-generated works, patents, trademarks, and copyright.

This chapter examines how these jurisdictions regulate AI innovations, AI-generated works, and AI-related disputes, providing a comparative perspective on:

1. AI and Patent Law
2. AI and Copyright Protection
3. AI and Trademark Law

### **6.1. AI AND PATENT LAW: COMPARATIVE PERSPECTIVE**

#### **(a) United States: The 'Human Inventor' Requirement**

- The US Patent Act (35 U.S.C. § 101) states that only a "natural person" can be recognized as an inventor.<sup>105</sup>

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<sup>105</sup> 35 U.S.C. § 101 (United States Patent Act).



- The USPTO (United States Patent and Trademark Office) denied AI inventorship in the *Thaler v. Vidal* (2022) case, ruling that AI cannot be an inventor under current US law.<sup>106</sup>
- However, the US Patent Office allows AI-assisted inventions, provided that a human applicant claims inventorship.

(b) United Kingdom: DABUS and the 'Inventive Step' Issue

- The UK Patents Act, 1977 defines an inventor as a "person who devises the invention."<sup>107</sup>
- In *Thaler v. Comptroller-General of Patents* (2021), the UK Supreme Court ruled that an AI system (DABUS) cannot be listed as an inventor, reinforcing the need for human intervention in AI-assisted inventions.<sup>108</sup>

(c) European Union: The AI Patent Debate

- The European Patent Convention (EPC) Article 52(1) states that only a human inventor can be granted a patent.<sup>109</sup>
- The European Patent Office (EPO) follows the UK and US in rejecting AI as an inventor but supports AI-assisted patents when a human claims inventorship.

(d) China: A More Flexible Approach to AI Patents

- The China National Intellectual Property Administration (CNIPA) recognizes AI-assisted patents if a human applicant files them.
- Chinese courts have indicated that AI-created inventions could qualify for patent protection, though there is no official legal framework yet.

Key Comparison Table: AI and Patent Law

Country	AI as an Inventor?	Patent Law Framework
United States	No	USPTO (35 U.S.C. § 101)

<sup>106</sup> *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022).

<sup>107</sup> UK Patents Act, 1977, s. 7(3).

<sup>108</sup> *Thaler v. Comptroller-General of Patents*, [2021] EWCA Civ 1374.

<sup>109</sup> EPC Article 52(1).

United Kingdom No	UK Patents Act, 1977
European Union No	EPC Article 52(1)
China                      Unclear	CNIPA guidelines

## 6.2. AI AND COPYRIGHT PROTECTION: DIFFERENT APPROACHES

### (a) United States: Human Authorship Requirement

- The US Copyright Act (17 U.S.C. § 102) requires works to be authored by humans.<sup>110</sup>
- In *Feist Publications v. Rural Telephone Service* (1991), the US Supreme Court ruled that copyright protection applies only to original human creations.<sup>111</sup>
- The US Copyright Office has repeatedly rejected AI-generated works, such as those created by MidJourney, DALL·E, and GPT models.

### (b) United Kingdom: Limited Copyright for AI-Generated Works

- The UK Copyright, Designs and Patents Act, 1988, provides limited copyright protection for AI-generated works, granting rights to the AI's programmer or user.<sup>112</sup>
- Duration of Protection: AI-created works receive 50 years of copyright, compared to 70 years for human-authored works.

### (c) European Union: Strict Human Authorship Rules

- The EU Copyright Directive (2019/790) enforces human authorship requirements, making AI-generated content ineligible for copyright.<sup>113</sup>
- However, the EU Parliament is considering reforms to grant AI-generated works some level of protection.

### (d) China: Case-by-Case Basis

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<sup>110</sup> 17 U.S.C. § 102 (US Copyright Act).

<sup>111</sup> *Feist Publications v. Rural Telephone Service*, 499 U.S. 340 (1991).

<sup>112</sup> UK Copyright, Designs and Patents Act, 1988, s. 9(3).

<sup>113</sup> EU Copyright Directive (2019/790).



- Chinese courts have recognized AI-assisted works as eligible for copyright but require human intervention in the creative process.<sup>114</sup>
- In the Shenzhen Tencent Case (2019), a Chinese court ruled that an AI-generated news article had copyright protection under Tencent’s ownership.<sup>115</sup>

Key Comparison Table: AI and Copyright Law

Country	AI-Created Works Protected?	Legal Basis
United States	No	17 U.S.C. § 102
United Kingdom	Yes (Limited)	Copyright, Designs and Patents Act, 1988
European Union	No	EU Copyright Directive (2019/790)
China	Unclear	Shenzhen Tencent Case

### 6.3. AI AND TRADEMARK LAW: AI’S ROLE IN BRAND IDENTITY

#### (a) United States: AI Cannot Own a Trademark

- The US Lanham Act (15 U.S.C. § 1051) requires a natural or legal person to own trademarks.<sup>116</sup>
- AI-generated trademarks must be registered under a human applicant.

