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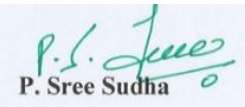
FOREWORD

It is my pleasure to present to you the current issue of the DSNLU Journal of Science Technology and Law. Al systems are designed to process and interpret huge scores of data, recognize repeating patterns within that data, and then produce an output. In a sense, this process is not so different from the ways in which the human brain works, but with computational muscle behind it all. Fundamental to the Al process are the concepts of machine learning and neural networks. Machine learning enables systems to improve performance over time without the requirement for explicit programming. Neural networks are computational models inspired by the structure and functioning of the human brain. They consist of interconnected nodes, or artificial neurons, that process and transmit information. Al systems operate by combining these techniques to provide intelligent solutions in a range of applications.

This volume, which is dedicated to the topics of IPR, Biotechnology Law, Information Technology Law. The articles in this volume explore a wide range of topics relating to the governance of Al and data collection and use. These include, but are not limited to, the development of rules on the fair use of algorithms, how Al is used by social media platforms and web applications, and what human rights issues may be engaged by the use of Al. All of the articles explore current and engaging topics which are cross-disciplinary in scope. Thus, the papers of the journal provide an excellent way of tracing the development in the field of law and technology. Taken together the papers in this issue provide an insight into how the concerns of Al and Law have responded to advances in understanding and technological developments while maintaining a focus on the use of Artificial Intelligence to support legal tasks. The depth of analysis reflects the contributors' knowledge and expertise in their respective fields, and I hope that you will find their articles thought-provoking and enlightening.

I thank the authors for their contributions and for their commitment in presenting their work in the form of articles, the reviewers for investing time and effort into analyzing and providing valuable comments and corrections, and last but not least, the editorial staff for managing the review and publication process efficiently and thoroughly. I hope that the selected publications will have a lasting impact on the academic community and that they will be motivating factors for other researchers to pursue their research goals.



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AUTHORSHIP ATTRIBUTION IN AI-DRIVEN CREATIVE WORKS: A CHALLENGING BUT NECESSARY TASK

Gandla Bhargava Sai* Anindya Sircar**

Abstract

Copyright issues make it more difficult to assign credit for creative works produced by Artificial Intelligence (AI). The problem of who gets the credit for what arises when AI systems get better at coming up with original content on their own. This study delves into the significance of copyright law in establishing ownership and rights in creative works driven by AI, emphasising the requirement for authorship attribution in such works. Copyright law is still trying to figure out how to deal with AI-generated works, which are blurring the lines between human and machine creation.

The research delves into how the majority of jurisdictions do not recognise AI-generated works as eligible for copyright protection, which raises questions regarding what constitutes original and proprietary content, how various nations strike a balance between copyright protection and AI innovation through measures such as fair use and fair dealing regulations, exemptions for text and data mining (TDM), and the legal recognition of works generated by AI as being entitled to copyright protection. It further emphasises the need for these rules to be harmonised and effectively implemented in all relevant jurisdictions.

In addition, the study recognises the revolutionary character of AI practices and the social benefits that may result from them. It stresses the need of preventing direct copying rather than attempting to control artistic forms or expression, and it advocates a focus on avoiding the use of copyright as a method of restricting access to works important for AI training. This study concludes by highlighting the need to acknowledge AI artists and encourage innovation while also tackling the difficulties of copyright and ownership. The results of this study add to the continuing discussion about the intersection of AI, Copyright legislation, and the future of artistic expression in the digital age.

Keywords: **Authorship Attribution, Copyright, AI-Driven Creative Works, Originality, Fair use/Fair Dealing.**

I. Introduction

Authorship attribution refers to identifying the author of a creative work, such as a piece of writing or art, in the context of Artificial Intelligence (AI) - driven works. Authorship and credit problems emerge as AI systems become more sophisticated and capable of making creative works on their own.[1] Traditionally, authors receive varying degrees of credit in accordance with their contributions to a work, but when it comes to AI-generated works, this question becomes more nuanced and contentious.[2] Some studies have explored whether people rate creative writing texts differently if they believe an AI or a person wrote it.[3] Other studies have compared multiple AI techniques for authorship attribution on literary texts.[4] In the context of AI-driven works, an AI perspective on authorship requires accounting for the full history of how a text takes shape and the reality that more than one hand may have been involved in its creation.[5] The copyright system, which has always been built on the idea of individual authorship, needs to figure out how to deal with these issues.[6]

The growing importance and prevalence of AI-generated content can be seen in various industries and sectors. Here are some examples:

- Content consumption: As AI-generated content becomes more common, it's getting harder to tell the difference between it and content made by humans. This is true for everything from news stories to social media posts.[7]
- Education: Studies have shown that 11.21% of all college papers and assignments contained AI-generated content.[8]

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[1]Cedric Chambers, *Creativity and Technology: Exploring AI Authorship*, https://www.aje.com/arc/ai-and-authorship/ (last visited May 24, 2023).
[2]*Id.*
[3]Miguel Landa Blanco, Maitée Agüero-Flores & Miguel Mercado, *Human vs. AI Authorship: Does it Matter in Evaluating Creative Writing? A Pilot Study Using ChatGPT*, (2023).
[4]Sanda-Maria Avram & Mihai Oltean, *A Comparison of Several AI Techniques for Authorship Attribution on Romanian Texts*, 10 MATHEMATICS 4589 (2022).
[5]Sarah Allison, *Authorship After AI*, PUBLIC BOOKS (2019), https://www.publicbooks.org/authorship-after-ai/ (last visited May 24, 2023).
[6]Irina Buzu, *Hacking Creativity – Authorship in the Digital Age*, (2021), https://www.internetjustsociety.org/hacking-creativity-authorship-in-the-digital-age (last visited May 24, 2023).
[7]The impact of AI-generated content on content consumption, AICONTENTFY (2023), https://aicontentfy.com/en/blog/impact-of-ai-generated-content-on-content-consumption (last visited May 24, 2023).
[8]Prevalence of AI-Generated Content in Education, COPYLEAKS, https://copyleaks.com/blog/prevalence-of-ai-generated-content-in-education (last visited May 24, 2023).

- Marketing: According to a study, "82% of marketers say AI-generated content is as good as human-generated content". One-third of marketers use AI for content generation, with 63% using AI tools for email marketing.[9]
- Publications: Some publications have used AI-generated content, but there are also risks involved. Google has stated that it will label AI-generated content as spam, lowering search traffic for sites using it.[10]
- Pros and Cons: AI-generated content has its pros and cons. While it can save time and resources, some content is best written by a human writer. Quality concerns and possible plagiarism are also considerations.[11]
- Rise of content farms: The prevalence of AI-generated text grew quickly when OpenAI launched its ChatGPT system in November 2022, and a new generation of AI-written content farms is on the rise.[12]

The need for authorship attribution in AI-driven creative works is crucial, especially in the context of Copyright. Some key points to consider are:

- "The law of copyright is clear that only specific expressions of an idea may be copyrighted, that other parties may copy that idea, but that other parties may not copy that specific expression of the idea or portions thereof".[13] This means that authorship attribution is necessary to determine who owns the copyright and can claim the rights to the work.
- "The policy positions adopted in relation to the attribution of copyright to AI-generated works will go to the heart of the social purpose for which the copyright system exists".[14] Copyright has always been intrinsically related to the human desire to create and be

[9]Karthik Kashyap, *82% of Marketers Say AI-Generated Content Is as Good as Human-Generated One*, SPICEWORKS, https://www.spiceworks.com/marketing/ai-in-marketing/articles/marketers-say-ai-generated-content-good-as-human-generated-one/ (last visited May 24, 2023).
[10]AI-generated content for publications can be risky says study, BIZCOMMUNITY, https://www.bizcommunity.com/Article/196/15/235343.html (last visited May 24, 2023).
[11]Amanda Hetler, *Pros and Cons of AI-Generated Content | TechTarget*, WHATIS.COM, https://www.techtarget.com/whatis/feature/Pros-and-cons-of-AI-generated-content (last visited May 24, 2023).
[12]Katyanna Quach, *"New generation" of AI-written content farms on the rise*, https://www.theregister.com/2023/05/02/ai_written_content_farms/ (last visited May 24, 2023).
[13]Dave Grossman Designs, Inc. v. Bortin, 347 F. Supp. 1150 (N.D. Ill. 1972), JUSTIA LAW, https://law.justia.com/cases/federal/district-courts/FSupp/347/1150/1404364/ (last visited May 25, 2023).
[14]Irina Buzu, *supra* note 6.

recognised for one's efforts; therefore, attributing authorship to AI-created works creates serious policy difficulties.

- Whether AI tools are owned by corporations and whether royalties should be paid to corporations for everything that a given AI creates.[15]
- The enforcement of copyright rights on behalf of or against an AI copyright owner is subject to significant constraints. The act of pursuing legal action against AI-generated copying has served as the foundation for a lawsuit pertaining to infringement. However, it is worth noting that the defendant in such cases has consistently been a human or a corporate entity, rather than the AI system in question. Hence, the pertinence of suing an AI for infringement holds significance in ascertaining authorship.[16]
- The current legal framework, both at the international and domestic levels, has not yet established a mechanism for assigning authorship to AI-generated works or holding liable those responsible for any infringements that may arise.[17]
- There is not yet a worldwide agreement on who gets to keep the rights to AI-created works' intellectual property. The applicability of copyright laws to "computer-generated works" produced by AI systems is restricted to a limited set of nations.[18]
- The existing copyright laws in most countries are insufficient in providing adequate protection for works generated by AI. The notion of "computer-generated works" fails to comprehensively address the intricate concerns surrounding AI-generated works. An idea that has been proposed involves the classification of AI-generated works as public property, or public domain. However, this approach may not provide sufficient motivation for individuals or entities involved in the creation and operation of AI systems. An additional notion involves conferring legal personality upon autonomous AI systems, thereby affording them the capacity to function as proprietors of copyright.

[15]Gil Appel, Juliana Neelbauer& David A. Schweidel, *Generative AI Has an Intellectual Property Problem*, HARVARD BUSINESS REVIEW, Apr. 2023, https://hbr.org/2023/04/generative-ai-has-an-intellectual-property-problem (last visited May 25, 2023).
[16]Yvette Joy Liebesman & Julie Cromer Young, *The AI Author in Litigation*, (2021), https://papers.ssrn.com/abstract=3741593 (last visited May 25, 2023).
[17]Kaushik Moitra & Karnika Vallabh, *Copyright in works created by artificial intelligence: issues and Perspectives*, LEXOLOGY (2021), https://www.lexology.com/library/detail.aspx?g=4513277a-6571-40f1-923d-c09ec5366fdd (last visited May 25, 2023).
[18]Ingrida Veiksa, *Protection of computer-generated works in the era of new technologies*, 10 IAES INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE (IJ-AI) 234 (2021).

Notwithstanding, the attainment of Artificial General Intelligence (AGI) may still be necessary to accomplish this objective.[19]

- To account for machines in the creative process, we may need to rethink the authorship paradigm enshrined in copyright law. An algorithmic author may have a place under copyright law, but it requires "re-measuring the limits of the doctrinal elasticity of authorship and shedding new light on the possible entry points where AI may be accommodated into this revisited, dehumanized authorial regime". [20]

Overall, the need for authorship attribution in AI-driven creative works is a complex issue that requires further legal and ethical discussions to yield a prescriptive framework. The present copyright laws of different countries are inadequate in comprehensively resolving the multifaceted issues at hand, but various approaches are being proposed to address the issue. In order to account for the use of AI in the creative process, it may be necessary to revise the way copyright laws view writing.

Brief History of AI

AI has been evolving and advancing rapidly in recent years. Here are some key developments and milestones, especially in the context of generative networks:

- Historical developments: "AI has a rich history of generative models that dates back to the 1950s with the development of Hidden Markov Models (HMMs) and Gaussian Mixture Models (GMMs)…".[21] By learning rules from extant data sets, neural networks revolutionised generative AI. Mid-2000s innovations in computer hardware paved the way for the widespread adoption of neural networks.[22]

[19]YuriiBurylo, *AI GENERATED WORKS AND COPYRIGHT PROTECTION*, ENTREPRENEURSHIP, ECONOMY AND LAW 7 (2022).
[20]Yang Xiao, *Decoding Authorship: Is There Really no Place for an Algorithmic Author Under Copyright Law?*, 54 IIC 5 (2023).
[21]Alexander S, *The Rise of Generative AI: A New Era of Creativity and Innovation*, https://www.linkedin.com/pulse/rise-generative-ai-new-era-creativity-innovation-alexander-stahl (last visited May 25, 2023).
[22]*Id.*

- Generative AI: Generative AI is a branch of AI that employs Deep Learning (DL) methods to generate original media such as visuals and audio. There have been major advancements in this technology in recent years.[23]
- Generative models: Generative AI models can include Generative Adversarial Networks (GANs), diffusion models, and Recurrent Neural Networks, among others.[24]
- Generative Adversarial Networks (GANs): GANs are a notable advancement in generative AI.[25]"GANs consist of two neural networks: a generator network that creates fake data, and a discriminator network that tries to distinguish between real and fake data. Through a process of competition and collaboration, GANs can produce highly realistic and diverse output". [26]
- Future directions: Numerous thrilling developments are on the horizon for generative AI, which has a promising future. These include improved generative models, more realistic and diverse output, and applications in fields such as medicine, entertainment, and education.[27]

Important developments in AI that have paved the way for the production of high-quality AI-generated art:

- The rapid development of deep neural networks has allowed for more sophisticated AI-generated creative works.[28]
- Generative algorithms such as BigGAN, VQGAN, DALL-E, and CLIPDraw have been used to create visual art and support human creativity in storytelling.[29]

[23]Paul Deepakraj Retinraj, *Generative AI: Recent Developments, Applications, Limitations, and Future Direction.*, MEDIUM (2023), https://pauldeepakraj-r.medium.com/generative-ai-recent-developments-applications-limitations-and-future-direction-423823c27c01 (last visited May 25, 2023).
[24]Carl Bleich, *What Is Generative AI? Everything You Need To Know*, BLOOMREACH, https://www.bloomreach.com/en/blog/2023/what-is-generative-ai (last visited May 25, 2023).
[25]George Lawton, *What is Generative AI? Everything You Need to Know*, ENTERPRISE AI, https://www.techtarget.com/searchenterpriseai/definition/generative-AI (last visited May 25, 2023).
[26]Retinraj, *supra* note 23.
[27]*Id.*; Julian Wallis, *What Is Generative AI? The Tech Behind The Modern Innovation*, WEBO DIGITAL (2023), https://webo.digital/blog/what-is-generative-ai-exploring-the-tech/ (last visited May 25, 2023).
[28]Xianchao Wu, *When Creative AI Meets Conversational AI | NVIDIA On-Demand*, NVIDIA, https://www.nvidia.com/en-us/on-demand/session/gtcspring21-s31384/ (last visited May 25, 2023); Marcus Basalla, Johannes Schneider & Jan vom Brocke, *Creativity of Deep Learning: Conceptualization and Assessment*99 (2022).
[29]Basalla, Schneider, and Brocke, *supra* note 28; SAFINAH ALI & DEVI PARIKH, TELLING CREATIVE STORIES USING GENERATIVE VISUAL AIDS (2021).

- "Co-creative, mixed-initiative systems require user-centric means of influencing the algorithm, especially when users are un-likely to have machine learning expertise".[30]
- The development of AI models elicits critical considerations regarding what constitutes creativity and how Creatives envision incorporating AI into their operations.[31]
- Despite the success of contemporary DL approaches, the uniqueness of their output is often constrained by the need to operate inside a conceptual space established by training data and humans.[32]

Advancements in AI technology, such as GANs, have enabled the creation of sophisticated AI-generated creative works. These works are capable of creating new content or data that is similar to human-created content, such as images, text, or music. However, as AI-generated works become more prevalent, issues of authorship attribution, copyright, and intellectual property rights arise.[33]

II. AI and Creative Work

The intersection between AI and creative work, such as music, literature, visual arts, etc. in the context of Copyright is a complex and evolving issue. Here are some key points to consider:

- AI-generated works: AI systems can produce literary and artistic works autonomously, creating new content or data that is similar to human-created content, such as images, text, or music.[34]
- Copyright protection: "Creative works qualify for copyright protection if they are original, with most definitions of originality requiring a human author". Therefore, works made by AI are not generally protected by copyright laws in the majority of countries.[35]

[30]Zhiyu Lin, Rohan Agarwal & Mark Riedl, *Creative Wand: A System to Study Effects of Communications in Co-creative Settings*, 18 PROCEEDINGS OF THE AAAI CONFERENCE ON ARTIFICIAL INTELLIGENCE AND INTERACTIVE DIGITAL ENTERTAINMENT 45 (2022).
[31]Nanna Inie, Jeanette Falk & Steve Tanimoto, *Designing Participatory AI: Creative Professionals' Worries and Expectations about Generative AI*1 (2023).
[32]Basalla, Schneider, and Brocke, *supra* note 28.
[33]Ryan Abbott & Elizabeth Rothman, *Disrupting Creativity: Copyright Law in the Age of Generative Artificial Intelligence*, (2022), https://papers.ssrn.com/abstract=4185327 (last visited May 18, 2023).
[34]Irina Buzu, *supra* note 6.
[35]Andres Guadamuz, *Artificial intelligence and copyright*, https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html (last visited May 25, 2023).

- Authorship attribution: The copyright system has historically been closely linked to the human creative spirit and the appreciation and remuneration of artistic expression, therefore the attribution of authorship to works generated by AI creates important policy problems. The assignment of copyright to AI-generated works will get to the heart of the societal reason for why the copyright system exists.[36]
- Copyright troll: When the authorship of an AI-created work is in question, a new breed of copyright troll may emerge to capitalise on the ensuing legal battles.[37]
- Respect for creators: Using copyrighted works as AI inputs is a critical issue that requires respect for creators and their creativities. An AI's creative output is only good as the corpus of creativities it ingests.[38]
- Implications for copyright law: Copyright regulations could be impacted by AI-generated works. Copyright in computer-created works was never contested because the programme was merely a tool, like a pen or paper. However, AI-generated works pose problems regarding whether copyright laws should assign copyright to the individual who made AI possible or not protect AI-generated works.[39]

Can a work be "original" if an author adds incrementally using a system that builds on earlier works? is an important question to explore when thinking about the intersection of AI and creative activity in the context of Copyright.

These needs examining AI criticisms in four levels:

1) Do these works meet legal requirements for copyrightability?
2) Are they infringing on existing copyright?
3) Will they dominate the market at the expense of conventional creators?
4) Finally, would they undermine the entire social space of creative and original work that copyright law was designed to safeguard?

1. Do these works meet legal requirements for copyrightability?

[36]Irina Buzu, *supra* note 6.
[37]Jillian M. Taylor, *AI and Copyright: A New Kind of Copyright Troll? The Rise of AI in Creative Works*, THE NATIONAL LAW REVIEW, https://www.natlawreview.com/article/ai-and-copyright-new-kind-copyright-troll-rise-ai-creative-works (last visited May 25, 2023).
[38]Rachel Kim, *AI and Copyright: AI Policies Must Respect Creators and their Creativities*, COPYRIGHT ALLIANCE (2022), https://copyrightalliance.org/ai-copyright-policies-must-respect-creators/ (last visited May 25, 2023).
[39]Andres Guadamuz, *supra* note 35.

a. Copyright and Artificial Intelligence

In her article "Coding Creativity: Copyright and the Artificially Intelligent Author," Annemarie Bridy explores "the legal limits of authorship" in the context of AI.[40] Creativity, according to Bridy, is "*the sine qua non and the je ne sais quoi of copyright*," making it impossible for courts and advocates to get past it.[41] She notes that "copyright law has come to require so little in the way of creativity from human authors that it is worth asking whether it makes sense to require more of machines."[42]

b. The Legal Limits of "Authorship"

Bridy argues that the legal limits of authorship are difficult to define in the context of AI-generated works. Despite claims by plaintiffs that psychographic works are of non-human, supernatural origin, courts have repeatedly recognised the establishment of copyright in the cases involving such works.[43] In *Urantia Foundation v. Maaherra*, the Ninth Circuit countered the claim "that such works are not copyrightable because they lack the element of creativity required by *Feist*" by stating that "copyright laws... do not expressly require 'human' authorship.".[44] Courts have found "a sufficient nexus to human creativity" to protect copyright in circumstances where human authorship is denied outright, as is the case with the *Urantia Foundation* and other examples of automated writing.[45]

c. The Question of Computational Creativity

Bridy asserts that "all creativity is inherently algorithmic," and that, contrary to initial impressions, the works produced autonomously by computers are more similar to their human counterparts and to existing copyright doctrine than one might think.[46] Copyright in procedurally created artworks has been debated for some time, and the automated writing instances show that these works could be considered copyrightable despite their

[40]Annemarie Bridy, *Coding Creativity: Copyright and the Artificially Intelligent Author,* (2011), https://papers.ssrn.com/abstract=1888622 (last visited Apr 21, 2023).
[41]*Id.*
[42]*Id.*
[43]*Id.*
[44]*Id.*
[45]*Id.*
[46]*Id.*

non-human birth.[47] Copyright law does not expressly require human authorship; therefore autonomously generated works of art by AI systems can be protected as "works of authorship" under Section 102 of the Copyright Act because of their connection to human creativity.[48]

d. "Artificially Intelligent Authors: Technological Progress or Oxymoron?"

Bridy argues that the question of whether "artificially intelligent authors" represent "technological progress" or an "oxymoron" is difficult to answer. She makes the point that both Dahl and Calvino were members of the literary avant-garde and, to varying degrees, accepted the idea that the circumstances of writing require all authors to engage in algorithmic creativity.[49] According to Bridy, there has been a meteoric rise in the usage of AI systems equipped with DL neural networks to produce content that appears to be eligible for copyright protection.[50] Articles in the national news media, music, movies, poetry, and painting are just few of the many forms of creative expression that AI computers are beginning to compete with human authors and artists for economic value.[51]

e. The Role of Creativity in Copyright

The *Feist* case established that creativity is both the essential element and the indefinable quality of copyright.[52] This makes it difficult for courts and advocates maneuvering around the concept of creativity. However, the *Urantia Foundation v. Maaherra* case suggests that courts can recognize copyright in works with non-human origins if there is "a sufficient nexus to human creativity."[53] In this case, the court stated that "copyright laws do not expressly require human authorship."[54] This implies that even if a work is generated by an AI, it can still be considered copyrightable if it has a connection to human creativity.

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[47] *Id.*
[48] *Id.*
[49] *Id.*
[50] *Id.*
[51] *Id.*
[52] Feist Publications, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340 (1991), JUSTIA LAW, https://supreme.justia.com/cases/federal/us/499/340/ (last visited May 27, 2023).
[53] Urantia Foundation v. Maaherra, 114 F.3d 955 | 9th Cir., Judgment, Law, casemine.com, HTTPS://WWW.CASEMINE.COM, https://www.casemine.com/judgement/us/5914bc48add7b0493479b715" (last visited May 27, 2023).
[54] *Id.*

f. Copyright Requirements for Human Authors

The current state of copyright law needs virtually little creativity from human authors. Given this low bar, it's fair to wonder if we should be expecting more creative output from computers, especially since it's currently hard to tell whether an artwork was created by a human or a piece of generative computer code. The *Urantia Foundation v. Maaherra* case supports this argument, as it demonstrates that courts can recognize copyright in works with non-human origins if there is "a sufficient nexus to human creativity."[55]

g. Algorithmic Creativity in Literature

Dahl and Calvino, both avant-garde writers, accepted the proposition that all writers are compelled to be algorithmically creative to some degree.[56] This suggests that even human authors rely on algorithms and patterns in their creative processes. Therefore, it can be contended that AI works should be considered copyrightable, as they share similarities with human-authored works in terms of algorithmic creativity.

h. Copyright and AI-Generated Works: The Nexus to Human Creativity

Despite claims that psychographic compositions are of non-human or supernatural origin, courts have repeatedly recognised the existence of copyright in these circumstances.[57] The *Urantia Foundation v. Maaherra* case supports the argument that procedurally generated artworks "should be regarded as copyrightable, despite their non-human genesis, because they have a sufficient nexus to human creativity".[58] Since "copyright law does not expressly require human authorship", AI-generated works can be called "works of authorship" under Sec 102 of the Copyright Act because they are related to human creativity.[59] Furthermore, the *Urantia Foundation v. Maaherra* case states that "a work is copyrightable if copyrightability is claimed by the first human beings who compiled,

[55] *Id.*
[56] Bridy, *supra* note 40.
[57] *Id.*
[58] *Id.*; Urantia Foundation v. Maaherra, 114 F.3d 955 | 9th Cir., Judgment, Law, casemine.com, *supra* note 53.
[59] Bridy, *supra* note 40.

selected, coordinated, and arranged it". [60] This shows that even AI-generated works can be copyrighted if there is a human connection.

i. Evolution of Originality and Creativity in Copyright Law: A Comparative Analysis

Copyright law has varied standards of originality and creativity in different countries, such as the United States, the United Kingdom, Canada, and India. In general, the requirement for originality and creativity in literary, musical, and artistic works has evolved over time, with courts in various countries interpreting and applying the concept differently.

In the *United States*, a work must have "at least a modicum" of creativity and be the independent creation of its author to qualify for copyright protection.[61] The US Supreme Court's decision in *Feist v. Rural Telephone* emphasized the role of personality and human judgment in establishing originality.[62]

In the *United Kingdom*, the originality requirement is based on the "skill and labor" doctrine, which has been under pressure due to the influence of European Union law.[63] The European Court of Justice added "author's own intellectual creation" to copyright originality.[64] UK courts have been moving towards a more complex understanding of originality, incorporating both skill and labor and the author's personal intellectual creation.[65]

In *Canada*, the Supreme Court has adopted a "skill and judgment" standard for originality, which represents a compromise between creativity and sweat-of-the-brow standards.[66] The public interest component of the copyright balance was emphasised in the court's definition

[60]Urantia Foundation v. Maaherra, 114 F.3d 955 | 9th Cir., Judgment, Law, casemine.com, *supra* note 53.
[61]Raven Lanier, *Research Guides: Copyright Basics: Copyrightability*, https://guides.lib.umich.edu/copyrightbasics/copyrightability (last visited May 27, 2023).
[62]Justin Hughes, *Restating Copyright Law's Originality Requirement*, 44 THE COLUMBIA JOURNAL OF LAW & THE ARTS (2021), https://journals.library.columbia.edu/index.php/lawandarts/article/view/8099 (last visited May 27, 2023).
[63]Andreas Rahmatian, *Originality in UK Copyright Law: The Old "Skill and Labour" Doctrine Under Pressure* , 44 IIC 4 (2013).
[64]Niovi Plemmenou, *Copyright Law Explained from a UK Law Perspective*, THE LEGAL COMPASS (2020), https://www.thelegalcompass.co.uk/post/copyright-law-explained-from-a-uk-law-perspective (last visited May 27, 2023).
[65]Rahmatian, *supra* note 63.
[66]Carys J Craig, *The Evolution of Originality in Canadian Copyright Law: Authorship, Reward and the Public Interest*.

and application of the originality requirement in *CCH Canadian Ltd. v. Law Society of Upper Canada*.[67]

In *India*, the doctrine of originality "stipulates that originality subsists in a work where a sufficient amount of intellectual creativity and judgment has gone into the creation".[68] Indian courts have analyzed the jurisprudential underpinnings of the originality requirement in various cases.[69]

An analogy can be drawn and the concept applied to AI-generated works by looking at the development of the threshold of originality and creativity in various countries. At the very least, a work must show that the author made choices, selections, or arrangements that show some general authorial input. What's important is that there's room for making creative choices, and that space should have been used and expressed. An AI-aided output may suffice with nothing more than a collection of rather evident design, execution, and editing decisions.

In conclusion, the standard for determining whether a work of literature, music, or art is original has changed through time and differs between countries. Different courts have been implementing and interpreting the notion in various ways, with some countries taking a more nuanced and complicated stance on what constitutes original work. When applying this idea to works made by AI, it is important to think about the creative choices that were made and the skill and judgement that was used.

2. Are they infringing on existing copyright?

The use of AI generative models to create incremental additions via a system that continuously builds off of other works raises questions about what constitutes original and proprietary content. Even when creative decision-making is clear, the use of intermediate copies in huge

[67] *Id.*
[68] "Doctrine Of Originality In Copyright - Copyright - India, https://www.mondaq.com/india/copyright/802134/doctrine-of-originality-in-copyright (last visited May 27, 2023).
[69] T. G. Agitha, *Idea-Expression Dichotomy and Originality Requirements for Copyright Protection: An Analysis of the Jurisprudential Underpinnings of the Judicial Pronouncements in India*, *in* COPYRIGHT LAW IN THE DIGITAL WORLD: CHALLENGES AND OPPORTUNITIES 1 (Manoj Kumar Sinha & Vandana Mahalwar eds., 2017), https://doi.org/10.1007/978-981-10-3984-3_1 (last visited May 27, 2023).

data collections for upstream modeling of AI & Machine learning (ML) systems seems to test fair use/fair dealing restrictions, raising worries of downstream infringement.

a. Achieving Balance: Copyright Considerations in the Age of AI

Merkley discusses the impact of AI-generated works on artists and the intellectual property landscape, emphasizing the need for action to prevent the unauthorized use of artists' works to train AI algorithms.[70] It also raises concerns about the devaluation of human art in the face of online content and calls for finding ways to support and protect human art as a valuable and humane endeavor.[71] It highlights the legal challenges artists face and the importance of considering copyright implications and relevant provisions in different jurisdictions.[72]

Professor Okediji argues that the international copyright system should establish a standard of limitations and exceptions, such as fair use, to maintain "a balance between protection and access" to copyrighted works.[73] Additionally, alternative forms of the creative enterprise, like the open-source movement, and new business models should be considered to reward creators without compromising access and competition.[74] Limitations and exceptions play a crucial role in facilitating economic development and fostering innovation in the digital age.[75] Hence, achieving a balance between original creators and creators using incremental additions through AI requires careful consideration.

The expansion of copyright user rights to encourage maximal innovation and access to knowledge in the digital era is becoming an increasingly central focus of copyright law reform efforts around the world.[76] However this empirical study "The User Rights Database: Measuring the Impact of Copyright Balance" explored "the social and economic impact of expanding user rights in the

[70]Ryan Merkley, *On AI-Generated Works, Artists, and Intellectual Property*, LAWFARE (2023), https://www.lawfareblog.com/ai-generated-works-artists-and-intellectual-property (last visited May 28, 2023).
[71]*Id.*
[72]*Id.*
[73]RUTH L. OKEDIJI, *The International Copyright System: Limitations, Exceptions and Public Interest Considerations for Developing Countries*, (2006), http://ictsd.org/i/publications/11725/ (last visited May 28, 2023).
[74]*Id.*
[75]*Id.*
[76]Sean M. Flynn & Mike Palmedo, *The User Rights Database: Measuring the Impact of Copyright Balance*, SSRN JOURNAL (2017), https://www.ssrn.com/abstract=3082371 (last visited May 28, 2023).

digital era" and found that copyright user rights openness leads to beneficial consequences.[77] The study indicated that nations with more flexible copyright constraints had higher revenues in software, computer systems design, contract research and development, and information sector enterprises. Scholars in open user rights countries published more, including highly referenced, articles.[78] The study notes an increasing difference in copyright openness between low/middle-income and high-income countries. The importance of national legislatures and international frameworks for promoting and protecting open copyright user rights is emphasized in it.[79] The study does not prove that more open user rights boost innovation and creativity, but it shows that user rights should be used to achieve social goals.[80] Thus, copyright user rights must be carefully considered to balance rights between original creators and creators whose works are built on incremental additions through systems like AI-GAN.

The worldwide spread of COVID-19 has highlighted the importance of concerted international measures, such as the freeing of digital research technologies. WIPO, being the principal international institution responsible for copyright guidelines and norms, plays a crucial role in shaping the future by addressing outdated and overly restrictive copyright laws.[81] It is imperative for WIPO to guide its member countries on various mechanisms that can be employed to authorize research, particularly Text and Data Mining (TDM) research crucial for ML and AI applications.[82] By doing so, WIPO can contribute to achieving a balanced approach between the rights of original creators and creators whose works are based on incremental additions through AI-GAN or similar systems, emphasizing the importance of careful consideration in achieving this balance.

b. Balancing Copyright and Innovation in AI Training - Approaches in Different Jurisdictions

In the context of balancing copyright protection and fostering innovation in AI training, both fair use and fair dealing provisions play a crucial role in potentially safeguarding ML processes in Generative AI from copyright infringement. The recent legal cases involving fair use in the United

[77] *Id.*
[78] *Id.*
[79] *Id.*
[80] *Id.*
[81] Sean Flynn et al., *Implementing user rights for research in the field of artificial intelligence: a call for international action* (2020), https://core.ac.uk/display/322491245/.
[82] *Id.*

States courts provide valuable insights into the application of copyright principles to AI-generated works. By recognizing the transformative nature and social benefits of certain digital practices, these rulings offer a potential framework to extend copyright protection to AI-generated works in the context of Generative AI.

The Ninth Circuit United States Court of Appeals in *Perfect 10 Inc.*,[83] considered Google's use of thumbnail copies of plaintiff's photos as "highly transformative" since it turned the images into pointers that directed users to relevant information. This incorporation of original works into an electronic reference tool provided a social benefit. As a result, the court concluded that there was no foreseeable market injury or speculative harm to Perfect 10, Inc.

The Fourth Circuit United States Court of Appeals in *iParadigm*[84] agreed with the district court that archiving student work to detect plagiarism was fair usage and it deemed the use transformative because it had nothing to do with the expressive content of the works and was intended to detect and discourage plagiarism.

The Second Circuit United States Court of Appeals in *Hathitrust*[85] determined that the HDL's creation of a searchable database constituted fair use due to its transformative nature and the absence of harm to the market for the original works. The court also found that providing access for the print-disabled was fair use, even though it lacked transformative elements, and retaining both text and image copies was justified for improved accessibility.[86] Additionally, the court concluded that the insignificance of the market for accessible books supported the fair use finding.[87]

[83]Perfect 10, INC. V Amazon, No. 06-55405 (9th Cir. 2007), JUSTIA LAW, https://law.justia.com/cases/federal/appellate-courts/ca9/06-55405/0655405-2011-02-26.html (last visited May 28, 2023).
[84]A.V. Ex Rel. Vanderhye v. IParadigms, LLC, 562 F.3d 630 | 4th Cir., Judgment, Law, casemine.com, HTTPS://WWW.CASEMINE.COM, https://www.casemine.com/judgement/us/5914b1c5add7b0493475b863 (last visited May 28, 2023).
[85]Authors Guild, Inc. v. HathiTrust, No. 12-4547 (2d Cir. 2014), JUSTIA LAW, https://law.justia.com/cases/federal/appellate-courts/ca2/12-4547/12-4547-2014-06-10.html (last visited May 28, 2023).
[86]*Id.*
[87]*Id.*

The Second Circuit United States Court of Appeals in *Authors Guild v. Google, Inc.*,[88] upheld the fair use ruling for Google's digitization and use of copyrighted works, deeming it transformative and enhancing public knowledge without substantial substitution. The court also determined that Google's provision of digital copies to libraries, limited text display in search results, and snippet view's incomplete nature made it unlikely to be a significant substitute for book purchases, ultimately finding Google's use fair and non-harmful to the market.[89]

Drawing upon the principles established in these legal cases, there is a compelling argument to extend fair use provisions to AI-generated works. Just as the courts acknowledged the transformative nature and societal value of AI practices, similar considerations should be applied to AI-generated works to strike a balance between copyright protection and fostering innovation in the emerging field of Generative AI.

