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IMPACT OF ARTIFICIAL INTELLIGENCE ON INTELLECTUAL PROPERTY LAW: A STUDY

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ABSTRACT

The proliferation of Artificial Intelligence (AI) in creative endeavours has raised complex questions about the ownership and liability of AI-generated outputs, creating a significant legal void. The primary issue revolves around whether the ownership of AI-created works in India should be attributed to the AI developer or the user who activates the AI system. This critical conundrum, exacerbated by the absence of explicit legal provisions, has led to perplexity and the potential for legal disputes, especially when AI-generated content infringes upon Intellectual Property Rights (IPR). This research addresses the emerging legal gaps within the Indian context regarding the ownership and liability of AI-generated works. The objective is to clarify India's existing Intellectual Property Rights framework, encouraging innovation while protecting the rights of creators and users of AI-generated content. The research adopts a doctrinal approach, primarily analysing the Copyright Act of 1957 and the Patents Act of 1970 as primary sources, the cornerstones of intellectual property rights in India. The study also incorporates secondary sources, including legal commentaries, judicial precedents, scholarly articles, and academic publications interpreting and discussing the Copyright and Patents Acts, along with articles exploring the intersection of AI and IPR. The study highlights the urgent need for legal clarity within the existing framework. It underscores the necessity of balancing innovation and protecting creators' rights while establishing a cohesive legal regime for AI-generated content within India's IPR framework. Addressing the intricacies of ownership and liability in AI-generated works in India is paramount. The current void in legal provisions poses substantial challenges, potentially impeding AI-driven innovations. This study emphasises the urgency of creating a harmonious and clear legal framework that fosters innovation while ensuring the rights of creators and users in the realm of AI-generated content.

Keywords: Artificial Intelligence, Intellectual Property Rights, Copyright Act of 1957, Patents Act of 1970, AI-generated content.

INTRODUCTION

The surge of Artificial Intelligence in creative domains has raised intricate questions about ownership and liability for AI-generated outputs. This research addresses the legal gaps surrounding the attribution of ownership and responsibility for AI-created works in India. The heart of the issue lies in determining whether ownership should belong to the AI developer or the user who activates the AI system. Some arguments promote legally recognising AI as the owner as a legal person. However, the existing legal framework in India lacks clarity on this matter, leading to confusion and potential disputes. Furthermore, the problem of liability becomes pertinent when AI-generated outputs infringe on Intellectual Property Rights like copyrights and patents. This issue is amplified due to the absence of specific regulations governing AI-generated content. The question of criminal liability further complicates matters: should the developer, user, or AI itself be held accountable for copyright or patent violations? Addressing ownership and liability complexities in AI-generated works within India's IPR framework is of utmost need due to current developments in AI. The absence of explicit legal provisions poses challenges for creators, users, and investors, potentially impeding AI-driven innovations. This calls for a balance between promoting innovation, safeguarding creators' rights, and ensuring legal clarity in the realm of AI-generated content.

Research Objectives

1. To assess the current Indian intellectual property laws and their readiness to accommodate AI-generated works.
2. To investigate the legal liabilities arising from AI-generated works in the context of Indian IP laws emphasising copyright and patent infringements.
3. To understand legal and policy adaptations that reconcile the ownership problem within the Indian scenario.

Research Questions

1. What is the current legal landscape in India regarding the ownership of AI-generated works?
2. How do determinants such as the level of human involvement, AI system autonomy, and creative or inventive contributions influence the assignment of ownership in AI-generated works under Indian intellectual property laws?

3. What are the emerging trends in ownership disputes and legal interpretations?
4. In cases where AI-generated works lead to violations of intellectual property laws in India, what challenges exist in attributing criminal liability?

RESEARCH METHODOLOGY

This research follows a doctrinal approach, using the Copyright Act of 1957 and the Patents Act of 1970 as primary sources. These laws provide the foundation for intellectual property rights in India, making them essential for studying AI-generated work ownership. In addition to primary sources, various secondary materials are consulted. These include legal commentaries, judgements, scholarly articles, and academic publications interpreting and discussing the Copyright and Patents Acts. Also, articles about AI, IPR, and their intersection are reviewed for insights. This approach aims to give a complete picture of the legal framework for AI-generated works and intellectual property rights in India and clarify legal uncertainties to contribute to the contemporary scenario wherein AI is developing steadfastly.

ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) is the ability of a computer system to make decisions independently, similar to how an intelligent person would respond to similar input. It was coined by computer scientist John McCarthy in 1956¹. Sir Alan Turing proposed the Turing test to determine if AI machines showed intelligence and if their responses were indistinguishable from real human responses. The World Intellectual Property Organization (WIPO) identified AI and proposed three categories: expert systems, perception systems, and natural-language systems². Expert systems solve problems in specialised fields, while perception systems allow computers to perceive the world with sight and hearing. Natural language systems understand word meanings and require a dictionary database. Further, AI is increasingly used in various sectors, including medical attention, retail, manufacturing, and banking³. AI can provide personalised readings, suggestions, and improved inventory and site layout. It can also assess industrial data using recurrent networks, estimating projected load and demand. In banking, AI can improve the speed, precision, and efficiency of human labour by determining transaction fraud, implementing quick

¹ AI Propaganda, AI Propaganda - P2P Foundation, https://wiki.p2pfoundation.net/AI_Propaganda (last visited Oct 4, 2023).

² Swapnil Tripathi & Chandni Ghatak, Artificial Intelligence and Intellectual Property Law, 7 *Christ U. L.J.* 83 (2018).

³ Prachi Singh & Dev Karan Rajput, Artificial Intelligence and Intellectual Property Rights - How Far Will it Go, 32 *Supremo Amicus* [189] (2023).

and accurate credit scoring, and automating data administration tasks. The use of AI systems led to legal debates over copyrights and patents, but the debate remains relevant to the field of intellectual property. The rise of Artificial General Intelligence (AGI) is a transformative moment, combining programming sophistication and computing power through distributed capacities enabled by the Internet. AGI is a more advanced category where machines can act without explicit instructions and learn from prior actions to create or improve more autonomous and sophisticated pathways to task completion and innovation⁴. AGI can perform cognitive tasks equivalent to or beyond those performed by a human, and its creation is a subject of great debate. AGI can function as its own Tasking Master, with its capacity for true autonomy being its defining characteristic. The ethics and implications of its creation and the timeline for its arrival are the subject of much debate, but extraordinary human and financial capital are dedicated to its creation.

AI AND INTELLECTUAL PROPERTY LAW

The global copyright sector acknowledges that AI tools are software-based and subject to the same IP and software issues as creating applications. However, machines have become highly skilled and can work independently, making AI programs and their innovations more valuable. Increased digitalization has also impacted the recognition and assessment of documents, which has traditionally been a valuable training ground for AI solutions. Automation has reduced the need for human participation in law firms, patent offices, and legal tribunals, which have traditionally been time-consuming, challenging, and destructive. With the rise of automation, businesses and organizations can address significant challenges such as a lack of employees and a tight budget, improve job accuracy and reliability, minimize risks, and increase market competition. Intellectual Property Rights (IPR) are an amorphous bundle of rights that allow creators or owners of patents, trademarks, or copyrighted works to benefit from their work or investment in a creation. The number of IPRs is not finite, but the fundamental features of protection requirements posed for individual IPRs are essentially the same in all countries. AI technologies are transforming the way innovations occur and altering the relationship between humans and machines in discovering new inventions. The important features of AI systems that create new challenges to intellectual property law include creativity, unpredictable outcomes, independent and autonomous operation, and the ability to learn, collect, access, and communicate

⁴ Katherine B. Forrest, Copyright Law and Artificial Intelligence: Emerging Issues, 65 J. COPYRIGHT Soc'y U.S.A. 355 (2018).