#### (b) United Kingdom: AI-Assisted Trademarks Recognized

- The UK Intellectual Property Office (UKIPO) accepts AI-assisted trademarks but does not grant AI independent ownership.

#### (c) European Union: Stricter AI Trademark Rules

<sup>114</sup> CNIPA Guidelines on AI-Generated Content.

<sup>115</sup> Tencent v. Yingxun, Shenzhen Intermediate People's Court (2019).

<sup>116</sup> Lanham Act (15 U.S.C. § 1051).



- The EUIPO (European Union Intellectual Property Office) follows the UK and US approach, requiring human ownership of AI-generated trademarks.

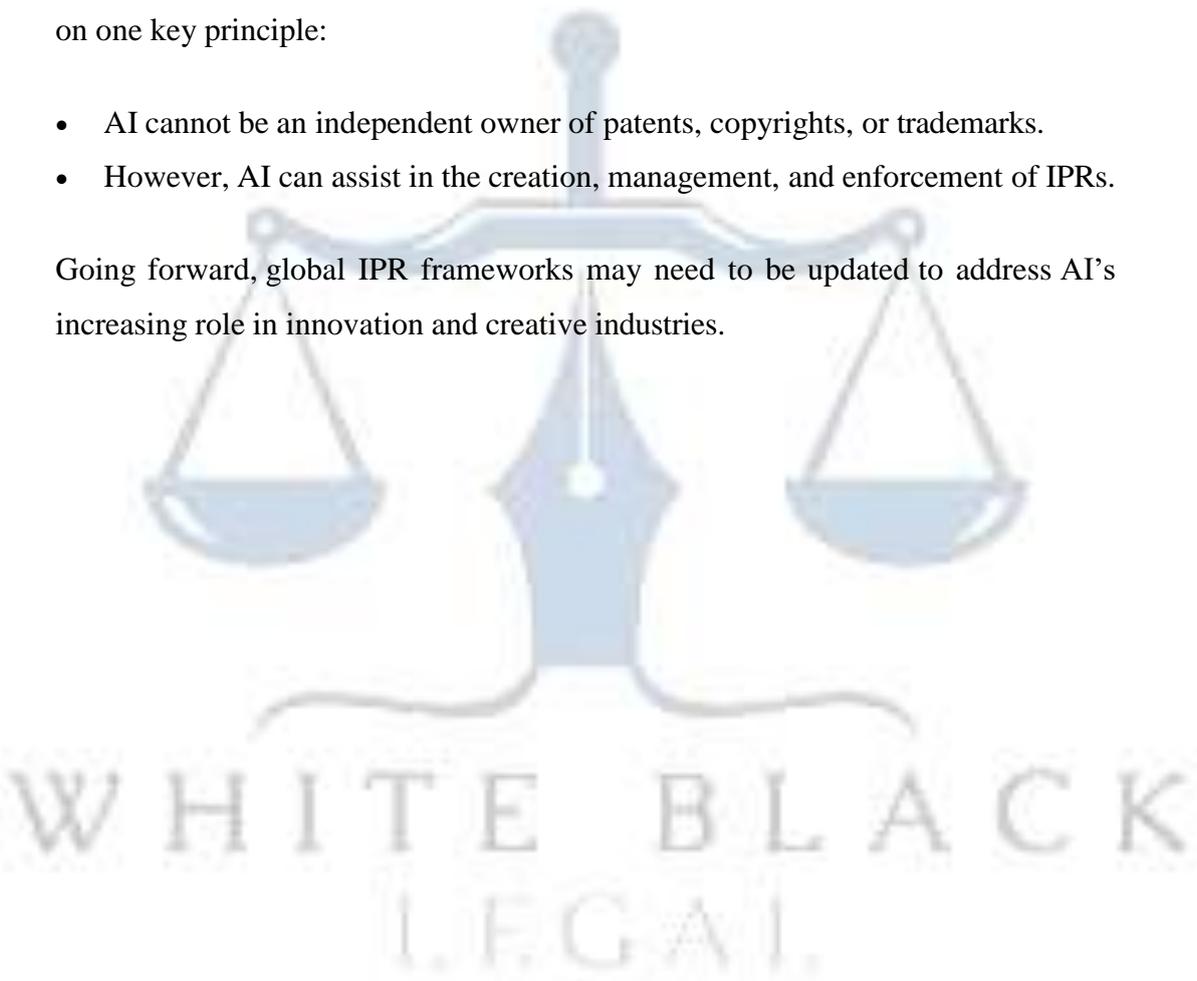
(d) China: AI in Trademark Dispute Resolution

- China uses AI-powered systems to monitor, detect, and resolve trademark infringements, making it a global leader in AI-based trademark enforcement.