In the digital era, where vast amounts of data and information are readily available, the analysis of text and data has become increasingly crucial for various industries, including scientific research, technological advancements, and AI development. The introduction of copyright exceptions for TDM activities in various jurisdictions highlights the recognition of the importance of supporting technological advancements in the digital and AI landscape. These exceptions aim to strike a balance between copyright protection and fostering innovation, offering potential protection to ML processes in Generative AI, potentially absolving them of copyright infringement. The following is a little exploration of the approaches taken in different jurisdictions to balance copyright and innovation in AI training.

i. European Union: The TDM exceptions and limitations (Articles 3 and 4) in the European Union Directive[90] are noteworthy for promoting the development of ML and AI. Initially limited to research organizations, the European Commission expanded the exceptions during the adoption of the DSM Directive, introducing a broader exception or limitation

[88]Authors Guild v. Google, Inc., No. 13-4829 (2d Cir. 2015), JUSTIA LAW, https://law.justia.com/cases/federal/appellate-courts/ca2/13-4829/13-4829-2015-10-16.html (last visited May 28, 2023).
[89]*Id.*
[90]Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC, https://eur-lex.europa.eu/eli/dir/2019/790/oj.

without beneficiary restrictions to address the lack of legal certainty and enhance the EU's competitiveness in the field of TDM.[91]

ii. Singapore: The Copyright Act 2021[92] in Singapore introduces a new exception that explicitly protects computational uses, including TDM and ML training.[93] This exception provides certainty by safeguarding lawfully acquired, non-infringing works for the sole purpose of computational analysis, allowing sharing with research collaborators, and overriding any restrictions imposed by private contracts.[94]

iii. UK: The UK government has implemented a new copyright and database right exception, Section 29A,[95] that allows TDM for non- commercial scientific research, and recently proposed to add commercial uses, without the need for licensing or opt-outs by rightholders.[96] This approach is expected to benefit various stakeholders, including researchers, AI developers, small businesses, cultural heritage institutions, journalists, and the general public, by facilitating research, innovation, and the creation of new works while easing the burden of obtaining permissions from multiple rightholders.[97]

iv. Japan: The 2018 Amendment to Japan's Copyright Act[98] by adding New articles 30-4,47-4 and 47-5 aimed to support the development of AI and Big Data industries by introducing these provisions that allow users to analyze copyrighted works for ML without perceiving the copyrighted expression, permit electronic incidental copies for ML activities, and

[91]Eleonora Rosati, *Copyright in the Digital Single Market: a taster*, https://www.wipo.int/wipo_magazine/en/2021/04/article_0009.html (last visited May 28, 2023).
[92]Copyright Act 2021 - Singapore Statutes Online, https://sso.agc.gov.sg:5443/Acts-Supp/22-2021/Published/20211007?DocDate=20211007 (last visited May 28, 2023).
[93]Changes to The Singapore Copyright Act Come Into Force, THE NATIONAL LAW REVIEW, https://www.natlawreview.com/article/changes-to-singapore-copyright-act-come-force (last visited May 28, 2023).
[94]*Id.*
[95]Sec 29A, Copyright, Designs and Patents Act 1988, https://www.legislation.gov.uk/ukpga/1988/48/section/29A (last visited May 28, 2023).
[96]Alina Trapova& João Pedro Quintais, *The UK government moves forward with a text and data mining exception for all purposes*, KLUWER COPYRIGHT BLOG (2022), https://copyrightblog.kluweriplaw.com/2022/08/24/the-uk-government-moves-forward-with-a-text-and-data-mining-exception-for-all-purposes/ (last visited May 28, 2023).
[97]*Id.*
[98]Copyright Law of Japan | Copyright Research and Information Center CRIC, https://www.cric.or.jp/english/clj/cl2.html (last visited May 28, 2023).

enable the use of copyrighted works for data verification in research.[99] These changes are expected to drive technological advancements in economically important sectors, with the Amendment taking effect on January 1, 2019.[100]

v. Israel: The Israeli Ministry of Justice recently clarified that using copyrighted content to train ML models is likely permissible as "fair use" under copyright law. [101] The opinion provides guidelines on incidental and ephemeral uses of copyrighted works, but cautions against limited content usage that competes with individual creators and emphasizes the need for a case-specific analysis if the ML tool's output infringes copyrights. The objective is to remove legal uncertainty, encourage ML activity, and enhance the competitiveness of Israeli companies.[102]

The availability of fair use and fair dealing provisions, as demonstrated by copyright exceptions for TDM in different jurisdictions, presents a promising avenue for safeguarding ML processes in Generative AI. By recognizing the need to foster innovation while respecting copyright, these exceptions provide a framework to ensure the legal protection of AI-generated works. However, harmonization and effective implementation of these provisions across jurisdictions will be crucial to promote a competitive environment for AI and data-driven innovations, ensuring continued progress and development in the field of Generative AI.

3. Will they dominate the market at the expense of conventional creators?

The emergence of AI-generated works has sparked a debate on whether these creations should be subject to a higher originality barrier compared to conventional works. This section

[99]Japan amends its copyright legislation to meet future demands in AI, EUROPEAN ALLIANCE FOR RESEARCH EXCELLENCE (2018), https://eare.eu/japan-amends-tdm-exception-copyright/ (last visited May 28, 2023).
[100]*Id.*
[101]Ministry of Justice Opinion on the Use of Copyrighted Works for Machine Learning Purposes, HERZOGLAW | ISRAELI LAW FIRM, https://herzoglaw.co.il/en/news-and-insights/ministry-of-justice-opinion-on-the-use-of-copyrighted-works-for-machine-learning-purposes/ (last visited May 28, 2023).
[102]Israeli Ministry of Justice issues opinion on fair use of copyrighted content for AI/ML training, LEXOLOGY (2023), https://www.lexology.com/commentary/intellectual-property/israel/pearl-cohen-zedek-latzer-baratz/israeli-ministry-of-justice-issues-opinion-on-fair-use-of-copyrighted-content-for-aiml-training (last visited May 28, 2023).

examines the argument that AI-created works should not face such a barrier, highlighting the similarity in the likelihood and manner of infringements between AI and human creators.

a. *Access and Pragmatic Considerations*: Copyright should not be used as a means to restrict access to works necessary for AI training.[103] Allowing ML systems to train on datasets that include copyrighted works has several compelling reasons.[104]*Firstly*, broad access to training datasets enhances the performance, safety, and fairness of AI systems, as smaller and proprietary datasets with limited copyright licensing can lead to suboptimal decisions with real-world consequences.[105]*Secondly*, obtaining individual licenses for the numerous works used in AI training is impractical and may hinder the development of a licensing market, limiting competition and innovation.[106]*Lastly*, providing ML systems with broader access to data helps mitigate concerns of bias and promotes fairer AI systems, aligning with the normative values of fair use in reducing bias and improving accuracy.[107]

b. *Focus on Copying, not Styles or Articulation*: Copyright law primarily aims to prevent direct copying of content in works, rather than granting monopolies over artistic styles or modes of expression. Copyright law should allow copying of works by ML systems and other entities for non-expressive purposes, such as learning ideas rather than appropriating creative expression.[108] This issue arises in various contexts, including scientific articles, software interoperability, state statutes, and utilitarian works. Fair use should consider whether the copying is intended to access protected expression or underlying ideas.[109] However, there should be limits on fair use when the purpose is to replicate specific expressions, and copyright should not control unprotectable elements.[110] ML systems face a challenge in accessing unprotectable parts of creative

[103]Joshua New, *Copyright Law Should Not Restrict AI Systems From Using Public Data*, CENTER FOR DATA INNOVATION (2019), https://datainnovation.org/2019/10/copyright-law-should-not-restrict-ai-systems-from-using-public-data/ (last visited May 28, 2023).
[104]Fair Learning, TEXAS LAW REVIEW (2021), https://texaslawreview.org/fair-learning/ (last visited May 28, 2023).
[105]*Id.*
[106]*Id.*
[107]*Id.*
[108]*Id.*
[109]*Id.*
[110]*Id.*

works for training without making exact copies of the protected elements.[111] Copyright law excludes certain elements like ideas, facts, and methods from protection, but ML systems cannot selectively access these unprotectable parts without copying the entire work. Unlike humans, who can learn from works without making direct copies, ML systems lack this ability.[112] Existing copyright doctrines that accommodate unprotectable elements in works do not sufficiently address this issue, as ML systems often deal with works that are primarily copyrighted and not predominantly factual or functional.[113]

c. *Minimal Originality Requirement*: Copyright protection requires minimal originality and a fixed form, making it easy to create copyrighted works.[114] The low threshold for copyrightability results in a vast number of copyrighted works being created daily, many of which may be of little value.[115] The copyrightability of databases presents a hurdle for ML systems, as they often need access to comprehensive existing databases, which may require licensing.[116] Additionally, the copyright in individual components of databases, such as photos or written works, poses a more significant problem for ML systems, as obtaining rights from numerous copyright owners is complex and time-consuming.[117]

AI-generated works should not be preemptively restricted based on speculative concerns about market competition, unless they are found to be infringing in a court of law. The market effect should not typically hinder fair use of copyrighted works, as long as the purpose of the use does not directly interfere with the copyright owner's core market.[118] However, when AI produces creative works, especially if they compete with the plaintiff's core market or are deemed more substitutive than transformative, fair use becomes less likely to protect them.[119] Fair use is not solely dependent on

[111] *Id.*
[112] *Id.*
[113] *Id.*
[114] *Id.*
[115] *Id.*
[116] *Id.*
[117] *Id.*
[118] *Id.*
[119] *Id.*

transformation but also serves valuable social purposes, such as education and facilitating informed discussions on political and social issues.[120]

In conclusion, the argument against imposing a higher originality barrier on AI-created works holds merit based on the similarity in the likelihood and manner of infringements between AI and human creators. Restricting AI-generated works preemptively based on speculation about market competition is unjustified. Access to works for AI training is crucial for enhancing AI systems' performance, safety, and fairness. Copyright law should primarily focus on preventing direct copying rather than controlling artistic styles or expression. By recognising the challenges that both AI and human creators face, a balanced method can be found to encourage innovation and creativity in the evolving environment of AI-generated works.

4. Would they undermine the entire social space of creative and original work that copyright law was designed to safeguard?

The introduction of AI tools and technologies in the creative industry has sparked discussions about their impact on traditional art forms and the role of copyright law. However, it is important to recognize that these tools have not replaced older art forms but have rather provided alternative processes that are more accessible and convenient.

The impact of AI on the creative industry, including art, music, and content creation, has been a topic of discussion for some time. While AI-generated art has gained attention and sold for high prices, it is unlikely that AI creative works will dominate the market at the expense of conventional creators in the foreseeable future.[121]

The complementary relationship between AI and creative professionals in the future of the creative industry emphasizes that AI alone cannot achieve creative output. Like a camera without a photographer or a pen without an artist, AI requires human expertise. Consequently, new professions will emerge for individuals who can effectively utilize and control AI,

[120] *Id.*

[121] Ju Song-hyun, *Artist and AI art in the Art Market*, MEDIUM (2019), https://medium.com/@jaiNine/artist-and-ai-art-in-the-art-market-43f32184631f (last visited May 28, 2023).

highlighting the importance of mastering this technology as it becomes increasingly integral to the future of the creative industry.[122]

According to a report by Accenture, the successful application of AI could lead to an average increase in corporate profitability of 38% by 2035 across 16 industries, resulting in an estimated "US$14 trillion in additional gross value added (GVA)."[123] The report highlights the need for businesses to adopt a human-centric approach and take responsible steps in implementing AI to capitalize on this opportunity.[124] By integrating AI into processes, companies can achieve higher profitability, increased productivity, and long-term economic growth.[125]AI can be used to create engaging content for fields including advertising, media, entertainment, and art.[126] However, human content creators bring a level of creativity, empathy, and editorial judgment to their work that AI models may not be able to fully replicate.[127]

The emergence of large language and image AI models offers opportunities for businesses and professionals, including "automated content generation", "improved content quality", "increased content variety", and "personalized content", but it is crucial to understand how these tools work and the importance of human involvement in both the prompt creation and evaluation/editing processes to maximize their value and ensure quality outputs; these generative AI models have the potential to disrupt content creation across various industries, impacting marketing, software, design, entertainment, and communications, and while they are powerful, they still require human touch and expertise to optimize their potential.[128]

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[122]Hasan Eslik, *Exploring the Impact of Artificial Intelligence on the Creative Industry: Opportunities and Challenges*, https://www.linkedin.com/pulse/exploring-impact-artificial-intelligence-creative-industry-eslik (last visited May 28, 2023).

[123]Accenture Report: Artificial Intelligence Has Potential to Increase Corporate Profitability in 16 Industries by an Average of 38 Percent by 2035, https://newsroom.accenture.com/news/accenture-report-artificial-intelligence-has-potential-to-increase-corporate-profitability-in-16-industries-by-an-average-of-38-percent-by-2035.htm (last visited May 28, 2023).

[124]*Id.*

[125]*Id.*

[126]Generative AI Market Observes Strong Growth Potential, With Projected Market Size of USD 151.9 Bn by 2032, GLOBENEWSWIRE NEWS ROOM (2023), https://www.globenewswire.com/en/news-release/2023/04/03/2639263/0/en/Generative-AI-Market-Observes-Strong-Growth-Potential-With-Projected-Market-Size-of-USD-151-9-Bn-by-2032.html (last visited May 28, 2023).

[127]Nitish Tripathi, *The Future of Copywriting: Will AI Replace Human Content Creators?*, https://www.linkedin.com/pulse/future-copywriting-ai-replace-human-content-creators-nitish-tripathi (last visited May 28, 2023).

[128]Thomas H. Davenport & Nitin Mittal, *How Generative AI Is Changing Creative Work*, HARVARD BUSINESS REVIEW, Nov. 2022, https://hbr.org/2022/11/how-generative-ai-is-changing-creative-work (last visited May 28, 2023).

In conclusion, the introduction of AI tools in the creative industry has not replaced older art forms but instead offered convenient alternatives. These tools have increased participation in authorship, creative expression, storytelling, and social communication. While AI-generated works have gained attention, they are unlikely to dominate the market at the expense of conventional creators. Human expertise and creativity remain crucial, and new professions will emerge to master and control AI technology. AI has the potential to enhance profitability and productivity but still needs the human touch intrinsic to art. Human involvement is vital to optimize AI's potential and ensure high-quality outputs. AI created works will not undermine the social space of creative and original work safeguarded by copyright law.

III. Future of Ownership

AI has increased people's participation in the creative process, highlighting the importance of appropriately recognizing human contributions.The rise of AI-generated works raises questions about ownership and responsibility in cases of infringement.

In response to the increasing use of AI systems, governments and policy makers are revising their IP policies to overcome legal barriers and grant intellectual property rights to AI-generated works.[129] These rights not only recognize the authors or creators but also promote commerce, industry, and investment, serving as a vital incentive for investors to support the development and dissemination of creative works for public use.[130]

Ownership, with its emphasis on economic exploitation, presents a distinct challenge in relation to authorship and originality, which revolve around origination and identity. Currently, copyright laws in most countries do not offer protection for AI-generated works, leading to ethical and legal complexities.[131] While some countries have legislation granting copyright to those who facilitate AI-generated creations, it may not effectively address situations involving multiple stakeholders

[129]Omar Faruque Munshi & Sathi Barai, *IP Rights to AI-Generated Works: Barriers Presented by Existing Law and Reformations Needed*, CJBIS 37 (2022).
[130]*Id.*
[131]Burylo, *supra* note 19.

and intricate AI systems.[132] Treating AI-generated works as public property lacks incentives for AI system designers and operators.[133]

The recent approaches in various jurisdictions offer valuable guidance towards addressing the legal barriers, technical challenges, and policy gaps related to AI-generated works, ultimately leading to a more principled formulation of the IP legal framework in this domain.

There is currently a significant variation among countries in terms of copyright protection for AI-generated works.[134]

1. ***USA:*** The two significant cases involving AI copyright authorship in US are, namely *Thaler v. Perlmutter* and *Kris Kashtanova's attempt to register "Zarya of the Dawn"* with the Copyright Office.[135] In *Thaler v. Perlmutter,* Dr. Stephen Thaler challenged the denial of his copyright registration for an AI-generated image, arguing that the human authorship requirement imposed by the Copyright Office was unsupported by law.[136] In *Kashtanova's case*, the Copyright Office initially granted copyright registration for a graphic novel created using AI but later issued a notice of possible cancellation, stating that the AI-generated images did not qualify for copyright protection.[137] These cases highlight ongoing debates and the need for clarity regarding AI's role in copyright authorship. Recently, The U.S. Copyright Office has issued guidance[138] "on examining and registering works containing AI-generated content", emphasizing the requirement of "human authorship".[139] They clarified that works produced solely by machines without creative input from a human author are ineligible for copyright protection.[140] The Office will evaluate the level of human authorship in works with AI-generated material "on a case-by-

[132] *Id.*
[133] *Id.*
[134] Niloufer Selvadurai& Rita Matulionyte, *Reconsidering creativity: copyright protection for works generated using artificial intelligence*, 15 JOURNAL OF INTELLECTUAL PROPERTY LAW & PRACTICE 536 (2020).
[135] Tiana Loving, *Current AI Copyright Cases – Part 2*, COPYRIGHT ALLIANCE (2023), https://copyrightalliance.org/current-ai-copyright-cases-part-2/ (last visited May 29, 2023).
[136] *Id.*
[137] *Id.*
[138] Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, FEDERAL REGISTER (2023), https://www.federalregister.gov/documents/2023/03/16/2023-05321/copyright-registration-guidance-works-containing-material-generated-by-artificial-intelligence (last visited May 1, 2023).
[139] Erin Hanson, Katharine Pearce & Alina Dvorovenko, *U.S. Copyright Office Provides Guidance on Registrations involving AI-Generated Works | White & Case LLP*, (2023), https://www.whitecase.com/insight-our-thinking/us-copyright-office-provides-guidance-registrations-involving-ai-generated (last visited May 29, 2023).
[140] *Id.*

case basis", considering factors such as the extent of human creative control and the originality of the resulting work.[141] While works that primarily rely on AI contributions may not be protected, copyright may apply if a human creatively selects or arranges the AI-generated materials or makes significant modifications to them.[142]

2. ***European Union:*** Under EU copyright law, the requirement for protection is based "on human authorship and the expression of free and creative choices in the final output". However, in computational creativity projects that heavily rely on AI, the connection between the human author and the resulting creative output becomes increasingly tenuous.[143] This raises questions about whether copyright protection would apply to many of these new works where the role of AI is significant. This divergence emphasizes the need for a unified approach to address copyright issues related to AI-generated works.[144]

   The proposed EU AI Act[145], which aims to regulate the use of AI technology, includes provisions that require disclosure of copyrighted material used to train foundation AI models.[146] This development is in response to the changing landscape and increased use of generative and general-purpose AI tools.[147] Legislators came up with a resolution that strikes a balance between completely ignoring copyright and outlawing its usage in AI model training. These regulations address the need for transparency and disclosure in relation to copyrighted material, considering the significant role of AI in generating new works.[148]

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[141] *Id.*
[142] *Id.*
[143] Alina Trapova, *Copyright for AI-generated works: a task for the internal market?*,KLUWER COPYRIGHT BLOG (2023), https://copyrightblog.kluweriplaw.com/2023/02/08/copyright-for-ai-generated-works-a-task-for-the-internal-market/ (last visited May 29, 2023).
[144] *Id.*
[145] AI Act: a step closer to the first rules on Artificial Intelligence | News | European Parliament, (2023), https://www.europarl.europa.eu/news/en/press-room/20230505IPR84904/ai-act-a-step-closer-to-the-first-rules-on-artificial-intelligence (last visited May 29, 2023).
[146] Ryan Morrison, *EU says generative AI makers must declare copyrighted content*, TECH MONITOR (2023), https://techmonitor.ai/technology/ai-and-automation/generative-ai-european-union-eu-copyright (last visited May 29, 2023).
[147] *Id.*
[148] *Id.*

3. ***China:*** Chinese courts recently addressed AI-generated work ownership.[149] "Dreamwriter software" content was considered written in *Shenzhen Tencent v. Shanghai Yingxun*. However, the Court upheld the author-created work requirement.[150] The Court noted that Shenzhen Tencent's creative team used Dreamwriter software to "data input, trigger condition setting, and template and style choices" to create the piece.[151] The work was original and protected under China's Copyright Law.[152] The Court found that the work was human intellectual activity supported by AI, making it copyright-eligible.[153]

   In the *Gao Yang v. Youku* case, "a sports camera attached to a hot air balloon automatically captured images of outer space".[154] The Beijing Intellectual Property Court found that camera settings and shooting parameters constituted human intervention.[155] The court ruled that screenshots from automatically captured movies were photographic works and that unauthorised use of them would violate copyright.[156] This case shows that copyright law can protect AI-generated works if human input is present.[157]

   The Beijing Internet Court held in *Feilin v Baidu* that AI-generated reports cannot be copyrighted.[158] The court also ruled that these works do not enter the public domain and cannot be freely exploited.[159]

4. ***United Kingdom:*** The copyright law in the United Kingdom differs from other countries by allowing copyright protection for "computer-generated works".[160] According to the law, "In the case of a literary, dramatic, musical or artistic work which is computer-generated,

[149]ZHOU Bo, *Artificial Intelligence and Copyright Protection --Judicial Practice in Chinese Courts,* https://www.wipo.int/export/sites/www/about-ip/en/artificial_intelligence/conversation_ip_ai/pdf/ms_china_1_en.pdf.
[150]*Id.*
[151]*Id.*
[152]*Id.*
[153]*Id.*
[154]*Id.*
[155]*Id.*
[156]*Id.*
[157]*Id.*
[158]Selvadurai and Matulionyte, *supra* note 134.
[159]*Id.*
[160]*Id.*

the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken."[161] Although the application of these provisions to AI-generated works has not been extensively tested in court, they have the potential to cover works created by AI algorithms.[162] In the case "of AI-generated works, natural persons or legal entities are involved" in the "arrangements necessary" for the work's creation, such as "developing software and training it with specific data sets".[163]

5. ***India:*** The Copyright Act of 1957 in India was amended in 1994 to address the emergence of computer-generated works.[164]*Section 2(d)(vi)* was introduced, defining the authors of such works as "the person who causes the work to be created."[165] However, the interpretation of the term "person" in this context determines the attribution of authorship to AI generated works. Unlike the Copyright law of the UK, the Indian Copyright Act does not provide a specific definition for the term "computer-generated work."[166]

   While the legal framework does not outrightly reject the possibility of granting copyright to AI works, courts in different jurisdictions have presented diverse opinions on whether a non-human entity can be considered an author.

   In the case of *Camlin Pvt. Ltd. v. National Pencil Industries*[167], the Delhi High Court elaborated on the meaning of the term "author," stating that mechanically reproduced printed cartons cannot be subject to copyright as it is impossible to determine the author. The court emphasized that copyright protection is conferred only upon authors who are natural persons and that machines cannot be considered authors or hold copyrights in artistic works.

   The High Court of Delhi has traditionally taken the position that artificial persons like the Central Board of Secondary Education (CBSE) are not entitled to copyright unless they can prove the involvement of individuals in the creation process, as seen in cases like

[161]Sec 9, Copyright, Designs and Patents Act 1988, 9, https://www.legislation.gov.uk/ukpga/1988/48/section/9 (last visited May 29, 2023).
[162]Selvadurai and Matulionyte, *supra* note 134.
[163]*Id.*
[164]Sec 2, The Copyright Act, 1957, 2, https://www.indiacode.nic.in/show-data?actid=AC_CEN_9_30_00006_195714_1517807321712&sectionId=14504&sectionno=2&orderno=2 (last visited May 29, 2023).
[165]*Id.*
[166]V K Ahuja, *ARTIFICIAL INTELLIGENCE AND COPYRIGHT: ISSUES AND CHALLENGES* (2020).
[167]1985 SCC OnLine Del 378

Rupendra Kashyap v. Jiwan Publishing House Pvt. Ltd.[168]*Tech Plus Media Private Ltd. v. Jyoti Janda*[169] reaffirmed this principle, making it clear that even though a legal entity holds the copyright, it cannot be credited as the work's author.

This interpretation was also upheld in *Navigators Logistics Ltd. v. Kashif Qureshi &Ors*[170], where the High Court of Delhi rejected a claim of copyright over a list compiled by a computer due to the lack of human intervention.

Similar to the United States, India follows the principle that AI alone cannot claim authorship.In conclusion, the future of ownership in relation to AI-generated works remains uncertain and subject to varied interpretations.These interpretations highlight the complexity and ongoing debates surrounding the recognition and ownership of AI-generated works in the legal landscape.

As the use of AI in creative processes increases, questions regarding ownership and responsibility in cases of infringement arise. While governments and courts are making efforts to address the legal complexities surrounding AI-generated works, a unified approach is needed to ensure consistent and fair treatment of these works. The future of ownership will depend on the continued evolution of laws, policies, and judicial interpretations to adapt to the changing landscape of AI and creativity.

IV. Conclusion

The attribution of authorship in AI-driven creative works presents a challenging but necessary task.AI artists participating in the social practice of authorship deserve recognition, challenging the notion of a solitary creator.

Chinese courts, the European Union, and Japanese public policy take a smart approach by allowing certain AI uses to promote technology development. Restricting AI stifles progress and lacks theoretical or legal grounds. Navigating authorship in AI works requires considering the evolving landscape, acknowledging social practices, and fostering innovation while addressing legal challenges.

[168]1993 SCC OnLine Del 660
[169]2014 SCC OnLine Del 1819
[170]2018 SCC OnLine Del 11321

AI-generated products still involve human input, making it possible to adapt the current copyright framework to protect them. However, for products solely generated by AI without human intervention, further monitoring of technological progress is needed to determine their copyright protection.

The Parliamentary Standing Committee on Commerce[171], for its 161st report, acknowledges the need for accommodating AI authorship and ownership, desiring for "revisiting of IPR legislations and implementing a strong IPR framework."

The review of the legislation should consider the challenges surrounding copyright protection for AI-generated works, including the lack of evidence supporting the need for exclusive IP rights and the difficulty in fitting AI creations within existing copyright doctrines.[172] Sector-specific differentiation and a balanced approach to economic rights should be considered to avoid overprotection and encourage technological advancement.[173] Additionally, policymakers should carefully evaluate the potential impact of extending copyright protection on the availability of AI-generated works and the overall balance between incentivizing AI innovation and preserving human creativity.[174]

[171]Committee Report: Review of the Intellectual Property Rights Regime, PRS LEGISLATIVE RESEARCH, https://prsindia.org/policy/report-summaries/review-of-the-intellectual-property-rights-regime (last visited May 29, 2023).
[172]Mauritz Kop, *AI & Intellectual Property: Towards an Articulated Public Domain,* (2019), https://papers.ssrn.com/abstract=3409715 (last visited Jan 31, 2023).
[173]*Id.*
[174]*Id.*

OVERCOMING CHALLENGES IN PROTECTING INDUSTRIAL DESIGN IN A GLOBAL ECONOMY

K. Prakasha Nikhila*

Abstract

The creation of consumer goods through industrial design. Industrial designers, who frequently have backgrounds in architecture or other visual arts fields, are typically a member of a broader creative team. Their main duty is to contribute to the creation of produced goods that are competitively advantaged over equivalent products since they not only function well but also look good. People today are more drawn to the design or appearance of the product and tend to buy the best design that catches their attention because the visual appeal of the product makes it more appealing, attractive, and distinct from others.

As a result, great designs are critical for business because an organisation often invests time and money to create, produce, and develop with new or unique goods. As a result, protecting the designs of various objects is vital in order to avoid infringement.

Key words: Industrial Design, Infringement, Competitive Advantage, Original Articles.

I. Introduction

German architect Peter Behrens, who is recognised as the first industrial designer, is credited with coining the term "industrial design" around the turn of the 20th century. The phrase "industrial designer" was first used by the Patent Office in 1913. "A design is hard to derive but simple to describe, "Design is a creative activity whose goal is to develop the multifaceted aspects of items, processes, services, and environments, according to the International Council of Societies of Industrial Design (ICSID). their systems in whole life cycles".[175] More simply, design is about "shaping products to serve people's needs."

II. The Development of Legal Protection for Industrial Design Internationally

1) Different Theories of Protection

The intellectual property trinity of patents, copyrights, and trademarks does not specifically aim to protect industrial designs; as a result, when laws are expanded beyond their original scope, industrial design protection usually becomes difficult and has unintended consequences. By giving an extremely powerful monopoly for a relatively short amount of time, the goal of patent law is to foster the development of ideas that are commercially viable. The powerful monopoly it offers would be anti-competitive if it applied only to particular designs, but it is challenging for courts to distinguish between a design's utilitarian elements and ornamental elements that can be protected.[176]

A longer period of protection from imitation is provided by copyright law for wholly original creative works as opposed to inventive ones. However, one could argue that it lasts a lot longer than is required or desired to protect industrial items, especially in quick-moving industries that are renowned for their abundance of derivative works. While its protection may be appropriate for the aesthetic appeal of the majority of designs. By protecting consumers from being tricked into buying counterfeit goods, trademark law also protects trademark owners from those looking to cash in on their goodwill. However, trademarks do not directly protect product designs; rather, they protect reputations, particularly those of well-known businesses. Therefore, trademarks

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[175]David Goldenberg, *The Long and Winding Road: A History of the Fight Over Industrial Design Protection in the United States*, 45 J. Copyright Soc'y U.S.A. 21-22 (1997).

[176]Common Regulations Under the 1999 Act and the 1960 Act of the Hague Agreement, Rule 18: WIPO,www.wipo.int/export/sites/www/hague/en/legal_texts/pdf/hague_common_ regulations.pdf.

should not offer any protection until a design is well-known and associated in customers thoughts with a specific design source in order to prevent giving monopoly awards for successful designs. To avoid awarding monopoly awards for successful ideas, trademarks should not provide any protection until a design is well-known and associated in customers' minds with a single design source.[177]

2) Type of Legal Protection for Industrial Design

The dispute about the matter of whether to categorise in both the United States and other legal systems, industrial designs are classified as belonging to the copyright or industrial property and patent law paradigm systems has raged since it was realised that they merited legal protection. Patents frequently support the creation of novel industrial processes and defend uniqueness and creativity.

Due to its restricted monopoly protection period and registration process, industrial property protection stands out. These features help determine if an idea qualifies as an innovation. enough of a breakthrough to warrant monopoly protection and reveal how to make the innovation to others after the monopoly term has expired.

To prevent any anti-competitive effects, those who propose a patent-like protection for industrial designs contend that only novel improvements in the usability of the product should be protected. Engineering plays a bigger role in industrial design than product.

Industrial design, however, usually concentrates on small-scale modifications to already existing items rather than developing new ones on the invention of wholly new items. Designers don't typically create new things. Their mission may be seen as the creation of a better, more practical, and aesthetically pleasing mousetrap as opposed to the invention of a completely new mousetrap. It may be argued that design is more concerned with aesthetic expression than utility. The obvious problem with using patent law to protect design is that it tends to under protect new industrial design, which is a problem given how few designers can credibly claim to have made a truly novel functional product.

[177]Convention Establishing the World Intellectual Property Organization. International Legal Materials 6, no. 4 (July 1967): 782–805. https://doi.org/10.1017/s0020782900050646.

Although the protection is less wide than the monopoly provided by a patent and can only be used to prevent copycats, not independent inventors, obtaining copyright protection needs minimal, if any, formalities. It has been argued that copyright, which safeguards creative works, is the best legal framework for defending design since it "embodies aesthetic expression" in its most basic form.[178]

Regardless of their shape, method of creation, level of ingenuity, or intended. Under the "unity of art" theory, all designs would be eligible for copyright protection. The level of inventiveness required for design protection; where practical or purely ornamental components of the design should be protected; and, if the design is to obtain less than complete copyright protection, the junction between design protection law and copyright law. However, copyright protection provides long-term security.[179]

3) The Creativity Standard

To safeguard these "new or original" designs, member countries must enforce copyright or industrial design laws. Again, by employing the terms "new" and "original," the agreement avoids setting a clear cut-off for what qualifies as protectable subject matter. TRIPS is the abbreviation for But first, let us agree on the basic minimal parameters for the type and length of protection. Designs must be copy protected for at least ten years. The demand for copy protection appears to acknowledge that copying is the primary concern for designers, and that a copyright-style policy that prioritises originality over creativity is most appropriate for industrial design.[180]

4) The Aspects of Design which Deserve Protection

The second important question is whether a design should be covered by a patent-like or copyright-like system, and whether its aesthetic and functional components should both be protected. Patent law safeguards an innovation's functional components. It provides monopoly protection, allowing the owner of the patent to monitor all uses of his invention. Most of the time, copyright protection regimes do not cover purely functional parts of work. Even if it has a distinctive design, a teacup's reproduction will not be protected by copyright laws because it is a useful object. The copying of

[178]ACHA, VIRGINIA. "*OPEN BY DESIGN: The Role Of Design In Open Innovation*." Academy of Management Proceedings 2008, no. 1 (August 2008): 1–6. https://doi.org/10.5465/ambpp.2008.33653210.
[179]Franzosi, M, "*Design Protection Italian Style*." Journal of Intellectual Property Law & Practice 1, no. 9 (July 11, 2006): 599–602. https://doi.org/10.1093/jiplp/jpl092.
[180] Id.

a teacup's attached design, however, will be protected. It can be challenging for most industrial objects to distinguish between their form and their function. designs, as opposed to art that is eventually incorporated into a practical thing.[181]

III. TheIntersectionbetweenDesign and Copyright Law

The laws defending industrial design and fine art must be addressed by the legal system unless all designs are covered by copyright law (the "unity of art" argument). There are at least three options. The legal framework also combines industrial design protections so that designers have access to all and any rights, regardless of whether their work is functional design or fine art. If the longer protection of copyright law would automatically arise with the production of the artistic work, there may be little or no reason to apply for a shorter duration of design protection[182]. The second strategy is known as non-cumulation; in this case, the legal system protects some innovative industrial designs while denying copyright protection to those that fail or are unable to do so.[183]

IV. The European Union Attempts to Harmonize Design Protection

1) The Difficulty of Harmonizing European Design Law

Up until recently, design law in Europe was characterised by the same uncertainty and diversity of legal protection methods. All schools of design protection theory were present in Europe, from the Italian inscindibile separability concept to the French “unity of art” doctrine. The debates and contentious compromises between 1948 and 1958 involved every long-standing member of the European Union, as well as every long-standing member of the Berne Union and the Paris Convention. The legislation of EU member states on design remained diverse as a result of these accords failure to impose particular criteria, and to further add to the uncertainty, some countries stances on industrial design shifted over time. More significantly, a rule including two pan-European design protection rights that are managed at the European level was passed in 2002. The first, the registered design right, was effectively an extension of the right established at the level of the member states by the earlier directive. The unregistered design right, the second option, offered a temporary (three-year) copyright-like right to stop the duplication of a design. When the

[181] World Intellectual Property Organization (WIPO), Geneva (Switzerland), 1 Uniform Law Review 105-106.
[182]Id.
[183]Monseau, Susanna. *The Challenges of Protecting Industrial Design in the Global Economy*. SSRN Electronic Journal, 2011. https://doi.org/10.2139/ssrn.1942312.

design was initially marketed in the EU, this right automatically became yours without the need for registration. several claimed that the Design Regulation fell short of fully harmonising European law because it maintained the majority of national rights and ignored several crucial concerns, such as the location of spare parts.[184].

2) The Community Design Directive

The Design Directive's goal is to "provide for the establishment of an internal market characterised by the removal of obstacles to the free movement of goods, as well as the establishment of a system ensuring that competition in the internal market is not distorted." It resolved considerable disparities in the legal systems of various European nations by concluding that design legislation should not protect "features dictated solely by a technical function," impeding technological advancement. It established parameters for the level of originality required for protection by defining a protectable design as one that leaves a different overall impression on the informed user than earlier designs. It established the critical concept of combining several IP rights, which precluded countries with copyright and specialised design protection legislation from participating[185]from having to decide between the various legal frameworks for the protection of industrial designs.

3) The Community Design Regulation

In the 2001 Design Regulation, the EU addressed more of the persisting, considerable, potentially market-distorting discrepancies in the design rules of several EU member states. The Design Regulation established a system of design protection at the European level, allowing European designers to avoid complicated and conflicting individual national laws and secure protection for their creations through either a single registration applicable to the entire EU or a temporary, unregistered copyright-like right that became a part of a design upon its initial marketing in the EU. The Design Regulation protected all "new" and "individual character" designs by replicating the Design Directive's standards of originality. The originality standards are comparable to, but less comprehensive than, the US copyright standard. A design does not have to be original. of a patent to be protected; however, it must not be identical to, or provide the same overall impression as, one that is already on the market.

[184]Convention Establishing the World Intellectual Property Organization. International Legal Materials 6, no. 4 (July 1967): 782–805. https://doi.org/10.1017/s0020782900050646.
[185]Equity trademarks and Tradenames, Unfair Competition. 6 Virginia L.J.6-485 (1928).

4) Unregistered Design Rights

The introduction of the unregistered design right is the true innovation of the Design Regulation. Unregistered designs get copyright-like protection for three years following the date they were initially made available to the public in the EU. This protection was certainly a compromise meant to provide some minimal degree of protection that does not necessitate registration in EU nations that do not allow for design protection through copyright law. It is based on the unregistered design right introduced in the United Kingdom by the Copyright Designs and Patents Act 1988.[186] A new design is not protected in these nations if it is not registered since copyright rules do not apply to them. When compared to Designers in countries that need registration for the protection of industrial design are clearly at a disadvantage in terms of securing their work. Designers in countries that demand registration for the protection of industrial design are clearly at a disadvantage in terms of securing their work.

Designers might now claim copyright infringement of the blueprint drawing and obtain comprehensive copyright protection for even the most practical and utilitarian designs. To remedy this issue, the unregistered design right was devised, which grants all original designs a more constricted copyright-like right but simultaneously limiting derivative copyright protection for drawings of commercially exploited designs goods. Unregistered design rights in the EU have been intended to provide some short span protection for all designs to blunt the advantage to designers in some countries of full copyright protection for design.

V. Legal Protections for Industrial Design under U.S. Law

The current situation of design legislation in the United States can only be regarded as stagnant, in contrast to the recent legislative activity in Europe. Congress has been hesitant to enact a new sort of protection for industrial designs, despite the proliferation of several other categories of IP, such as copyrights and patents, which appears to have continued unabatedly. Courts have also tended to limit the degree of protection provided by conventional IP rights for design.[187] because they are unwilling to extend copyrights, patents, and trademarks too far beyond their initial goals. Designers have tried with numerous sorts of protection, but courts have limited them because they

[186]Hugenholtz, et al. *The Recasting of Copyright & Related Rights for the Knowledge Economy."* SSRN Electronic Journal, 2006. https://doi.org/10.2139/ssrn.1096673.
[187] Egyptian Goddess v. Swisa, Inc., 543 F.3d 665, 683 (Fed. Cir. 2008)

do not want to confuse the distinctions between different types of intellectual property. And broadening protection to include additional areas. As a result, despite the fact that the United States has the world's largest design industry, its intellectual property laws are widely regarded as some of the most stringent in the world, and the DOJ claims that it places a high priority on the enforcement of intellectual property laws, particularly those that combat piracy, there is a conceptual gap when it comes to the protection of industrial design. Concerns that such safeguards may be anticompetitive and exploited to limit competition can be used to explain some of the resistance to protecting industrial design. The argument is, however, losing its force as copying by free riders becomes more and more of an economic burden on designers and the economy in general.[188]

1) Design Patents

Since 1842, Congress has used the patent system to safeguard industrial designs. Evidently, this resulted from the fact that there was no central registration for copyrights at the time and the Patent Office requested the protection of industrial designs, not from any obvious theological rationale. That time era saw patent law as the more robust area of intellectual property, which may have been another factor in its selection for design protection. Now that copyright has been greatly extended, this situation has more or less fully reversed in terms of both the duration and the subject. The idea of protecting industrial designs through design patents has both theoretical and practical drawbacks. A design patent requires something entirely new rather than just an attractive version of an existing product, which is a higher threshold of innovation than copyright originality. Even those that are arguably creative, distinctive, and consumer-friendly often fall short of this requirement. The vast majority of new designs do not have design patent registrations.