with outside data.⁵

INTERSECTION OF AI AND IPR

Software-based AI tools are subject to IP and software issues when creating applications. Legal issues arise when AI programs and innovations are given statutory rights. The world's first digital court heard its maiden case in 2017, using AI to prepare decisions and digitally assemble trial recordings⁶. Litigation predicting has reached high accuracy, and AI may soon be in charge of making decisions autonomously. The evolution of artificial intelligence and new technologies has increased the need for intellectual property protection. The World Intellectual Property Organization (WIPO) has adopted various treaties to address these challenges. The AI market is predicted to grow rapidly, with AI systems replicating human cognition and undergoing training to develop decision-making algorithms. However, AI may face limitations in some IP issues due to the majority of IPs being human-created⁷. As AI and robots become a reality, it is crucial to address intellectual property issues in this rapidly evolving field. AI is transforming industries and raising significant legal issues. It may affect agency law, contract law, contract or tort law, social, ethical, and constitutional frameworks, commercial laws, and procedural law⁸. It may also reinforce human prejudices and adopt discriminatory practices based on race, sex, religion, nation, disability, and age. Legislators and courts must consider these legal dimensions as AI proliferates into society. Intellectual Property Law, including copyright and patent laws, will witness a significant revolution, as AI is a software entity resulting in intelligent and creative machines. This unique attribute of AI touches the foundational underpinnings of IP Law.

GLOBAL LEGAL POSITION

AI patents are granted in the United States, the UK, China, Japan, and Japan. In the US, new and improved AI technology is granted first, followed by widely accepted AI methodologies. The UK can apply for a patent through the European Patent Office or the UK Intellectual Property Office⁹. In the UK, objects like computer networks and mathematical calculations are not considered inventions, but they contribute to the technical aspect of an innovation. China aims to lead in AI worldwide by 2030, with a faster increase in patents mentioning AI or supervised learning. Japan

⁵ Soaham Bajpai, Artificial Intelligence and Its Creation: Who Owns Intellectual Property Rights?, 10 GNLU J.L. DEV. & POL. 152 (2020).

⁶ *Supra* note 3

⁷ Atul Jain, Intellectual Property Rights in the Age of Artificial Intelligence, 4 INT'L J.L. MGMT. & HUMAN. 1501 (2021).

⁸ *Supra* note 5

⁹ *Supra* note 3

offers a patent-friendly environment for AI-related inventions, with approval rates of approximately 70%, similar to other technical fields. The US and UK have attempted to incorporate AI-related patents into existing laws, but the need for proper laws is crucial due to the rapid developments in AI. In 2017, a patent application for an AI system, DABUS, was rejected in the UK, USA, and Europe due to the invention not being done by a legal person¹⁰. China, Japan, and Singapore are also liberal in granting patents for AI inventions, with similar allowance rates for other technology developments.

European patent law covers various legislation, including national patent laws, the Strasbourg Convention of 1963, the European Patent Convention of 1973, and several European Union directives and regulations. There are two layers of patent systems in Europe: national patents granted by national patent offices and a centrally granted European patent granted by the European Patent Office (EPO). In the last decade, AI and Machine learning-related patent registrations increased by 250% worldwide. The EPO had not published guidance on its practice for examining AI-related inventions until last year. The EPO recognizes that AI and machine learning are based on computational models and algorithms of an abstract mathematical nature and should be treated the same way as other mathematical models. The EPO provides examples of how AI inventions will be assessed, such as the use of a neural network in a heart-monitoring apparatus for identifying irregular heartbeats or the classification of digital images, videos, audio or speech signals based on low-level features. The EPO has paved the way for more legal certainty that will lead to even more AI and machine learning patents and much more investment in R&D. However, given the rapid technological developments and importance of this area, industry players will anticipate more relevant case law in this field, including in particular case law from the EPO's Technical Boards of Appeal.

The Singaporean IP legal framework is one of the most comprehensive in Asia, protecting patents, copyrights, trademarks, and other types of intellectual property. The Patents Act, which came into force in 1995, provides Singapore with its patent system. To obtain a patent, an applicant must submit a patent application to the Intellectual Property Office of Singapore (IPOS), which grants rights that extend throughout Singapore and prevent others from exploiting the invention without consent for 20 years. In April 2010, the IPOS launched the Accelerated Initiative for Artificial Intelligence (AI) initiative, effective from 26 April 2019, for two years and will be limited to 50 applications per year. The eligibility criteria for AI inventions include being novel, involving an inventive step, and capable of industrial application. Copyright in

¹⁰ Sandeep Kumar, How Ready Are Patent Laws for Artificial Intelligence?, 2 LAW Essentials J. 22 (2021).