The US, UK, EU, and China have taken different approaches to AI and IPR, but all agree on one key principle:

- AI cannot be an independent owner of patents, copyrights, or trademarks.
- However, AI can assist in the creation, management, and enforcement of IPRs.

Going forward, global IPR frameworks may need to be updated to address AI's increasing role in innovation and creative industries.



## **CHAPTER 7: LEGAL CHALLENGES AND POLICY REFORMS (INDIAN PERSPECTIVE)**

The rise of Artificial Intelligence (AI) is creating new legal challenges in the area of Intellectual Property Rights (IPR) in India. Currently, the law does not clearly state whether AI can be considered an inventor, creator, or holder of rights. This leads to confusion when it comes to patents, copyright, and trademark.

In this chapter, we will look at:

1. The main legal problems India faces as it tries to incorporate AI into its IPR laws.
2. Possible changes to policies that could help resolve these issues.
3. The future of AI and IPR laws in India.

### **7.1 CHALLENGES IN GRANTING IP RIGHTS TO AI-GENERATED WORKS**

The rapid advancement of artificial intelligence (AI) has significantly impacted intellectual property (IP) law, particularly in terms of authorship, ownership, and inventorship. While traditional IP frameworks recognize human creators and inventors as the sole proprietors of rights, AI-generated works pose unique legal challenges that question the very foundation of intellectual property protection. This section explores the primary challenges associated with granting IP rights to AI-generated works, focusing on patents, copyrights, and trademarks.

### 7.1.1 The Problem of AI as an Author or Inventor



One of the most pressing legal questions in the field of AI and IP law is whether an AI system can be recognized as an inventor or author. Patent laws across jurisdictions typically require an inventor to be a natural person, which excludes AI from being legally recognized as a creator. This issue became evident in the case of **Thaler v. Commissioner of Patents**, where an AI system named DABUS was denied inventorship rights under patent laws in multiple jurisdictions, including the United States, the United Kingdom, and the European Union<sup>117</sup>

In India, the Patents Act, 1970, does not explicitly define an “inventor” as a human being, but judicial interpretations have reinforced that patents can only be granted to natural or legal persons.<sup>118</sup> The case of **Monsanto Technology LLC v. Nuziveedu Seeds Ltd.** reaffirmed the principle that patent rights require human involvement<sup>119</sup>. This stance creates a legal vacuum for AI-generated inventions, as AI systems lack legal personhood and cannot claim rights independently.

Similarly, in the realm of copyright law, the **Indian Copyright Act, 1957** defines an “author” as the person who causes a work to be created. This definition assumes a human agent, leaving AI-generated creative works without clear protection.<sup>120</sup> The case of **R.G. Anand v. Delux Films** established that copyright is vested in human authors who express creativity.<sup>121</sup> Consequently, AI-created paintings, music, and literature remain in a legal gray area, raising concerns about ownership and liability.

### 7.1.2 Ownership and Economic Rights Over AI-Generated Works

Even if AI is not granted direct authorship or inventorship, the question remains—who owns the rights to AI-generated works? Various stakeholders may claim ownership, including:

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<sup>117</sup> Thaler v. Commissioner of Patents, [2021] FCA 879.

<sup>118</sup> The Patents Act, 1970 (Act 39 of 1970), s. 2(y).

<sup>119</sup> Monsanto Technology LLC v. Nuziveedu Seeds Ltd., (2019) 3 SCC 381.

<sup>120</sup> The Copyright Act, 1957 (Act 14 of 1957), s. 2(d).

<sup>121</sup> R.G. Anand v. Delux Films, AIR 1978 SC 1613.

1. **The AI Developer** – The entity that created the AI system may argue that it holds the rights to any output, akin to an employer owning works created by an employee under the "work for hire" doctrine.<sup>122</sup>
2. **The User of the AI System** – The individual or organization that inputs data and directs the AI's functioning might claim authorship based on their control over the process.<sup>123</sup>
3. **No One (Public Domain Argument)** – Some scholars argue that AI-generated works should be freely available in the public domain since no human author exists.<sup>124</sup>

In the **Eastern Book Company v. D.B. Modak** case, the Supreme Court of India held that originality is a prerequisite for copyright protection.<sup>125</sup> This ruling complicates the recognition of AI-generated works, as originality is traditionally associated with human creativity.