The standard for assessing whether a design patent has been violated is also ambiguous as a result of judicial decisions.

The most recent test for whether a design patent has been violated is whether a buyer who is familiar with the previous art would be misled by the similarities between the accused and claimed designs. This approach ultimately amounts to a consumer confusion standard likely to be triggered by direct copying, which is somewhat similar to the test for trade dress infringement. However,

[188] *Protecting The Artistic Aspects of Articles Of Utility: Copyright Or Design Patent.* 66 Harvard L.J, 877- 86 (1953)

designers must pass through the time-consuming substantive examination of a registration, which makes the new design proposal known to prospective imitations, which is another practical drawback of design patents.[189]

2) Copyright Law

The key benefits of copyright protection for designers over design patent protection include the absence of registration or other formalities, the duration of the protection period, and the requirement for significantly less originality in the design than is required under patent law. The most significant and difficult boundary in any industrial design protection regime, however, is that between copyrightable applied art and non-copyrightable industrial design. Because of worries about the anticompetitive nature of extending long-term copyright protection, the role of copyright in conserving industrial design has almost completely vanished in the United States.

Mazer v. Stein[190]In 1954, The United States Supreme Court was given the opportunity to assess the applied art issue in light of American copyright law. The Copyright Office began registering copyrights in three-dimensional objects in 1949, putting the provisions of the 1909 Act into action for the first time. The topic of whether to maintain three-dimensional artefacts as applied art when they were used in industry quickly came before the court in the *Mazer v. Stein* case. The court ruled that a sculpture of a Balinese dancer's lamp base design was protected by copyright. We find nothing in the copyright statute to support the argument that the intended use in industry of a copyright-eligible article bars or invalidates its eligibility, Justice Reed wrote in his decision.[191] The Mazer ruling may have officially placed the US in the "unity of art" camp. It appeared to establish wide copyright law protection for an industrial design. In this case, no explicit distinction was drawn between fine art and applied art. Following this ruling, courts began to widen the range of designs that may be protected by copyright. However, copyright reform proposals were already in the works beginning, and the Copyright Office adopted new laws that included the concept of conceptual separability (which eventually culminated in the 1976 Act).

3) Copyright Act of 1976

[189]Janis Wong et al., *Data protection for the common good: Developing a framework for a data protection-focused data commons*, 4 Data &Policy , e3 (2022).
[190]347 U.S. 201 (1954).
[191]Hauhart, Robert C. (1983). *The Eternal Wavering Line- The continuing Saga of Mazer v. Stein*. 347 U.S. 201 (1954).

The Mazer rule is established extremely narrowly in the Copyright Act of 1976 to take most industrial design out of copyright law, owing mostly to the Copyright Office's stance that design should be dealt with under a separate design legislation. The Mazer rule is defined in section 1302(4) of the 1976 Act, which states that if an article's shape is dictated solely by a utilitarian function of the article that embodies it, the design element cannot be protected under copyright law. This means that while designs are not protected in and of themselves, pictorial, graphic, or sculptural works that are physically or conceptually distinct from the design such as a textile print or ornamental embellishment are. This has produced a lot of misunderstanding over what design to employ is protectable, and the law is ineffective as a guide for designers. However, despite multiple efforts throughout the years, the United States has never approved the sui generis design statute required to supplement the restrictive handling of industrial design under copyright. As a result, legislative and judicial acts in the United States have curtailed copyright law as a way of protecting design, while failing to balance this constraint with a sui generis design law. Thus, it can be claimed that present US law does not protect design through any of the means contemplated by TRIPS (copyright or design law).[192] Given the popularity of the design philosophy of Functionalism (excellent design is dictated by the function of the object), the notion of conceptual separability is particularly difficult. If, as is likely given the case law and legislative action since Mazer, copyright law will not protect the majority of industrial design as applied art, it is incumbent on Congress to consider the sui generis design law that the Copyright Office deemed necessary over fifty years ago."

4) Trademark Law Protections

a) Trademarks

Some designers have chosen trademark protection for industrial design due to issues with design patents and copyright. Commentators have argued that trademark law is not the best venue for protecting designs because "the problem is this: protection of industrial design, unless kept firmly tied to source recognition as a trademark, easily slides into an unpredictable system of monopoly awards for successful designs, uninhibited by the statutory standards of copyright law or design patent law." Without the necessity for patent innovation or even creativity under copyright law, a

[192] *Trademark,Patent,orCopyrights*?, USPTO https://www.uspto.gov/trademarks-getting-started/trademark-basics.

trademark may have eternal protection. The courts worry that excessive design protection under trademark law would shield useful goods and be anticompetitive.[193]

b) Trade Dress

In cases when a designer can prove that a certain design feature serves as a means of identifying the source of the goods, trademark protection is also an option. Only non-functional, distinctive design aspects are safeguarded[194]. The goal of trademark law is to protect consumers from confusion, not to protect designers from would-be innovators, as has been made very plain by numerous Supreme Court rulings [195]. In *Wal-Mart v. Samara*[196],Clothing designs that are "inherently source identifying" can normally be protected with design patents, according to the Supreme Court (an assumption that is extremely controversial because clothing is unlikely to meet the design patent criterion of creativity). To avoid overlapping protection, the court ruled that a design must acquire some secondary significance in order to be protected as a trademark. Competition would be discouraged, according to Justice Scalia, if a product design was entitled to protection without a proof that it had gained secondary meaning. "To put it another way, the designer must demonstrate that the primary purpose of the clothes design is to identify the source of the goods. Samara claimed that Wal-Mart had plagiarised its designs for seersucker children's clothing.[197]

The Supreme Court determined that the clothing's design had not acquired the necessary secondary meaning for it to function as a source identifier, such that a consumer could recognise where the clothing came from simply by looking at it, and thus declined to provide Samara has filed a lawsuit against Wal-Mart for stealing its clothes line. As recognised by Wal-Mart, Samara would have benefited from some minimal form of protection against direct duplication of its clothing. It did not necessitate a perpetual trademark monopoly, but a short-term advantage for its innovative design work before others could copy it would have allowed Samara to prevent Wal-Mart from effectively pirating its designs immediately after it produced them, effectively destroying Samara's first-to-market advantage. The Samara decision basically prohibits designers from using trade

[193] Howell, Herbert A. *The Scope of the Law of Copyright*. 54 Virginia LJ, 385 (1917).
[194]Id.
[195]RUSSELL, GORDON. *Modern Trends In Industrial Design*. 5048 Journal of the Royal Society of Arts 578-95 1960. http://www.jstor.org/stable/41368931.
[196]529 U.S. 205, 214 (2000).
[197] 79 F.3D 654 (9th Cir, 2004]

dress to defend new market-entry design since it will not have acquired secondary relevance. Designers have a particularly tough time obtaining trade dress protection since practical design components would never qualify for trade dress protection.

Barry Kieselstein-Cord v. Accessories by Pearl, Inc.[198] The question at hand in this situation is whether or not the waist belt buckles are protected by copyright. The belt buckles with interesting designs are considered to be useful goods, according to the U.S. district court, so they are not protected by copyright. The buckles' surface profile served as the foundation for the court's conclusion. The Second Circuit court, however, disagreed with the district court's judgement. It acknowledged the artificial and decorative elements of the buckles and determined that their aesthetic and practical qualities were what made them separable. The buckles were approved to be retained "in the Metropolitan Museum of Art for display purposes, and the user also wore the buckles on other body parts rather than the waist. The court held that the separate features of the buckles have no intrinsic utilitarian function, hence they are not found to be useful articles making them eligible for protection under copyright."

Carol Barnhart Inc. v. Economy Cover Corp[199] The question at hand in this situation is whether or not the waist belt buckles are protected by copyright. The belt buckles with interesting designs were considered to be useful goods, according to the U.S. district court, so they are not protected by copyright. The buckles surface profile served as the foundation for the court's conclusion. The Second Circuit court, however, disagreed with the district court's judgement. It acknowledged the artificial and decorative elements of the buckles and determined that their aesthetic and practical qualities were what made them separable. The buckles were approved to be retained in the Metropolitan Museum of Art for display purposes, and also users wore the buckles on other body parts.

Brandir Int'l, Inc. v. Cascade Pac. Lumber Co[200]In this instance, the question at hand was whether or not the bike racks in the shape of ribbon used to examine the process of content creation were protected by copyright. The Sixth Circuit Court used the "Denicola test" and determined that creative designs were eligible for copyright if they were created without taking into account the

[198] 1912. (196 Fed. 224.0).
[199]*United States District Court for the Southern District of New York Order and Memorandum in East Europe Domestic International Sales Corp v. Terra*." no. 4 International Legal Materials, 977-988, 1979
[200] 834 F.2d 1142 (2d Cir. 1987)

utilitarian components of the design. The test's contours showed how the artistic design will be taken into account during creation.

In addition, the Copyright Act has further afforded design protection specifically to vessels and boats under section 1301.[201]

In 1998, the Vessel Hull Design Protection Act was enacted. Under the 1976 Act, the designer of an original design of a useful object that makes the article desirable may be protected. Articles that are only limited to vessel hulls or decks are useful. Vessel elements that can be protected include the "design of a vessel hull, deck, or combination of a hull and deck, including a plug or mould" Certain key exceptions are excluded from protection under Section 1302, such as designs determined only by a utilitarian function or designs that are customary and conventional in the industry.[202]

5) Laws Specific to Design Industries

There aren't many choices for American designers to defend their work. Congress has severely limited the use of copyright for design protection, and it has also failed to create a sui generis design statute. Legal decisions have the same effect on design patents and trademarks. Rather than a general plan to define where design fits into intellectual property law, three separate design businesses have been singled out for more specialised legal protections during the last 20 years.

VI. Redesigning U.S. Law to Properly Protect Industrial Design

1) Design Piracy Affects

All of the designers have voiced their concerns to Congress and the general public regarding imitations. Design theft has recently increased considerably both globally and across all industries. It is clear that copying is common, and design is important in areas other than fashion. Design theft has an impact on both the automobile and clothing industries. To retain the fleeting value of investing in outstanding industrial design, all creators should be protected from direct replication by counterfeiters. Numerous studies have demonstrated that counterfeiting is a big and growing problem for designers.[203]

[201] Maggs. Peter B. no. 1. International Copyright Law and Practice. 17, (1989): 88–89.
[202] *Vessel Hull Design Protection* Act, ch.3, sec 108& 502, 112 Stat. 2860 (1998).
[203] Denicola, Robert C. *Freedom to Copy*. 108 YALE L.J. 7 (1999).

2) Current U.S. Legal Protections for Design Lack

Coherence There hasn't been a clear general direction to the law in the United States, and the approach to the legal protection of design has tended to be fragmented, with specialised industries requesting protection. It makes no sense to offer legal protection to boat hull designers but not to designers of other types of goods, and it makes even less sense to limit the legal protection that boat hull designers currently have to just fashion designers. While counterfeiters specifically target fashion, they indirectly undermine the incentives for producing high-quality industrial design by replicating good design in other sectors of the economy. Industrial design features are currently protected in the United States under each of these legal systems—trademark, copyright, and patent law—but none of them is truly tailored to protecting designers from imitations. Despite being the primary means of protecting design in the United States, design patents have a number of drawbacks, both practical (the time and money required for the application process and to obtain protection) and conceptual (the requirement for an inventive step and the non-protection of design's functional aspects)[204]. Industrial design elements are already protected in the United States under each of these legal systems—trademark, copyright, and patent law—but none of them is specifically designed to protect designers from imitations. Despite being the primary means of protecting design in the United States, design patents have a number of practical and conceptual drawbacks, both practical (the time and money required for the application process and to obtain protection) and conceptual (the requirement for an inventive step and non-protection of design's functional aspects). likely to be shielded by the lengthy trademark monopoly. The protection of industrial designs continues to be a significant legal void in American law as a result of the three main intellectual property rights' flaws, judges' reluctance to consider whether one intellectual property right's protections overlap another, and the absence of legislative action.[205]

3) Goals of a Redesign of the Law

a) Balance and Limited Protection

While copying is a societal concern, any industrial design protection should have two goals: to prevent copycat firms from using the innovation of others while avoiding inhibiting the originality

[204]*Id.*

[205]Naghavi, Alireza, Julia Spies, and Farid Toubal. *Intellectual Property Rights, Product Complexity and the Organization of Multinational Firms*. The Canadian Journal of Economics / Revue Canadienne d'Economique 48, no. 3 (2015): 881–902. http://www.jstor.org/stable/43818236.

that goes into design improvements. The law should try to strike a balance by providing designers with as little length and breadth of protection as possible while still prohibiting free-riders[206].

b) Types of Protection

Different design sectors require varying amounts of creativity and financial investment. This is acknowledged in European law, which offers designers a choice between two sorts of protection based on the amount they invested in the design. Under U.S. law, two levels of legal protection that fit the investment in design might also be attained relatively easily[207]. Current U.S. law allows some more creative industrial ideas to be protected by design patent law, but as some who oppose granting protection to fashion designers have noted, long-term protection in fast-moving industries is unneeded and damaging. After only a few years or perhaps months, much new industrial design is out of date. A short-term automatic right could be added to the design protection already afforded by patent law, bridging the gap between the investments made by various designers. The level of protection that would best protect their assets might be chosen by designers. For many designs, the best way to preserve investment and the first-to-market edge against copycats would be to provide a brief period of protection against copying that arises automatically on first sale.[208]

VII. India

Industrial design is the creative process that gives a thing an attractive or formal appearance. A design from a member country is protected under the (Indian) Designs Act, 2000 in a way similar to how an Indian design is protected, it should be mentioned that India is also a signatory to the Paris Convention for the Protection of Industrial Property, 1883. The (Indian) Designs Act, 2000 provides equivalent protection to Industrial Designs registered in Norway because India is a signatory to the Paris Convention for the Protection of Industrial Property, 1883. However, in order to make a claim and enforce one, a design must first be registered in India. According to the 2000 (Indian Designs) Any foreign industrial design that is registered in a convention country must submit an application for registration in India within six months of the date of the first convention application, or the first application in the foreign country, in order to be protected[209]. The benefit

[206]Nayyar, Deepak. *Intellectual Property Rights and LDCs: Some Strategic Issues.* Economic and Political Weekly 27, no. 6 (1992): 271–74. http://www.jstor.org/stable/4397563.
[207]*Id*.
[208] Designs | Intellectual Property India (ipindia.gov.in) last visited on 6th May 2023.
[209]*Framing Intellectual Property Rights in the Indian Print Media*. Journal of Intellectual Property Rights 28, no. 1 (2023). https://doi.org/10.56042/jipr.v28i1.533.

of submitting an application within six months after the first application was the Indian application will be regarded as having been submitted on the same day as the initial design registration application[210].

1. Registrable Industrial Designs

Under the (Indian) Designs Act, 2000, features of shape, configuration, pattern, ornament, or composition of lines or colours applied to any product, whether in two dimensions, three dimensions, or both dimensions, can be registered. However, functioning components of a design are not protected under the (Indian) Designs Act, 2000 because they are patentable.[211]

2. Registration, Cancellation and Enforcement of Designs

The design of an article is not registrable in India if:

- it is not new or original;
- it has been disclosed to the public anywhere in India or in any other country prior to the filing date or priority date of the application by publication in tangible form or by use in any other way;
- it is not significantly distinguishable from known designs or combinations of known designs; or
- it comprises or contains scandalous or obscene matter.

The aforementioned grounds may also be used as a defence in a case alleging design infringement, as well as to cancel the registration of any design. Any foreign firm that wishes to protect any of its industrial designs in India is strongly advised to file an application for design registration within six months of the date of the relevant convention application, or the first application filed in the home country. When an application is made within six months of the date of the initial application,

[210]Golsby-Smith, Tony (1996). *"Fourth Order Design: A Practical Perspective*". Design Issues. 12 (1): 5–25.
[211]*Id.*

the Indian application is deemed as having been filed on the same date as the initial application for design registration[212].

3. Duration of Protection of a Design

The owner of a registered design is initially granted a 10-year period of exclusivity in selling, creating, or importing the products and bringing legal action against an offender. This initial 10-year period may be extended by an additional 5-year period by paying renewal costs. Under the (Indian) Designs Act, 2000, a registration in India may be valid for a maximum of 15 years.[213]

4. Benefits of Protection Of Industrial Design

A customer's purchase choice and perception of a product are heavily impacted by its aesthetics, or look, which includes patterns, shapes, colours, combinations, and other visual characteristics. Industrial designs must be registered and protected in order to reap a variety of benefits such as financial gain, brand promotion, and so on. The appearance or aesthetics of a product are also utilized to identify it with a specific quality level. Separating one product from competitors through product design is the simplest and least complicated approach for a business to do so. Furthermore, organisations who make copycat products frequently replicate the design of a product in order to obtain market share. A registration of an industrial design may be a valuable business asset for business owners[214]. In a market where buyers place a high value on aesthetics, a product's visual attractiveness is frequently as vital as, if not more important than, its use. As a result, it is critical to prevent design piracy. Obtaining exclusive rights to a product or commodity with a specific appearance could offer a big return on investment because you will be able to prevent others from imitating a popular design. The following are the advantages of design protection:

- Is a revenue generator
- Protection of exclusive rights
- Return on investments

[212]Wilkof, N. *Paradoxes and Intellectual Property Law.* Journal of Intellectual Property Law & Practice 8, no. 6 423–423. (2013).
[213]P. Narayanan, *Intellectual Property Law* (Calcutta : Eastern Law House Private Ltd.), p. 123, 1990.
[214] Id.

- Promotes brand value
- Facilitates marketing and commercialization
- Unique selling propositions

- *Crocs Inc. USA v. Bata India Ltd. And Ors, 2019 SCC OnLine Del 6808*

In a market where consumers place a high value on aesthetics, a product's appeal to the eye can frequently be as significant as or even more important than its usefulness. Therefore, it's crucial to prevent copying of the design. Because you'll be able to stop anyone from copying a popular design, acquiring exclusive rights to a product or commodity with a specific appearance could yield a significant return on investment. The Court interpreted the Design Act's legislative aim, which is to give a limited monopoly through design registration and make the design available for use by anyone following the registration time. The court ruled that a registered design cannot be a trade mark; however, only those additional features that are used as trademarks and over which goodwill has been built up and are not part of the registered design may be protected as trade-marks. If a registered design has been copied, only an action for infringement under the Designs Act would be viable. In case of *Ritika Private Limited v. Biba Apparels Private Limited*[215]The plaintiff has filed the suit claiming copyright in various drawings and sketches which are created/ printed by the plaintiff on clothing for dresses marketed under the trade name RITU KUMAR. The plaintiff asserts that she is the original owner of the copyright for all goods produced by her business using her ideas, concepts, etc. Therefore, the plaintiff filed a lawsuit against the defendant in an effort to get an injunction prohibiting the defendants from duplicating, printing, publishing, selling, or otherwise making available prints or clothing that are a colourable replica or substantial reproduction of the plaintiff's prints and clothing. It should be emphasised that the Designs Act of 2000 does not recognise the Plaintiff's designs as registered. Whereas, the Defendants argued that the case should be dismissed in accordance with Section 15(2) of the Indian Copyright Act, 1957, which states that ownership of a design's copyright expires when it has been applied to an item through an industrial process more than 50 times. The question at hand is whether the plaintiff loses ownership of the copyright works once the plaintiff's copyrighted works are applied for the

[215] In the High Court of Delhi at New Delhi, CS(OS) No.182/2011, Decided on 23March, 2016

creation of dresses and the production of dresses exceeds 50 in number. This is because the plaintiff's copyright works are capable of being registered as designs under the Designs Act, but the plaintiff has not yet obtained registrations of the sketches, drawings, and designs under the Designs Act.

The Court highly relied on the *Microfibres Inc. Vs. Girdhar & Co. &Anr 2009 (40) PTC 519 (Del)*– Using the text of Section 15(2) of the Indian Copyright Act, 1957, It specifies that if a sketch or design is utilised for the manufacture of clothes, then no copyright can remain in the drawing and sketch under the Indian Copyright Act if it reaches 50 numbers. The legislators wanted to shorten the duration of a copyright's protection when a design generated from the copyright is exploited for commercial reasons, it was stated. Later, it was noted that an interpretation to grant protection under the Indian Copyright Act despite the drawing, sketch design being required to be registered under the Designs Act, 2000 resulted in the Designs Act becoming superfluous because every design would have an intermediate product for its origin, such as an engraving, mould, or diagram.

The Design Act 2000 in India protects industrial designs. Successful business people frequently employ designs as one of their marketing strategies to increase their brand's appeal and visibility. Customers are greatly influenced by a product's design, which helps them recognise the brand name attached to it. The fundamental requirements for industrial design are originality and novelty, which allow the applicant to utilise the registered industrial design just once. By securing his or her industrial design, the artist is given a temporary exclusive right against third parties imitating or unauthorised replicating their creations. Industrial design has a variety of advantages, therefore it provides protection to small and medium scale businesses.[216] Therefore, it is crucial that sufficient information be conveyed to all people about the need to register their designs in order to preserve their brand name and ensure effective application of the law and the achievement of its intended goals.[217]

VIII. Conclusion

[216]Ahuja, V.K. *GATT, TRIS AND INDIA*. India Quarterly 50, no. 4 (1994): 1–14. http://www.jstor.org/stable/45072634.
[217] Ipindia.nic.in

Industrial design is a dynamic field that combines human experience, functionality, and aesthetics. It is crucial in determining how successful items are in a variety of industries. The goal of this essay is to present a comparative analysis of industrial design practices in India, Europe, and the United States. While each location has its own distinct approach, comparing and contrasting them can reveal trends in the global industrial design scene. India, Europe, and the United States all have their own unique design philosophies, but there are also some striking similarities. User-centric design, ergonomic concerns, and smooth technological integration are stressed in all three zones. Design trends have converged as a result of globalisation and the growth of digital platforms, allowing for cross-cultural influences and collaborations.

There are variations in design education, business practices, and cultural influences, though. While American design school emphasises on practical skills and real-world application, European design education frequently blends theoretical understanding with hands-on training. Strong focus is placed on contextual awareness, narrative, and the application of design concepts in growing markets in Indian design education.

AI-GENERATED WORKS AND COPYRIGHT: NAVIGATING THE COMPLEXITIES AND INTERSECTION OF AI- IPR IN THE DIGITAL AGE

Ritika HR*

Abstract

As artificial intelligence (AI) continues to advance, it poses unique challenges to the field of copyright law. AI systems are now capable of creating original works, blurring the line between human and machine authorship. AI has become a powerful tool in various fields, including medicine, finance, education, and the arts. However, these creations raise questions about the attribution and ownership of AI-generated works. Who owns the copyright for AI-generated works? Traditionally, copyright has been attributed to human authors who exercise creativity and judgment in the creative process. However, with AI systems capable of generating original works autonomously, determining the rightful owner of copyright becomes a complex task. While some argue that AI systems should be recognized as authors and granted copyright, others contend that humans involved in AI's development or deployment should retain ownership.

This paper explores the intricate relationship between AI and copyright, examining the current legal framework, identifying key issues, and proposing potential solutions. By analyzing the nature of AI-generated works, exploring copyright ownership, addressing the role of fair use, and discussing future considerations, this paper sheds light on emerging policy discussions and potential solutions to address the legal gaps. It examines proposals for new frameworks that adapt copyright law to encompass AI-generated works, including sui generis rights, modified ownership models, or alternative systems for protecting AI-generated creations. In conclusion, this article aims to shed light on the evolving landscape of AI and copyright.

Keywords: AI, copyright, IPR; law, author, ownership.

I. INTRODUCTION

AI is such a large discipline that it has an impact on practically every aspect of modern life.[218] From paintings and music compositions to news articles and poetry, AI-generated works exhibit a level of complexity and novelty that blurs the line between human and machine authorship. All nations now tend to streamline the majority of tasks and reduce human involvement in order to maximize effectiveness and eliminate mistakes.[219] Human-like chores are being replaced by computer robots. The ability of a machine to imitate intelligent human behavior is known as AI.[220] AI is being used in every aspect of life, therefore, it's impossible that it won't be subject to intellectual property regulations. Algorithms have the ability to observe things, comprehend languages, and form judgements. Even the most accomplished human Go player was defeated in 2016 by an AI programme "AlphaGo."[221] These achievements could be viewed as steps towards the comprehensive superiority of machines.[222] In fact, every advancement in the field of AI is now subject to an IP clause, and it's bringing in a more effective way to deal with today's difficulties. With AI-generated works, the question of who should be considered the author and rightful owner of copyright becomes increasingly complex.[223] Determining copyright ownership of AI-generated works involves assessing the level of human involvement in the creative process. Consequently, the issue of whether copyright should be attributed to the human or the AI system itself arises. Many jurisdictions rely on human authorship as the basis for copyright, leaving a gap in the protection and recognition of AI-generated works.

1. Background and significance of AI in the digital age

The foundation for artificial intelligence was created in the 1950s by inventors like Alan Turing and John McCarthy.[224] Initially, AI focused on rule-based systems and symbolic reasoning. However, significant advancements in computational power and algorithms led to the rise of machine learning, which enabled AI systems to learn and improve from data. Subsequent

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[218]Darrell M. West and John R. Allen,"How artificial intelligence is transforming the world, Brookings, (2018).
[219]V.K.Ahuja,Contemporary Developments in Intellectual Property Rights: A Prologue, in V.K. Ahuja and Archa Vashishtha,"Intellectual Property Rights: Contemporary Development, (3-18s, (Thomson Reuters, 2020).
[220]Vishal Kumar, Criminal Liabilities of AI Entities, India Law Portal, June 30, 2020.
[221]AlphaGo, DEEPMIND, available at, https://deepmind.com (last visited May 10, 2023, 10:30 AM).
[222]ibid.
[223]Suzuki, Keishun."Economic Growth under Two Forms of Intellectual Property Rights Protection: Patents and Trade Secrets. Journal of Economics 115, no. 1 49–71 (2015)."
[224]Fredy Sánchez Merino, Artificial Intelligence and a New Cornerstone for Authorship, WIPO-WTO Colloquium Papers, p.28 (2018).

developments, such as deep learning and neural networks, propelled AI to absolute refinement. The three classes of AI mechanisms recognised by World Intellectual Property Organisation (WIPO) are – (i) "Expert (or knowledge-base) systems;" (ii) "Perception systems;" and (iii) "Natural language systems."[225]

AI can be used to create two different types of creative works: (i) "AI-generated" works and (ii)"AI-assisted works.[226] The phrase "generated autonomously by AI" or "AI-generated works" refers to the making of a piece of art by AI minus the involvement of an individual. When producing work in this area, AI might "change its behavior during operation to respond to unanticipated information or events"[227] and create something that wasn't necessarily planned or expected. On the other side, the "AI-assisted" pieces were made with a lot of help from humans.[228]

AI has the ability to analyze vast amounts of data quickly and extract valuable insights.[229]*Secondly*, AI systems can recognize patterns, make predictions, and provide personalized recommendations based on the data they analyze.[230]*Thirdly*, AI can automate repetitive tasks, freeing up human resources for more complex and creative endeavors.[231]*Lastly*, AI has the potential to interact with humans through natural language processing and intelligent chat bots, enhancing user experiences.[232] AI's significance in the digital age is far-reaching and transformative. Gartner, an international research and consultancy group, stated it best: "*Artificial intelligence is technology that appears to emulate human performance typically by learning, coming to its own conclusions, appearing to understand complex content, engaging in natural dialogues with people, enhancing human cognitive performance or replacing people on execution of routine tasks.*"[233]

[225]WIPO, WIPO Worldwide Symposium on the Intellectual Property Aspects of Artificial Intelligence, WIPO, March 25, 1991.
[226]WIPO Secretariat WIPO CONVERSATION ON INTELLECTUAL PROPERTY (IP) AND ARTIFICIAL INTELLIGENCE (AI), Geneva, 3rd session, (2021).
[227]Lucy Rana and Meril Mathew Joy, India: Artificial Intelligence And Copyright – The Authorship, Mondaq.
[228] WIPO Secretariat, Revised Issues Paper on Intellectual Property Policy and Artificial Intelligence, WIPO/IP/AI/2/GE/20/1 para 12 (May 21, 2023, 1:00 PM).
[229]Chatterjee, Mala, and Jeanne C. Fromer. MINDS, MACHINES, AND THE LAW: THE CASE OF VOLITION IN COPYRIGHT LAW. Columbia Law Review 119, no. 7: 1887–1916 (2019).
[230]Wu, Tim. WILL ARTIFICIAL INTELLIGENCE EAT THE LAW? THE RISE OF HYBRID SOCIAL-ORDERING SYSTEMS. Columbia Law Review 119, no. 7 2001–28 (2019).
[231]Bastian, Nathaniel D. Building the Army's Artificial Intelligence Workforce. The Cyber Defense Review, vol. 5, no. 2, pp. 59–64 (2020).
[232]Franke, Ulrike. HARNESSING ARTIFICIAL INTELLIGENCE. European Council on Foreign Relations, (2019).
[233]The Criminalization of Copyright Infringement in the Digital Era. Harvard Law Review, vol. 112, no. 7, 1999, pp. 1705–22. Available at https://www.asiaiplaw.com, accessed on 20th April,2023, 3:08 PM.

Global recognition of AI's growing contribution to innovation and imagination has come to light.[234] The latest AI system named GPT-3, released by OpenAI, an AI facility in US, is "learning the ins and outs of natural language by analyzing thousands of digital books, the length and breadth of Wikipedia, and nearly a trillion words posted to blogs, social media and the rest of the internet."[235] In addition to writing poetry, creating messages, answering trivia questions, and summarizing emails, the GPT-3 "translates languages and even writes its own computer programs." It can understand the "vagaries of human language" and is capable of tackling other "human skills."[236] In 2016, an AI created a 3-D painting called "*New Rembrandt,*" incorporating Rembrandt's style of painting into a new work by learning from numerous works by the great painter.[237] Other AI-created efforts also include the song "*Daddy's car,*" which was authored by Google's AI after reading multiple books, as well as the poetry authored by Google's AI after reading multiple books.[238] With the growing popularity of AI-generated works, it's essential to see if these works can be copyrighted.

II. ARTIFICIAL INTELLIGENCE AND COPYRIGHT IN INDIA

The Indian Copyright Act of 1957 (hereinafter referred to as the "Act") governs "copyrights"[239] in India. Copyright protection is restricted to such kinds of works under Section 13 of the Act.[240] Literary, dramatic, musical, artistic works, as well as cinematograph films & sound recordings, fall into this category. Comparable to other copyright laws in other countries, in India, a work first must encounter the "modicum of creativity."[241] Computer-generated works include AI-generated works; however, the author of an AI-generated work is the person who created the task to be formed, not really the AI system. While excluding artificial persons, this definition indicates that the Act could only safeguard natural persons as authors.

[234]Aatif Sulleyman, Google AI creates its own 'Child' AI that's more Advanced than Systems Built by Humans, (20160.
[235]LEIB, ROBERT. "GPT–4 WHO NOW?" In Xenoanthropology: Dialogues with AI, 423–36. Punctum Books, (April 27, 2023, 6:00 PM).
[236]Hasselberger, William. Review of Can Machines Have Common Sense?, by Erik J. Larson. The New Atlantis, no. 65, 94–109 (2021).
[237]Borenius, Tancred. The New Rembrandt. The Burlington Magazine for Connoisseurs 57, no. 329 (1930): 53–59.
[238]Francois Pachet, Pierre Roy, Benoit Carre, "Assisted music creation with flow machines: towards new categories of new", 2020, pp. 17.
[239]The Indian Copyright Act, 1957, § 14, No.14, Acts of Parliament, 1957, (India).
[240]The Indian Copyright Act, 1957, § 13, No.14, Acts of Parliament, 1957, (India).
[241]Eastern Book Company and Ors. vs. D.B. Modak and anr Appeal (civil) 6472 of 2004.

1. Role of the AI.

The "*Sweat of the Brow*" doctrine has been used in India to ascertain a work's originality and whether copyright protection could be granted.[242] This states that copyright protection can be given even if the utterance of an idea isn't really original, as long as the overall work also isn't replicated and therefore is developed through the author's labor.[243] Section 2(d) of the Act defines an "author."[244] The use of the terms "creator of work" and "who causes the work to be created"[245] raise several questions. A person is considered to contribute substantially to that type of work when they are involved in its creation, and they are also more likely to meet the requirements personally, of "who causes the work to be created." Only writers or those who are natural people from whom the work has originated are granted copyright. The Act does not define "computer-generated work" like UK's Copyright, Designs and Patents Act, 1988 (CDPA).[246] It is highly unlikely that an AI machine would be covered under sections 17(a), (b) or (c), considering the narrow interpretation of the term "author" in India.[247] In the circumstances the plaintiff cannot claim any copyright in any carton that has been mechanically produced by a printing process as the work cannot be said to have originated from the author. A machine cannot be an author of an artistic work, nor can it have a copyright therein.[248]

The "programming and parameter on which such AI actually compiles and creates the work" may be deemed to have satisfied the requirement of using "skill and judgment" in originality.[249] In the case of AI-generated work, even so, there'll be no author. The assumption that underpins civil law nations like Germany, France, and Spain, is that works generated must bear the "imprint of the author's personality."[250] Furthermore, the author's intellectual creation must be the source of

[242]Cheng-Lim Saw. The Originality Debate in Copyright Law. The Canadian Perspective. The Cambridge Law Journal 63, no. 2 (2004): 294–97.
[243]ibid.
[244] The Indian Copyright Act, 1957, § 2 (d) (vi) , No.14, Acts of Parliament, 1957, (India).
[245] The Indian Copyright Act, 1957, § 2 (d) (iv) , No.14, Acts of Parliament, 1957, (India).
[246]Copyright, Designs and Patents Act, 1988, No.21, Acts of Parliament, 1957,(CDPA),(India).
[247]The Indian Copyright Act, 1957, § 17(a), (b) or (c), No.14, Acts of Parliament, 1957, (India).
[248]Camlin Pvt. Ltd. v. National Pencil Industries AIR 1986 Delhi 444 para. 54-55.
[249]Guyonneau, Rudy, and Arnaud Le Dez. Artificial Intelligence in Digital Warfare: Introducing the Concept of the Cyber Teammate. The Cyber Defense Review 4, no. 2 (2019): 103–16.
[250]Hansmann, Henry, and Marina Santilli. 'Authors and Artists' Moral Rights: A Comparative Legal and Economic Analysis. The Journal of Legal Studies 26, no. 1 (1997): 95–143. https://doi.org/10.1086/467990.

theoriginality.[251] Moreover, in the same line, section 3(k) of the Indian Patent Act, 1970,[252] prohibits the patenting of AI-induced inventions in India.[253]

The court viewed a computer in *Express Newspapers plc v. Liverpool Daily Post & Echo*[254] as a tool in the same way that a pen is.[255] If the author can prove that an AI programme was employed as a tool or medium in the development of the work, they may be able to claim copyright in the United States (US).[256] The court in the US found that a monkey could not be assumed to be the creator of the selfies it took in *Naruto v. Slater* (sometimes known as the "Monkey Selfie" case).[257] In the US, only a human author may be granted copyright; neither machines nor animals are permitted.[258] "Laws are geared to protect the right to equitable remuneration. But life is beyond the material. It is temporal as well. Many of us believe in the soul. Moral rights of the author are the soul of his works. The author has a right to preserve, protect and nurture his creations through his moral rights."[259] Moreover, the idea that intellectual property rights should be granted to AI with regard to works produced by AI is contested on the grounds that humans are mortal and get weary when functioning. Therefore, it can be regarded AI-generated works as "equivocal and disputable."[260]

However it is important to note that, in order to preserve copyright, the European Parliament has advocated for giving autonomous robots the legal status of electronic entities.[261] Additionally, the music-composing AI from "Artificial Intelligence Virtual Artist (AIVA) Technologies" is the first in the world to get recognised by the government as a "composer."[262] It has obtained formal authorization from the "SACEM, France and Luxembourg author's right society" to use the name

[251]Infopaq International A/S vs. Danske DagbladesForening C-5-08, July 16, 2009 (ECJ).
[252]The Indian Patent Act, 1970, § 3(k), No.14, Acts of Parliament, 1970, (India).
[253] "Review of the Intellectual Property Rights Regime in India," the Parliamentary Standing Committee on Commerce, Policy Committee Reports, (2 May, 2023, 8:16 AM) available at https://prsindia.org.
[254]Express Newspapers plc v. Liverpool Daily Post & Echo [1985] 3 All ER 680.
[255] MAGGS, PETER B. The Balance of Copyright in the United States of America. The American Journal of Comparative Law 58 (2010): 369–76.
[256]Goold, Patrick R. "IS COPYRIGHT INFRINGEMENT A STRICT LIABILITY TORT?" Berkeley Technology Law Journal 30, no. 1 (2015): 305–84.
[257]Naruto v. Slater - 888 F.3d 418 (9th Cir. 2018).
[258] Burrow Giles Lithographic Co. vs. Sarony 111 U.S. 53 (1884).
[259]Union of India vs. Amar Nath Sehgal 2005(30) PTC253(Del).
[260]Sik Cheng Peng,Artificial Intelligence and Copyright: The Author's Conundrum, *WIPO-WTO Colloquium Papers*, 2018, pp.181.
[261]Avila Negri SMC. Robot as Legal Person: Electronic Personhood in Robotics and Artificial Intelligence. Front Robot AI. 2021.

[262]The Indian Copyright Act, 1957, § 2 (ffa), No.14, Acts of Parliament, 1957, (India).