Singapore is defined as a 'literary, dramatic, musical, or artistic work', with main commercial rights including the right to reproduce, adapt, translate, modify, publicly perform, display, broadcast, create derivative works, commercially benefit from the work, and transfer rights permanently or temporarily. In July 2011, Singapore's Court of Appeal laid out fundamental principles of its copyright law in *Asia Pacific Publishing Pte Ltd v Pioneers & Leaders (Publishers)*, which held that work cannot be copyrighted unless it has an author and that a computer program cannot be credited as an author of a copyrighted work.

The US Copyright Office ruled that a work must be created by a human, putting the copyright of compositions created by AI in doubt. However, the UK Copyright Act of 1956 states that 'one who allowed the work to be generated'. This includes the author of a computer-generated work. As AI becomes more advanced and autonomous, it becomes more challenging to predict who will be responsible for the work's creation. The European Commission's High-Level Expert Group on Artificial Intelligence (HLEG) has released a report expanding and clarifying the definition of AI. AI refers to systems that display intelligent behaviour by analysing their environment and taking action to achieve specific goals. AI-based systems can be software-based or embedded in hardware devices. Singapore's government has created a model framework for public consultation, 'A Proposed Model Artificial Intelligence Governance Framework', which defines AI as a set of technologies that simulate human traits. There is no standard definition of AI as accepted in law, but a usable definition is crucial for regulation and governance.

THE COPYRIGHT ACT OF 1957

The Copyright Office's Practice and Procedure Manual of 2018 states that only the information of a natural person should be provided as the author of a work during copyright application. This rationale is based on court findings that the first owner of copyright is always the author. To protect a compilation, authorship elements are required in the selection, coordination, and arrangement of materials. Compilations created by dedicating money, skill, labour, and time are considered scholarly works, and copyrightability work is tested based on the author's skills and judgment applied in the original work. Section 2(d) of the Indian Copyright Act, 1957¹¹ describes the 'author' as the person who causes any computer-generated literary, dramatic, musical, or artistic work to be produced. For a work to be eligible for copyright protection under the Indian copyright law, the 'modicum of innovation' threshold established in *Eastern Book Company & Ors. v. D. B. Modak and Anr.*¹² must be met for protection. In this instance, the Court decided

¹¹ The Copyright Act, Section 2(d), No. 269, Acts of Parliament, 1957

¹² *Eastern Book Company & Ors. v. D. B. Modak and Anr.* Civil Appeal No. 6472 of 2004

that a minimum level of originality was necessary, that it must be significant rather than just in a minor way. Therefore, it is impossible to draw a firm conclusion wherein one could argue that an AI lacks the necessary modicum of creativity. The second prerequisite is that according to the definition of an 'author' in the Copyright Act. When it comes to the ownership of works protected by copyright law, it would be troublesome to associate it with AI because it does not possess a legal personality, making its authorship a controversial issue. AI-created work, based on algorithms, can be based on publicly available or copyrighted material. However, AI cannot produce original material as it is a modification or updated version of existing data. Acknowledging AI as an independent entity and separate work protection can lead to copyright infringement. The Indian Copyright Act requires a work to be original for it to be considered copyrighted, but the term 'original work' is not defined. To assert copyright ownership or authorship, the work must be original and suitable for testing originality. AI's work can qualify as a compilation due to its reliance on existing knowledge and visibility, but some argue that it lacks expertise, judgment, and skill¹³. Liability arises when AI is acknowledged as the owner and author of a creation, and Section 51¹⁴ of the Copyright Act addresses this.