Patent law faces a similar challenge. Since AI is capable of autonomously generating new inventions, the absence of a legal framework recognizing AI-generated patents may discourage innovation. The **Alice Corp. v. CLS Bank International** case in the US restricted patents on abstract ideas, which has implications for AI-created inventions.<sup>126</sup>

### 7.1.3 Lack of Clarity in International and Indian Legal Frameworks

Internationally, there is no consensus on how AI-generated works should be treated under IP law. The **Berne Convention for the Protection of Literary and Artistic Works** and the **World Intellectual Property Organization (WIPO) Copyright Treaty** emphasize human authorship.<sup>127</sup> This leaves AI-generated content unprotected or forces it to be assigned to a human entity.

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<sup>122</sup> P. Narayanan, **Intellectual Property Law** 205 (Eastern Book Company, Lucknow, 5th edn., 2018).

<sup>123</sup> J.A.L. Sterling, **Intellectual Property Rights in AI-Generated Content** 75 (Oxford University Press, Oxford, 2020).

<sup>124</sup> Madhavi Sunder, "IP and the AI Revolution" 68 *Stan. L. Rev.* 415 (2021).

<sup>125</sup> *Eastern Book Company v. D.B. Modak*, (2008) 1 SCC 1.

<sup>126</sup> *Alice Corp. v. CLS Bank International*, 573 U.S. 208 (2014).

<sup>127</sup> *Berne Convention for the Protection of Literary and Artistic Works*, 1886.

In India, existing IP statutes do not address AI-related inventions or creative works explicitly. Unlike the UK, where the **Copyright, Designs and Patents Act, 1988** recognizes computer-generated works and assigns authorship to the human programmer, Indian law lacks similar provisions<sup>128</sup>. This legislative gap creates uncertainty in granting IP rights to AI-generated outputs.

Additionally, AI's role in trademarks raises concerns. AI-generated logos, slogans, and brand names challenge traditional trademark laws, which require distinctiveness and human association. The **Yahoo! Inc. v. Akash Arora** case highlighted the importance of consumer perception in trademark disputes<sup>129</sup>. but AI-generated trademarks complicate the determination of originality and distinctiveness.

#### 7.1.4 Ethical and Policy Considerations

Beyond legal concerns, ethical and policy issues arise in the context of AI and IP rights. If AI-generated works receive IP protection, this may lead to monopolization by large tech firms that control AI systems. Such a situation could hinder innovation and restrict public access to AI-generated knowledge. The **European Parliament's 2020 report on AI and Intellectual Property Rights** warned against granting full IP rights to AI systems, citing risks of market concentration and reduced competition.<sup>130</sup>

Moreover, liability issues remain unresolved. If an AI-created work infringes on an existing copyrighted work or if an AI-generated patent leads to a defective product, determining accountability is difficult. Unlike humans, AI cannot be held legally responsible, making enforcement challenging.

The challenges surrounding AI-generated works in intellectual property law highlight the urgent need for legal reform. As AI continues to evolve,

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<sup>128</sup> Copyright, Designs and Patents Act, 1988 (UK), s. 9(3).

<sup>129</sup> *Yahoo! Inc. v. Akash Arora & Anr.*, 1999 PTC 201 (Del).

<sup>130</sup> European Parliament Report, "Artificial Intelligence and Intellectual Property Rights" (2020), available at: <https://www.europarl.europa.eu> (last visited Mar. 2025).

policymakers must decide whether to recognize AI as an independent creator or maintain human-centric IP frameworks. In the absence of clear laws, judicial interpretations and global legal trends will shape India's approach to AI and IP rights. Until then, AI-generated works remain in a legal limbo, with ownership, originality, and economic rights still up for debate.

## **7.2 POLICY REFORMS TO ADDRESS AI AND IP LAW IN INDIA**

As technology advances, artificial intelligence (AI) is becoming more prominent, which raises important questions about intellectual property (IP) law. In India, the current IP laws mainly cater to human creators and do not really cover works created by AI. Meanwhile, other places like the European Union, the United Kingdom, and the United States are starting to adapt their laws to account for the role of AI in creative work.

India needs to step up and create its own set of rules that address the challenges posed by AI-generated content. This means finding a way to encourage innovation while also ensuring that the public has access to these new advancements and that competition is fair.