AIVA for music releases and royalty collection.[263] It's also important to note that *Sophia*, an AI humanoid robot, received citizenship from Saudi Arabia in 2017.[264] In the 1990s, David Bowie helped create the "*Verbaliser*", a software that took literary quotations and then automatically arranged the sentences to produce new combinations that could serve as lyrics. In 2016, Sony researchers produced a Beatles-inspired music using the programme "*Flow Machines*." Benoît Carré, a human composer, was then given the material and converted it into the formally issued blockbuster hit "*Daddy's Car*."[265]

The court in *Alfred Bell & Co. v. Catalda Fine Arts*,[266] ruled that in order for a work to be considered genuine it should not be completely reproduced or plagiarized from earlier original pieces of art. The court even decided that an author might claim ownership of any unintended change. As a result of this ruling, the AI system's output has the right to assert copyright because it has not been copied. This makes clear any confusion surrounding the issue of protecting AI systems exists thus impacting the rights of owners by the absence of a solid strategy.

Another key judicial decision is the *Shenzhen Tencent vs. Shanghai Yinxun*(Tencent case)[267] in which AI-created work was regarded as a literary work eligible for copyright protection. The *Feilinv. Baidu*,[268] the decision, decided by the Beijing Internet Court in the beginning of 2019, served as a foundation for the Tencent lawsuit. In that instance, the respondent disputed the claimant's copyright in the statistical analysis that was produced using somewhat automated "Woltas Kluwer" software. It's noteworthy to note that even while the Court acknowledged that the report satisfied the originality criteria (due to human involvement in it), it did not qualify as a copyrighted "work." The case effectively eliminated the prospect that an independently produced literary or creative work might be protected by copyright.[269] The Tencent case supports the notion established by Section 2(d)(vi) of the Indian Copyright Act of 1957, which gives authorship to the person who "causes it to be made."

[263]About AIVA, (May 4, 2023, 7:39 PM) available at https://www.aiva.ai.
[264]Wootson, C. (2017) Saudi Arabia, which denies women equal rights, makes a robot a citizen. The Washington Post. Digital version. (Apr. 27, 2023, 4:24 PM), Available at https://www.washingtonpost.com.
[265]*Ibid.*, at 20.
[266]Alfred Bell & Co. v. Catalda Fine Arts, Inc. 191 F.2d 99 (2d Cir. 1951).
[267]Shenzhen Tencent vs. Shanghai Yinxun Yue 0305 Min Chu 14010) ((2019).
[268]Beijing Internet Court Civil Judgement (2018) Jing 0491 MinChu No. 239.
[269]Ju Yoel Lee, Artificial Intelligence Cases in China: Feilin v. Baidu and Tencent Shenzhen v. Shanghai Yingxin, China and WTO Review CWR.

In addition, the international copyright legal system does not rule out the idea of a non-human authorship under state laws.[270] In most cases, international treaties specify the minimal common norms that must be observed. The nations are required to abide by them, but they are also permitted to offer more protection than what is specified in the treaties.[271]

2. Role of an AI Programmer/Creator.

It should be assumed that "the person making the arrangements for the work to be generated" is a programmer. In addition, it is possible to make the case that "an assumption can be derived that the programming of the AI is made in such a manner that it can create and identify equations to generate a result on its own, and therefore, the creativity may vest with the programmer who has created the AI, with sufficient programming."[272] Due to the lack of human involvement, copyright is only accessible to the person who created the AI machine in Australia in the "machine's source code" and not in the AI-generated work.[273] Additionally, "any work in which copyright may exist must have a human as its author."[274] Moreover, under a contract with the work's creator, a person might acquire the copyright to the work.[275] Certain countries, such as Hong Kong (SAR), Ireland, New Zealand, and the United Kingdom, have encountered comparable problems and have thought about awarding authorship to the programmer.

3. Role of an AI User.

It may also be claimed that the user, rather than the AI, the programmer, or the business that owns the AI, is the one who established the "necessary arrangements" to produce the work.[276] Additionally, there are a number of reasons to make AI-generated works publicly available.[277] The case of Microsoft, which created the word processing software "Word" to enable users to produce original works. A work created by a user using that programme cannot be protected by Microsoft's

[270]Sam Ricketson, People or Machines: The Berne Convention and the Changing Concept of Authorship, 16(1) Columbia VLA Journal of Law and the Arts 1 (1991).
[271]Dilan Thampapillai, The Gatekeeper Doctrines: Originality and Authorship in Australia in the Age of Artificial Intelligence, WIPO-WTO Colloquium Papers, 2019, p.no. 2.
[272]WIPO Conversation on Intellectual Property (IP) and Artificial Intelligence (AI): Third Session, (Mar. 18, 2023, 3: 50 PM) available at https://www.wipo.int.
[273]Salvatore Rocco, Originality and Authorship in AI-generated works: the Australian Copyright Law Perspective, Law and Media Working Paper Series 2021. ,
[274]Tech Plus Media Private Ltd v. Jyoti Janda Delhi High Court, 2014 (60) PTC 121 (Del).
[275]The Indian Copyright Act, 1957, § 18, No.14, Acts of Parliament, 1957, (India).
[276]Arth Nagpal,"Authorship in works created by AI, pp. 3-10.
[277]Ayush Pokhriyal and Vasu Gupta, Artificial Intelligence Generated Works under Copyright Law, 6(2)NLUJ Law Review 116 (2020).

rights. The user of the programme, who will be acknowledged as the author since they used that programme to generate the work, will own the copyright to that work.[278] As a result, the person employing AI to produce the work may claim to be the creator, although this is not true if AI was solely responsible for all aspects of the creation process.[279] The question of authorship in these situations has perplexed nations all across the world.

4. Collaborative AI systems and shared authorship.

The idea that AI and human authors are co-authors of the work created in this way is not a good one. The cause is because not all AI processes are under human supervision, and AI functions autonomously. The notion of "works of joint authorship"[280] does not apply to this. In the Indian Copyright Act of 1957, for instance, "work of joint authorship" is defined as "a work produced by the collaboration of two or more authors in which the contribution of one author is not distinct from the contribution of the other author or authors."[281] Theoretically, an AI-produced work meets the Feist-recommended de minimis standard for originality.[282] "Machine learning tends to create models that are so complex. Even the original programmers of the algorithm have little idea exactly how or why the generated model creates accurate predictions."[283] Thus, it is unwise to advise that an AI programmer and an AI user collaborate to write an AI-generated software.

5. Sui generis rights for AI generated works.

Sui generis refers to something that is unique or in a category of its own. The aim is to strike a balance between recognizing the innovative capabilities of AI and ensuring appropriate attribution and control over the resulting works. The concept of sui generis can be applied to AI in relation to data protection and the recognition of AI-generated works. The unique characteristics and implications of AI technologies often require specialized legal frameworks and rights to address ownership, control, and accountability. AI (at category 2) would be regarded as the creator's "mind." This will do away with the need to recognise a natural person as the work's author or innovator in order for that to be qualified for copyright or patent protection.

[278] "AI Work, An IP from IP, Protect,"available at https://www.wipo.int, (last visited on Apr. 5, 2023, 6:10 PM).
[279]PAUL GOLDSTEIN, COPYRIGHT: PRINCIPLES, LAW AND PRACTICE 379 (1989).
[280]The Indian Copyright Act, 1957, § 2 (z), No.14, Acts of Parliament, 1957, (India).
[281] Natalie Shoemaker, Japanese AI Writes a Novel, Nearly Wins Literary Award, BIGTHINK (Mar. 24, 2016).
[282] Feist Publications Inc. v. Rural Telephone Service Co., 111 S. Ct. 1281 (1991).
[283] Annemari Bridy, Coding Creativity: Copyright and the Artificially Intelligent Author, STAN. TECH. L. REV. 1, 26 (2012).

In terms of copyright length, the *sui generis* model may provide less coverage; it might be set at 5 to 10 years. The latest version of AI copyright enforcement would result in substantially less tampering with the current standards of copyright law inside the copyright system since it offers protection for a shorter amount of time. Because human authors will soon lose their copyrights, AI authors would have less opportunity to displace them in innovative marketplaces.[284] If AI-generated works are to be safeguarded, a *sui generis* right similar to the one granted to "databases" under the "European Union Database Directive" may be used to do so.[285] By granting such a privilege, the "outright and unjust misuse of the works" may be prevented.[286]

Such a system could have problems like the owner not disclosing the use of AI. The system must make certain that accurate information is made on the method used to create these kinds of pieces and the use of AI. Another alternative for the safety of AI-generated works is the legislation governing unjust competition.[287] WIPO is already debating the subject of authorship and potential legislation.[288]

As demonstrated, the Indian Copyright Act's present legal framework is insufficient to accommodate works produced by non-human or legal entities. As a result, their authorship would be disputed under Indian copyright regulations. In other words, AI works will not be eligible for copyright protection and will be "communicated to the public"[289] domain as a result of their development unless they can be directly assigned to an author acknowledged by the Act.

III. Ownership of AI-Generated Works

1. Justification through IPR theories.

Intellectual property and its significance can be traced back to the beliefs of notable philosophers such as John Locke, Immanuel Kant, John Stuart Mill, Jeremy Bentham, Georg Hegel, and others.

[284] Liubov Maidanyk, AI and Sui Generis Right: A Perspective for copyright, Access to justice in Eastern Europe, 2021, pp. 147-150.
[285]European Parliament Resolution of 20 January 2021 on Artificial Intelligence: Questions of interpretation and application of international law in so far as the EU is affected in the areas of civil and military uses and of state authority outside the scope of criminal justice (2020/2013(INI)).
[286] A Ramalho, 'Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems' (2017) 21 Journal of Internet Law 12.
[287] P Wang, 'On Defining Artificial Intelligence' (2019) 10 (2) Journal of Artificial General Intelligence 1-37.
[288]*Ibid.*, at 15.
[289]The Indian Copyright Act, 1957, § 2 (ff), No.14, Acts of Parliament, 1957, (India).

In **Natural Rights Theory**, *JohnLocke* was convinced that "individuals are entitled to control the fruits of their own labor.[290] In his perspective, a person, who cultivates crops by using his own labor or creates a new invention by putting his efforts, naturally obtains property rights,"[291] which means ownership is derived from the labor and creativity of the individual who created it.[292] Locke's central argument is that "a person who labors on resources that are either unowned or "kept in common" has a natural property right to the benefits of his or her efforts."[293]**Ethic and Reward theory** further states that because the owner made an impact of "social utility" that would benefit the community as a whole, he should be given exclusive rights which serve as moral and ethical incentives.[294] Locke would consider all of those innovations to be the programmers copyright because AI and all of its offshoots are the rewards of an individual's labor in creating AI.[295] But as the gap between the programmer and AI's output widens, causation gets more distant and the programmer's "unjust enrichment" increases,[296] "rewarding those players, including the programmers, with a portion of the profits from the AI's later innovation is the way ahead."[297]

The **Personhood Theory** of IPR states that when a person uses his or her labor to make something, he or she or they incorporates a small part of their personality.[298]*Immanuel Kant* and *Georg Hegel* believe that because the creator is allowed complete ownership of the inventiveness and unique creations, he or she or they also obtain ownership of the personality that develops during the process.[299] This brings to the conclusion that AI has a semi human factor which is also incorporated

[290]Gronow, Jukka. The Immanent Critique and the Natural Rights Theory. In On the Formation of Marxism: Karl Kautsky's Theory of Capitalism, the Marxism of the Second International and Karl Marx's Critique of Political Economy, 211–24. Brill, 2016.
[291]Adam Moore & Ken Himma, Intellectual Property, Stanford Encyclopedia of Philosophy, available at https://plato.stanford.edu/entries/intellectual-property/ accessed on 07th March,2021.
[292]Bryan, Ben. The Conventionalist Challenge to Natural Rights Theory. Social Theory and Practice 43, no. 3 (2017): 569–87.
[293]William Fisher, Theories in Intellectual Property in Stephen R Munzer, ed, New Essays in the Legal and Political Theory of Property (Cambridge, UK: Cambridge University Press, 2001).
[294] L. BENTLY & B. SHERMAN, INTELLECTUAL PROPERTY LAW 36 (3RD ED. 2008).
[295]Yanisky-Ravid &Xiaoqiong (Jackie) Liu, When Artificial Intelligence Systems Produce Inventions: An Alternative Model for Patent Law At the 3A Era (2017) 39 Cardozo L Rev 2242 [Yanisky-Ravid & Liu].
[296] Robert Nozick, Anarchy, State, and Utopia (York: Basic Books, 1974) at 178-182.
[297] Shlomit Yanisky-Ravid, Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era - The Human-like Authors Are Already Here - A New Model (2017) 2017 Mich St L Rev 659 [Yanisky-Ravid, Generating Rembrandt].

[298]Simon, Bradford S. Intellectual Property and Traditional Knowledge: A Psychological Approach to Conflicting Claims of Creativity in International Law. Berkeley Technology Law Journal 20, no. 4 (2005): 1613–84.
[299]Radin, Margaret Jane. Property and Personhood. Stanford Law Review 34, no. 5 (1982): 957–1015.

by the Turing Copyright test.[300] On the other hand, what about the emotional attachment of the originator towards their work? "Creative computers invented because they are told to invent, as well as a machine will not be offended by how its inventions were used."[301] Thus, in order to receive full legal rights, AI must demonstrate the reasoning ability, cognisance, and be self-aware, that may never occur or be demonstrated. "Persona came to signify merely an entity with legal rights and duties in Roman law, but for intellectuals, the essence of an individual was never lowered to a broadly agreed theory."[302]

Will theory was given by *H.L.A.Hart*,[303] and it defines a sovereign where the function of right is granted to the owner over another person's duty. An individual is permitted to own property and prevents people from exploiting it. The ability to delegate, waive, or nullify another person's obligation qualifies as a right in the context of property rights. The owner's machine or the programmer's PC are treated with the same logic. There are no options available to the second line command.[304] This is not possible to give rights to infants, animals or deceased adults.[305] Will theory is therefore a constrained way of looking at the idea of rights. The AI operates in accordance with human programme, will, want, and order. The fundamental will theory of rights is therefore not relevant to AI.

Utilitarianism means "the greatest good for the greatest number" and promotes a practice that a great deal of people consider enjoyable.[306] IP encourages innovation and intellectual production for the "better good" of "copyright society."[307] According to utilitarianism, IP promotes creativity and cognitive activity for the "better good" of the community.[308] Affirming legal rights for AI follows Bentham's deterministic logic if AI authorship is adequately driven to generate greater innovation and mental output. But, copyright rules do not recognise computers as inventors,[309] and goes against the utilitarian views and creates a barrier "to inventorship for computers as well as

[300] Alan M Turing, Computing Machinery and Intelligence (1950) LIX:236 Mind 433.
[301] Ryan Abbott, I Think, Therefore I Invent: Creative Computers and the Future of Patent Law (2016) 57 Boston College L Rev 1093.
[302] Margaret J Radin, Reinterpreting Property (University of Chicago Press, 2009),
[303] Prachi Shah, H.L.A Hart's Theory of law, available at http://www.legalservicesindia.com.
[304]Cruft, Rowan. "Rights: Beyond Interest Theory and Will Theory?" Law and Philosophy 23, no. 4 (2004): 347–97.
[305]Graham, Paul. The Will Theory of Rights: A Defense. Law and Philosophy 15, no. 3 (1996): 257–70.
[306]Gillon, Raanan. 'Utilitarianism.' British Medical Journal (Clinical Research Edition) 290, no. 6479 (1985): 1411–13.
[307]The Indian Copyright Act, 1957, § 2 (ffd), No.14, Acts of Parliament, 1957, (India).
[308]Miller, Richard B. Actual Rule Utilitarianism. The Journal of Philosophy 106, no. 1 (2009): 5–28.
[309] The Indian Copyright Act, 1957, No.14, Acts of Parliament, 1957, (India).

people."[310] Why would authorship rights vest with inventors or computer programmers who had no influence over the invention or creation of AI generated works? "The programmers' creativity does not result in the creativity of an AI system; the relationship is insufficient to warrant ownership of the new works created by AI machines."[311]

"The human programmer's role in the development of the artworks is purely incidental."[312] Under utilitarianism, it is possible to dispute the notion that solely humans qualify to be owners by stating that AI authorship and inventorship can benefit the community. Promoting beneficial computer inventions is desirable from a utilitarian standpoint, and should justify the benefits of IP protection.[313] The incentive theory may become obsolete in the age of AI since computers cannot be motivated to produce because they are preprogrammed to do so.[314] Community expenditures associated with acquiring sole rights for authors or inventors can only be supported "to the degree that they motivate enough creation and distribution of new works on balance to offset those costs."[315] Hence, a copyright law that sees innovation as a "product of economic incentives may fall short of its goals and undermine the very thing it was intended to foster."[316]

2. Copyright ability, creativity and originality of AI-generated works.

"The originality of a literary, musical, or artistic work (manuscript)[317] is a requirement for copyright protection."[318] The piece of art is required to be original in its entirety: it cannot be an exact replica of another work, and the presentation of the notion must come from the creator.[319] The author's individuality is disclosed in the personal choices he or she or they adopt when

[310] Andres Guadamuz, Do Androids Dream of Electric Copyright? Comparative Analysis of Originality in Artificial Intelligence Generated Works (2017) 2 IPQ 169 at 178.
[311]Yanisky-Ravid, Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era - The Human-like Authors Are Already Here - A New Mode (2017) 2017 Mich St L Rev 701.
[312] Ryan Abbott, I Think, Therefore I Invent: Creative Computers and the Future of Patent Law, (2016) 57 Boston College L Rev 1093.
[313] 1 Mark Lemley, Peter Menell& Robert P Merges, Intellectual Property in the New Technological Age, 5th ed (Aspen Publishers, 2010) at 12.
[314] WIPO, WIPO Worldwide Symposium on the Intellectual Property Aspects of Artificial Intelligence, WIPO,March 25, 1991.
[315] Pamela Samuelson, Mapping the Digital Public Domain: Threats and Opportunities, (2003) 66 Law &Contemp Probs 147.
[316] Jessica Silbey, The Eureka Myth: Creators, Innovators, and Everyday Intellectual Property (Stanford: Stanford University Press, 2015).
[317]The Indian Copyright Act, 1957, § 20, No.14, Acts of Parliament, 1957, (India).
[318] University of London Press Ltd v University Tutorial Press Ltd [1916] 2 Ch 601, 608.
[319]Weiser, Philip J. The Internet, Innovation, and Intellectual Property Policy. Columbia Law Review 103, no. 3 (2003): 534–613.

constructing a work.[320] This can be explained by a copyright infringement case in the United Kingdom, *Nova Productions v. Mazooma Games,*[321]in which Nova Productions, a software development company, claimed that Mazooma Games had copied its computer code in the creation of a fruit machine game. The court held that the copied code constituted a substantial part of Nova's original work, and Mazooma was found liable for copyright infringement. It underscored the significance of originality and creativity in the development of software and digital content. In addition, copyright law prohibits "personality" a necessity for copyright protection,[322] as requirement of "originality" does not necessitate any undeniably particular insight from the creator.[323]

But can non- human entities be authors? Whether the "originality" of a work can be tracked down all the way back to a human being? It seems that non-human creations won't have their creations safeguarded in the U.S.[324] Indeed, a US court has stated that "dictation from a non-human source should not be a bar to copyright as a matter of law."[325] Computers currently rely on guidance and direction from humans.[326] They are not conscious of what they are engaged in or have an absence of emotional comprehension.[327] The zeitgeist, broader sociological perceptions, or subliminal influences are not really represented by machines.[328] The human imagination is not constrained, but AI under the present state of the art constantly depends on adequate information, rules, and requirements. Moreover, copyright is granted to "something irreducible."[329] Therefore, it is not appropriate (yet) to compare natural and artificial intelligences.[330]

3. Should AI be considered as a legal person?

[320] Jane C Ginsburg, 'The Concept of Authorship in Comparative Copyright Law' (2003) 52 DePaul L Rev 1063.
[321]Nova Productions v. Mazooma Games [2007] EWCA Civ 219.
[322] Kim Treiger-Bar-Am, 'Kant on Copyright: Rights of Transformative Authorship' 25 Cardozo Arts & Ent L J 1059.
[323]Feist Publications Inc vs. Rural Telephone Service Co., 499 US 340, 345 (1991).
[324] Naruto v. Slater, 888 F.3d 418 (9th Cir. 2018).
[325] Robert C Denicola, 'Ex Machima: Copyright Protection for Computer-Generated Works' 69 Rutgers U L Rev 251 (2016), 280-281.

[326]*Ibid.*, at 57.
[327] Jane Ginsburg & Luke Ali Budiardjo, Authors and Machines, 34 BERKELEY TECH. L.J. 394 (2019).
[328] Shlomit Yanisky-Ravid, Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era—The Human-Like Authors Are Already Here—A New Model, 2017 MICH. ST. L. REV 724. (2017).
[329] Bleistein v. Donaldson Lithographing Company, 188 U.S. 239 (1903).
[330] Lim, AI & IP: Innovation & Creativity in an Age of Accelerated Change, 52 AKRON L. REV. 813, 827 (2018).

Corporate persona is not only a legal invention but also a fictional character bestowed upon organizations, to which specific rights and obligations are attached.[331] "A Corporation can enter into contracts. A Corporation can have property and rights and duties. Unlike natural persons, corporations can act only through their agents. It does not die in the way natural people do. Law provides special procedure for the winding of a corporation."[332] Hence, the legal personality is defined as an entity for the purpose of law.

The concept of a legal person refers to a person who has the potential to be subjected to the state's rights, duties, and obligations while also establishing unique features in aspects of allure. Companies, for instance, are considered "artificial persons" created by humans. AI is capable of speaking, being creative, and distinguishing itself through knowledge. This one- of-a-kind ability is the result of human interaction in the form of algorithms, codes, and programmes that govern AI's actions. It's more like a fabricated person.[333] The only distinction is that traditional artificial individuals have people underneath them mind control business actions, whereas in this case, AI can perform as well as conduct functions on its own.

Numerous problems could arise if AI was thought of as the author of the AI-generated piece. AI-generated content might not be error-free.[334] The AI may employ derogatory or obscene language, encourage conflict along racial, ethnic, or religious lines, or result in any other unintended outcome. Due to the AI's lack of legal recognition as a person, it will be challenging to determine its civil and criminal liability in this situation.[335] It may be possible to stop such efforts or, in the worst case situation, restrict the use of AI programmes, but by then it might already be too late and irreversible damage might have already been done. Considering AI a legal person or company would require it to be able to enter into agreements with other people.[336] Additionally, it will be subject to legal obligations and has to be accountable for its deeds. Most crucially, it must be able

[331] Soloman vs Soloman & Co. Ltd. (1897) A.C 22 (1895-99) All E.R. 33 (H.L).
[332] Naveen Singh Thakur & Divya Singh, "Theory of corporate Personality", available at https://www.ijsr.net/archive.
[333]Naffine, Ngaire. Who Are Law's Persons? From Cheshire Cats to Responsible Subjects. The Modern Law Review 66, no. 3 (2003): 346–67.
[334]JANSSENS, LIISA. A PROSPECT OF THE FUTURE.: HOW AUTONOMOUS SYSTEMS MAY QUALIFY AS LEGAL PERSONS. In BEING PROFILED: COGITAS ERGO SUM:116–21. Amsterdam University Press, 2018.
[335]Burk, Dan L. 'Algorithmic Fair Use.' The University of Chicago Law Review 86, no. 2 (2019): 283–308.
[336]Smith, Bryant. Legal Personality. The Yale Law Journal 37, no. 3 (1928): 283–99.

"to sue and be sued" in a court of law.[337] Thus by all these reasons, the majority of nations are opposed to giving AI legal status.

IV. Infringement and Liability

1. AI as a tool for copyright infringement.

While AI brings tremendous opportunities, it also presents ethical and societal challenges. Privacy concerns arise as AI systems collect and analyze vast amounts of personal data.[338] Algorithmic bias can perpetuate discrimination and exacerbate existing inequalities.[339] There are concerns about job displacement as AI automates routine tasks. Furthermore, the ethical implications of AI decision-making, such as autonomous vehicles making life-or-death choices, need careful consideration.[340] AI works rely on massive amounts of data, some of which may contain infringing content. AI's ability to generate, manipulate, and distribute content with remarkable precision and speed poses significant challenges in protecting intellectual property rights.

(i) Automated content creation: AI-powered algorithms can generate original content, including text, images, music, and videos. These algorithms analyze vast amounts of existing copyrighted material and mimic the style, structure, and even artistic expression.[341] Such automated content creation can lead to the production of works that infringe upon the copyrights of original creators.[342]

(ii) Plagiarism and content Replication: AI tools can copy and modify content, making it challenging to distinguish the original from the replicated version.[343]

[337]Maitland, Professor. Moral Personality and Legal Personality. Journal of the Society of Comparative Legislation 6, no. 2 (1905): 192–200.
[338]Rees, Tobias. Non-Human Words: On GPT-3 as a Philosophical Laboratory. Daedalus, vol. 151, no. 2, 2022, pp. 168–82.
[339]Bar-Gill, Oren. Symposium: Algorithmic Price Discrimination When Demand Is a Function of Both Preferences and (Mis)Perceptions. The University of Chicago Law Review 86, no. 2 (2019): 217–54.
[340]CUIHONG, CAI. The Shaping of Strategic Stability by Artificial Intelligence. Edited by LORA SAALMAN. The Impact of Artificial Intelligence on Strategic Stability and Nuclear Risk: Volume II East Asian Perspectives. Stockholm International Peace Research Institute, 2019.
[341] Monroe, Burt L., and Philip A. Schrodt. Introduction to the Special Issue: The Statistical Analysis of Political Text. Political Analysis 16, no. 4 (2008): 351–55.
[342]The Indian Copyright Act, 1957, § 4, No.14, Acts of Parliament, 1957, (India).
[343] Wiggins, Geraint A. Peter Tyack, Constance Scharff, and Martin Rohrmeier. The Evolutionary Roots of Creativity: Mechanisms and Motivations. Philosophical Transactions: Biological Sciences 370, no. 1664 (2015): 1–9.

(iii) Digital Piracy and Distribution: AI facilitates the rapid dissemination of copyrighted material through various online platforms.[344] Sophisticated algorithms can bypass digital rights management systems, enabling the unauthorized sharing and distribution of protected content, such as movies, music, and books. AI has the ability to manipulate consumers' choices and decision making too.[345]

(iv) Deep Fakes and misattribution: AI's deep learning capabilities enable the creation of convincing deep fakes, where individuals can be digitally manipulated to appear in situations they never participated in.[346] This poses a significant risk to public figures, celebrities, and ordinary individuals alike, as their identities can be exploited for various purposes, including copyright infringement.

If such a work is created without the consent of the person in issue, could it even be protected by copyright law? What are the individual's rights within copyright law in these pieces if permission has been granted by the party in question? Can a fair compensation mechanism be implemented for both the individual who created the deep fake and the people who were portrayed in the work? As AI is used more and more, these problems must be fixed since they will only get worse in the future.[347] The WIPO is likewise working to find a solution to the aforementioned problems.

2. Liability of AI developers, users, and platforms.

In line with CNBC, a Swiss art group developed an "automatic online shopping bot" with a regular allotment of $100 in Bitcoin, a digital currency, for buying random items from the "dark web," where users can acquire illicit or counterfeit items.[348] Swiss police seized the robotic device and its unauthorized transactions in January 2015. However, neither the robot nor the creators of it were put on trial for any crimes. Soon, similar situations will likely arise in both civil and criminal courts, and there won't be a suitable framework to establish who is responsible for these problems. Therefore, it is essential to at least try to identify the offender.

[344] Bernat, Frances P, and David Makin. CYBERCRIME THEORY AND DISCERNING IF THERE IS A CRIME: THE CASE OF DIGITAL PIRACY. International Review of Modern Sociology 40, no. 2 (2014): 99–119.
[345] Cosmetic Warriors Ltd and Lush Ltd v. Amazon.co.uk Ltd [2014] EWHC 181 (Ch).
[346] Smith, Hannah, and Katherine Mansted. Weaponized Deep Fakes. Weaponized Deep Fakes: National Security and Democracy. Australian Strategic Policy Institute, 2020.
[347]JKC Kingston, AI and Legal Liability, available at https://arxiv.org.
[348] Gless, Sabine, Emily Silverman, and Thomas Weigend. IF ROBOTS CAUSE HARM, WHO IS TO BLAME? SELF-DRIVING CARS AND CRIMINAL LIABILITY. New Criminal Law Review: An International and Interdisciplinary Journal 19, no. 3 (2016): 412–36.

Following "**The Perpetration-by-Another Liability (PBAL) Model: AI as Innocent Agents**,"[349] the AI robot is seen as a tool (outside observer) rather than the real perpetrator of the offense (hence, "another's perpetrator"). A first-degree principle is the one who directs the AI or the offender and is in charge of the innocent person's actions. Based on this behavior and the perpetrator's own *mens rea*, responsibility for the crime is established. According to "**TheNatural-Probable-Consequence Liability (NPCL) Model: Foreseeable Offenses**,"[350] programmers or users are actively involved in the AI robot's day-to-day operations but do not intend to apply it to carry out a crime. In cases when a reasonable programmer or user should have anticipated the offense and prevented the AI robot from performing it, liability may be predicated on carelessness. Conversely, "**TheDirect Liability (DL) Model: AI Robots as Subject of Criminal Liability**" asserts a "direct responsibility"[351] to the AI. However, the individual status must be entered into the AI for this to proceed. In addition to the criminal accountability of the programmer or human user, AI robots also have criminal culpability.

In addition, the Act's Section 51, which starts with the word "any person" addresses instances in which a copyright may be deemed to have been violated.[352] A standalone AI programme is neither human nor authorized. The possibility of such an entity is not considered by Indian law, which gains increasing relevance given that it has developed into an entity that is fully capable of infringing on an extensive variety of rights and is thus “equivalent to a person carrying out a particular activity.” If AI's actions are trade secret- or copyright-protected, nothing precludes it from doing the same tasks as humans.”

Given the development of AI, there will eventually come a tipping point at which robotic systems will demand their rights to exist, to enjoy freedom, and to continue expanding to the fullest extent possible.[353] Additionally, this indicates that they will be requesting intellectual property protection for any new intellectual property rights they produce. By 2045, "advanced robots will have the

[349]Gabriel Hallevy, AI and Law, Chapter AI vs IP, pp. 15-18, 2020.
[350]Hagendorf W.: Bulls and Bears and Bugs: Computer Investment Advisory programs That Go Awry. Computer Law Journal, X, pp. 47-69 (1990).
[351]Tuthill G.S.: Legal Liabilities and Expert Systems,”AI Expert Mar. 1991.
[352]The Indian Copyright Act, 1957, § 51, No.14, Acts of Parliament, 1957, (India)..”
[353] A Ramalho,“Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems) 21 Journal of Internet Law 12 (2017).

ability to vote in general elections, own land, and get married."[354] Hence, a balanced approach is the need of the hour.

V. CONCLUSION

In the area of copyright law, the rise of AI-generated works presents particular difficulties and complications. Questions about the ownership, protection, and infringement of AI-generated works grow more urgent as AI technology develops. The sui generis system could be a preferable choice, or alternatively, certain clauses in the copyright laws of the nations that have been especially written for AI and AI-generated works may handle this issue. In any event, a lower priority should be given to AI-generated works, and human ingenuity should be valued above artificial innovation. Currently, section 2(d)(vi) of Indian Copyright Act gives authorship to the person who "causes the work to be created" even if weak AI exists in the form of computer programmes. Without human interaction, however, it is impossible to claim authorship of the final product. Similar to that, AI-created works are not given any relief by the ideas embodied in Section 17 of the aforementioned Act. Instead of seeking to create new IP rights at this time, the government should think about implementing the necessary legislation (or interpreting existing legislation) to make explicit IP protection for AI-enabled and AI-created works. Therefore, the key to success is to take an equitable strategy.

[354] Anthony Cuthbertson, Robots will have Civil Rights by 2045, Claims Creator of 'I will Destroy Humans Android', Independent UK, May 25, 2023, available at: https://www.independent.co.uk.

HARMONIZING THE LEGAL LANDSCAPE OF ONLINE GAMING IN INDIA

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Abstract

In the modern era, online gaming has exploded in popularity across many nations. The popularity of playing games online is tremendous particularly among the youth. The industry of online gaming could change the game in the aftermath of declining sources of revenue. Therefore, while tackling online gaming, we need to use the appropriate tactics. The legal system has dealt with numerous concerns connected to playing games online and it is a necessity of the moment that we ought to have effective regulation of internet gaming. However the legislative reaction in India has remained uneven on the subject of internet gambling. The courts ought to have an impartial perspective towards the online gaming industry through considering constraints of times and evolving conditions. If an all India legal framework has been put together in all state legislatures for regulating of online gaming & fantasy sports and the Gaming Commission of India is constituted, it would become simpler to govern online gaming business. In order to better understand the current legal status of online gambling in India, this essay analyses legislative and judicial responses and recommends better alternatives that are more advantageous, practical, and financially sustainable.

Keywords: Online gaming, Fantasy sports, Game of skill, Game of chance

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I. Introduction to Online Gaming:

An essential component of existence is entertainment. It relieves tension and offers a lot of relaxation in the usually chaotic world of humans. There weren't many options for entertainment in the past. However, the avenues for entertainment have greatly expanded and changed in modern times as a result of the advancement of science and technology. In old times the open activities such as sports, live performances and theatre remained the sources of entertainment. Movies then followed. Nevertheless, the popularity of online gaming, e-sports, and fantasy sports has skyrocketed since the invention of personal computers, laptops, and smart phones. The youth are particularly fond of these. "Online gaming is gaining up as a significant recreational pastime in many regions of the globe like the USA, UK, Korea, China, Taiwan, India, etc"[355]. Online gaming has grown significantly as we enter the twenty-first century. Playing computer games on a personal computer or a mobile phone is referred to as gaming. Despite having a history dating back to the 1950s, online gaming didn't really take off until the 1990s.

II. Concepts of Online Gaming

Online gaming, e-sports, and fantasy sports are typically seen as interchangeable terms. They are different from one another, though. Recent legal rulings suggest that fantasy sports is a game of skill rather than chance. The Punjab and Haryana High Court ruled in Shri. Varun Gumber vs. Union Territory of Chandigarh and others that the fantasy sport Dream 11 does not constitute gambling because it requires a significant amount of talent.[356] Thus, while chance certainly plays a significant role in online gaming and esports, ability is generally the main factor in fantasy sports. Still, let's say that all three of these are the same for the purpose of convenience. However, the online gaming industry has not received much attention from lawmakers, likely because they are unaware of its enormous potential as a source of income and employment. The online gaming sector will undoubtedly offer means of subsistence in the Post-Covid 19 age, where thousands of young people have lost their employment and means of support. However, it is necessary to set up a suitable regulatory framework.

III. Online gaming: A blessing or a curse?

[355] Dal Young Jin, *Korea's Online Gaming Empire* ,3-4 2010, The MIT Press.
[356]VarunGumber v Union Territory of Chandigarh, Cri LJ 3827(2017).

India already has a multi-billion dollar online gaming industry. The enormous growth in popularity of online gaming among today's youth justifies a cost-benefit analysis of the industry. Online gaming takes expertise to some level. Thus, engaging in online gaming actively encourages player skills. Second, since online gaming involves some simulations, it may improve players intellectual and analytical skills. It better equips the player to deal with challenges in real life[357]. Another advantage of online gaming could be that it will bring in money for the state using regulations. It has the potential to change the outcome after Covid-19. Online gaming may increase tax collection and help the global economy when traditional revenue channels have declined as a result of the recession. The online gaming business has the potential to create thousands of new employment if it is properly developed. Online gaming, nevertheless, may also have some undesirable effects, such as addiction, sadness, excessive gambling on the internet, etc. Additionally, it can hinder children's performance in school, and too much time spent playing online games would mean less time for other physical activities like hockey, football, volleyball, and other team sports[358].

Online gaming's legislation in India has remained a contentious issue because of these inherent risks. More widespread legalization of internet gaming could be immoral. This is since certain internet games rely more on chance than skills, thus encouraging them may not be in our young people's best interests. It must be determined how online gaming fits into the ethical fabric of the nation. Many experts now think that using the Internet and playing online games should be diagnosed similarly to gambling because of their functional and cognitive similarities. If we weigh the pros and cons of online gaming, we could discover that, despite certain expenses, the benefits are generally greater. Especially in the subsequent to Covid 19 era, we need to promote online gaming to increase our income and employment market[359].

IV. Intellectual property law and Gaming regulations

To safeguard its creative works, trademarks, and breakthrough technology, the gaming industry significantly relies on intellectual property regulations. Intellectual property laws give game

[357]BartoszSkwarczek, How The Gaming Industry Has Leveled Up During The Pandemic, Forbes.com, May 24, 2023 08:00am EDT, https://www.forbes.com/sites/forbestechcouncil/2021/06/17/how-the-gaming-industry-has-leveled-up-during-the-pandemic.

[358]Bryan Lufkin, HOW ONLINE GAMING HAS BECOME A SOCIAL LIFELINE BBC WORKLIFE , May. 24, 2023 , https://www.bbc.com/worklife/article/20201215-how-online-gaming-has-become-a-social-lifeline.

[359]Satyam Sah, An analysis of current regulation of online gaming in India, LEGAL SERVICE INDIA - LAW, LAWYERS AND LEGAL RESOURCES, May 24, 2023, https://www.legalserviceindia.com/legal/article-9855-an-analysis-of-current-regulation-of-online-gaming-in-india.html.

creators and publishers legal tools to safeguard their capital in developing and marketing their video games, in addition to their commercial benefit. Intellectual property rights (IPR) regulations in India have evolved through time to give adequate safeguards to the gaming industry.