THE PATENT ACT OF 1970

According to a United Nations Report, India is becoming a new target for patent filings in AI. The Indian Constitution is the basic legal framework that allocates rights and obligations to persons or citizens, but courts have yet to adjudicate the legal status of AI machines. The Indian Patent Office follows Computer Related Inventions (CRIs) guidelines that prohibit computer programs or algorithms from being patented, which apply to AI-based technologies. To obtain protection in AI-based software in India, it is advisable to describe the hardware components along with the AI algorithms and claim a working method of the device that uses the AI. The legal implications of AI in India are unknown, and the patent regime is silent on the matter. According to Section 6 of the Indian Patents Act, 1970¹⁵, only the actual and first inventor of the invention, or those authorised by them, may file a patent application. However, the concept of 'true and first inventor' is limited by Section 2(y)¹⁶ of the Act to omit those who are the first to import an invention into India or to whom an invention is first disclosed outside India¹⁷. Recent

¹³ Gyandeep Chaudhary, Artificial Intelligence: Copyright and Authorship/Ownership Dilemma?, 13 INDIAN J.L. & Just. 212 (2022).

¹⁴ The Copyright Act, Section 51, No. 269, Acts of Parliament, 1957

¹⁵ The Patents Act, Section 6, No. 39, Acts of Parliament, 1970

¹⁶ The Patents Act, Section 2(y), No. 39, Acts of Parliament, 1970

¹⁷ Vaishnavi Sabhapathi, Intellectual property: Protection of artificial intelligence – a debatable matter. Legal Bites (2018), <https://www.legalbites.in/intellectual-property-protection-artificial-intelligence/> (last visited Oct 10, 2023).

trends related to AI development in India include the creation of an 18-member Task Force on AI for India's Economic Transformation in 2017 and releasing NITI Aayog's discussion paper 'India's National Strategy for Artificial Intelligence' in June 2018¹⁸. However, there has yet to be any discussion on the legal implications of AI. Recently, a Tender was posted on the official website of the Indian Patent Office (IPO), giving notice of Inviting Expression of Interest (EOI) for making use of AI, Blockchain, Internet of Things (IoT), and other latest technologies in the Patent Processing system of IPO.

ISSUES OF AI AND IPR

The surge in the processing power of devices and the lightning-fast development of AI technologies have had a profound impact on the process of invention. Artificial intelligence is gaining traction in a wide range of inventive industries by the day as it gets better at finding patterns in data, organizing it, and making future predictions. The state of AI technology development has advanced to the point where minimal human involvement is required to produce outcomes. These outputs would qualify for patent protection because of their creative nature if a human creator created them. This raises an essential question of whether an AI system may be deemed the inventor within the current patent law framework. The answer to this query ought to be negative. An invention must meet certain criteria to qualify for patent protection, including being novel or involving an inventive step. Whether or not an innovation is so would only be evident to someone competent in the specific field to which it relates. The current standards, like those applied by the European Patent Office and British courts, are ingrained in the assessment of human capability. For example, they encourage people to pursue particular paths, which are limited by their ability to analyze a few options, be consistent, and anticipate success and other such factors. If artificial intelligence is used in the creative process, these principles and concepts may lose significance. Further, AI-based technologies can produce literary and artistic works on their own. This capacity raises important policy issues for the copyright system, which are closely related to the creative and artistic spirit and to appreciating, rewarding, and fostering the complexity of human creativity. The intimate relationship between the copyright system and the creative spirit tends to doubt this ability. The final policy positions decided upon regarding the copyright allocation to works that AI has made will address the fundamental societal objective of the copyright system's operation. Should AI-generated works be excluded from copyright protection, the copyright system may be interpreted as encouraging and promoting the value of