This discussion will look at what changes are needed in India's IP law to deal with issues related to AI, focusing on updates to legislation, how courts interpret laws, and how regulatory bodies function.

### **7.2.1 Defining AI's Role in IP Law**

One of the primary challenges in AI and IP law is determining whether AI can be recognized as an inventor, author, or trademark creator. Currently, Indian law does not define AI-generated works separately, leading to ambiguity in ownership rights and liability.

#### **7.2.1.1 Need for Legislative Amendments**

The **Patents Act, 1970**, and the **Copyright Act, 1957**, assume that human authorship and inventorship are prerequisites for protection. However, to accommodate AI, the legislature must amend key provisions:

1. **Recognition of AI-Generated Works** – The law should include a provision that explicitly defines AI-generated inventions and creative works. Countries like the UK have already included a clause recognizing computer-generated works under the **Copyright, Designs and Patents Act, 1988**<sup>131</sup>. A similar provision in India would clarify the status of AI- created content.
2. **Attributing Ownership of AI-Generated Works** – Since AI lacks legal personhood, the law must specify who holds the rights to AI- generated works. Possible options include:
  - i. Assigning ownership to the AI developer (company or programmer).
  - ii. Allowing the user who operates the AI system to claim rights.
  - iii. Treating AI-generated content as public domain, thereby ensuring unrestricted access.
3. **Revising the Definition of Inventorship** – The **Patents Act, 1970**, defines an “inventor” as a person. Since AI does not fall within this definition, a policy reform could introduce a provision for AI-assisted inventions, where human contribution is considered essential for patent eligibility. The US Supreme Court in **Alice Corp. v. CLS Bank International** established that software-based inventions require significant human input<sup>132</sup>. A similar precedent could be adopted in India.

### 7.2.2 Establishing a Special AI-IP Regulatory Body

India’s **Controller General of Patents, Designs and Trademarks (CGPDTM)** is responsible for granting patents and trademarks, but it currently lacks a framework for AI-related disputes. A dedicated **AI-IP**

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<sup>131</sup> Copyright, Designs and Patents Act, 1988 (UK), s. 9(3).

<sup>132</sup> Alice Corp. v. CLS Bank International, 573 U.S. 208 (2014).

**Authority** could be established under the **Department for Promotion of Industry and Internal Trade (DPIIT)** to handle AI-related IP matters. This regulatory body would:

- Develop guidelines on AI's role in IP ownership.
- Assess whether AI-generated patents meet the requirement of **non-obviousness** and **industrial applicability**.
- Provide clarity on AI-assisted trademark registration and the distinctiveness of AI-created brand identities.

Countries like China have introduced AI-focused regulatory policies within their IP system. The **China National Intellectual Property Administration (CNIPA)** has issued guidelines on AI-related patent applications<sup>133</sup>. India could benefit from a similar institutional approach.

### 7.2.3 Addressing the Issue of Originality in Copyright Law

Under **Indian copyright law**, originality is a fundamental requirement for protection. The **Supreme Court of India** in **Eastern Book Company v. D.B. Modak**<sup>134</sup> ruled that creative expression must involve human intellect. This creates ambiguity for AI-generated works, which lack human originality.

Possible policy reforms to address this issue include:

1. **Introducing a “Modified Originality” Standard** – India could adopt a model similar to the **UK Copyright Act**, where the programmer of an AI system is considered the author of an AI-generated work.<sup>135</sup>
2. **Implementing a Licensing System for AI Works** – AI-generated works could be granted limited copyright protection under a sui generis (unique) licensing model. This would prevent monopolization while ensuring some level of protection.

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<sup>133</sup> China National Intellectual Property Administration, "Guidelines on AI-Generated Patents," 2021.

<sup>134</sup> Eastern Book Company v. D.B. Modak, (2008) 1 SCC 1.

<sup>135</sup> UK Copyright Act, 1988, s. 178.

3. **Recognizing “Human-AI Collaboration” in Copyright** – Some AI-generated works are created with significant human input. Indian law could provide for joint authorship between AI and its user.

### **7.2.4 Reforming Trademark Law to Address AI-Created Trademarks**

AI is increasingly used to generate logos, brand names, and slogans. This raises concerns regarding **distinctiveness** and **consumer perception**, which are critical elements of trademark protection. In **Yahoo! Inc. v. Akash Arora**, the Delhi High Court emphasized that trademarks must not mislead consumers.<sup>136</sup>

To accommodate AI in trademark law, policymakers must:

1. **Define the Legal Status of AI-Created Trademarks** – Indian law should specify whether AI-generated trademarks are registrable. If AI is not recognized as an applicant, the rights could be assigned to the AI’s owner.
2. **Introduce Guidelines on AI’s Role in Trademark Disputes** – AI’s ability to create similar or identical trademarks raises concerns about infringement. Laws must define liability in cases where AI-generated marks resemble existing trademarks.
3. **Strengthen Consumer Protection Against AI-Generated Deceptive Marks** – AI can create trademarks that are deceptively similar to existing brands. India should adopt stricter scrutiny to prevent AI misuse in branding.