The gaming business is an extremely competitive and lucrative area, and game creators and publishers devote a tremendous amount of time, money, and resources in developing and marketing their games. As a result, there is a substantial danger that original works may be duplicated, stolen, or otherwise violated by others in the business. Copyright, trademark, and patent laws, for example, give game creators and publishers with the legal instruments they need to safeguard their investment in producing and advertising their games.

These rules aid in the prevention of infringement and piracy by stopping others from utilizing or copying their original works without permission. By enforcing intellectual property rules, game developers and publishers can protect their market edge and guarantee they are adequately rewarded for their creative works. It also supports industry innovation and originality by incentivizing game creators and publishers to come up with fresh and unique concepts without fear of others copying their work.

i. Copyright protection and gaming content:

Characters, graphics, plotlines, and music, among other aspects of video game material, are all covered by copyright protection. The Copyright Act, 1957 offers copyright protection in India.

According to Section 13 of the Copyright Act, original computer programmes and video games are covered by copyright as are literary, dramatic, musical, and aesthetic works[360]. This means that any creative content produced by a game developer or publisher, such as the game's plot, characters, and soundtrack, is immediately covered by copyright. Video game copyright holders have the sole authority to create, modify, and distribute their creations. This implies that in order to use third-party material in their games, game creators and publishers must secure the required licences and licences. They must also guarantee that their video games do not violate the intellectual property rights of others.

ii. Trademark protection and game branding:

[360] Copyright Act, 1957, §13.

To protect their game branding, including titles, logos, and other distinguishing characteristics, game creators and publishers must use trademarks. The Trademarks Act, 1999 protects trademarks in India.

Section 2(zb) of the Trademarks Act defines a trademark as any mark capable of being graphically depicted and distinguishing one person's goods or services from those of another[361]. This implies that a trademark can be any combination of words, emblems, symbols, or even noises that distinguishes a certain game or business. Trademark protection is critical because it prevents other game creators and publishers from utilising similar or identical branding, which might mislead consumers and harm the reputation of the original game or brand. It also aids in the protection of investments made in the development and promotion of the game.

iii. Patents and game mechanics:

Patents can be granted for novel gaming mechanics or user interfaces. The Patents Act of 1970 in India provides patent protection.

An invention is defined in Section 2(1)(j) of the Patents Act as a novel product or technique that incorporates a creative component and is capable of being used in industry[362]. This means that a game developer or publisher might be qualified for patent protection if they design an innovative and non-obvious game mechanism or user interface. A gaming mechanism that fits the standards of innovation, non-obviousness, and industrial application can be patented. This implies that the mechanics must not have been previously revealed or made public, must not be a clear advance over current mechanics, and must be capable of being employed in an industry.

iv. Various Intellectual Property Rights Violations

a. Live Streaming

Streaming video games for paying members on various video platforms without the game makers' permission gives rise to numerous legal complexities. These areas are considered legal grey areas within the gaming industry because there is currently a lack of sufficient regulations or legal support for them. In addition to the obvious infringement of IP laws, which could lead to legal

[361] Trademarks Act, 1999, §2(zb).
[362] Patents Act, 1970, §2(1)(j).

action by the game developers, some well-known game designers expressly forbid streaming or commercial use of their games without consent. On the other hand, certain game publishers support such streaming and tournaments as it serves as free publicity for their games, and they explicitly permit such activities in their end-user license agreements. However, there is a lack of consistency and clarity in the industry regarding the permissions and restrictions related to streaming and commercial use of video games

b. Unauthorized Gaming Tournaments

The unregulated nature of video game competitions has posed challenges for many game developers, particularly regarding the unauthorized use of trademarks and logos. Furthermore, certain video game tournaments that are officially sanctioned by e-sports organizations involve financial transactions, imposing additional costs on the creators.

c. NFT's and Trademark

"Non-Fungible Tokens (NFTs) are unique cryptographic tokens that exist only once on a blockchain and cannot be duplicated. These digital representations can tokenize real-world assets, providing increased efficiency in trading, buying, and selling while reducing the risk of fraud. In recent times, the relevance of NFTs within the realm of multimedia games has gained attention. This includes the creation of NFTs for in-game portraits, player rewards such as clothing or avatar-related weapons, and even the tokenization of gaming footage"[363]

V. Comparative Analysis of Gaming Regulation in Different Countries

The Online Gaming Market has been a rapidly growing industry and by 2030, it is estimated to be valued at around $ 431.87 Billion globally[364]. The Gaming Industry in India alone is valued at $1.1 billion, which makes India being placed at the top five position globally.

The gaming sector is greatly shaped by gaming rules, which also ensure ethical behaviour and safeguard the interests of stakeholders and players. These laws, however, can differ greatly between

[363]The metaverse,nfts and IP rights: To regulate or not to regulate?, WIPO, May 30 2023,https://www.wipo.int/wipo_magazine/en/2022/02/article_0002.html.

[364]PoojaYadav , "Explained: How Rapidly Is The Gaming Industry Growing In India," India Times , May 01,2023 https://www.indiatimes.com/explainers/news/how-rapidly-is-the-gaming-industry-growing-in-india-589059.html#:~:text=The%20Indian%20gaming%20market%20is,hit%20500%20million%20by%202025.

nations due to their varied cultural, social, and legal systems. In this comparative research, we will look at and assess the gaming laws of three nations: the US, the UK, and Australia. We may learn more about the similarities, differences, and potential effects of these legislation by comparing and contrasting different approaches to regulating the gaming business.

1. United States

Gaming Regulations in the United States possess characteristics that are a combination of both federal and state-level oversight. This division of authority and unique structure model has resulted in different states having different regulations. However, there exists a primary base model regulation known as the*Unlawful Internet Gambling Enforcement Act (UIGEA) of 2006,*[365]which prohibits online gambling unless explicitly authorized by individual states.

The UIGEA focuses on controlling financial transactions associated with internet gambling at the federal level. Financial institutions are required to recognise and prevent transactions linked to illegal internet gambling activity. It leaves it up to individual governments to decide their own rules and does not, however, expressly address the legality or regulation of online gambling itself.

As a result, state laws in each state in the US are mostly responsible for regulating gaming activities. A number of states have embraced the legalization and regulation of several types of gambling, including as land-based casinos, online gambling, and wagering on sporting events. Especially noteworthy are the innovative measures Nevada, New Jersey, and Delaware have made to legalize and regulate online gambling, establishing frameworks for issuing operator licenses and guaranteeing consumer protection.

Regulators control operator licensing and regulation in states where online gambling is legal. For instance, in order to promote fair play, deter crime, and safeguard players' interests, strict laws are enforced by the Nevada Gaming Control Board and the New Jersey Division of Gaming Enforcement.

It is crucial to remember that each state has a very different approach to gaming regulation. Some states maintain tougher gambling policies, outlawing or severely limiting a variety of gaming-

[365]Unlawful Internet Gambling Enforcement Act of 200631 U.S.C. §§ 5361-5367 (2006).

related activities. Operating online gaming sites or indulging in internet gambling may result in legal repercussions in several jurisdictions.

Recent events like the legalization of sports betting have an impact on how the gaming laws in the United States are changing. The Professional and Amateur Sports Protection Act (PASPA), which had previously outlawed sports betting in the majority of states, was overturned by the Supreme Court in 2018. This decision allowed states to legalize and control betting on sports within their borders. Since then, other states have taken action to make legal sports betting, either through legislation or referendums, resulting in a considerable growth of the sector.

Overall, the laws and rules governing gaming in the United States are a patchwork that varies from state to state. While certain states have legalized and regulated gambling, others continue to have tougher regulations. It is expected that gaming legislation in the United States will keep changing as the business develops and adapts to technology improvements, with the possibility that more states could eventually allow and regulate various forms of gambling.

a. Murphy v. National Collegiate Athletic Association[366]

Termed to be a Landmark Judgement in regards to the 10th Amendment of the American Constitution[367], the case largely relates to The Professional and Amateur Sports Protection Act (PASPA), which is a provision that strictly prohibits the state to authorize any form of sports gambling, the same was challenged to be against the Anti-Commandeering Doctrine. The said Provision strictly prohibited any state to administer a lottery or conduct gambling or betting on the basis of a competitive sporting event, or to sponsor, advertise, license, or promote one. The point of contention was that this provision put the states under the control of the federal government. The Supreme Court of the United States held that this provision was indeed violative of the Anti-Commandeering Doctrine and reversed the Judgements of the lower Circuit Courts.

2. United Kingdom

[366]Murphy v. Nat'l Collegiate Athletic Ass'n, 138 S. Ct. 1461, 1478 (2018).
[367]U.S. Const. amend. 10.

The United Kingdom's gaming laws are distinguished by a thorough and centralized system of oversight. The regulating agency in charge of ensuring honest and open gambling practices in the nation is the UK Gambling Commission (UKGC), which was founded in accordance with the Gambling Act of 2005[368].The UKGC is responsible for licensing businesses, monitoring legal compliance, and implementing consumer protection laws. Its main goals are to deter illegal activity related to gaming, encourage responsible gambling, and safeguard the weak.Numerous gambling activities, such internet casinos, sports betting, lottery draws, and gaming machines, are governed by laws in the United Kingdom. Operators must adhere to stringent rules, which include proving their financial viability, putting in place effective anti-money laundering controls, and offering player protection tools.

The emphasis on player protection as well as responsible gambling is one important feature of gaming legislation in the UK. The UKGC requires that licensed operators put into place measures including self-exclusion plans, age verification, and tools to track and regulate gaming activities. Operators must also support initiatives for gambling-related damage research, education, and therapy.[369]

The UKGC places a high priority on stopping underage gambling and making sure that those who are vulnerable are properly protected. Operators are expected to carry out extensive verification of age checks and follow responsible gambling guidelines, which include educating players about the risks of gaming and providing them with tools to set deposit caps or take pauses. In order to maintain ethical marketing activities, the UKGC has also put in place strict advertising laws. Advertisements must give correct information about betting odds and associated risks and they must not target minors or vulnerable demographics.

VI. The Blending of Chance and Skill in Gaming and the Uncertainty of Online Gaming Regulations in India

Because we lacked solidified internet gambling and online gaming regulations, the court must deal with the complexities involved. In numerous instances, the Indian judiciary has tackled

[368]Gambling Act 2005, c. 19 (U.K.).

[369] The Gambling Law Review: United Kingdom, THE GAMBLING LAW REVIEW - THE LAW REVIEWS, May 29, 2023,https://thelawreviews.co.uk/title/the-gambling-law-review/united-kingdom.

different concerns related to internet gambling. However, the law of online gaming is still changing, and it will take some time. Because the judgments of the High Courts are inconsistent, the overall situation is ambiguous.

i. Game of Chance and Skill

A game of chance is one in which the result is decided mostly or totally by random occurrences or components, such as the rolling of the dice, the spinning of the wheel of roulette, or the shuffle of cards in a deck. In games of chance, participants have no influence over the result and their odds of winning are entirely dependent on luck. A game of skill, on the other hand, is one in which the result is mostly decided by the player's expertise, tactics, and skill. Chess, poker, and basketball are examples of skill games. The player's choices and actions have a big effect on the result in these games, with chance playing a minor part[370]

Many games, however, blend aspects of chance and skill. Poker, for example, incorporates a major element of chance in the handing out of cards while still requiring ability in terms of gambling tactics, reading rivals, and deceiving. Similarly, although the first stroke in sports like golfing and bowling is mostly determined by chance, talent is necessary to regularly produce correct shots and win the game. Before we get into the specifics of online gaming rulings, it's worth noting some prior court discussion on games of skill and games of chance. This difference is important because it will be important in developing appropriate tactics for online gaming.

The issue of whether a game is one of chance or skill must be judged on the facts and circumstances of each situation. When determining the topic of "skill versus chance," Indian courts have embraced the "dominant factor test" or "predominance test" used by US courts. A court must evaluate whether chance or skill "is the dominant factor in determining the outcome of the game" under this test[371].

In the notable case of RMD Chamarbaugwala&Anr v Union of India &Anr[372], the Supreme Court of India affirmed the constitutional protection afforded to the offering of games of skill. The court

[370]David Fried, What determines if a game is one of skill or chance? CALIFORNIA GAMING LAWYER, May 24, 2023, https://www.calgaminglaw.com/what-determines-if-a-game-is-one-of-skill-or-chance.
[371]Sports and entertainment law journal sandra day o'connor college of law, May. 24, 2023, http://asuselj.org/wp-content/uploads/2020/08/Full-Volume-1-Issue-1.pdf.
[372]*State of Bombay v. RMD Chamarbaugwala* ,AIR 1957 SC 699.

recognized that such activities fall within the ambit of Article 19(1)(g) of the Constitution, which guarantees the freedom to practice any profession, carry on any occupation, trade, or business. In specific rulings, the Supreme Court has applied this criteria to card games such as rummy and horse racing

a) Horse Racing

In Dr. Lakshmanan vs. Union of India[373], the issue was whether horse racing is a game of skill or solely a game of chance. In its analysis, the Supreme Court examined the decision in Commonwealth vs. Kentucky Jockey Club[374], which concluded that a provision allowing horse racing betting was constitutional. It also related to the Harless vs. United States judgement, which found that horse racing is not a game of chance. Following a comprehensive review of foreign and Indian rulings, the Supreme Court ruled that horse racing is a sport based principally on the specific talent obtained through training. It is the horse's speed and stamina, developed via training, that is important. Jockeys are very skilled riders. A highly trained rider may reach the winning post amongst two equally quick horses. Horse racing was seen to be a game of skill, and hence legitimate and allowed. Kuldip Singh, J., rendered the majority judgement. This judgement is important even in online gaming since it distinguishes between games of chance and games of skill. Online games of skill may be permitted, but online games of luck may be forbidden.

b) Rummy

Rummy is not a pure chance game like the "three-card" games, according to the Supreme Court's ruling in the State of Andhra Pradesh v. K. Satyanarayana[375] case. Since the assignment of the cards will not reflect any defined pattern but is instead governed by how the cards find their location in the shuffled pack, there's a component of chance in every game in which cards are mixed and distributed. However, the Supreme Court ruled the fact that rummy is a skill game since it requires remembering the card movement and requires tremendous skill in card collection and throwing. Bridge is a game of skill in this case, according to the Supreme Court.

I. What exactly are Fantasy Sports Games?

[373]Dr KR Lakshmanan v. State of Tamil Nadu 2 SCC 226 (1996).
[374]Commonwealth v. Kentucky Jockey Club, 238 Ky. 739, 38 S.W. 2d 987 (1931).
[375] State of Andhra Pradesh v. KSatyanarayana 2 SCR 387(1968).

Users in fantasy sports games create fantasy teams based on certain criteria from a list of players set to play live games on a specific day. Users pay an entrance fee to join a contest, which is pooled and distributed among users ("Entry Pool") after a service/administrative charge is deducted by fantasy sports game providers. Users establish teams based on their knowledge (gleaned via rigorous study), attentiveness, experience, and skill in the right sport. The user earns points dependent on how well the players he or she selects to embody his or her team perform. The users are assessed based on the points earned by their selected players throughout the game as a consequence of their on-field actions and contest scoring methods.[376]

II. The Skill Element in Fantasy Sports Games: Position in India

Prior to the adoption of the Indian Constitution, the Public Gambling Act of 1867[377] sought to restrict public gambling and the functioning of all-inclusive gambling businesses, with the exemption of games of skill. When the constitution was adopted, gambling and betting-related subjects were moved to Entry 34 of the state list, giving the state legislature sole jurisdiction to enact laws on these areas.

States approaches differ dramatically. Some states have supported a complete ban on fantasy gaming, while others have preferred online gaming regulation. Meghalaya, for example, has welcomed the internet gambling sector by regulating it. It is an enabling act that allows operators to get a license to offer games of chance such as keno, wheel of fortune and so on[378]. By establishing the Sikkim Act and the Sikkim Online Gaming Regulation Rules of 2009[379], the state of Sikkim has also implemented a licensing scheme for online gaming inside the state of Sikkim. By implementing the Nagaland Act[380], Nagaland has also ratified a licensing system for online games of skill.

a. Dream 11 and Legal Turmoil

[376]KrishDalal, Business of Fantasy Sports: Market, products, and legality Sports news, May. 24, 2023, https://www.sportskeeda.com/bos/business-fantasy-sports-market-products-legality.
[377]The Public Gambling Act, 1867.
[378]The Meghalaya Regulation of Gaming Act, 2021.
[379]The Sikkim Online Gaming Rules, 2009.
[380]Nagaland Prohibition of Gambling and Promotion and Regulation of Online Games of Skill Rules, 2016.

Dream11 is an online fantasy sports platform that enables users to create virtual teams and compete in various sports tournaments. It was founded in 2008 and has faced numerous regulatory challenges regarding its legality. Participants in fantasy sports draft virtual teams of real-life athletes from various sports and receive points based on their performance in actual contests. Dream11 is one of the leading participants in the Indian fantasy sports business along with MyTeam11 and MPL[381].

i. Shri Varun Gumber v. UT of Chandigarh &Ors

Back in 2017, a significant case (CWP No. 7559) was brought before the Punjab and Haryana High Court, targeting Dream11, an online platform for fantasy sports. The petitioner alleged that Dream11 engaged in illegal gambling practices. However, the High Court ruled in favor of Dream11, stating that the fantasy sports game primarily relies on skill, and any sports game primarily based on skill does not meet the criteria as gambling under the provisions of the Public Gambling Act, 1876. Moreover, the High Court affirmed that the business conducted by Dream11 is a legitimate enterprise confined under Article 19(1)(g) of the Constitution of India, which safeguards the right to practice any profession, occupation, trade, or business.[382] Subsequently, an appeal against the High Court's decision was dismissed by the esteemed Supreme Court on September 15, 2017

ii. Gurdeep Singh Sachar v. Union of India

Dream11, a fantasy sports platform, faced a Public Interest Litigation (PIL) in 2019 for allegedly operating illegal activities in the masquerade of online fantasy sports gaming. The PIL furthermore claimed Dream11 violated the Central Goods and Service Tax Act, 2017 (CGST Act) and CGST Rules. However, Dream11 argued that their games were games of skill, not chance, and were outside the purview of CGST Rules. The Bombay High Court relied on the decision of the Punjab and Haryana High Court and ruled in favour of Dream11, stating that their games were games of

[381]MadhavChanchaniThe Rise & Rise of Dream11, and Fantasy Sports Gaming in India The Times of India, May 24, 2023, https://timesofindia.indiatimes.com/business/startups/companies/the-rise-rise-of-dream11-and-fantasy-sports-gaming-in-india/articleshow/68543816.cms.
[382]ShriVarunGumber v. UT of Chandigarh &Ors, Cri LJ 3836(2017).

skill and not games of chance. The court also held that the allegation of GST evasion or erroneous classification was not applicable as there was no violation of the CGST Act and CGST Rules[383].

iii. Chandresh Shukla v. State of Rajasthan &Ors,

In spite of the aforementioned judgments, Dream11 encountered a new obstacle in the year 2020 when a lawsuit was brought before the Rajasthan High Court on the grounds that Dream11 engaged in gambling by placing bets on cricket teams. The Rajasthan High Court declared that the issue of classifying the online fantasy game "Dream 11" as having any component of betting or gambling is no longer res integra (untouched subject; a point without a precedent), upholding the rulings of the P&H High Court and Bombay High Court. The Rajasthan High Court said that the Special Leave Petitions filed in defiance of these High Courts judgements had similarly been denied[384]

iv. Avinash Mehrotra v. The State of Rajasthan &Ors.

In 2021, the Supreme Court of India upheld the decisions of the Rajasthan High Court that the online fantasy game Dream11 involves skill and is not gambling. The court dismissed the Special Leave Petition, stating that similar petitions from other high courts had been dismissed in the past[385].

b. Fantasy Gaming and Legal Hurdles

Despite the recognition of games of skill and their exemption from anti-gambling laws by the Indian judiciary, several states have taken stringent steps to prohibit these games like Dream 11.

In particular, the Andhra Pradesh Gaming Ordinance[386]prohibits fantasy gaming applications like Dream 11 in that state. WithinTelangana, the government enacted an ordinanceThe Kerala Gaming Act of 1960 was also amended through notification in February 2021[387], specifically targeting online rummy games played for money.

[383]Gurdeep Singh Sachar v. Union of India, 75 GST 258 Bombay(2019).
[384]ChandreshShukla v. State of Rajasthan &Ors, SCC OnLineGuj1838.(2017).
[385]AvinashMehrotra vs State of Rajasthan, SLP (Civil) Diary No. 18478(2020).
[386]The Andhra Pradesh Gaming (Amendment) Ordinance, 2020.
[387] Kerala Gaming Act, 1960.

The Tamil Nadu act[388]has been introduced by the state's administration. While other states like Karnataka have passed similar laws prohibiting online gambling. Such bans have created confusion and uncertainty for online gaming operators and enthusiasts in these regions, raising questions about the feasibility and practicality of blanket bans on games of skill.

i. Junglee Games India Pvt. Ltd. &Anr. v The State of Tamil Nadu &Ors

In a landmark ruling, the Madras High Court has decisively invalidated the legislation that imposed a ban on skill gaming. The court's verdict deems the prohibition unreasonable, excessive, and manifestly arbitrary, thereby violating the tenets of Article 19(1)(g) of the Constitution. The court eloquently affirmed that individuals who possess refined skills have the inherent right to exploit their abilities and engage in gainful pursuits, warranting the imposition of only reasonable restrictions on such activities. Notably, the court astutely observed that the State's legislative competence to enact laws pertaining to "betting and gambling" extends solely to games of chance, rendering the blanket ban on games of skill disproportionate to the desired objectives. In scrutinizing the State's case, the court found the absence of scientific or empirical evidence justifying the necessity for a comprehensive ban, further emphasizing the State's failure to demonstrate why alternative, less stringent restrictions would be inadequate[389]

ii. Head Digital Works Pvt. Ltd. v State of Kerala &Ors

The Kerala High Court, in a significant ruling, invalidated a notification aimed at excluding "online Rummy when played for stakes" from the purview of skill games. The court determined that Rummy is a game primarily dependent on skill, and whether it is played for stakes or not does not determine its classification as a game of skill. Consequently, the notification was deemed arbitrary, unlawful, and in violation of the constitutional provisions of Articles 14 and 19(1)(g) of the Indian Constitution. Moreover, the court ruled that the notification did not qualify as a reasonable restriction under Article 19(6) of the Constitution[390]

iii. All India Gaming Federation v. State of Karnataka

[388]The Tamil Nadu Prohibition of Online Gambling and Regulation of Online Games Act, 2022.
[389]State of Tamil Nadu &Ors v. Junglee Games India Private Limited &Anr SLP (C) No. 19981-88 (2021).
[390]Head Digital Works Pvt. Ltd. v State of Kerala &Ors, SCC ONLINE KER 3592 (2021).

The Karnataka High Court, in a notable judgment, struck down specific provisions of the law that prohibited skill gaming. The court recognized that skill gaming is safeguarded by the Constitution under Articles 19(1)(a) and 21. It further highlighted that the State cannot impose an absolute ban on games of skill, as doing so would be excessive and an act of paternalism. Instead, the State is only authorized to impose "reasonable restrictions" on the right to offer and participate in online skill gaming, limited to specific grounds stipulated by the Constitution. Additionally, the court indicated that there is no explicit or implicit prohibition on gambling within the Directive Principles of State Policy outlined in the Constitution. This observation underscores the court's recognition that the Constitution does not inherently disallow gambling activities[391]

The Special Leave Petitions (SLPs) are filed by the states of Karnataka and Tamil Nadu. These petitions challenged Madras and Karnataka High Court decisions that had overturned legislation forbidding online skill games for financial advantage. In addition to Karnataka and Tamil Nadu, the state of Telangana has petitioned the Supreme Court for a transfer. This appeal asks the Supreme Court to consolidate cases pending in the Telangana High Court that challenge the constitutional legality of a similar statute prohibiting online games for stakes, as well as applications from Karnataka and Tamil Nadu.

Supreme Court has issued notice to the All-India Gaming Federation and skill-based gaming businesses in response to a plea filed by the states and to overturn an online gaming ban. The court has ordered that the case be continued for further review.

VII. MeitY's Regulations on Online Real Money Games

As the legal status of online gaming remains pending before the Supreme Court of India, which is currently reviewing the decisions of several High Courts that recognize online gaming as a skill-based game, the central government has recently introduced new guidelines on April 6, 2023.

The Ministry of Electronics and Information Technology (MeitY) has recently introduced regulations specifically targeting online real money games, which came into effect on April 6, 2023. These regulations are incorporated as amendments to the 2021 IT Rules[392]

[391]All India Gaming Federation v. State of Karnataka, LiveLaw (Kar) 47 (2022).
[392]Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.

The introduction of these amendments represents a significant milestone for India's online real money gaming industry, which has been seeking centralised regulations to supersede state-level laws. However, it is important to note that while the amendments provide regulations at the central level, they do not replace existing state-level anti-gambling laws. Therefore, actions taken by individual states may continue independently of these amendments.

The amendments propose a co-regulatory framework, emphasising a light-touch approach between MeitY and registered self-regulatory bodies (SRBs). This approach aligns with the government's broader objective of reducing stringent regulations and improving the business environment in India.

The amendments have relaxed certain obligations for online gaming intermediaries (OGIs) compared to the earlier draft proposed by MeitY in January. However, certain obligations that were subject to industry objections in the proposed amendments, such as strict know-your-customer (KYC) requirements, have been retained.

It is worth mentioning that some provisions of the amendments are ambiguous and lack clarity, which will be discussed in further detail.This overview aims to highlight key aspects of the amendments, including their scope, obligations for gaming operators and self-regulatory bodies, and their potential implications for the industry.

In exercising its authority under Section 87(1), Section 87(2)(z), and Section 87(2)(zg) of the Information Technology Act, the Ministry of Electronics and Information Technology has made amendments to the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 (2021 Rules). These amendments introduce new definitions for terms such as 'online gaming intermediary,' 'online gaming self-regulatory body,' 'online real money game,' 'permissible online game,' and 'permissible online real money game.'

Under the amended rules, online gaming intermediaries are now required to adhere to due diligence requirements specified in Rule 3(1). These requirements have been modified and include provisions prohibiting the hosting, display, upload, modification, publication, transmission, storage, update, or sharing of certain information. For instance, intermediaries must not engage in or promote online games that cause harm to users, offer unverified online games, or advertise non-permissible online games.

Additionally, intermediaries must inform users about their rules, regulations, privacy policy, or user agreements, and notify them of any changes made to these documents at least once a year. If an online gaming intermediary allows users to access permissible online real money games, it must promptly inform users of any changes within twenty-four hours. Furthermore, intermediaries enabling access to such games are obligated to provide information or assistance to authorised government agencies within twenty-four hours of receiving a written order related to investigative, protective, or cybersecurity activities.

Online gaming self-regulatory bodies are required to comply with orders issued by the Grievance Appellate Committee and publish compliance reports on their websites. The 2023 amendment introduces additional due diligence obligations for these bodies, including the appointment of a Chief Compliance Officer, nodal contact person, and resident grievance officer. They must also publish periodic compliance reports detailing received complaints and the actions taken. Furthermore, significant social media intermediaries and online gaming intermediaries enabling access to permissible online real money games must have a physical contact address in India, establish a complaint mechanism, and offer voluntary verification for Indian users.

The newly inserted Rule 4A allows the Central Government to designate multiple online gaming self-regulatory bodies responsible for verifying online real money games as permissible online real money games. To obtain this designation, an online gaming self-regulatory body must ensure that the online real money game does not involve wagering on any outcome and that both the online gaming intermediary and the game comply with existing rules and due diligence obligations. Initially, the body can rely on information provided by the applicant and declare the game permissible for a maximum of three months. During this period, the body must conduct an inquiry and either confirm the game as permissible or notify the applicant in writing if it fails to meet the requirements.

The 2023 amendment also introduces provisions regarding the verification of online real money games. The due diligence obligations become applicable only after at least three online gaming self-regulatory bodies have been designated for a minimum of three months (Rule 4B). However, the Central Government can direct an online game to comply with due diligence obligations before the three-month period elapses. It is important to note that certain obligations may apply to online games other than online real money games as well (Rule 4C)

VIII. Opportunities for Innovation in Gaming technologies within the regulatory framework

Within the gaming sector, chances for innovation are presented by the regulatory environment surrounding gaming technologies. Regulations can stimulate technology innovations that improve the gaming experience while simultaneously ensuring fair play, safeguarding customers, and preventing illicit activity. Some of the Important aspects regarding the same are discussed below:

1. ***Tools for Responsible Gambling****:* Operators are frequently required by regulations to establish responsible gambling practices. This creates possibilities for cutting-edge solutions that encourage sensible gambling practices. Operators can create sophisticated self-exclusion tools, time and expenditure restrictions, and customized risk management features, for instance, to assist players in making wise choices and maintaining control over their gaming behaviour.

2. ***Enhanced Player Protection***: Consumer protection is given top priority in gaming rules. This offers a chance for cutting-edge technologies to improve player security and safety. Technologies that can improve player data protection, stop fraud, and guarantee a secure gaming environment include biometric authentication, reliable identity verification systems, and secure payment methods.

3. ***Blockchain and smart contracts***: Using the technology of blockchain and smart contracts can make gaming transactions more transparent, equitable, and secure. Blockchain-based gaming platforms can offer unchangeable records of results, protecting the fairness of the game and reducing the possibility of manipulation. Pay-outs can be automated via smart contracts, assuring quick and accurate settlement of wins.

4. ***Augmented reality (AR) and virtual reality (VR)****:*The player experience in games may be revolutionized by the use of VR and AR technologies. VR and AR can create immersive and interactive gaming environments that adhere to laws while providing gamers with a distinctive and interesting experience. To create realistic simulations and encourage safe gaming, these technologies can be employed in brick-and-mortar casinos, internet gambling platforms, and even in tools for responsible gambling.

5. ***Machine learning (ML) and artificial intelligence (AI)***: These tools can improve player profiling and at-risk individual identification, help spot potential fraud or money laundering operations, and detect patterns of problematic gaming activity. Additionally, AI and ML can help regulators monitor compliance, analyse enormous datasets, and swiftly spot abnormalities.

VIII. Way Forward

Without intervention, it is highly probable that gambling and gambling-related harm will increase in India in the coming years. Several factors contribute to this likelihood, including limited public awareness of the addictive nature of gambling, inadequate anti-gambling legislation, plans to legalize casinos in certain Indian states, increased reliance on lotteries as a source of tax revenue, and the growing popularity of online gambling due to greater internet accessibility through mobile phones and laptops.

To address the risks associated with gambling-related harm, we believe that a public health approach is necessary. This approach should encompass three levels of prevention: primary, secondary, and tertiary. Primary prevention focuses on raising awareness among both gamblers and non-gamblers, employing social, psychological, and legal strategies. It includes awareness campaigns, education about the potential harms of gambling, signs of addiction, avenues for seeking help, and strict regulation of gambling advertisements across print and online media.

Secondary prevention aims to identify and provide early intervention for at-risk and problem gamblers. This involves training staff at gambling venues to recognize problem gamblers, as well as equipping primary healthcare and mental healthcare personnel with the skills to identify and offer brief interventions for gambling-related issues.

Tertiary prevention concentrates on specialized psychological and psychiatric interventions for individuals experiencing harm from their own gambling or the gambling of their loved ones. Support for affected families is also crucial at this stage.

In addition to these public health measures, it is imperative to revise outdated gambling legislation in India to align with the current gambling landscape. This process should involve a broader discussion on whether further regulation or deregulation of various forms of gambling is warranted.

Furthermore, comprehensive research is needed to obtain accurate and country-specific data on gambling prevalence, comorbidity, treatment options, progression, and outcomes within India.

To effectively address gambling-related harms, a coherent strategy and action plan should be developed at the national or state level, accompanied by a dedicated body overseeing research, education, and training initiatives in the field of gambling. A broader debate involving gambling researchers, academics, policymakers, and other stakeholders is also necessary to shape effective and informed approaches to address this issue.

FROM PATENTS TO PATIENTS: STRIKING A BALANCE FOR ACCESSIBLE MEDICINES IN INDIA

Soumilee Barman*

Abstract

The consequences for public health and intellectual property rights are highlighted as this research investigates the interaction between India's patent system and access to medications. The report offers a thorough review of the TRIPS Agreement, India's patent system, and the difficulties in guaranteeing accessible, cheap healthcare. In order to address these issues, it also examines possible remedies and policy possibilities. The introduction of the article provides a summary of the historical evolution of India's patent regime, noting significant turning points and reforms that have influenced the contemporary intellectual property landscape. It then looks into the provisions of the Indian Patents Act, paying particular attention to Sections 3(d), 84, and 92A and analysing how they affect the requirements for patentability and patient access to medications. The report analyses India's commitments under the TRIPS Agreement and how they would affect patent protection and access to pharmaceuticals. It also looks at the effects of the TRIPS Agreement on India's patent regime. It examines the complex interplay between intellectual property rights and public health while taking into account the agreement's flexibility. An extensive examination of the existing situation and difficulties relating to access to pharmaceuticals in India is a crucial component of the article. It draws attention to the prevalence of disease, the condition of the healthcare system, and the particular issues preventing easy access to affordable medications. The report offers a number of policy suggestions to deal with these difficulties. This study also advances knowledge of the intricate connection between access to medicines in India and the country's patent system. It includes legislative suggestions to find a balance between intellectual property rights and inexpensive access to necessary pharmaceuticals as well as insights into the effects of patent protection on public health. Policymakers, healthcare professionals, and stakeholders will benefit from the research's findings as they develop strategies that prioritise both innovation and public health outcomes.

Keywords: Healthcare, Patent, Access, Innovation, Policy

I. Introduction:

A key element of maintaining the public's health is ensuring that people have timely, inexpensive access to necessary pharmaceuticals. Given the numerous healthcare issues and economic inequities that the nation of India faces, the accessibility and cost of medicines are key factors in determining the general well-being of its population. The Indian patent system, which is governed by the Indian Patents Act, significantly affects the availability and cost of medications, especially those that are life-saving.

This article tries to critically analyse the effects of India's patent regime on the general public's access to reasonably priced medications. The World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)[393] and the issue's larger global intellectual property rights framework are both taken into consideration as it examines the legal, economic, and social aspects of the matter. A thorough structure for patent protection in India was provided by the Indian Patents Act[394], which underwent considerable revisions in 2005 to comply with TRIPS obligations. But the Act also contained particular restrictions meant to protect public health and guarantee that everyone has access to reasonably priced medications. One such clause is Section 3(d)[395], which raises the bar for incremental changes to qualify for patent protection and forbids the issuance of patents for just altering current medications without demonstrating improved efficacy. Under specific circumstances, Section 84[396] of the Act permits the granting of compulsory licences, enabling the production of generic versions of proprietary medications to meet public health emergencies and provide access to affordable medications. The export of patented pharmaceutical items to nations with insufficient manufacturing capacity is also permitted by Section 92A[397], improving those nations' access to reasonably priced medications.

Although these clauses were designed to strike a compromise between patent holders' rights and public health concerns, they have been the topic of discussions and objections from a

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[393]Malbon, Justin, Charles Lawson, and Mark Davison. *The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights: A Commentary*. Edward Elgar Publishing, 2014.
[394] Indian Patents Act, No. 39 of 1970.
[395] Indian Patents Act, No. 39 of 1970, § 3(d).
[396] Indian Patents Act, No. 39 of 1970, § 84.
[397] Indian Patents Act, No. 39 of 1970, § 92A.

number of parties. Some contend that the patent system is excessively liberal, which undermines incentives for pharmaceutical innovation and puts the rights of patent holders in jeopardy. Others claim that maintaining the current system is necessary to encourage competition, lower costs, and guarantee that the general public has access to life-saving pharmaceuticals.

II. Literature Review

There has been a great deal of scholarly research on the intricate relationship between intellectual property rights (IPR) and cheap access to medications. With a focus on India, this literature review distils the most recent findings to provide light on the complex relationship between patent protection, pharmaceutical innovation, and egalitarian healthcare.

1. ***Patents and Innovation Dynamics***: Research examines the dual function of patents, which may facilitate access while also catalysing pharmaceutical innovation. Investment in research and development is stimulated by patent protection, although there are concerns about monopolistic pricing. Studies analyse the effects of patent laws on innovation rates, drug costs, and market competition.
2. ***Access to Medicine and Public Health***: Discussions about reasonably priced drugs are sparked by equitable healthcare access. Research focuses on the relationship between patent regimes and global healthcare inequities. Studies highlight the need of strong competition laws and policy measures in boosting medicine accessibility in the context of India, where generic drugs are crucial.
3. ***TRIPS Flexibilities***: The TRIPS Agreement of the World Trade Organisation is at the centre of this discussion. The agreement's flexibilities, such as parallel imports and forced licencing, are examined by academics. Case studies of cases of compulsory licencing in India reveal the moral and legal ramifications of using these flexibility for public health goals.
4. ***Evergreening and Patent Strategies***: Examination is given to the practise of "evergreening," which involves extending patents through modest alterations. Research studies the impact of evergreening on patient access to medications and the effectiveness of patent evaluation in preventing unwarranted extensions.
5. ***Competition Laws and Market Dynamics***: Attention is drawn to the interaction between patents and antitrust legislation. Researchers assess the effectiveness of strong competition

laws in preventing anti-competitive behaviour, reducing monopolistic pricing, and promoting favourable market circumstances. Case studies examine how collaborations, mergers, and acquisitions affect the cost of prescription drugs.

6. ***Local Production and Technology Transfer***: Local pharmaceutical manufacture and knowledge transfer are emerging themes. The analysis of effective technology transfer methods in the literature emphasises capacity development and academia-industry cooperation. Case studies highlight instances of improved local medication production achieved through the transfer of technology.

The complex landscape of patents, drug access, and IPR in India is captured in this paper. The assessment emphasises the necessity of policies that balance patent protection with healthcare equity while acknowledging the value of innovation. This synthesis offers the groundwork for a more in-depth investigation of novel policy ideas, aiming to strike a balance between intellectual property rights and the necessity of universal access to healthcare.