¹⁸ NITI Aayog, National Strategy for Artificial Intelligence, June 2018

human ingenuity over that of machines. This would happen if AI-generated works were free from copyright protection requirements. Should works created by artificial intelligence be granted copyright protection, the copyright system would be viewed as a tool that supports consumer accessibility to the most significant possible number of artistic works and assigns equal value to creative thinking from humans and machines. AI could harm the value assigned to the creative minds of humans. The debate over whether AI could infringe on rights would benefit from examining how the violation of various rights is assessed concerning each unique subject matter, as well as whether ownership rights are involved in the context of specific AI implementations. This would provide further insight into the process used to identify rights violations. Another critical question to consider is whether it will ever be possible for AI systems to be taught copyright law and be proficient in not invading, particularly given the complex copyright precepts that are in place, such as the idea-expression dichotomy, the possibility of non-literal duplication that constitutes a violation of certain works, tests that operate based on qualitative rather than quantitative criteria, distinct time periods of safeguard for different subjects, and likewise¹⁹. Another important question is whether or not new limitations and exceptions should be made, both from the perspective of innovative AI usages and from the perspective of already established sector-specific discussions. The patentability of AI creations is often a combination of multiple inventions, which can complicate applications and hinder innovation. In India, computational programs are not patentable, and allowing AI to invent algorithms could lead to increased wage gaps and inequality. The ownership of AI inventions is also a concern, as AI is not a legal person and is labelled as an electronic person. Ownership is attributed to the company owning the AI, but ownership can be challenging to determine when multiple companies come together for an invention. Patent laws give exclusive rights to the creator, and liability in case of an AI infringement would also be challenging to determine. Some companies use the pretext of AI to find loopholes in patent laws, but there is no settled law. The neutral position of AI systems is uncertain, as humans create them, and their decisions are influenced by human nature. Lack of transparency creates a black box, with inputs, processes, and operations not divisible by interested parties.²⁰ Legal proceedings against artificial intelligence machines depend on whether they have a legal personality. A legal person has legally recognised rights and responsibilities, and machines do not inherently have one. Currently, machines cannot be sued as they are referred to as a product or a service. If a machine is a product, the manufacturer can be sued for breach of warranty or a

¹⁹ *Supra* note 3

²⁰ Shubhi Trivedi, Implications of Artificial Intelligence on Copyright and Patent, 1 LEXFORTI LEGAL J. 48 (2019).

product liability claim. Existing intellectual property laws do not recognise the machine's right to invent new technology. The UK and the US have declined to impose liability on artificial intelligence machines, as liability arises when the accused intends to commit a crime, which cannot be the case in machines.²¹

RECOMMENDATIONS AND CONCLUSION

As AI technologies become more sophisticated, legislators need to develop guidelines for legal safeguarding. Stephen Hawking argues that the autonomy of AI can diminish human thinking and invention²². A more favourable solution is to grant a more collaborative form of patent protection for AI inventions, as a human element is essential in managing rights and obligations associated with patents. With the increasing use of AI-enabled networks, patent protection must be awarded to an anthropomorphic agent, who may be recognized in case of invention malfunctions or potential law violations. Recognizing AIs under IP is problematic, with only a few countries recognizing AI work. An Artificial Intelligence Data Protection Act could be drafted to track AI actions and provide remedies for criminal and civil offences committed by AIs. Legislation should address the inclusion of AI-enabled systems and the need for proper guidelines to incentivize human scientists to create more AI systems. The current copyright regime faces challenges with emerging AI technologies, potentially leading to adverse outcomes due to rapid development and implementation. This could leave creative industries vulnerable to AI-generated works and jeopardize their protection²³. Future legislation must balance developers' interests and protect authors who prefer not to use machine assistance. The EU's efforts in AI will likely lead the way in this regard. The most reasonable arrangement is to give copyright to the individual who made AI-produced work possible. Artificial Intelligence will enhance human effectiveness but also threaten human autonomy and agency. As computers match or exceed human intelligence, people increasingly rely on AI in complex digital systems. AI's intersection with the law is still nascent, with jurisdictions like the EU, Singapore, and India addressing its potential legal issues. India, despite having a proposal for a National Strategy for AI, still needs to amend its IP legislation to deal with AI-related intersections. A robust intellectual property framework is, thus, the need of the hour.

²¹ George S. K., Can Artificial Intelligence Machines Be Patented Or Sued, 6 CT. UNCOURT 41 (2019).

²² *Supra* note 2

²³ *Supra* note 13

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