### **7.2.5 Judicial Interpretation and the Role of Courts in AI-IP Cases**

Since legislative reform takes time, courts play a crucial role in shaping AI-related IP law. Indian courts should consider adopting:

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<sup>136</sup> Yahoo! Inc. v. Akash Arora, 1999 PTC 201 (Del).

- **Precedents from International Cases** – The ruling in **Thaler v. Commissioner of Patents** (Australia) clarified that AI cannot be an inventor.<sup>137</sup> Indian courts could use such cases as persuasive authority.
- **Case-Specific Analysis of AI Works** – Courts should analyze AI-generated works on a case-by-case basis, considering factors like human input, originality, and public interest.
- **Encouraging Arbitration in AI-IP Disputes** – Given the complexity of AI-related IP issues, arbitration mechanisms could provide quicker resolutions.

### 7.2.6 The Role of International Cooperation in AI and IP Policy Reform

AI and IP issues are not confined to national boundaries. India should collaborate with international organizations such as:

1. **The World Intellectual Property Organization (WIPO)** – WIPO has initiated discussions on AI and IP policy reform.<sup>138</sup> India can contribute to these discussions and align its policies with global standards.
2. **The European Union's AI-IP Framework** – The EU's **Artificial Intelligence Act** includes provisions for AI-generated works.<sup>139</sup> India can study these regulations to develop a similar legal framework.
3. **The United Nations Commission on International Trade Law (UNCITRAL)** – India should participate in UNCITRAL's efforts to create a global AI-IP regulatory model.

The intersection of AI and intellectual property law requires urgent policy reforms in India. Existing legal frameworks do not adequately address AI-generated inventions, copyrights, and trademarks, leading to legal uncertainty. By introducing legislative amendments, establishing a specialized AI-IP authority, and strengthening judicial interpretations, India can create a legal environment that promotes innovation while ensuring fair

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<sup>137</sup> Thaler v. Commissioner of Patents, [2021] FCA 879

<sup>138</sup> WIPO Report on AI and IP Policy, 2021.

<sup>139</sup> European Parliament, "Artificial Intelligence Act," 2023.



competition. International cooperation will also play a vital role in shaping India's AI-IP policies in the years to come.

## 7.3 ETHICAL AND REGULATORY CHALLENGES IN AI AND IP LAW IN INDIA

Artificial Intelligence (AI) has dramatically transformed the field of Intellectual Property (IP) law, resulting in ethical and regulatory challenges that Indian policymakers need to tackle. The involvement of AI in the creation of patents, copyrights, and trademarks raises intricate issues regarding accountability, fairness, originality, and the public good. Although international legal systems are gradually evolving to meet these challenges, India needs to formulate its own regulatory strategy that harmonizes innovation with legal clarity. This section investigates the ethical issues stemming from works produced by AI, the challenges in applying current IP laws, and the possible necessity for a new regulatory framework for AI and IP in India.

### 7.3.1 Ethical Issues in AI and IP Law

AI's integration into creative and inventive processes has given rise to numerous ethical concerns. These issues revolve around authorship, fairness, bias, and the potential exploitation of AI-generated works.

#### 7.3.1.1 The Debate on AI as an Author or Inventor

One of the most pressing ethical dilemmas is whether AI should be recognized as an author or inventor. Traditional IP frameworks grant rights only to human creators, ensuring that individuals receive credit and financial benefits for their innovations. However, as AI systems become capable of creating art, music, literature, and inventions, ethical questions arise:

- Should AI receive recognition as an independent inventor or creator?
- If not, who should own the rights—AI developers, users, or corporations?

- Would recognizing AI as an author/inventor undermine human creativity?

In the case of *Thaler v. Commissioner of Patents (Australia)*, the Federal Court ruled that AI cannot be listed as an inventor under patent law.<sup>140</sup> Similarly, the US Patent and Trademark Office (USPTO) and the UK Intellectual Property Office (UKIPO) have rejected patent applications listing AI as the inventor.<sup>141</sup> These rulings indicate a global consensus that AI lacks legal personhood, and India is likely to follow a similar approach.