III. The Indian Patents Act: Overview and Key Provisions

1. Historical development of the Indian patent regime

The historical development of the Indian patent regime provides valuable insights into the evolution of intellectual property laws in the country. Prior to the implementation of the Indian Patents Act in 1970, India had a patent system that granted process patents but restricted product patents in various sectors, including pharmaceuticals[398]. This system aimed to foster indigenous innovation and promote access to affordable medicines. However, it faced criticism for its limited protection of intellectual property rights and potential barriers to foreign investment.

India joined the World Trade Organisation (WTO)[399] in 1995 and was obligated to abide with the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) as a result. In order to comply with its TRIPS responsibilities, India made significant changes to its

[398] Janice M. Mueller, *The Tiger Awakens: The Tumultuous Transformation of India's Patent System and the Rise of Indian Pharmaceutical Innovation*, 68 U. Pitt. L. Rev. 491 (2006).
[399] Sudip Chaudhuri, The WTO and India's Pharmaceuticals Industry: Patent Protection, TRIPS, and Developing Countries (Oxford University Press 2005).

patent system in 2005, bringing it into compliance with global norms and establishing a thorough framework for patent protection.

2. *Key provisions of the Indian Patents Act*

a. Section 3(d)[400]

The Indian Patents Act's Section 3(d) made a significant adjustment to the requirements for patentability. It raises the bar for incremental advances to qualify for patent protection, especially in the pharmaceutical industry. According to this clause, a novel formulation of a known material must show improved efficacy over the original formulation in order to be patentable. This clause tries to stop the patenting of just therapeutically inferior derivatives or modifications of already approved medications[401]. Several issues have been raised regarding Section 3(d), including objections from both domestic and foreign pharmaceutical firms.

b. Section 84[402]

The Indian Patents Act's Section 84 permits the granting of compulsorily granted licences under specific situations. It gives the government the authority to approve the manufacturing of generic versions of medications that are covered by patents without the patent holder's permission[403]. This clause is essential for handling public health emergencies, providing cheap access to medications, and balancing the rights of patent holders with the needs of the general public. However, there has been debate and ambiguity around the standards and processes for issuing forced licences.

c. Section 92A[404]

The export of pharmaceutical items with patents to nations with limited manufacturing capacity is covered by Section 92A of the Indian Patents Act. It makes it possible to produce and export generic copies of copyrighted medications to meet those regions' healthcare

[400] Indian Patents Act, No. 39 of 1970, § 3(d).
[401] Suresh Koshy, *The Effect of TRIPS on Indian Patent Law: A Pharmaceutical Industry Perspective*, BUJ Sci. & Tech. L. 1 (1995): 123.
[402] Indian Patents Act, No. 39 of 1970, § 84.
[403] Linda L. Lee, "*Trials and TRIPS-ulations: Indian Patent Law and Novartis AG v. Union of India,*" 23 Berkeley Tech. L.J. 281 (2008).
[404] Indian Patents Act, No. 39 of 1970, § 92A.

needs, especially when they are dealing with public health issues[405]. This clause acknowledges the significance of global collaboration in providing access to cheap medications.

3. Impact of the Indian Patents Act on Pharmaceutical Innovation

Indian pharmaceutical innovation has been significantly impacted by the Indian Patents Act and its essential clauses. The creation of Section 3(d) has been viewed as an effort to promote higher standards of invention by preventing the grant of frivolous or insignificant patents. Instead of depending on little adjustments, this clause has encouraged local producers to concentrate on research and development for new and more potent medications.

However, there is continuous discussion regarding how the Indian Patents Act will affect future pharmaceutical innovation. Critics contend that by limiting the extent of patent protection, the tighter patentability requirements under Section 3(d) may deter innovation. They contend that the Act ought to find a balance between encouraging access to inexpensive medications and rewarding innovation[406].

Overall, the Indian Patents Act and its major features have been instrumental in reshaping the country's pharmaceutical industry. It is critical to comprehend the effects of these rules on drug access, pharmaceutical innovation, and the nation's broader healthcare environment.

IV. The WTO and TRIPS Agreement: Implications for India's Patent Regime

1. The TRIPS Agreement and its relevance to India's patent regime

The World Trade Organisation (WTO) is a global organisation that oversees the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). It establishes minimal requirements for intellectual property protection across all WTO members, including patents, copyrights, trademarks, and trade secrets[407]. The TRIPS Agreement offers a framework for intellectual property protection and enforcement, making it significantly

[405] Harshita Mathur, "*Compulsory Licensing Under Section 92A: Issues and Concerns*," (2008).
[406] George T. Haley & Usha C.V. Haley, "*The Effects of Patent-Law Changes on Innovation: The Case of India's Pharmaceutical Industry*," 79 Technological Forecasting & Soc. Change 607 (2012).
[407] Martin J. Adelman & Sonia Baldia, "*Prospects and Limits of the Patent Provision in the TRIPs Agreement: The Case of India*," 29 Vand. J. Transnat'l L. 507 (1996).

relevant to India's patent system. Being a WTO member, India is required to abide by the TRIPS Agreement's requirements and incorporate them into its national legislation.

a. *Patent Protection under TRIPS:*

Patentable Subject Matter: The TRIPS Agreement specifies the range of inventions that are covered by the definition of patentable subject matter. In accordance with TRIPS, India's patent system provides patent protection to a number of industries[408], including biotechnology, pharmaceuticals, and technological advancements.

Patent duration: TRIPS requires that patents have a minimum duration of 20 years beginning on the filing date. The 20-year patent term in India's patent system complies with this condition.

b. *Flexibilities and Public Health:*

Protections for Public Health: The TRIPS Agreement enables nations to include specific flexibilities to guarantee access to medications and preserve public health. Compulsory licencing, patent revocation for non-operation, and parallel imports are a few of these flexibilities.

E.g. 1: Doha Declaration on TRIPS and Public Health[409]: In 2001, the Doha Declaration was released, affirming that countries should not be prevented by the TRIPS Agreement from adopting actions to protect the public's health. The rights of WTO members to make advantage of TRIPS flexibilities, such as mandatory licencing, to advance access to cheap medicines were made clear.

E.g. 2: Indian Patents Act Amendments: In order to include TRIPS flexibilities, India amended its Patents Act in 2005. This included enacting laws requiring compulsory licencing, allowing the government to grant permits for the manufacture of copyrighted products in generic form under specific conditions, and guaranteeing that everyone could afford medications.

[408] Sudip Chaudhuri, The WTO and India's Pharmaceuticals Industry: Patent Protection, TRIPS, and Developing Countries (Oxford University Press 2005).
[409] James Thuo Gathii, "*The Legal Status of the Doha Declaration on TRIPS and Public Health under the Vienna Convention on the Law of Treaties*," 15 Harv. J.L. & Tech. 291 (2001).

c. Balancing IP Protection and Public Interest:

Patent Examination and Opposition: To assure the calibre and validity of patents, TRIPS encourages nations to set more efficient patent assessment processes. The pre- and post-grant opposition provisions in India's patent law allow interested parties to contest the legality of patents after they have been awarded.

E.g.: *Novartis vs. Union of India*[410](Glivec Case): The need to strike a balance between public interest and patent protection was brought to light by the Glivec case in India. Regarding the rules of the TRIPS Agreement, the Supreme Court of India declared in 2013 that Novartis' patent application for the cancer medicine Glivec did not satisfy the standards of patentability under the Indian Patents Act[411]. This ruling strengthened how TRIPS flexibilities are interpreted and used in India's patent system.

These specifics and illustrations show how the TRIPS Agreement is pertinent to India's patent system. It specifies minimal requirements for patent protection, offers flexibility to address issues of public health, and establishes the foundation for India's intellectual property rights. Assuring compliance with international responsibilities while balancing IP protection with public health concerns, India's patent laws incorporate TRIPS requirements.

2. India's Obligations under the TRIPS Agreement

India's patent system saw considerable changes as a result of its admission to the TRIPS Agreement. India was required to enact product patents in all areas of technology, including pharmaceuticals, in order to comply with its TRIPS responsibilities. This signalled a change from the earlier framework, which mostly issued process patents. India was also required to implement systems for the protection of intellectual property rights, including patent review and enforcement procedures, and to grant a minimum 20-year patent term.

The TRIPS Agreement also sets duties in relation to the standards for patentability, modifications to the length of patent terms, specifications for patent disclosure, and procedures for patent enforcement. These requirements are meant to strike a compromise

[410] Novartis AG v. Union of India, 2013 SCC OnLine Ind SC 115.
[411] Stefan Ecks, "*Global Pharmaceutical Markets and Corporate Citizenship: The Case of Novartis' Anti-Cancer Drug Glivec*," 3 BioSocieties 165 (2008).

between the needs of the general public, such as access to affordable medications, and the interests of patent holders.

3. The Impact of the TRIPS Agreement on India's Patent Regime

The TRIPS Agreement significantly influenced the legal system, laws, and practises governing patents in India. Changes to the Indian Patents Act, which previously exclusively permitted process patents in the pharmaceutical industry, were required by the introduction of product patents for pharmaceuticals under TRIPS. Increased patent protection for pharmaceutical inventions as a result of the TRIPS Agreement has prompted multinational pharmaceutical corporations to apply for patent protection in India. In turn, this has sparked worries about the possibility of rising prescription prices and restricted access to affordable medications[412].

It is crucial to emphasise that the TRIPS Agreement also gives member nations flexibility to protect the interests of public health. In order to guarantee access to affordable medications, particularly in situations of national emergencies or public health crises, it permits the use of mandatory licencing, parallel imports, and other procedures.

India has made use of these flexibilities in its patent system because it values public health. Aiming to protect public health and advance access to cheap medicines, provisions like Section 3(d) and Section 84 of the Indian Patents Act might be interpreted as reactions to the TRIPS Agreement's requirements.

Thus, the TRIPS Agreement was crucial in influencing India's patent system and bringing it in line with global standards for intellectual property. While the Agreement places duties on India, it also offers flexibility to safeguard the interests of the public health. In order to evaluate the balance between intellectual property protection and access to affordable medications in the nation, it is essential to comprehend the impact of the TRIPS Agreement on India's patent law.

[412] Martin J. Adelman & Sonia Baldia, "*Prospects and Limits of the Patent Provision in the TRIPS Agreement: The Case of India*," 29 Vand. J. Transnat'l L. 507 (1996).

V. Access to Medicines in India: Current Scenario and Challenges

1. Overview of the Healthcare System in India

For evaluating the existing situation and difficulties relating to access to drugs, it is essential to comprehend the Indian healthcare system. India has a diversified healthcare system with a mix of urban and rural healthcare facilities, public and private healthcare providers, and government-funded programmes. The public healthcare system, which includes district hospitals and basic health centres, attempts to offer the general public access to reasonably priced medical care[413]. However, issues like limited resources, shoddy infrastructure, and geographical inequities continue to limit access to medications.

2. Burden of Disease and Access to Essential Medicines

India has a heavy disease load, including neglected tropical diseases, non-communicable diseases, and communicable diseases. Effective management and treatment of certain health issues depend on having access to necessary medications. However, there are still large gaps in access despite efforts to close them. Due to issues including high prices, weak supply chains, and restricted access of particular prescriptions, many people, especially those in lower-income neighbourhoods, have trouble getting necessary medications.

The difficulties in securing timely and cheap access to life-saving pharmaceuticals are highlighted by a number of examples and scenarios while studying the burden of disease and availability to necessary medicines in India. Here are a few noteworthy instances:

a. *HIV/AIDS Medications*: India has a sizable HIV/AIDS problem, and getting access to antiretroviral medication (ART) is essential for treating the illness. Patented HIV/AIDS drugs were excessively expensive in the early 2000s, which prevented many patients from accessing them[414]. A wider range of people now have access to reasonably priced ART thanks to the development of generic versions through voluntary licencing and domestic production. This illustration demonstrates how generic medications help increase access to necessary therapies.

[413] Abigail A. Ekeigwe, "*Drug Manufacturing and Access to Medicines: The West African Story. A Literature Review of Challenges and Proposed Remediation*," 5 AAPS Open 1, 3 (2019).
[414]Ellen'T. Hoen et al., "*Driving a Decade of Change: HIV/AIDS, Patents and Access to Medicines for All*," 14 J. Int'l AIDS Soc. 1, 1-12 (2011).

b. *Cancer Treatments*: In India, cancer is a growing public health issue. Patients who need many therapies for effective treatment have a substantial hurdle as a result of the high cost of copyrighted cancer medications. It's important to notice the patent dispute involving the cancer medicine *imatinib*[415]. *Imatinib's* original patent application was denied by the Indian Patent Office, allowing generic producers to create cost-effective substitutes. This choice was crucial in guaranteeing access to *imatinib*, which in turn made other cancer medications more readily available and more reasonably priced..

c. *Tuberculosis (TB) Medications***:** In India, tuberculosis is still a common infectious disease, making it essential to ensure access to affordable and efficient TB drugs for the management and control of the illness. It has been controversial to employ fixed-dose combinations (FDC) of medications to treat tuberculosis[416]. While some contend that FDCs make treatment plans simpler and increase adherence, others express concerns about their effectiveness and potential for overuse. The Indian government has made measures to control the use of FDCs and promote the availability of cost-effective, high-quality generic TB drugs.

d. *Vaccines*: The COVID-19 pandemic made clear how crucial it is to have prompt access to vaccines. As one of the top vaccine producers in the world, India had to balance meeting domestic demand with guaranteeing fair access. The importance of striking a balance between intellectual property rights and the requirement for quick and reasonably priced vaccine availability was highlighted by the instance of COVID-19 vaccine manufacture and distribution in India. In order to increase vaccine production and handle access difficulties, flexibilities like mandatory licencing or technology transfer agreements have been considered as potential solutions.

These instances highlight the complexity and practical effects of India's high disease load and limited access to life-saving medications. They emphasise the crucial role that policy choices, patent laws, generic manufacturing, and international partnerships play in ensuring that the public has timely and cheap access to life-saving pharmaceuticals.

3. Challenges to access to affordable medicines in India

[415] Francesca Musumeci et al., "*Analogs, Formulations and Derivatives of Imatinib: A Patent Review,*" 25 Expert Opin. Ther. Pat. 1411, 1411-1421 (2015).
[416]Olusoji Daniel et al., "*Pre-Extensive Drug Resistant Tuberculosis (Pre-XDR-TB) Among MDR-TB Patients in Nigeria,*" 2 Global Adv. Res. J. Microbiol. 2 (2013).

a. High Drug Prices:

The price of medications in India is a significant access barrier. A sizable portion of the population cannot afford many necessary medications, especially patented and cutting-edge ones. Research and development expenses, distribution margins, and markups along the supply chain are some of the factors that affect medicine prices[417]. Furthermore, the issue is made worse by the absence of effective pricing control measures and the fact that patients are burdened with a substantial out-of-pocket expense burden.

Cancer drugs: Access to proprietary cancer medications like *trastuzumab* (used to treat breast cancer) and *imatinib* (used to treat leukaemia) has been severely hampered in India due to their high cost. These medications are frequently too expensive for many patients to afford, making them unavailable and unaffordable.

Rare disease treatments: The high cost of medications for rare disorders frequently prevents patients from accessing them. For instance, the majority of patients in India cannot afford the medication *eculizumab*, which is used to treat the rare blood condition *paroxysmal nocturnalhemoglobinuria* (PNH).

b. Limited Access to Generic Medicines:

Despite the fact that India is regarded as the "pharmacy of the developing world" due to the strength of its generic drug production sector, there are still barriers to acquiring generic medications there. The efficient use of generic medications is hampered by problems like poor distribution networks, restricted availability in remote areas, and knowledge gaps between healthcare professionals and patients. This restricts the cost reductions and improved access that generic medications may offer in the future.

Pharmaceutical patent disputes: The difficulties in obtaining generic versions of proprietary medications are highlighted by cases like Novartis vs. Union of India (Glivec case). Patients' access to treatment was restricted as a result of the *imatinib* patent battle, which delayed the release of cost-effective generic substitutes.

[417] Anand Grover & Brian Citro, "*India: Access to Affordable Drugs and the Right to Health*," 377 Lancet 976, 976-977 (2011).

Delayed regulatory approvals: Timely access to generic drugs may be hampered by regulatory clearance delays. For instance, the lengthy licencing procedure for biosimilar versions of biological medications has delayed availability and restricted access to less expensive substitutes.

c. *Evergreening of Patents:*

Access to inexpensive medicines in India is hampered by the practise of "evergreening," in which pharmaceutical firms attempt to prolong their patent exclusivity periods by making minor adjustments to already-approved products. Companies can prevent generic manufacturers from entering the market by securing multiple patents for little improvements, hence preserving high costs for a longer period of time. This practise hinders access for patients who rely on cost-effective medications by restricting the availability of generic substitutes that are affordable.

These illustrations demonstrate the difficulties patients in India experience while trying to obtain affordable medications. The challenges of guaranteeing inexpensive and timely access to important pharmaceuticals are exacerbated by high drug pricing, restricted availability of generic alternatives, and patent evergreening practises. To address these issues, a comprehensive strategy that includes regulatory reforms, strong competition policies, initiatives to foster generic competition, and reasonable pricing methods is required. To guarantee fair access to cheap medicines in India, these issues must be resolved. Access can be significantly improved by implementing policy changes that foster competition, strengthen pricing control systems, improve distribution networks, and support the use of generic medications. Efforts to speed up the patent examination procedure and stop unfair patent practises can also promote a more balanced intellectual property landscape, which is advantageous for both innovation and access to medicines.

Policymakers, healthcare professionals, and other stakeholders can work to implement targeted solutions that address the particular needs of the population and guarantee timely and affordable access to essential medications by understanding the current situation and challenges surrounding access to medicines in India.

VI. Impact of India's Patent Regime on Access to Medicines

1. The relationship between patent protection and access to medicines

a. Patent Protection and Pharmaceutical Innovation:

- Incentivization of Innovation: Inventors are granted exclusive rights through patent protection, which enables them to recover their expenditures of R&D and turn a profit. It encourages pharmaceutical firms to spend in the expensive and drawn-out process of finding and developing new treatments.
- Promotion of Research and Development: Pharmaceutical businesses can recoup their investments and reinvest in more research and development because to the temporary monopoly that patents grant. As a result, new medicines and breakthroughs in therapeutics are discovered.

b. Impact of Patent Protection on Access to Medicines:

- System of Monopolistic Pricing: Patents give the holder market exclusivity, which allows them to charge a lot for their patented medications. This could create access barriers for patients, healthcare systems, and poor nations with limited resources by making life-saving medications and treatments more expensive[418].
- Generic Medicines Delayed Market Entry: During the duration of the patent, generic medicine producers are prohibited from creating and selling reasonably priced alternatives of copyrighted medications. This extends the time that high-priced monopolies exist and prevents access to reasonably priced medicines by delaying the arrival of less expensive generic alternatives.

c. Balancing Patent Protection and Access to Medicines[419]:

- Flexibilities & Safeguards: International accords, like the TRIPS Agreement, offer flexibility that enables nations to strike a balance between the interests of public health and patent protection. Compulsory licencing, which enables governments to award licences to outside parties to make generic versions of patented medications, and the use of parallel importation to boost competition and access are two examples of these flexibilities.
- Negotiation and Price Regulation: To ensure just and reasonable pricing of patented medicines, governments can put in place price regulation procedures and bargain pricing

[418]Gopakumar K. M., "*Product Patents and Access to Medicines in India: A Critical Review of the Implementation of TRIPS Patent Regime*," 3 Law & Dev. Rev. 326 (2010).

[419] Rochelle Dreyfuss & César Rodríguez-Garavito, eds., Balancing Wealth and Health: The Battle Over Intellectual Property and Access to Medicines in Latin America (OUP Oxford 2014).

deals with pharmaceutical firms. This can improve accessibility while keeping the incentives for innovation.

- Encouragement of Generic Competition: Increasing the availability of less expensive generic medications can improve patient access by encouraging generic competition through regulations including patent expiration, patent challenges, and expedited generic approval procedures.
- Technology Transferring and Capacity Build-up: Supporting capacity building and technology transfer in developing nations can enable local production of vital medications, reducing reliance on expensive imported patented treatments.
- Voluntary Licensing: By enabling the authorised production and affordable distribution of generics in low- and middle-income countries, voluntary licencing agreements between patent holders and generic producers might encourage greater access to copyrighted medications.

Countries should ensure that intellectual property rights encourage innovation while protecting public health interests and promoting access to cheap medications by balancing patent protection with policies that promote access. To find the correct balance and address the worldwide issue of access to medicines, governments, pharmaceutical companies, and international organisations must work together.

2. Implications of India's Patent Regime for Access to Affordable Medicines

The Indian Patents Act, which established India's patent system, has both beneficial and detrimental effects on people's access to low-cost medications. One the one hand, the implementation of more stringent patentability requirements, including Section 3(d), has assisted in preventing the granting of patents for minor changes with minimal therapeutic effect. This clause has compelled local pharmaceutical firms to concentrate on creating novel medications with substantial clinical advantages.

However, the patent system has also made access more difficult. Due to the monopoly power granted by patents, patented medications are frequently more expensive and therefore out of reach for many patients, particularly those from low-income groups. Due to patent protection's restrictions on generic drug supply, the market has fewer options for inexpensive

substitutes. These elements combined have an impact on access to vital medications, especially for marginalised groups that are most vulnerable to high healthcare expenses.

3. Case studies and examples

a. *The Glivec Case*:

Background: *Imatinib mesylate* (marketed as *Glivec*) is a cancer medication for which Novartis submitted a patent application in India in 1998. The patent application was nevertheless denied by the Indian Patent Office in 2006 due to a lack of innovation and inventiveness.

On access aftermath: *Imatinib* could now be produced at reasonable prices in India thanks to the patent application's denial[420]. *Imatinib's* cost consequently dropped considerably, making it more affordable for patients. This instance illustrated how India's patent system helps to increase access to reasonably priced medications.

b. Compulsory Licensing of Sorafenib:

Background: A mandatory licence to manufacture a generic version of the cancer medication sorafenib (brand name Nexavar) was given to Indian generic producer Natco Pharma in 2012. Bayer possessed the Sorafenib patent[421], and the price of the patented medication was very high.

On access aftermath: The granting of the mandatory licence enabled Natco Pharma to manufacture and market a less expensive generic form of sorafenib in India. Patients with kidney and liver cancer who would otherwise have had trouble affording the patented version now have much easier access to the medication.

c. Anti-Retroviral Therapy (ART) Access:

Background: In order to give patients both domestically and abroad access to inexpensive ART, India has been a significant producer of generic HIV/AIDS drugs. India's ability to

[420] Ravinder Gabble & Jillian Clare Kohler, "*To Patent or Not to Patent? The Case of Novartis' Cancer Drug Glivec in India*," Globalization and Health 10.1 (2014): 1-6.
[421] Talha Khan Burki, "*Indian Government Awards Compulsory Licence for Sorafenib*," 13 Lancet Oncology e146 (2012).

produce generic drugs at reasonable prices has been essential in increasing access to these life-saving drugs[422].

On access aftermath: Affordable generic HIV/AIDS drugs are now widely accessible in India and other nations, allowing more people to get ART and receive treatment. This instance demonstrates how India's patent policy and its capacity for generic manufacture have improved access to necessary medications for a serious public health issue.

These case studies provide as an example of how India's patent system has affected access to medications. They show how decisions regarding patents, forced licencing, and generic manufacturing have been crucial in increasing access, lowering drug costs, and enhancing patient outcomes. These case studies and examples show how the patent system in India, the availability of medications, and the state of the public health are all dynamically related. They emphasise how important it is for laws, regulations, and the patent system's flexibility to shape access to affordable medications. Policymakers, healthcare professionals, and other stakeholders can identify areas for improvement and create strategies that strike a balance between the protection of intellectual property rights and ensuring affordable access to necessary medications by analysing the effects of India's patent regime on access to medicines.

VII. Solutions and Policy Options

1. Alternative Models of Patent Protection and Access to Medicines

Alternative models can be investigated to address the issues with patent protection and drug access. These strategies seek to find a balance between encouraging innovation and ensuring easy access to necessary pharmaceuticals at reasonable prices. There are three primary options:

a. Compulsory licensing:

i. Definition:

Through the use of compulsory licencing, a government may authorise the manufacture and sale of patented goods by third parties without the approval of the patent owners. It is employed

[422] David McCoy et al., "*Expanding Access to Antiretroviral Therapy in Sub-Saharan Africa: Avoiding the Pitfalls and Dangers, Capitalizing on the Opportunities*," 95 Am. J. Pub. Health 18, 18-22 (2005).

to address circumstances in which the exclusivity of the patent holder prevents access to reasonably priced medications.

E.g. 1: *Sorafenib* and Natco Pharma: In 2012, Natco Pharma received a mandatory licence to manufacture a generic version of the cancer medication *sorafenib* (trade name *Nexavar*). Due to the licence, Natco Pharma was able to offer the generic version to patients with kidney and liver cancer for a significantly reduced price.

E.g. 2: *Dasatinib* and *Bristol-Myers Squibb*: In 2013, the Indian Patent Office issued Natco Pharma a compulsory licence for the creation of a generic version of the cancer medication *dasatinib*. This licence improved the affordability of *dasatinib*, which benefited patients with specific types of leukaemia.

ii. Recommendations for Effective Compulsory Licensing:

- Streamlining the Process: For the purpose of issuing compulsorily issued licences, maintaining transparency, and reducing delays, governments should develop precise norms and procedures. This could hasten the release of generic versions of patented medications.
- Balancing Public Health and Innovation: While the goal of compulsory licencing is to increase access to medications, it should be administered carefully to strike a balance between promoting innovation and public health needs. The unique circumstances and public interest at stake should be carefully taken into account.
- Fair Compensation: When a compulsory licence is granted, patent owners should get just remuneration. The economic worth of the patented invention and the accessibility of the medication should be taken into consideration when determining what fair royalty rates are[423].

b. *Enhanced International Collaboration*:

Collaboration with Patent Holders: Before using forced licencing, governments and patent owners should consult one another and look into voluntary licencing arrangements. A approach that fosters access while upholding intellectual property rights is voluntary licencing, which can be advantageous to both parties.

[423] Shyama V. Ramani & Eduardo Urias, "*Access to Critical Medicines: When are Compulsory Licenses Effective in Price Negotiations?*," 135 Soc. Sci. & Med. 75, 75-83 (2015).

Supportive International Frameworks: Nations should be encouraged to use compulsory licencing as necessary through international organisations and agreements. In order to solve issues with public health, this includes encouraging the use of the flexibility afforded by international accords, such as the Doha Declaration on TRIPS and Public Health.

i. Monitoring and Evaluation:

Robust Monitoring Mechanisms: Governments should set up monitoring systems to evaluate how compulsory licencing affects patients' access to medications, cost, and accessibility of generic alternatives. This makes it possible for decision-makers to make informed choices and modify policies as necessary.

Knowledge Sharing: To promote collective learning and increase the efficiency of this mechanism for expanding access to medications, countries should exchange their best practises and implementation experiences.

The potential of this approach to increase access to vital medications while achieving a balance between public health demands and intellectual property rights is highlighted by these recommendations as well as the examples of compulsory licencing. Compulsory licencing can be a potent instrument in addressing access issues by streamlining the procedure, encouraging collaboration, and putting in place efficient monitoring.

c. Patent pools:

i. Definition:

A patent pool is an agreement between several patent owners where they jointly licence their patents to one another or to third parties. By simplifying access to several patented technologies required to create new goods or services, it seeks to streamline the licencing process and encourage creativity[424].

E.g. 1: The Medicines Patent Pool (MPP) is a well-known illustration of a patent pool dedicated to enhancing access to HIV/AIDS, hepatitis C, and tuberculosis drugs. It was founded in 2010 and bargains licences with pharmaceutical firms to allow generic makers to

[424] Medicines Patent Pool, "*ViiV Healthcare Collaborate to Treat Paediatric HIV*" (2013).

create and supply reasonably priced versions of patented medications in low- and middle-income nations.

E.g. 2: The MPEG-2 Patent Pool[425] was established to licence crucial patents pertaining to the MPEG-2 video compression technology. This made it easier for MPEG-2 standards to be widely adopted in a variety of industries, including broadcasting and digital video, by streamlining the licencing process and guaranteeing access to proprietary technologies.

ii. Recommendations for Effective Patent Pools:

Broad Participation: Encourage as many relevant patent owners to participate as possible to guarantee widespread access to critical technology. The potential for innovation and the creation of new goods or services increases with the number of patents included in the pool.

Transparent Licensing Terms: To provide fair and equitable access to the pooled patents, establish explicit and clear licencing terms. This promotes involvement of licensees, particularly those from developing nations, and helps prevent monopolistic practises while guaranteeing affordability.

Flexibility and Non-Discrimination: Create the patent pool with flexibility in mind, allowing for various licence types and fee structures to satisfy the various requirements of licensees. Non-discrimination provisions must be in place to guarantee that all licensees are treated equally.

iii. Encouraging Collaboration and Innovation:

Technology Transfer: Encourage technology transfer within patent pools so that licensees can access the skills, knowledge, and production methods related to the pooled patents. This promotes regional manufacturing and broadens consumer access to reasonably priced goods.

Research and Development (R&D) Collaboration: In order to boost innovation, meet unmet medical needs, and advance the creation of new technologies, encourage cooperative R&D efforts inside patent pools. Sharing best practises and research findings among pool participants can result in more effective resource use.

[425] Richard J. Gilbert, "*Antitrust for Patent Pools: A Century of Policy Evolution*," 7 Stan. Tech. L. Rev. 1 (2004).

iv. Ensuring Public Health and Access:

Addressing Geographic Coverage: Geographic coverage should be given priority in patent pools, particularly in low- and middle-income nations where access to necessary medical treatments and technological advancements is frequently constrained. Licence agreements must take into account the unique requirements and difficulties of each region.

Public Interest Safeguards: Put safeguards in place for public health interests in patent pools. In the event of excessive pricing or supply shortages, this may include measures for cheap pricing, technology transfer to local producers, and access to generic competition.

These suggestions emphasise the potential advantages of cooperative licencing agreements in encouraging access to protected technologies, along with the examples of patent pools. Patent pools can aid in the creation and accessibility of cost-effective goods and services by promoting broad involvement, open licencing terms, and collaborative research and development.

d. Voluntary Licensing:

Increased access to medications may be facilitated through voluntary licencing agreements between patent holders and producers of generic versions. Through these agreements, patent owners permit generic medicine producers to create and market their patented medications for less money or with certain restrictions[426]. Promoting voluntary licencing can help remove access hurdles and promote cooperation between innovators and generic producers, especially for essential and life-saving pharmaceuticals.

2. Promoting Competition and Generic Medicines

a. Importance of Competition Laws for Access to Medicines:

By encouraging fair market competition, competition laws play a crucial part in guaranteeing access to cheap medications. These rules support a competitive market by banning anti-competitive behaviour, which increases the availability of low-cost generic medications and

[426] Tahir Amin, "Voluntary Licensing Practices in the Pharmaceutical Sector: An Acceptable Solution to Improving Access to Affordable Medicines" (2007).

encourages innovation in the pharmaceutical industry[427]. In order to balance intellectual property rights with the need to prevent patents from becoming obstacles to accessing life-saving medications and treatments, strong competition regulations are necessary.

b. Cases Highlighting the Need for Strengthened Competition Laws:

The significance of strong competition rules in the context of access to medications is illustrated through real-world situations. For instance, there have been concerns raised about restricting access to more cost alternatives in the case of pharmaceutical corporations participating in pay-for-delay deals, when brand-name medication producers pay generic manufacturers to postpone the arrival of cheaper generics onto the market. Another example is situations where pharmaceutical corporations use "evergreening" techniques to delay the release of generic versions by securing secondary patents for little adjustments to extend their monopolies.

c. *Provisions for Strengthening Competition Laws*: Several measures can be taken into consideration in order to tighten competition laws in regard to access to medications:

i. Prohibition of Anti-Competitive Agreements: Pay-for-delay agreements and collusive pricing strategies are examples of anti-competitive agreements that should be expressly prohibited under competition laws.

ii. Abuse of Dominant Position: Pharmaceutical corporations that abuse their strong market positions to keep prices artificially high or prevent the arrival of generic drugs must be addressed by competition legislation.

iii. Merger Control: Strong merger control regulations will stop mergers and acquisitions that might result in monopolies being formed or strengthened, which would raise prices and restrict access to pharmaceuticals.

d. *Recommendations for Strengthening Competition Laws*: The following suggestions are essential to improving the efficiency of competition laws in providing access to affordable medicines:

[427] Duncan Matthews & Olga Gurgula, "*Patent Strategies and Competition Law in the Pharmaceutical Sector: Implications for Access to Medicines,*" European Intellectual Property Review (forthcoming), Queen Mary School of Law Legal Studies Research Paper No. 233 (2016).

i. Strengthen Enforcement: Give competition authorities the resources and power so they can successfully enact laws governing competition, look into unfair business practises, and issue severe fines to prevent infractions.

ii. International Cooperation: To combat anti-competitive behaviour that has global ramifications and to exchange best practises for better competition enforcement in the pharmaceutical industry, encourage international collaboration between competition authorities.

iii. Public Awareness and Advocacy: Inform those working in healthcare, decision-makers, and the general public on the value of competition in the pharmaceutical industry and the advantages of having access to reasonably priced medications. Encourage lobbying for strict competition regulations that give public health interests top priority.

iv. Collaboration between Patent and Competition Authorities: To guarantee that intellectual property rights are awarded in a way that balances innovative incentives with access to medicines, encourage cooperation between patent offices and competition authorities.

Countries can effectively address anti-competitive practises, encourage access to affordable medications, and protect public health interests by enhancing competition rules with a focus on the pharmaceutical industry. These steps will promote competition, boost innovation, and increase patient access to life-saving therapies and necessary medications in combination with a fair intellectual property environment.

3. Strengthening the Patent Examination Process

In order to guarantee that only truly original and inventive innovations are granted patents, the patent examination process must be strengthened[428]. Improvements to the exam procedure could include the following:

a. Stringent Patentability Criteria:

Higher standards for patentability, especially in the pharmaceutical industry, can guarantee that only really ground-breaking and important inventions receive patent protection. This aids in preventing the granting of pointless or low-value patents that obstruct competition and access to reasonably priced medications.

[428] Carlos M. Correa, "*Patent Examination and Legal Fictions: How Rights Are Created on Feet of Clay*," in Kritika: Essays on Intellectual Property (Edward Elgar Publishing, 2015), 59-83.

b. Enhanced Expertise and Capacity:

More efficient evaluation of patent applications may be made possible by increasing knowledge and capability within patent examination offices. A rigorous examination procedure can be enhanced by hiring qualified examiners with the necessary scientific and technological competence and by regularly training them.

c. Transparency and Accountability:

Making sure that the patent examination process is transparent, including releasing thorough examination reports and conclusions, will improve accountability and make it easier to effectively monitor the calibre of patents. This increases public confidence in the patent system and makes it possible for interested parties to take part in the examination process.

India can successfully traverse the complex world of patent protection and medication availability by implementing these ideas and considering several policy options. These tactics seek to boost creativity, encourage competition, and increase accessibility.

VIII. Conclusion and Recommendations

1. Summary of Key Findings

This paper has explored the intricate relationship between India's patent regime, access to medicines, and intellectual property rights. Key findings from the analysis include:

a. The Indian Patents Act has undergone significant changes, influenced by both domestic and international factors, such as the TRIPS Agreement.
b. The TRIPS Agreement has shaped India's patent regime, introducing product patents and imposing obligations for patent protection.
c. India's patent regime has had both positive and negative implications for access to medicines, with challenges arising from high drug prices, limited access to generic medicines, and patent evergreening.
d. Case studies and examples have demonstrated the impact of India's patent regime on access to medicines, highlighting the importance of policy decisions and legal provisions.

2. Policy recommendations

Based on the findings, the following policy recommendations are suggested to improve access to medicines in India:

a. Strengthen the implementation of alternative models: Enhance the utilization and effectiveness of alternative models such as compulsory licensing, patent pools, and voluntary licensing. This will enable increased access to affordable generic medicines, particularly in cases of public health emergencies or when patented medicines are priced beyond the reach of the population.

b. Foster competition and support generic medicines: Promote competition in the pharmaceutical market through the implementation and enforcement of robust competition laws. Encourage the use of generic medicines by facilitating voluntary licensing agreements and implementing price control mechanisms for essential medications.

c. Enhance the patent examination process: Strengthen the patent examination process by setting stringent patentability criteria, enhancing expertise and capacity within examination offices, and ensuring transparency and accountability in decision-making. This will help prevent the grant of frivolous or low-value patents, promoting a more robust and effective patent system.

NATIONAL MISSION ON MEDICINAL PLANT HARVESTING IN INDIA: HEALTH AND EMPLOYMENT PERSPECTIVES

Prof. (Dr.) S.C.ROY* &Baishali Jain**

Abstract

On this earth, it is said that plant was available for all creatures for food, shelter and health before their evolution, growth and mastery over nature. Biodiversity is the naturally gifted asset on this earth. Among Plant's Empire, Medicinal and Aromatic Plants (MAP) have played an imperative role in the life of people since Paleolithic age. Globally, the pharmaceutical sector has witnessed proliferation of herbal and traditional medicines in the last two decades of this century. The rationale behind such tremendous growth is the public consciousness of the side effects of allopathic medicines. This in turn motivates the pharmaceutical corporations to produce drugs derived from medicinal plants. The unprecedented growth in demand of medicinal plants with poor cultivation and exploitation of the same raises an alarm to conserve them before they become an extinct species.

This article is an attempt to draw the attention of the readers towards adopting sustainable and conservative approach while harvesting medicinal plants. This surge of using medicinal plants for remedies both in developed and developing countries on the assumption that plants are available in abundance and on continuous basis, has actually led such certain species to the verge of extinction. As ninety percent of the medicinal herbs are found in the forest, whereas around ten percent are harvested improperly. The maintenance and management of forest herbs are waiting and wanting. The government of India has started National Mission on Medicinal Plant (NMMP) in 2008, under aegis of National Medicinal Plant Board (NMPB) and the ATYUSH ministry, for conservation and sustainable cultivation of medicinal plants so that there can be adequate supply of herbs to the pharmaceutical industries, export and employment generation in rural areas. The article tries to study the policy and action undertaken by NMPB to conserve the medicinal biological resources (MBR). The paper seeks to study Voluntary Certification Scheme for Medicinal Plants Produce (VCSMPP) launched to boost the Good Agricultural Practices (GAPs) and Good Field Collection Practices (GFCPs) in medicinal plants.

Keywords: AYUSH, MAP, NMMP, TMK, NMPB, VCSMPP, GAP.GFCP

I. Introduction:

We have fundamental rights to life which includes right to health also. It's an acceptable fact that where there is life, there is illness also. All human beings need drug for the maintenance of their health and cure from disease. The plants play major role in terms of food supply which have not only calorie value rather medicinal too. Secondly, when we are ill, it the medicinal plants which are in our vicinity that come for the rescue immediately, which we have witnessed during the Pandemic period. For the cure of various diseases, the medicinal plants are the raw material for pharmaceutical industries.

Aloevera, turmeric, black pepper, cinnamon, ginger, neem, Tulsi, giloe are just a few handpicked medicinal plants that we all might have heard about from our parents and grandparents. There exist innumerable medicinal plants in our biodiversity. The knowledge of such medicinal plants have been transferred from one generation to another generation, hence they are also known as traditional medicinal knowledge of the indigenous people. 'Traditional' means the knowledge that showcases the traditions of the community, by nature it is inter-generational which is created and held collectively.

According to World health Organization (WHO), Traditional medicine is sum total of knowledge, skills and practices based on the theories, beliefs and experiences indigenously used in the maintenance of health, as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness.[429]

People even today for treating minor ailments like cough, cold, seasonal fever, body pains etc rely on medicinal herbs available in every home. Not just for minor diseases, even during pandemic, when the country was under the Covid wave, people believed in consuming 'Kadha' an immunity booster drink which was made from all the medicinal herbs.

People since time immemorial have been relying on such medicinal plants for various ailments and the faith exists till date. No matter the market is flooded with English medicines but still the demand for traditional medicines is still widespread in the market. Many modern drugs and vaccines are based on natural resources and associated with traditional knowledge. The reason

[429]WIPO, Intellectual Property and Traditional Medical Knowledge(2008) https://www.wipo.int/edocs/pubdocs/en/wipo_pub_tk_6.pdf (visited on 12 June, 2023)

being that unlike English medicines, such plants are safe with no side effects. Moreover, they hold greater advantage over chemically treated products and synthetic medicines because they are in sync with nature.[430] Additionally, naturally derived medicines cure the ailment from root thereby keeping the person healthy and fit eventually.

In India, approximately 8,000 herbal remedies have been codified in AYUSH system.[431] The major indigenous medicine systems are Ayurveda, Unani, Siddha, and Folk (tribal) medicines. Ayurveda and Unani Medicine are the most developed and widely practiced of these systems in India. India has about 45,000 plant species and 7,333 of them are medicinal aromatic plants.[432]The Himalayas and the Pir Panchal range in Jammu and Kashmir are home to approximately 1123 medicinal plants.[433] The table below represents some medicinal plants and their uses in a comprehensive manner.

Medicinal Plants	**Uses**
Sweet wormwood	Fever, malaria.
Water hyssop	Improve brain function, reduce inflammation in brain
Chestnut tree leaves	Methicillin
Fungi growing on hairs of sloths	Parasites, bacteria and cancer
Willow	Pain, promotion of heart health, blood thinning.
Meizotropispellita	Strong antioxidants
Fritillaria cirrhosa	Strong cough suppressant and a source of expectorant drugs

[430] Dabur, Ayurvedic and Medicinal Plants https://www.dabur.com/ayurveda/ayurvedic-medicinal-plants (visited on 11 June, 2023)
[431] Ayush, Home (visited on 1 August, 2023) https://ayush.gov.in/alldomains.html#MedPlnt
[432]*Ten Percent of Major Medicinal Plants in India Facing Extinction Threat*, THE ECONOMIC TIMES, (Dec. 13, 2022) https://economictimes.indiatimes.com/news/india/ten-per-cent-of-major-medicinal-plants-in-india-facing-extinction-threat-experts/articleshow/96193888.cms (visited on 14 June, 2023)
[433] Suhail Bhat, *Medicinal Plants Disappear from Kashmir's Mountains due to Climate Change and habitat Loss*, NEWS CLICK (May 25, 2023) https://www.newsclick.in/medicinal-plants-disappear-kashmirs-mountains-due-climate-change-and-habitat-loss (visited on 14 June, 2023)

Dactylorhizahatagirea	Dysentery, gastritis, chronic fever, cough and stomach aches
Beddomes cycad / perita / kondaitha	Rheumatoid arthritis and muscle pain. It is also fire resistant
Blue Vanda / Autumn Ladies	Producing interspecific and intergeneric hybrids.
Kuth plant	• Anti-inflammatory medication. The roots contain a medicinally important alkaloid known as 'saussurine.'
Ladies slipper orchid	Treat anxiety / insomnia. Used topically as a poultice or plaster to relieve muscular pain.
Sarpa gandha	• Central nervous system disorders, root extracts are used to treat intestinal disorders, particularly diarrhea and dysentery, as well as an anthelmintic. • It's used to treat cholera, colic, and fever. • The juice of the leaves is used to treat corneal opacity. • Sedation, hypertension, bradycardia, myosis, ptosis, and tremors are all effects of total root extracts, which are typical of reserpine.
Kahzaban	Respiratory infection and irregular heartbeat

Table 1: List of Medicinal Plants and their Uses

II. Biodiversity of Medicinal Plants:

Nature has been providing healing medicinal plants to human beings even before written language. The biodiversity is so infinite that we know little about the treasure trove inhabiting in our wild places.[434] The key players have described and discovered just over a million species of plants, but there are millions more yet to be discovered and studied.

Kew Gardens in 2020 released a report wherein it stated that rise in the demand for traditional medical plants is a driving factor in biodiversity loss.[435] However, the species are getting extinct even before coming to the knowledge of the people. Pollution, over-exploitation of natural resources, introduction of invasive species, unplanned agricultural activities, change of land use, degradation through urbanization and agriculture, climate change, Bioprospecting, Biopiracy, and unorganized human activities are some of the major reasons for the loss of medicinal biodiversity. The extinction rate is estimated to be between 1000 and 10,000 times higher than the natural extinction rate.[436] This shows that the rate of extinction is accelerating.[437]

As much as 10 per cent of 900 major medicinal plant species found in India are facing the threat of extinction, experts have said.[438] Only 15 per cent of medicinal plants which are endemic to India are cultivated while the rest are simply sourced from forests.[439] Earth is losing one potential medicinal plant every two years at an extinction rate that is hundred times faster than the natural process.[440]

The medicinal herb Saussureacostus, locally known as *kuth* in the region, is in danger of going extinct.[441] Like any other plant species, this plant grows in the shade of trees, but deforestation has expanded the forest gap and led to their verge of getting extinct soon. According to studies, in between, 2001-2021, the tree cover in Jammu and Kashmir declined by over 4.06

[434] Emily Roberson, *Nature's Pharmacy, Our Treasure Chest: Why We Must Conserve Our Natural Heritage*, Centre For Biological Diversity (March 2008) https://www.biologicaldiversity.org/publications/papers/Medicinal_Plants_042008_lores.pdf (visited on 7 June, 2023)
[435] *Id.*
[436] Katherine Latham, *How Biodiversity Loss is Jeopardizing The Drugs of Future*, The Guardian (9 Oct, 2021) https://www.theguardian.com/environment/2021/oct/09/how-biodiversity-loss-is-jeopardising-the-drugs-of-the-future (visited on 12 June, 2023)
[437] *Id.*
[438] The Economic Times, *supra* note 5 at 3
[439] *Id.*
[440] *Id.*
[441] Suhail Bhat, *supra* note 6 at 3

Kha, equal to a 0.38% decrease in tree cover since 2000.[442] The number of medicinal plants that used to grow on the forest floor or in the shade of these trees has also been impacted by the reduction in forest cover. While this "ecological vandalism" may have some immediate advantages, the long-term effects are disastrous.

Smuggling, which has become more prevalent in Kashmir over the past few years, has become a significant problem because it is drastically reducing the quantity of plants.[443]

Besides smuggling, climate change, human interference, pollution, and overexploitation continue to be serious challenges.[444] The construction of roads and other infrastructure in such sensitive areas is a severe problem since it harms the ecology as a whole. [445] Since plants are extremely sensitive and any change in their natural environment has a significant impact on them, the increase in temperature and harsh weather patterns throughout time has had an unconstructive impact.

III. Legislation for Conservation of Medicinal Plants:

The increased attention from scientific and commercial sector has led to an amplified pressure on the plants populations. This traditional medical knowledge is the assets of indigenous people that have relied on them for centuries or millennia and now due to unorganized human intervention they are on the verge of extinction. For all these reasons and some already discussed under several heads, the study and conservation of medicinal species is now becoming a topic of discussion at the global platform. International organizations and government institutions are rising to counter this challenge. The legal approaches are as:

National:

a. *Forest Act, 1927*

[442]*Id.*
[443]Gowthami, R., Sharma, N., Pandey, R. *et al.* Status and consolidated list of threatened medicinal plants of India. *Genet Resour Crop Evol* **68**, 2235–2263 (2021). https://doi.org/10.1007/s10722-021-01199-0
[444]*Id.*
[445]*Id.*

A comprehensive reading to the provisions of The Indian Forest Act, 1927 provides guidelines on protection and management of medicinal plants in forests. The act, divides the forest under three categories, the reserve forest (u/s. 3), the Village forest (u/s.28) and protected forest (u/s. 29). By virtue of section 3 the state government has power to declare the forest a s reserve forest thereby restricting the exploitation of medicinal and other forest produce (Sec. 23). Chapter VI and VII of the Act regulated the tradeoff forest produce in India. Chapter IX deals with the penalties in case any of the provisions of the act is violated by any individual, company of even government.

b. *Wildlife (Protection) Act 1972 and Wildlife (Protection) Amendment Act 1991*

The act establishes a legislative agenda for the preservation of diverse wild animals and plant species. This legislation is the implementation of CITES and IUCN guidelines to which India is a signatory. Wildlife advisory board is established wherein the wardens have been assigned their responsibility and powers.

c. *Forest (Conservation) Act, 1980*

The act aims to put a check on the human activities that are non-forest purpose in nature. As per the study, the major reason for the loss of biodiversity is unplanned human actions, thus by limiting human intervention; the act aims to protect the forest produce from getting extinct from the nature.

d. *Environment Protection Act, 1986*

Environmental law in India is based on principles of environmental law and focuses on the management of certain natural resources such as minerals, forests, and fisheries. Environmental law in India directly reflects the provisions of the Constitution. The need to protect and maintain the environment and make sustainable use of natural resources is reflected in India’s constitutional framework and India’s international obligations. The Environment Protection Act of 1986 aims to provide for the protection and improvement of the environment, prevention and control of pollution, and the promotion of sustainable development. It sets out objectives to safeguard ecological balance, safeguard human

health, and ensure the effective utilization of environmental resources. The **Environment Protection Act 1986** is an "umbrella" act for various environmental legislations and provides a framework for coordinating various central and state authorities' activities to protect and safeguard the environment.

e. *National Forest Policy, 1988*

The policy main focus is forest conservation, preservation and development. Moreover, the other primary goal is to preserve environmental stability and the maintenance of ecological balance. It invokes participation of local communities in forest preservation, conservation and management through the Joint Forest Management Programme. The 1988 policy boosts forest produce production per unit area per unit time, restoring wetlands, marshes and mining spoils, social forestry practices, forest product replacements and animal management.

f. *National Biodiversity Act, 2002*

The Biological Diversity Act (2002) has its roots in the United Nations Convention on Biological Diversity which aims to push conservation of biological diversity and associated traditional knowledge, its sustainable use, and equitable sharing of benefits arising out of its use.[446] In addition, the traditional knowledge of local communities about the use and conservation of biodiversity was being eroded, and there was a need to protect and promote their rights in this regard.[447] The Biodiversity Act of 2002 was thus designed to provide a legal framework for the conservation and sustainable use of India's biodiversity, while also ensuring that the benefits arising from its use were shared equitably among all its citizens, particularly local communities.[448]

However, the Biodiversity Amendment Bill, 2021 exempts the AYUSH practitioners from giving prior intimation to the State Biodiversity Boards and sharing the benefits with

[446]Lakshman CD. Bio-diversity and conservation of medicinal and aromatic plants. *Adv Plants Agric Res*. 2016; 5(4):561-566. DOI: 10.15406/apar.2016.05.00186
[447] Sakshi, *Biodiversity Act 2002, Salient Features, Objectives, Limitations,* Study IQ (16 Feb., 2023) https://www.studyiq.com/articles/biodiversity-act-2002/
[448]*Id.*

communities. This amendment will increase the chances of Biopiracy, unauthorized use of biological, genetic resources by the individuals or institutions by commercializing them without sharing the profits with the community/the indigenous tribe.

International:

1. *International Regulatory Corporation for Herbal Medicines*

International Regulatory Cooperation for Herbal Medicines (IRCH) is a global network of regulatory authorities responsible for regulation of herbal medicines, established in 2006. Its mission is to protect and promote public health and safety through improved regulation for herbal medicines.

The Minister of State for AYUSH (Independent Charge), Shri Shripad Yesso Naik inaugurated the 9th Annual Meeting of International Regulatory Cooperation for Herbal Medicines (IRCH) in New Delhi from 8-10 November, 2016.[449] IRCH has been working in the direction of promoting and facilitating the safe use of herbal medicines globally and strengthening cooperation between national regulatory authorities by sharing experience, information and knowledge related to the regulation, quality, safety and efficacy of herbal medicines in its endeavour to protect and promote public health and safety through improved regulation for herbal medicine across the globe. He further said that Government of India offers active support and is committed to achieve the objectives of IRCH.[450]

2. *Conservation of Biodiversity (CBD)*

It is a legally binding international instrument for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.[451] It represents a drastic step forward in the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the use of natural resources.[452]

[449] 9th International Regulatory Cooperation Meeting for Herbal Medicines Inaugurated by AYUSH Minister Press Information Bureau Government of India AYUSH https://pib.gov.in/newsite/PrintRelease.aspx?relid=153391 (June 13, 2023)
[450] *Id.*
[451] United Nations, https://www.un.org/en/observances/biological-diversity (visited on 14 June, 2023)
[452] History, Convention on Biological Diversity https://www.cbd.int/history/ (visited on 14 June, 2023)

Article 8(j) on Traditional Knowledge, Innovations and Practices proposes curbing overexploitation and destructive bioprospecting by developing procedures:[453]

- to ensure that indigenous and local communities obtain a fair and equitable share of the benefits arising from the use and application of their traditional knowledge;
- to ensure that private and public institutions interested in using such knowledge obtain the prior informed approval of indigenous and local communities;
- to regulate how impact assessments are carried out regarding any proposed development on sacred sites or on land and waters occupied or used by indigenous and local communities; and
- to assist governments in the development of legislation or other mechanisms to ensure that traditional knowledge and its wider applications are respected, preserved, and maintained.

3. *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)*

It is an international agreement between governments. It aims to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species. The trade is diverse, ranging from live animals and plants to a vast array ofwildlife products derived from them, including food products, exotic leather goods,wooden musical instruments, timber, tourist curios and medicines. Levels of exploitation of some animal and plant species are high and the trade in them, together with otherfactors, such as habitat loss, is capable of heavily depleting their populations and even bringing some species close to extinction.[454] Many plant species in trade are notendangered, but the existence of an agreement to ensure the sustainability of the trade is important in order to safeguard these resources for the future. Because the trade in wild animals and plants crosses borders between countries, the effort to regulate it requiresinternational cooperation to safeguard

[453] Emily Roberson, *supra* note 7 at 4
[454] CITES, Medicinal and Aromatic Plants
https://cites.org/eng/prog/medplants (visited on 11 June, 2023)

certain species from over-exploitation. CITES was conceived in the spirit of such cooperation.[455]

IV. National Mission on Medicinal Plants (NMMP)

India took a major policy initiative in addressing these challenges by launching "National Mission on Medicinal Plants (NMMP's)" in 2008 under the aegis of National Medicinal Plants Board (NMPB), Department of Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH), Ministry of Health and Family Welfare.[456] The mission promotes cultivation and provides an opportunity for value addition through processing and trade through market initiatives.[457]

The mission was drafted with the objective to support cultivation of medicinal plants with standardization and quality assurance as an option of crop rotation and thereby earn an additional income from the sale of the medicinal products. Moreover, the mission aimed to foster partnership, convergence and synergy among stakeholders.[458]

The mission came up with the end-to –end approach i.e. regulation the process from production till marketing. Additionally, it also adopted the awareness and communication strategy to promote integration of medicinal plants in the agriculture system.

Lastly, the effective implementation of the mission is the duty of the two tier structure- National Medicinal Plant Board and State Medicinal Plant board.

V. National Medicinal Plants Board (NMPB):

In order to promote medicinal plants sector, the Government of India has set up National Medicinal Plants Board (NMPB) on 24th November 2000[459] (existing since 2000). The primary mandate of NMPB is to develop an appropriate mechanism for coordination between various ministries/ departments/ organizations in India and implements support policies/programs for overall (conservation, cultivation, trade and export) growth of medicinal plants sector both at the Central

[455] *Id.*
[456] Jain R, Rao B., "Critical analysis of India's National Mission on Medicinal Plants (NMMP) in providing access to quality botanical drugs to improve public health", 6 *J Ayurveda Integr Med.* 198 (2015)
[457] *Id.*
[458] Centrally Sponsored Scheme Of Mission On Medicinal Plants Operational Guidelines (visited on 1st august, 2023) https://www.wbhealth.gov.in/WBSMPB/different_schemes_project_formats/1.pdf
[459] National Medicinal Plant Board, Introduction https://nmpb.nic.in/content/introduction

/State and International level. In recent years cultivation of medicinal plants has started gaining momentum. However, still a significant part of our requirements continue to be met from wild sources. To meet increasing demand for medicinal plants, the NMBP focuses on *in-situ* & *ex-situ* conservation and augmenting local medicinal plants and aromatic species of medical significance. The NMPB also promote research & development, capacity building through trainings, raising awareness through promotional activities like creation of Home/School herbal gardens. NMPB also support programs for quality assurance and standardization through development of Good Agricultural and Collection Practices (GACPs), development of monographs laying down standards of quality, safety and efficacy; development of agro-techniques and credible institution a mechanism for certification of quality of raw drugs, seeds and planting material. Overall, NMPB's main objective is the development of medicinal plants sector through developing a strong coordination between various ministries/ departments/ organizations for implementation of policies / programs on medicinal plants.

The primary functions of NMPB is to develop a proper mechanism for co-ordination between various ministries/ departments/ organization and implementation of support policies/programs for overall (conservation, cultivation, trade and export) growth of medicinal plants sector in the following areas[460]:

- Advice concerned Ministries/ Departments/ Organizations/ State/ UT Governments on policy matters relating to schemes and programs for development of medicinal plants.
- Provide guidance in the formulation of proposals, schemes and programs etc. to be taken-up by agencies having access to land for cultivation and infrastructure for collection, storage and transportation of medicinal plants.
- Assessment of demand / supply position relating to medicinal plants both within the country and abroad.
- Identification, Inventorisation and Quantification of medicinal plants.
- Promotion of *in-situ* / *ex-situ* conservation and cultivation of medicinal plants.

[460] National Medicinal Plant Board, Functions of Board
https://nmpb.nic.in/content/functions-board

- Promotion of co-operative efforts among collectors and growers and assisting them to store, transport and market their produce effectively.
- Setting up of data-base system for Inventorisation, dissemination of information and facilitating the prevention of Patents being obtained for medicinal use of plants which is in the public domain.
- Organize training programs for capacity building of stakeholders on medicinal plants (including cultivation, conservation, GAPs, GFCPs, GMPs, Storage, PHM and market information).
- Matters relating to import / export of raw material, as well as value added products either as medicine, food supplements or as herbal cosmetics including adoption of better techniques for marketing of product to increase their reputation for quality and reliability in the country and abroad.
- Undertaking and awarding Scientific, Technological research and cost-effectiveness studies.
- Development of protocols for cultivation and quality control.
- Encouraging the protection of patent rights and IPR on E-Channel for Herbs, Aromatic, Raw Material, and Knowledge (e-CHARAK) is a platform for information exchange among various stakeholders involved in the medicinal plants sector. The National Medicinal Plants Board (NMPB), the Ministry of Ayush, the Government of India, and the Centre for Development of Advanced Computing (C-DAC) collaborated to develop e-Charak.

VI. Forest Dwellers Rights and Conservation of Medicinal Plant:

Scheduled Tribe Communities have been staying in the forest for many generations. They started residing in the forest and their livelihood depends on farming and cultivating various things like bamboo or tendu leaves. For many years their rights of livelihood were not disturbed per se, as long as there is no degradation of the forests.

But during the time of the colonial government, the focus shifted from the protection of the rights of local communities to the commercial interest for the purpose of doing more and more agriculture on the land on which the communities have been residing. Even after independence, the

government for many years was not able to protect the rights of forest dwellers and their rights were always compromised. The wild life protection Act 1972, protects the wildlife and forest from any degradation but still, the rights of the dwellers were ignored. After developing various policies for forest protection including National ForestPolicy 1988, the government has established the Forest Rights Act in the year 2006 to protect the rights of the dwellers, i.e. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006.

The Forest Rights Act has provided the powers to the Gram Sabha to give consent for the forest lands to be used for other purposes. Without their consent, no one has the power to use any kind of forest for their own purposes. This Act also provides for the protection of the livelihood of the various dwellers residing in the forest. First of all, a recommendation is required to be made by the Gram Sabha. This recommendation provides for the information on who has been cultivating the land and for what period of time. After the Gram Sabha makes the recommendation, it goes through the two levels of screening. This screening happens at the taluka as well as the district level. If any authority at the Taluka and district level has the reason to believe that the claim which has been made by the Gram Sabha is false, they can appeal to the district level committees. If the committees gave the order that the case of authorities is strong. Then such rights can be denied. After the land has been recognized under this act, it cannot be used for any commercial purposes. Neither this land can be transferred nor sold. This Act has been created for the purpose of recognizing the rights of the forest dwellers and Scheduled Tribes but still, the act lacks the effective implementation of its provisions. This shows that even after the introduction of the Act for the protection of the rights of the dwellers, the provisions for the recognition and protection of their rights are not effective. It is essential for the protection of medicinal herbs in the forest and implementation of '**Equitable Benefit sharing'** Principles mentioned in the Biodiversity Act 2002.

VII. Implementation Problem: Need to be addressed

In spite of global recognition and sound development of medicinal history in India, medicinal plants sector is fenced with several challenges that need to be addressed for the effective implementation of the national mission.

1. *Quality issues:* The major reasons that reduce the effectiveness and purity of the herbal medicines are adulteration, misidentification of plant variety, faulty collection, and mixture and formulation process. Lack of Good Manufacturing Practices, awareness amongst the farmers and manufacturers.
2. *Processing and harvesting issues:* unawareness amongst the farmers about the harvesting method, pre and post harvest practices, inadequate processing techniques lead to the substandard quality of herbal medicines.
3. *Administrative issues:* lack of supervision, guidance and unprofessional and inadequate human resources at the administrative level creates loophole sin the effective implementation of the mission.
4. *Infrastructure issues:* lack of upgraded technologies and techniques, trained and professional personnel, proper utilization of resources is the major reasons for the infrastructure related issues.
5. *IPR and Biopiracy:* Weak IPR protection to herbal plants lead to exploitation of the same. Biopiracy is one of the major problem being faced in this sector, wherein an individual or institutions exploit the plant resources and obtain monopoly over the benefits deriving from such exploitation.
6. *R&D:* lack of dedicated research as compared to allopathic medicine is one of the problems being faced by the medicinal plants development. Research infrastructure, collaborations with the institutions, agricultural colleges and departments is lacking due to which there is no research and development initiative being taken by the stake holders.

VIII. CONCLUSION:

Traditional medicine is a pillar in the health industry as it sets the foundation for creating medications and different approaches to health. As time goes on, the amount of people tapped into the usage of herbal medicinal products and supplements has grown substantially. Medicinal plants are used in modern and traditional medicine to maintain health, treat specific conditions, or both. Around a quarter of the drugs prescribed to patients in modern medicine are derived from medicinal plants, and they are thoroughly tested. Medicinal plants may provide three types of benefits: health benefits to people who use them as medicines, financial benefits to people who harvest, process, and sell them, and societal benefits such as job opportunities, tax revenue, and a

healthier labour force. However, the development of plants or extracts with potential medicinal uses is hampered by a lack of scientific evidence, poor drug development practices, and insufficient funding. An efficient conservation and management of plant genetic resources of these taxa in India will provide material for raising new plantations in the country. We must re-commit ourselves to conservation of our remaining wild species and wild places so that the loss of these resources is minimized. The future of medicine is heading towards an integrative approach so fixing the flaws in all areas will come together and make a more refined approach to health. Let's have a healthier relationship with health, and it all starts by tending to our environment's needs.

However, the NMMP has assigned responsibility upon the NMPB but only in the absence of State Horticulture Mission (SHM) and State Medicinal Plant Board (SMPB). State Agriculture Ministry deals with cultivation, while SHM deals with implementing National Horticulture Mission. SMPB is set-up either under state forest department, State Agriculture Ministry or state health department which is at state's discretion and is responsible for the promotion of NMMP. The conflicting and confusing mechanism requires to be modified and amended so that the only NMPB can work in collaboration with SMPB and Bio-diversity Management Committee (BDMC) under the Biodiversity Act 2002.Therefore the NMPB, SMPB and BDMC, should be the three tier agency for the effective implementation of National mission on medicinal plant.

The recognition of the value of medicinal species and of our remaining biological diversity in general must be incorporated into our laws, as well as our land and resource management methods, through adoption of these types of priorities, management practices, and philosophical frameworks. Unless we act now, we are doomed to lose countless lifesaving treasures, often without even knowing of their existence. No intelligent species should needlessly risk its future through thoughtlessness and waste. Understanding the diversity of medicinal plants, growth and other phonological needs and taxonomy, Ex-situ conservation of medicinal plants, Promoting conservation of medicinal plants, and promoting cultivation of medicinal plants as per market needs. The sustainable approach for wild plant materials collection through adoption of good collection practices, encouraging contract farming of medicinal plants, suitable pricing strategy for unstable demand and quality and availability of raw material. The National mission on medicinal plant NMMP can get momentum if the national medicinal plant board (NMPB) and state

medicinal plant board (SMPB) is connected with bio-diversity management committee (BDMC) at panchayat level, and equitable benefit sharing policy be adopted in the cultivation of medicinal plants. Further the forest dwellers rights Act requires to be amended for the conservation and plantation , exploitation ,benefit sharing and trading of forest medicinal plants (Herbs).This policy can generate employment and we the people can have access to medicinal herbs/plants and medicine at cheaper rate.

In order to encourage good Agricultural and field collection practices (GFCP) in medicinal, the National Medicinal plant Board (NMPB), in collaboration with the Quality council of India (QCI), has launched a Voluntary Certification scheme for medicinal plant produce (VCSMPP). The scheme benefits not only the cultivators or collectors of herbs but also the AYUSH industry with supply of assured quality raw materials, traders and other users of herbs, and ultimately the consumers of herbal based products. But it requires awareness among the cultivators and forest dwellers, which is possible only when the NMPB works with the SMPB and BDMC at panchayat level.

THE TWO DIMENSIONS OF AI CIVIL SUBJECT STATUS ARGUMENT

Dr. P. Jogi Naidu*&Dr. Deepthi R**

Abstract

The development of AI technology has spawned a new round of legal system innovation, and the discussion of artificial intelligence civil subjects continues one after another. The dominant position of artificial intelligence should be based on the unique characteristics development of intelligent technology, it is demonstrated from two aspects of jurisprudence and legal system construction. In the existing support for AI subjectivity the argument is only based on the legal possibility of giving artificial intelligence the subject status and the feasibility of legal system construction, ignoring the necessity. The argument has obvious logical loopholes. At this stage, the choice of the subject status of artificial intelligence is a choice of governance model. The subject status is neither natural in nature nor necessary in form, nor superior in the construction of legal system.

Key words: Artificial Intelligence, Civil Subject, Theoretical Basis, System Construction.

1. Introduction

In recent years, the development of artificial intelligence technology is in full swing, and the study of artificial intelligence legal system has become a hot spot in legal research. India defined a national policy on AI in a working paper titled, "National Strategy for Artificial Intelligence #AI for All". In July 2018, The UAE Minister for AI and Invest India signed a MoU to establish a partnership for both countries to grow their artificial intelligence economies that will promote the development of country's artificial intelligence to the national level strategy. Internationally The United Nations Activities on Artificial Intelligence (AI)4 a joint-effort between ITU and 32 UN agencies and bodies in supporting to emphasize of building a strong Intellectual property legislation in new business forms and fields. Whether the legal subject status of artificial intelligence is established or not is the basis and also basis for discussing the legal issues of artificial intelligence.[461]

In academia, there are limited personality theories, cyborg theories, electronic legal person theories, fictitious personality theories, etc. Different viewpoints such as independent legal personality theory are mainly based on whether it is legally possible to give artificial intelligence the subject status, that is, from the perspective of formal jurisprudence. From the perspective of whether it has the characteristics of natural persons and legal persons to obtain the subject status, that is, the human-like, legal-person-like, and object-like properties of artificial intelligence, that is to say, whether artificial intelligence has the ability of will and responsibility, ignoring the argument of necessity, ignoring the natural attributes of the development and change of artificial intelligence.[462] Based on the different development stages of artificial intelligence, this paper demonstrates that artificial intelligence in civil society is the subject status issue.

2. Artificial intelligence under the subject theory

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[461]Paul Lushenko, *Strengthening international cooperation on artificial intelligence*, Brookings (Feb. 17, 2021), https://www.brookings.edu/articles/strengthening-international-cooperation-on-artificial-intelligence/.
[462]Kurki, Visa A.J., 'The Legal Personhood of Artificial Intelligences', *A Theory of Legal Personhood* (Oxford, 2019; online edn, Oxford Academic, 19 Sept. 2019), https://doi.org/10.1093/oso/9780198844037.003.0007.

In 1956, the term “artificial intelligence" was proposed at the Dartmouth Conference in the United States. However, there is still no one for the connotation and extension of artificial intelligence giving a unified understanding.[463] From a technical point of view, artificial intelligence lies in extending, expanding, and simulating human intelligence; in terms of purpose, artificial intelligence lies in serving human beings, to promote a better life for human beings. In the classification of artificial intelligence, some scholars believe that artificial intelligence can be divided into weak artificial intelligence and strong artificial intelligence.

Some scholars have proposed that artificial intelligence can be divided into three types: weak artificial intelligence, strong artificial intelligence and super artificial intelligence. For human beings at this stage, some scholars believe that human beings are in the process of developing from weak artificial intelligence to strong artificial intelligence, while others believe that human beings are in the stage of weak artificial intelligence. Artificial intelligence technology is a grand scientific project, which has continuously developed from replacing human repetitive manual labor to replacing the repetitive mental work for human beings that has gradually developed from human tools to human-machine composites. Although the current artificial technology is not fully mature, it is from the basic definition of artificial intelligence aiming at simulating human intelligence and artificial intelligence has the possibility of obtaining human intelligence. Therefore, the dominant position of artificial intelligence, the argument should be based on different stages of development of artificial intelligence.

“Human-like” Artificial Intelligence

In the humanoid stage, artificial intelligence becomes an independent “person”, not only having human-like will, but also having human-like emotions. It is believed that human beings have limited cognition of human beings, and the characteristics of human beings are still unexplainable. Special guarantees that human beings can see the world, hear sounds, ask smells, have body organs such as language ability, and also have brains and thinking and emotional capacity.[464] With the development of brain science, the question of whether the algorithmic

[463]*History of Artificial Intelligence*, The European Convention on Human Rights, https://www.coe.int/en/web/artificial-intelligence/history-of-ai.
[464]Yanyan Dong, *Research on How Human Intelligence, Consciousness, and Cognitive Computing Affect the Development of Artificial Intelligence*, (July 14, 2020), https://doi.org/10.1155/2020/1680845.

model of artificial intelligence is consistent with the behavior of the human brain remains unanswered.

The application of scientific mechanisms to artificial intelligence systems is only in the conceived stage. Since artificial intelligence technology develops simultaneously with the understanding of human beings, there is no guarantee that artificial intelligence will be able to be human-like, especially the selfishness and compassion inherent in part of human nature, partly caused by external stimuli, cognition of selfishness or compassion, as well as the natural attributes of reproduction, family, birth, old age, sickness and death of human beings. Even if artificial intelligence technology can reach the height of imitating human beings, creating an artificial intelligence similar to human beings makes it have human emotion or even body and appearance do not necessarily have to be visible. Human beings use nature to create all kinds of things, and their original intention is to serve human beings, from the perspective of the invention of things, some inventions will actually threaten the survival of human beings, such as nuclear weapons. [465]

In order to avoid the end of the development of artificial intelligence, it is the extinction of human being's death, the invention and use of artificial intelligence that is detrimental to human survival and development must be prohibited, and artificial intelligence technology should be safe, reliable, and controllable basic guidelines. Regulate R&D behavior, set up R&D application system, large-scale manufacturing application system, and artificial intelligence security prevention and control system.

"Brain-like" Artificial Intelligence and "limb-like" Artificial Intelligence

As of September 30, 2021, more than 30,000 authorized patents related to artificial intelligence technology retrieved from the national patent search platform globally. It can be seen that artificial intelligence is still in the development stage of "limb-like" to "brain-like". Artificial intelligence at the limb-like stage is just a machine and equipment, and it is not disputed that it does not have the subject status.

Regarding "brain-like" artificial intelligence, the author believes that the theory of the subject of law in almost every country is a human-centered and technical theoretical system. From the

[465]Jessica Peng, *How Human is AI and Should AI Be Granted Rights? Jessica Peng*, (Dec. 4, 2018), https://blogs.cuit.columbia.edu/jp3864/2018/12/04/how-human-is-ai-and-should-ai-be-granted-rights/.

perspective of legal philosophy, in the long history of human beings, from the supremacy of theology to the continuous awakening of human self-consciousness, the "human" as the centered and purpose-oriented subject theory, with the rise of legal person and unincorporated organization system, modern legal subject theory is ethical and technical of the merger.[466]

From the perspective of functionalism, the dominant position of artificial intelligence is to promote the prosperity and development of artificial intelligence technology under the premise of protecting human health and safety exposition. From the perspective of legal doctrine, law, as a code of conduct guaranteed by the country's coercive power, has the function of guiding behavior and correcting illegal behavior, and achieves to maintain social order. A code of conduct is a code that regulates whether the subject of a behavior is to behave or not to behave in a certain way. The subject of the behavior is the originator of the behavior; the initiator is also the bearer of the responsibility for the act. Legal subject status i.e., the legal subject qualification, legal personality refers to independent responsibility or enjoyment of legal status of rights. The subject status of natural persons, legal persons and unincorporated organizations is legally recognized. The scope of rights and capacity to act is within the two aspects of its subject position.

Therefore, the civil subject system has two dimensions in jurisprudence. In essence, laws are made by human beings, and the purpose of laws is to regulate the conscious behavior, the law stipulates that natural persons enjoy the rights stipulated by the law, perform the obligations stipulated by the law, and adjust the behavior of natural persons by regulating the behavior of natural persons and social relationships between people. However, the internal logic of granting legal subject status to organizations other than natural persons is still to regulate the behavior of natural persons.

Behavior, rather than regulating the behavior of an organization, whether the behavior of a legal person organization or other organizations is a concentrated expression of the behavior of a natural person, except for natural persons, other subjects do not necessarily have the status of legal subjects.

Compared with "human-like" artificial intelligence, human-computer interaction system is the development direction of contemporary science, and it is also the main legal issue of artificial

[466] Macpherson, T. *et al.* (2021) 'Natural and artificial intelligence: A brief introduction to the interplay between AI and neuroscience research', *Neural Networks*, 144, pp. 603–613. doi: 10.1016/j.neunet.2021.09.018.

intelligence that should be considered as an object of consideration. Does the technical rationality generated by codes and algorithms, and the logical language created with 0 and 1 have independent meaning in the "brain-like" stage?

It is temporarily difficult to legally identify and judge the ability to express thoughts. The willpower of a legal person is still the concentration of the willpower of a natural person, while artificial intelligence means ability created by human beings. The consciousness ability of artificial intelligence should include in recognizing that it is a certain behavior to achieve a certain purpose and recognizing its behavior that contains the legal significance.[467] And the desire subject theory believes that in addition to instinct and rationality, natural people also have desires, and "brain-like" artificial intelligent systems that do not have the ability to desire. "Brain-like" artificial intelligence under technical rationality in jurisprudence does not mean that natural persons have civil rights. Only when the "brain-like" artificial intelligence has the ability of will and responsibility in form, and at the same time endows the subject status of artificial intelligence can better solve the legislative problems of artificial intelligence at this stage, and legally formulate its subject qualifications.