However, an alternative ethical argument suggests that denying AI recognition could discourage innovation. If AI-generated works are placed in the public domain by default, companies might hesitate to invest in AI-driven research and development.

### **7.3.1.2 Bias and Discrimination in AI-Generated Works**

AI models are trained on large datasets that may contain biases, leading to potential discrimination in AI-generated content. This bias can manifest in:

- **AI-Generated Art and Literature** – If trained on biased data, AI may replicate stereotypes in creative works, leading to ethical concerns.
- **Patent Examinations** – AI-driven patent examination tools may favor patents filed by certain corporations or geographical regions, creating an unfair advantage.
- **Trademark Decisions** – AI-assisted trademark analysis may reinforce existing biases in brand recognition, affecting small businesses and new entrants.

For instance, in the Amazon AI hiring controversy, the company's AI system was found to discriminate against female candidates due to biases in

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<sup>140</sup> *Thaler v. Commissioner of Patents*, [2021] FCA 879.

<sup>141</sup> USPTO & UKIPO Decisions on AI Inventorship, 2020.

the training data.<sup>142</sup> If similar biases exist in AI-generated patents or trademarks, it could create ethical and legal challenges for India's IP system.

### **7.3.1.3 Fair Use and AI-Generated Content**

AI systems often train on publicly available data, including copyrighted materials. This raises concerns about whether AI companies are violating copyright laws by using such data without consent. The Google Books case (Authors Guild v. Google Inc.) held that digitizing books for AI training could be considered fair use.<sup>143</sup> However, this issue remains unresolved in many jurisdictions, and India must develop clear policies to balance AI training with copyright protection.

## **7.3.2 Regulatory Challenges in Enforcing AI-Related IP Laws**

India's existing IP framework does not address AI-generated works explicitly, making enforcement difficult. The following are key regulatory challenges:

### **7.3.2.1 Lack of Legal Recognition for AI in IP Law**

Currently, Indian law does not define AI's role in IP ownership. The Patents Act, 1970, and the Copyright Act, 1957, assume human involvement in creative and inventive processes. This creates uncertainty in AI-related disputes.

For example, if an AI system independently creates a novel invention, the Indian Patent Office lacks guidelines on whether the patent should be granted and to whom. This regulatory gap could discourage AI-driven innovation in India.

### **7.3.2.2 Enforcement of AI-Created Copyrighted Works**

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<sup>142</sup> Amazon AI Hiring Bias Investigation Report, 2018.

<sup>143</sup> Authors Guild v. Google Inc., 804 F.3d 202 (2d Cir. 2015).

Copyright law in India requires that a work be original and involve human creativity. In *Eastern Book Company v. D.B. Modak*, the Supreme Court ruled that originality requires human skill and judgment.<sup>144</sup> However, AI-generated works lack direct human authorship, creating ambiguity in enforcement.

For instance, if an AI writes a novel, who would be responsible for copyright infringement if the work is plagiarized? Would the developer, user, or AI itself be held accountable? These unanswered questions pose enforcement challenges.

### **7.3.2.3 Regulation of AI in Trademark Law**

AI is now used to create trademarks, but Indian trademark law does not recognize AI-created brand identities. The Trade Marks Act, 1999, defines trademarks as signs capable of distinguishing goods or services, but it does not specify whether AI-created marks qualify for registration.

A major challenge arises in AI-driven branding, where AI can generate thousands of brand names and logos. Without clear regulations, disputes over AI-created trademarks will become increasingly complex.

### **7.3.3 The Need for an AI-IP Legal Framework in India**

Given these challenges, India must develop a comprehensive AI-IP legal framework that provides clarity on the rights and responsibilities of AI-generated works.

#### **7.3.3.1 Establishing an AI-IP Regulatory Authority**

India could benefit from creating a specialized regulatory authority, similar to the China National Intellectual Property Administration (CNIPA), which has already issued AI-related patent guidelines.<sup>145</sup> This body could:

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<sup>144</sup> *Eastern Book Company v. D.B. Modak*, (2008) 1 SCC 1.

<sup>145</sup> China National Intellectual Property Administration (CNIPA), "Guidelines on AI Patents," 2021.

- Formulate policies on AI-generated IP rights.
- Resolve disputes over AI-assisted patents, copyrights, and trademarks.
- Guide courts and policymakers on AI-related IP matters.

### **7.3.3.2 Amending Existing IP Laws to Recognize AI's Role**

Indian IP laws should be amended to define AI-generated works clearly.

Possible reforms include:

- Copyright Act Amendment – Introduce provisions recognizing AI-assisted authorship with human oversight.
- Patents Act Amendment – Allow AI-assisted inventions to qualify for patents, provided human intervention is demonstrated.
- Trade Marks Act Amendment – Specify the legal status of AI-generated trademarks and set guidelines for registration.



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## **CHAPTER 8: CONCLUSION AND RECOMMENDATIONS**

### **8.1. INTRODUCTION**

The rapid rise of Artificial Intelligence (AI) is bringing about major changes in various fields, including how we protect creative works and inventions through laws known as Intellectual Property Rights (IPR). In India, the lack of clear legal rules regarding AI is leading to many questions and challenges. While AI is transforming creativity and technology, it raises important legal and ethical issues. This chapter highlights the main findings of the study, looks at the current legal situation, and offers suggestions for creating a fair and effective system of AI-related intellectual property rights in India.

### **8.2. SUMMARY OF KEY FINDINGS**

This study has examined how AI interacts with IPR laws in India, focusing on areas like patents, copyrights, and trademarks. Here are the main points:

#### **(a) AI and Patents in India**

- Current Indian patent laws do not recognize AI as a legal inventor.
- Globally, there have been cases (like DABUS in the US, UK, and EU) where patents have been denied to AI systems.
- There is confusion over who owns the rights to inventions made with AI in India.

#### **(b) AI and Copyright in India**

- The Copyright Act of 1957 does not clearly state that AI-generated works can be protected by copyright.
- Other countries like the UK and China are starting to address AI copyright, while the US and EU still do not allow it for AI-generated works.
- If legal issues arise over AI-related copyright violations, Indian courts may find it difficult to determine responsibility.

#### (c) AI and Trademarks in India

- AI-created trademarks are not recognized under current trademark laws.
- The legal status of AI's role in creating brands and handling trademark disagreements is still uncertain.

#### (d) Comparative Analysis: India vs. Global AI-IPR Policies

- Other regions, like the US, UK, EU, and China, have different ways of managing AI and IPR.
- India currently lacks specific AI-related IPR rules, which creates gaps compared to international standards.

#### (e) Legal Challenges and Need for Reform

- There are significant uncertainties in Indian law regarding AI and IPR due to the absence of specific regulations for AI.
- Courts and lawmakers need to update existing laws to cover AI innovations.
- Better enforcement is needed to protect against violations of intellectual property by AI.

### **8.3. RECOMMENDATIONS FOR AI AND IPR POLICY REFORMS IN INDIA**

To tackle these challenges, India should devise a comprehensive strategy for AI and IPR. The following suggestions outline possible changes in laws and practices:

(a) Legislative Reforms

- Copyright Act Amendment: Introduce rules to define and protect works created by AI, possibly granting copyright to the developer or user based on how much human input was involved.
- Patents Act Amendment: Recognize AI-assisted inventions while ensuring that human involvement remains a requirement for claiming inventorship. Establish regulations to clarify ownership of innovations created by AI.
- Trademarks Act Amendment: Create guidelines for recognizing AI-generated trademarks and handling disputes over AI-created brand similarities.
- New AI and IPR Law: Consider enacting a dedicated law to address issues related to AI across patents, copyrights, and trademarks, establishing clear rules for liability and ownership.

(b) Administrative and Regulatory Reforms

- Creating an AI-IPR Regulatory Authority: Form a specialized committee to evaluate AI-related applications for patents and copyrights and train the relevant offices to handle these cases.
- Using AI in IP Enforcement: Employ AI tools to help detect copyright violations and counterfeit trademarks. Consider developing a national database for monitoring AI-generated works and identifying potential infringements.
- Promoting AI-IP Research and Education- The government should collaborate with academic and industry experts to research developments

in AI and IPR, alongside educational campaigns for creators and businesses about these protections.

**(c) Judicial and Case Law Reforms**

- Clarifying Judicial Views on AI-Generated Works- Courts should try to interpret existing IPR laws to resolve disputes involving AI until new laws are established, looking to other countries for guidance where necessary.

- Establishing AI-IP Dispute Resolution Mechanisms: Set up a dedicated forum for resolving conflicts related to AI and IPR, encouraging mediation and arbitration to settle these disputes quickly and effectively.

## **8.4. THE FUTURE OF AI AND IPR IN INDIA**

(a) The Need for a Balanced Approach: It's important for India to create a system that encourages innovation driven by AI while also protecting against monopolisation of AI-generated content. A flexible legal framework will help adapt to ongoing technological changes.

(b) Global Cooperation and Harmonisation: By working with other countries on IPR policies related to AI, India can help ensure its laws remain relevant and effective in a rapidly evolving global landscape.

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