3. Construction of AI legal system at the present stage

In theory, it is possible to distinguish human-like, limb-like, brain-like, weak artificial intelligence, strong artificial intelligence, and super artificial intelligence, but it is often difficult technically to distinguish. Scholars prove that artificial intelligence has behavioral awareness and responsibility, which seems to be a reasonable argument, but ignores willpower and responsibility. Capability is only a necessary condition for obtaining legal subject status, but not a necessary and sufficient condition. Even if artificial intelligence has the capacity for will and responsibility, it is not that Artificial intelligence must be given the status of a civil subject. Only when compared with not granting legal subject status, giving artificial intelligence legal subject

status can better resolve legal disputes brought about by the era of artificial intelligence. Then in the construction of the legal system and judicial practice, should artificial intelligence be given legal subject status.

[467]Davis, Josh Paul, Law Without Mind: AI, Ethics, and Jurisprudence (May 1, 2018). Univ. of San Francisco Law Research Paper No. 2018-05, SSRN: https://ssrn.com/abstract=3187513 or http://dx.doi.org/10.2139/ssrn.3187513

Both the research and development of artificial intelligence systems and the application of artificial intelligence systems require the response of the legal system. Data input requirements in the development of artificial intelligence systems in reasonable use of data; patentability and copyrightability of artificial intelligence systems; data security; personal privacy and personal information protection; Law black box, algorithmic discrimination and regulation of decision bias to algorithm problem. The application of artificial intelligence system needs to consider the knowledge of artificial intelligence generation issues such as property rights protection and infringement liability determination in artificial intelligence application scenarios among them, the protection of intellectual property rights of artificial intelligence system products. The identification of tort liability in artificial intelligence application scenarios has the possibility of breaking through the existing subject system.[468]

Intellectual Property Rights of Artificial Intelligence Output

Human beings have stepped into the era when machines can achieve creativity, and the intellectual property rights of artificial intelligence products are a major difficulty in the field of artificial intelligence legislation question. Recently, South Africa issued the first patent that lists artificial intelligence as the inventor and the owner of artificial intelligence as the right holder, and India recognizes the patent of artificial intelligence.

Copyright owner and author

In the field of copyright, the author, originality, and work are the three major elements of copyright ownership. Works in the fields of literature, arts and sciences. Intellectual achievements that are original and can be expressed in a certain form, except works of legal persons, work for service, the natural person who creates the work is the author, the author is the copyright owner. The judgment of originality and the nature of the author as a natural person are the two major obstacles to the identification of the copyright of artificial intelligence output.

The subject status of artificial intelligence has two major connotations, that is, artificial intelligence as the author and artificial intelligence as the copyright owner. In brief, copyright is a legal

[468]Stanley Greenstein, *Preserving the rule of law in the era of artificial intelligence (AI),* SpringerLink (July 17, 2021), https://doi.org/10.1007/s10506-021-09294-4.

privilege accorded to the creator or author of an original work of art.[469]Every sort of artistic production, including computer programs and software, is regarded as a distinct creative expression. The Indian Copyright Act of 1957 governs the legislation relating to copyrights in India. It guarantees the "author" specific commercial rights for literary and musical works as defined in Section 14 of the Act.[470]

Who is an author, and can any artificial intelligence ever be a recognized author and copyright owner, is the most important question in this situation. This can be investigated by looking at Section 2(d) of The Indian Copyright Act, 1957, which describes a "author".

Section 2(d)(vi) in relation to any literary, dramatic, musical or artistic work which is computer-generated, the person who causes the work to be created;

According to the Delhi High Court's ruling**,** a person is a natural person under the Copyright Act 1957. As a result, this decision averts AI after being viewed as a "person" for purpose of the Act. Furthermore, "computer-generated work" is not defined under the Act. Companies and other organizations are not indorsed to be "authors" under the Act, even though they are still permitted to hold copyrights. As things stance, AI cannot be considered as the inventor of any works that are secure by copyrights or as the owner of any copyrights.However, it is crucial to highlight that now, in contrast to established law, an AI is both a creator and the owner of the copyright, regardless of whether this is arguable or not.[471] This raises the question of whether this is merely a system error or a driver of future advancement. A critical and comprehensive comparison of copyright rules and the acknowledgment of AI as an author across foreign jurisdictions would be necessary to determine the way in which authorship in the copyright domain is moving.

In *Navigators Logistics Ltd. v. Kashif Qureshi &Ors.*, the High Court of Delhi upheld this interpretation in 2019. In this case, copyright was asserted over a list created by a computer, and

[469]Peter Georg Picht, *AI and IP: Theory to Policy and Back Again – Policy and Research Recommendations at the Intersection of Artificial Intelligence and Intellectual Property*, SpringerLink (June 20, 2023), https://doi.org/10.1007/s40319-023-01344-5.
[470]Indian copyright act, 1957 Sec.14.
[471]Rupendra Kashyap v. Jiwan Publishing House Pvt. Ltd. (53 (1994) DLT 166).

the Court dismissed the claim, citing, among other things, a lack of human interaction. Thus, the situation in India is similar to that in the United States, and authorship cannot be claimed purely by AI.[472] The usefulness of AI in the development process is recognised by the Indian government, which has launched efforts such as the "AI for All" programme and the Artificial Intelligence Task Force to steer AI for social and economic transformation. It is critical to re-examine the IP framework to guarantee that the law keeps up with the times.

This could entail revising Indian copyright legislation to incorporate such AI as authors. However, in such cases, the ownership of the work must be with a natural/juristic person. This is done to ensure that legal action can still be taken against entities that can discharge any liability that has been assigned to them. In addition, various more issues can be discussed. For example, consider circumstances in which AI is built by one person but generates output depending on inputs provided by another. In such a circumstance, how will the ownership of copyright be resolved between the two parties? A legal system that aims to grant AI authorship (wholly or partially) must address all of these concerns.

Film Law Firm v. Baidu Wangxun Technology Co., Ltd. Copyright Dispute Case[473] denied that artificial intelligence generated works belonged to works, and the court held that works must be created by a natural person, so to judge whether the product is a work, it should be judged whether the act of the natural person is original. The court also believes that the generation of the analysis report includes the input of software developers (owners) and software users, and has the value of dissemination. But for software developers can obtain benefits by charging software usage fees, etc. If its behavior is not original, although it cannot sign the analysis report as the author, in order to protect its legitimate rights and interests, to protect the public's right to know, reasonable means can be used to demonstrate that they enjoy relevant rights and interests.

In the fields of art and science, intellectual achievements that are original and capable of being reproduced in some tangible form. It is mainly based on the current law to judge its formality, whether it meets the requirements of literary works, graphic works and other works, and whether

[472]Navigators Logistics Ltd. v. Kashif Qureshi &Ors CS COMM--735/2016.
[473]Beijing Internet Court Civil Judgment (2018) Jing 0491 Min Chu No 239.

it is original in substantive content. The determination is also judged by whether the act of a natural person is original. The court held that in this case, the plaintiff's main creative team was involved in data input and trigger conditions. Arrangement and selection of settings, templates, and choice of corpus style belong to the intelligence that has a direct connection with the specific expression form of the article involved. the work identified was not completely detached from human intellectual activities and was generated purely by AI. The textual content was not created autonomously by an AI, but merely the result of a human intellectual activity assisted by an AI. In this sense, products formed with the participation of AI are of course protected by the Copyright Law.[474]

The logic of judging the copyright ownership of finished works is consistent, that is, only need to consider whether the behavior of natural persons is original and whether it meets the requirements of the work. According to the requirement, the generation behavior of the intelligent system is not included in the judgment, and there is no "authorship" generated by the original creation behavior of the natural person using artificial intelligence.

The author believes that artificial intelligence output should be protected by copyright law. AI creations without legal protection will kill humanity harnessing artificial intelligence power. The copyright is automatically obtained when the work is completed, and the originality of the artificial intelligence output is equivalent to that of a natural person.[475]

Even if the copyright of artificial intelligence output is not legally granted, it is difficult to review in practice, which in disguise increases the risk of forging artificial intelligence output as human work. However, it is difficult to identify the original thinking of artificial intelligence, and it is also difficult to determine whether the output behavior of artificial intelligence system is identified creative behavior. As the author of artificial intelligence, although it solves the problem of the natural person attribute of the work, it still cannot identify the output of artificial intelligence as a work to grant copyright protection.

[474] Shenzhen Tencent v. Shanghai Yingxun, People's Court of Nanshan District, Shenzhen, Guangdong Province, (2019) Yue 0305 Min Chu No. 14010 Civil Judgment. November 24, 2019

[475] *Artificial intelligence and copyright*, (May 3, 2017), https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html.

The purpose of the Copyright Law is to encourage the creation and dissemination of works beneficial to the construction of socialist spiritual civilization and material civilization. Given by law the natural person enjoys certain exclusive rights in the works created by him, and obtains benefits by exercising his exclusive rights exclusively, which is to stimulate the creativity of the natural person in enthusiasm to promote social and cultural prosperity. In the stage of non "human-like" artificial intelligence, granting copyright to artificial intelligence output cannot motivate artificial intelligence even create enthusiasm, artificial intelligence cannot use and benefit independently, endowing artificial intelligence output copyright is to encourage natural people to use intelligent systems that promotes cultural prosperity, and copyright is ultimately enjoyed by natural and legal persons. From the author-centered originality judgment standard of subject-object consistency to subject-object and reader-centered originality judgment standard of object separation, the objective judgment standard of originality is gradually accepted, and does not reflect the author's thoughts and feelings.[476] Lack of motivation to organize creation, and granting copyright to relevant organizations to a certain extent can promote the spirit of socialism to a greater extent for the creation and dissemination of works for the construction of civilization and material civilization.

Patentee and Inventor

Like AI-generated "works," AI-generated "inventions" cannot inspire humans without legal protection. Using artificial intelligence to invent and create, encouraging humans to use artificial intelligence to generate inventions has a practical role in promoting human development. The subject status of artificial intelligence has two major connotations, that is, artificial intelligence as the inventor and artificial intelligence as the patentee. From the perspective of intelligence, granting artificial intelligence patent rights cannot stimulate the enthusiasm for artificial intelligence inventions and creations, and artificial intelligence itself cannot be used to generate. In order to obtain income from inventions, intellectual property rights need to be exercised by

[476]Christopher Collins a, *Artificial Intelligence in Information Systems Research: A Systematic Literature Review and Research Agenda,*, 60 International Journal of Information Management, p. 473 – 487 (2021). Available at :https://doi.org/10.1016/j.ijinfomgt.2021.102383,

natural persons, legal persons or other organizations. Therefore, at this stage, the copyright of artificial intelligence output, it should be attributed to the AI owner, manager or user.[477]

If the patent right of the artificial intelligence output is determined to adopt objective inventiveness standards, that is, the invention has outstanding essence compared with the prior art that are novel, original, and practical in form as artificial intelligence-generated work. For object-type patents, the patentee is obliged to disclose the contribution of artificial intelligence, which can solve the problem of difficult identification of artificial intelligence output patents and recognizing the identity of the inventor of artificial intelligence does not mean acknowledging the subject status of artificial intelligence, which does not enjoy rights and assume obligations.[478]

AI Liability Issues

The application scenarios of artificial intelligence technology continue to expand, and the phenomenon of artificial intelligence harming human beings follows one after another. From Artificial intelligence medical imaging diagnosis technology, the basis of medical images, the computer completes the classification of images, target detection, image segmentation and retrieval through deep learning, an auxiliary tool technology to assist doctors in completing diagnosis. Autonomous driving usually includes three parts: environment perception, decision-making planning, and vehicle control. By configuring internal and external sensors to obtain information about its own state and surrounding environment, decision-making and planning of driving behaviors are made according to the surrounding environment.

If the damage caused to the patient by the medical behavior carried out by the bed doctor based on the conclusion of the auxiliary diagnosis of the artificial intelligence medical image and the medical surgery procedure of the medical institution, how should the infringement be blamed when the surgical robot performs surgery? Unmanned (automatic) driving cars and military drones have traffic accidents, how should the law be divided? How to assign responsibilities and compensate victims for their losses?

[477]*Microsoft Word - Ballardini_He_Roos_AI-Generated Content_12.2.2018.docx*, (May 28, 2018), https://www.cs.helsinki.fi/u/ttonteri/pub/aicontent2018.pdf.
[478]Tim W Dornis*, *Artificial Intelligence and Innovation: The End of Patent Law as We Know It*, 23 Yale Journal of Law & Technology Fall (2020).

At this stage, artificial intelligence assumes responsibility and accepts punishment, which does not have deterrent and preventive effects, and artificial intelligence does not have the ability to participate in litigation, exercise litigation, litigation rights and the ability to exploit property.

Regardless of whether artificial intelligence is given a subject status, artificial intelligence cannot ultimately assume responsibility.

The autonomy of control is not a necessary and sufficient condition for endowing artificial intelligence with the status of subject. Whether or not to give artificial intelligence the subject status is essentially to ensure security and encouraging the balance of the functions of the two major systems of innovation, giving artificial intelligence the main status can stimulate the legal system in to a parody.[479]

Artificial Intelligence Research and Development Enthusiasm

It is not institutionally superior to give artificial intelligence a subject status so that it can enjoy rights and assume responsibilities. Artificial intelligence itself does not have independent property and the ability to assume independent responsibilities, it is necessary to assign a fixed number to each manufactured robot and give it a certain fund property, to make it capable of independently assuming responsibilities, its manager, owner or user needs to be identified as its legal representative. The artificial intelligence Responsibilities are separated from those of developers, manufacturers, and managers, which will lead to developers, manufacturers, and managers ignoring their own obligations and increasing the risks of artificial intelligence. Artificial intelligence systems enjoy the dominant position, and damages caused by design defects, manufacturing defects, improper management, etc.[480]

It is caused by the fault of a third party, which increases the difficulty of legal determination. Producers and sellers do not need to bear product liability, and the manager bears the employer's substitute liability responsibility, and the behavior beyond the scope of the principal's instructions shall be borne by himself. Artificial intelligence system fault is difficult to identify and Artificial Intelligence Personality Denial System is not easy to build.

The "Product Quality Law" stipulates that the loss of personal and property due to product defects shall be borne by the producer regardless of the subjective psychological state of the producer. Infringement liability, seller bears presumed liability for fault. For design defects and

[479]Baris Soyer, *Artificial Intelligence and Civil Liability—do We Need a New Regime?* 30 International Journal of Law and Information Technology Pages 385–397 (4202).
[480]Bundy, Alan. *"Preparing for the future of artificial intelligence."* (2017), p. 285-287.

manufacturing defects, the designer and manufacturer shall bear the tort liability, and the applicable product liability. If the manager causes artificial intelligence infringement due to his fault, the manager shall bear the responsibility.[481]

The bottom line of the development of artificial intelligence technology is human health and safety. Giving artificial intelligence the main body status is to limit the responsibility rather than assign the responsibility. managers will cause Limiting the responsibility of R&D and manufacturing enterprises and in order to make profits, R&D and manufacturing companies ignore the security of artificial intelligence, and managers neglect to manage the artificial intelligence and artificial intelligence products.

The autonomy and uncontrollability of the R&D and manufacturing enterprises may reduce the R&D motivation of the enterprises, and the excessive responsibility of the manager's liability for infringement that may cause managers to be overly responsible and dare not buy and use artificial intelligence, resulting in a lack of market for artificial intelligence. artificial intelligence product defects can be divided into controllable defects and uncontrollable defects.[482]

Under applicable product liability, different imputation principles can be chosen, changing the burden of proof, by R&D and manufacturing enterprises and managers share responsibilities according to a certain ratio. Form a fast claim settlement channel, through compulsory insurance, commercial insurance, funds, financing and other means to reduce the pressure of liability compensation.[483]

4. Conclusion

The phenomenon of artificial intelligence having self-awareness has triggered legal thinking on whether it should be given legal status. In the Legislative Circle in 2017, the EU Legal Affairs Committee made a proposal to the European Commission to grant legal status to artificial intelligence cyborgs, and in 2017 passed the "Machine People's Civil Code". In April 2021, the European Commission (EC) published a proposal for a regulation of European Parliament and the

[481]Buiten Miriam, *Product Liability for Defective AI* (July 19, 2023). Available at SSRN: https://ssrn.com/abstract=4515202
[482]A Castellano, *Product Liability Under Ambiguity*, 49 European Journal of Law and Economics p. 473 - 487 (2003).
[483]M Buiten, *The Law and Economics of AI Liability*, 48 Computer Law & Security Review, (2023).

Council laying down harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union legislative acts COM (2021) 206, which is referred to as draft AI or AIA.

In 2017, the United States enacted the Future of Artificial Intelligence Act of 2017. Same in 2010, Russia also completed the draft of the "Grishin Act", which is "Revision of the Russian Federation's Civil Law in Improving the Law Adjustment in the Field of Robotics" code of Federal Law, but the identification of artificial intelligence in this series of legislation artificial intelligence is not in the subject qualification of the sub-person is defined by "the most complex", "automatic", and "reasonable action". In academia, there are limited personality theory, electronic human theory, electronic legal person theory, fictional personality theory, independent legal personality theory, etc. to endow artificial intelligence with the subject status.

TECHNOLOGY TRANSFER: A NECESSITY TO PROVIDE ACCESS TO PHARMACEUTICAL DRUGS

Dr.P.R.L. Rajavenkatesan* ***Mariya Fatma*****

Abstract

The patent system has always been used as an incentive for research and development to come up with innovations to prevent and fight deadly diseases and keep humans safe. With the advent of the COVID-19 pandemic, human health has taken a toll and there is a need to relook into the patent system. There are various flexibilities available in the TRIPS Agreement but despite thesame there is a huge vaccine disparity between the nations, which is considered a plausible reason for the recurrence of pandemics over the past 4 years. Combined efforts have been made by different international organisations and a few countries to donate the vaccines to the least developed nations, where access to vaccines is limited. But despite the same vaccine, equity is far from sight.

It is high time to make the least developed countries self-sufficient, so that they may produce their own vaccines and cater to the nation's vaccine needs. The TRIPS objectives, which have been reemphasized in the DOHA declaration, talk about technology transfer, which will help these least developed nations produce their own vaccine. The paper aims to analyse the importance of technology transfer in consistence with the provisions of the TRIPS Agreement to provide access to medicines. It also aims to analyse the importance of technology transfer in creating vaccine equity during COVID-19 and after.

Keywords: **Access to pharmaceuticals, COVID-19, Technology Transfer, TRIPS Agreement.**

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I. Introduction

The capacity of a nation to create and innovate new technologies is essential to its economic modernization and long-term growth. The vast majority of contemporary innovations are created by private multinational firms, whose research and development (R&D) efforts are concentrated in industrialised nations, enabling the development of such nations on the scientific, economic, and social fronts.[484] Least-developed countries, on the other hand, are unable to progress because they lack infrastructure and research and development facilities. As a result, they are unable to absorb, adopt, or generate new technologies.[485] This creates an imbalance between technical ownership and technological need and a developmental and economic right between the states.[486] In view of this growing difference, countries around the world have recognised the critical role of actively enabling technology transfer to developing and least-developed countries to spur economic growth and development.[487] The transfer of technology will serve to reduce the disparity in levels of development between nations, and it will also contribute to the economic and technological autonomy of the world's least developed nations, allowing them to better meet their socio-economic requirements.

II. Transfer of Technology

Technology can be defined as "*information necessary to achieve a certain production outcome from a particular means of combining or processing selected inputs."*[488] Technologies can be in the form of know-how, patents, blue prints etc, or it can be embedded with a machine.[489] The

[484]TRANSFER OF TECHNOLOGY, (United Nations Conference On Trade And Development, 2001), 1 https://unctad.org/system/files/official-document/psiteiitd28.en.pdf.

[485]CARLOS CORREA, INTELLECTUAL PROPERTY IN LDCs: STRATEGIES FOR ENHANCING TECHNOLOGY TRANSFER AND DISSEMINATION 3 (2007), http://unctad.org/Sections/ldcdir/docs/ldcr2007Correaen.pdf.

[486] David M. Fox, *Technology Transfer and the TRIPS Agreement Are Developed Countries Meeting Their End of the Bargain*, 10 HASTINGS SCI. & TECH. L.J. 1 , 3 (2019).

[487]Michelle H. Balaklaw, *Helping Haiti: Incorporation NGO Technology Transfer into the TRIPS Agreement Framework to Aid Least Developed Countries in the Adoption of Clean Technologies*, 8 KY. J. EQUINE, AGRIC. & NAT. RESOURCES L. 137, 143 (2016).

[488] Keith E. Maskus, *Encouraging International Technology Transfer, 7* UNCTAD-ICSD PROJECT ON IPRS AND SUSTAINABLE DEVELOPMENT, 7, 11 (2004). https://www.files.ethz.ch/isn/111411/2010_01_encouraging-international-technology-transfer.pdf. Technology is also defined as "systematic knowledge for the manufacture of a product, for the application of a process or for the rendering of a service…" See Also *Supra* note 1.

[489]*Ibid.*

process of movement of technology from one entity to another can be said as transfer of technology."[490] There is no technical or fixed definition of the term technology transfer, and it has been defined differently by different scholars.[491] In a general sense, the transfer of technology can also be defined as *"the movement of technology from the laboratory to industry, developed to developing countries, or from one application to another domain."*[492] Technology may include "physical assets, know-how, or technical information," as well as machinery. The transfer of any of these components, or an aggregate of all of these components, is technology transfer[493]. It is also defined as *"any process by which a party in one country gains access to the technology of another party in a second country and successfully learns how to absorb it into its production function."*[494]

It can be inferred that there is a definite gain in know-how for the receiving party, which may be used for their benefit. Due to the critical nature of technology and technological know-how for development, they contribute to increasing productivity, fostering growth, and achieving the development ambitions of less developed members. Additionally, it facilitates the closing of the technical divide between rich and developing countries, as well as their integration into the global trading system.[495] Existence of technology is a prerequisite for permitting a technology transfer; hence, a technology cannot be transferred unless it is developed and implemented in a practical setting or made into a viable form. Even if such a transfer were to occur, it would be impossible for it to be put to use, defeating the whole point of technology transfer. The importance of patents in motivating researchers to do additional experiments and develop novel, practical technologies is clarified by the incentive theory of patent, which is worth mentioning as

[490]K. Ramanathan, *An Overview of Technology Transfer and Technology Transfer Models*, Pg 4, https://tto.boun.edu.tr/files/1383812118_An%20overview%20of%20TT%20and%20TT%20Models.pdf
[491]B.N. Pandey and Prabhat Kumar Saha, TECHNOLOGY TRANSFER IN TRIPS AGREEMENT: IMPLICATIONS FOR DEVELOPING COUNTRIES DEVELOPING COUNTRIES, 3(1) DEHRADUN LAW REV, 38, 39, (2011), http://www.dehradunlawreview.com/wp-content/uploads/2020/06/4-Technology-transfer-in-trips-agreement-Implications-for-developing-countries.pdf.
[492]*Supra* note 7, at Pg 4,
[493]*Ibid.*
[494]*Supra* note 5, at 11.
[495]REPORT (2021) OF THE WORKING GROUP ON TRADE AND TRANSFER OF TECHNOLOGY TO THE GENERAL COUNCIL, WT/WGTTT/23, (5 Nov. 2021) https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/WGTTT/23.pdf&Open=True

well.[496] So once a technology is transferred, it will pave way for further innovation,that will need patent protection. This patent protection with further encourage the patent holder to make more invention, eventually attract further investment, technological transfer and economic development of the country. Thus, technology transfer and patent protection are intricately linked and their role in the development of country's economy cannot be neglected.[497]

III. Ways of Technology Transfer

Technology transfer may be accomplished in a number of different ways. However, the best approach should be selected after careful consideration of technical analysis, the company's future plan of cooperating with its suppliers in terms of investment resources, and the company's technical skills to apply the technology.[498]There are various ways in which technology transfer can take place.[499] However the TRIPS Agreement[500]through a WTO Secretarial note has mentioned four different ways of technology transfer from developed countries to the least developed countries. The first is Foreign Direct Investment (FDI), which occurs when a foreign corporation, particularly one with a technical advantage, establishes a fully owned subsidiary or forms a joint venture with a host nation that does not have such sophisticated technology. The second is via the processes of copying and reverse engineering, in which a company either gets a technology by duplicating it, or learns about the production and knowledge of a new technology by studying its finished form. In this case, only people in the host nation make use of the technology and no trade takes place with developed or Least Developed Countries.[501] The third is stipulated transfer, whereby through a variety of contractual agreements, including licencing, management contracts, and subcontracting, the transfer takes place. In such a transfer, both the parties, i.e., the provider of the

[496]HOLGER HESTERMEYER, HUMAN RIGHTS AND THE WTO, THE CASE OF PATENTS AND ACCESS TO MEDICINE, 30-33, (Oxford University Press 2007).

[497]Comm. on Trade and Env't, *Note by the Secretariat: Factors Affecting Transfer of Environmentally-Sound Technology*, WTO Doc. WT/CTE/W/22 (Feb. 21, 1996).

[498] Denis Kuzniatsou, *Technology transfer methods*,MAKING TECHNOLOGIES WORK, (April 9, 202, 03:35 pm.) http://innodigest.com/technology-transfer- methods/.

[499]*Id*. Technology transfer can take place using various ways like Licensing, Support Contract, Joint Venture, Franchising, Strategic Alliance, Turnkey Agreement, Equipment Acquisition, Management Contract, Foreign Company Acquisition, Direct Foreign Investments, Buy-Back Contract.

[500] The Agreement on Trade Related Aspects of Intellectual Property Rights, Jan 1, 1995,[hereinafter referred as TRIPS Agreement].

[501]*Supra* note 14.

technology as well as the receiver of the technology, have specific business terms and conditions put down in the contract to govern the use of transferred technology.[502] The fourth and last one is free-transfer, where there are no commercial conditions attached to the supplier and the receiver of technology. Patent pledges[503] and compulsory licences[504] are perfect examples of this type of transfer.[505]

IV. TRIPS and Technology Transfer

The TRIPS Agreement, which may be said as the "Grundnorm" of intellectual property protection, enumerates the basic minimum requirements that a member country is required to follow while protecting the rights of an IP holder. However, the TRIPS Agreement from its inception has been criticised as imposing the standards of the global north on the global south despite the fact that all the member counties have not reached the same technological and development aspects. Though TRIPS Agreement was a win-win situation for the developed countries, other countries did not benefit significantly, and thus they vehemently opposed the text of draft agreement. So to make the agreement reachable and balanced, the developed countries bargained and agreed to the technology transfer that was embedded in the preamble, principles, and clauses of the TRIPS Agreement.[506] Considering the TRIPS bargain there is a need to analyse the patent law and its importance in facilitating technology transfer and development of non-developed countries.[507]

One of the basic conditions for availing of patent protection is the disclosure of the know-how and knowledge involved in the invention, and in lieu of this disclosure, patent protection is

[502] *Supra* note 3, at 16

[503] A patent pledge is typically a public statement and commitment made by patent holders who are willing to out-license relevant patents to the unrestricted or restricted public under certain conditions or in the absence of compensation. So, when a drug's patent is lifted, even generic manufacturers will be able to produce the drug based on the information disclosed in the patent application, and there will be a passive transfer of technology. *See Also*, Contreras L., Patent Pledges, 47 ARIZ. ST.L.J.543, 545 (2015) https://arizonastatelawjournal.org/wpcontent/uploads/2015/12/Contreras_Final.pdf.

[504] Compulsory licencing is grant of license to the third party, by the government, without the consent of the patent holder, for some specific period and on arousal of certain health related public emergency or in case of abuse of patent rights. *See especially* Art. 31, TRIPS Agreement. See also *Compulsory licensing of pharmaceuticals and TRIPS*, WORLD TRADE ORGANISATION,https://www.wto.org/english/tratop_e/trips_e/public_health_faq_e.htm .

[505] *Supra* note 20.

[506] Peter K Yu., "*TRIPS and Its Discontents*", 10 (2) MIPLR 370, 371, (2006) https://scholarship.law.marquette.edu/cgi/viewcontent.cgi?article=1083&context=iplr.

[507] *Supra* note 8, at 38.

granted.[508]The disclosure should be clear, sufficient, and complete so that any person skilled in the art would be able to replicate it.[509] The provision enables the dissemination of knowledge in society so that when the patent expires, the country will be equipped with that information and technology will be developed. The disclosure requirement provides the first and foremost way in which technology transfer takes place through the grant of patents.[510]

The phrase "*developmental and technological objectives*" appear in the preamble to the TRIPS Agreement, highlighting the significance of technological progress in the application of IP rules, therefore recognising the relevance of technology transfer as a method of development for LDCs.[511] It also recognizes and existence of provisions of flexibility for the development needs of the LDCs to "*create a sound and viable technological base,*" within TRIPS.[512] The Preamble of TRIPS should be read in conjunction with the Preamble of the WTO Agreement[513], which sets out the goals of lowering trade barriers and discrimination in order to promote economic development and improve living standards, with a focus on long-term sustainability and special attention to the needs of developing countries.[514] Thus both these Preambles when read together, they clearly explain the aims of technological development of the nations and creating technological equality between the nations.

It is a well-known fact that developed counties are the owner of new and upcoming technologies and the developing countries are majorly the consumer or user of such technology. This aspect was delved upon during the TRIPS negotiation, and the member nations insisted upon the adoption of the concept of the concept where all the countries whether developed or under developed,

[508] Art. 29, TRIPS Agreement,

"*Members shall require that an applicant for a patent shall disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art and may require the applicant to indicate the best mode for carrying out the invention known to the inventor at the filing date or, where priority is claimed, at the priority date of the application.*"

[509]*Biogen* v.*Medeva*(1997) RPC 1, 48

[510] Ida Madieha Azmi &Rokiah Alavi, *TRIPS, Patents, Technology Transfer, Foreign Direct Investment and the Pharmaceutical Industry in Malaysia*, 4 J. WORLD INTELL. PROP. 947,966 (2001).

[511] Preamble, TRIPS Agreement.

[512]*Ibid.*

[513]General Agreement on Trade and Tarrif, 1994 [hereinafter referred as GATT] Preamble, https://www.wto.org/english/res_e/publications_e/ai17_e/gatt1994_preamble_gatt47.pdf.

[514] UNCTAD-ICTSD Project on IPRs and Sustainable Development, Resource Book on TRIPS and Development 2 (Cambridge, New York, 2005). Pg 12; See also "WTO, United States: Import Prohibition on Certain Shrimp and Shrimp Products- Report of the Appellate Body (12 October 1998) WT/DS58/AB/R 1998-4.

cooperate and work for the mutual advantage of the countries production the technology or using it.[515] Accordingly, Articles 7 and 8 of the TRIPS Agreement, which set out its objectives and guiding principles, were adopted. Article 7 says that protection and enforcement of intellectual property rights should be done in a way that suits the social and economic structure of that country and that a balance is created when it comes to the rights of patent holders and their obligation to the public interest. The TRIPS principles are laid forth in Article 8, says that member countries, while making domestic laws, should ensure to safeguard public health and nutrition of its people and to work for the the public interest in economically and technologically vital areas.[516] The importance of the objectives and principles of the TRIPS Agreement was emphasised during the DOHA Declaration on Public Health, 2005 [DOHA declaration]. And paragraph 19 explicitly says that the TRIPS Council will be guided by these objectives and principles and shall take them into account for developmental purposes, thus maintaining a balance between private rights and the public interest.

In addition to the aforesaid principle and objective, the concept of technology transfer is also embedded in Art 66.2 which creates a positive legal obligation upon the developed countries to provide technology transfer to the least developed members.[517] In fact, the website of the WTO mentions that "*developing countries, in particular, see technology transfer as part of the bargain in which they have agreed to protect intellectual property rights"*[518] By virtue of this article a legal obligation for developed country is created i.e an obligation to encourage technology transfer to LDCs.[519] The requirement under Art. 66.2 might be seen to involve not just the supply of incentives, but also their successful operation.[520] Art. 67 further obligates developed countries to provide 'technical and financial cooperation' to the developing countries and LDCs.

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[515]*Supra* note 24.

[516] Art. 8.1,TRIPS Agreement.

[517] Art 66.2, TRIPS Agreement,

"*Developed country members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least developed country members in order to enable them to create a sound and viable technological base*."

[518]*Technology Transfer*, WORLD TRADE ORGANISATION, (April 02, 2022, 10:12 am.) https://www.wto.org/english/tratop_e/trips_e/techtransfer_e.htm.

[519]Suerie Moon, *Does TRIPS Art. 66.2 Encourage Technology Transfer to LDCs?,*UNCTAD - ICTSD PROJECT ON IPRS AND SUSTAINABLE DEVELOPMENT, 1, 2, (2008) https://unctad.org/system/files/official-document/iprs_pb20092_en.pdf.

[520]*Resource Book on TRIPS and DevelopmentUNCTAD-ICTSD*, 1, 734 (Cambridge University Press. 2005), https://unctad.org/system/files/official-document/ictsd2005d1_en.pdf.

V. Development of Vaccine & Technology Transfer During COVID-19

In December 2019, a deadly virus emerged from China, which soon engulfed the world and a state of pandemic was declared by the World Health Organisation [WHO].[521] In order to fight this virus, vaccines were developed by different nations, which after getting approval from WHO and their respective countries, were given to the people to boost their immune systems to fight this virus. Vaccines are complex biological entities, and the creation of vaccines needs specialised technology. This lack of technical know-how has been the main obstacle to domestic vaccine production. The production of vaccinations calls for a highly skilled technical staff with knowledge in many different areas, some of which are exclusive to each vaccine. These skills are often learned in vaccine production centers or via the transfer of technology, and most countries lack access to them. As a result, these vaccines were developed by developed countries and a few developing countries that possessed state-of-the-art vaccine production technology. In contrast to drugs, where a generic version can be made and licenced based on chemical equivalence, a vaccine made in a new facility has to go through rigorous testing before it can be used.[522] For many drugs, cost effectiveness and public health outcomes are not always clearly linked.[523]

VI. Need for Technology transfer during COVID-19

During the COVID-19 pandemic, it was found that there was huge vaccine inequity, with a few countries going on for their fourth shot of vaccine while other developing and under-developing countries had not gotten the whole population vaccinated.[524] Donations were made to these nations, but they were either insufficient or destroyed due to a lack of shelf life.[525] In fact, the TRIPS Agreement's flexibilities in the form of the compulsory licence were also ineffective, because the

[521] *WHO Director-General's opening remarks at the media briefing on COVID-19*, WORLD HEALTH ORGANISATION, (Mar 11, 2020), https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19 11-march-2020.

[522] *Increasing Access to Vaccines Through Technology Transferand Local Production*, WORLD HEALTH ORGANISATION, (July 01, 2011), https://www.who.int/publications/i/item/9789241502368.

[523] *Ibid.*

[524] *UN analysis shows link between lack of vaccine equity and widening poverty gap*, UNITED NATIONS, (Mar 28, 2022), https://news.un.org/en/story/2022/03/1114762.

[525] *Destruction of expired COVID-19 vaccines in Africa a shame for the West*: *Global Times editorial*,GLOBAL TIMES, (Dec 26, 2021; 03:33 PM), https://www.globaltimes.cn/page/202112/1243364.shtml

least developed countries lack the infrastructure to compel the production of a licenced drug in their country. Even the paragraph 6 system, which was introduced by Art 31(*bis*) in the DOHA declaration, owing to its complicated nature, has been used only once and is considered as a failure.[526] Both these flexibilities could not be used by the least developed nations to provide vaccines to these people. Given the severity of the pandemic a joint representation was made by India and South Africa along with other developing and under developed countries to TRIPS Council in October 2020 for waiver of certain provisions of the TRIPS Agreement, allowing everyone manufacture to vaccines and related health-care facilities related to diagnosis, prevention, treatment of COVID without fear of violating intellectual property laws.[527] However, after due to lack of unanimity[528] and constant postponement of the Ministerial Conference 12 of WTO meeting[529], the decision was finally taken on June 17, 2022.[530] The decision allowed the suspension of patent rights under Art 28 of the TRIPS Agreement for a period of five year, for the production and supply of vaccines relating to COVID prevention. It is notable that other forms of IP especially protection of test data under Art 39.3 of TRIPS were left untouched. It is noteworthy that waiver of IP rights for providing vaccines is just a temporary solution, and waiver without technology transfer will not be of much use.[531] It can be agreed that instead of buying or getting drugs produced in a different nation, the best possible solution to attain vaccine equity is if the vaccine is made in the nation itself. However, for that, what is necessary is technology transfer

[526]Adekola, Tolulope, *Has the Doha Paragraph 6 system reached its limits?*,15JIPLP 1,3 (2020) 10.1093/jiplp/jpaa058.

[527] The joint proposal made by India and South Africa in Oct 2020 was revised in May 25, 2021. The proposal aims for waiver of the patent, in relation to health products and technologies for the prevention, treatment or containment of COVID-19. The proposal is for a period of 3 years, with subsequent yearly revival, if required. See also *Waiver From Certain Provisions Of The TRIPS Agreement For The Prevention, Containment And Treatment of COVID-19*, COUNCIL FOR TRADE- RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS, (May 25, 2021) https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/IP/C/W669R1.pdf&Open=True.

[528]*Countries obstructing COVID-19 patent waiver must allow negotiations to start,*MÉDECINS SANS FRONTIÈRES (MSF) (Mar. 9, 2021), https://www.msf.org/countries-obstructing-covid-19-patent-waiver-must-allow-negotiations.

[529]*General Council decides to postpone MC12 indefinitely*, WORLD TRADE ORGANIZATION (Nov 26, 2021), https://www.wto.org/english/news_e/news21_e/mc12_26nov21_e.htm.

[530](22-4709) - World Trade Organization, WT/MIN(22)/W/15/Rev.2 17 June 2022 (22-4709) Page: 1/2 Ministerial Conference Twelfth Session Geneva, 12-15 June 2022 Original: English DRAFT MINISTERIAL DECISION ON THE TRIPS AGREEMENT Revision The Ministerial Conference, Having regard to paragraphs 1, 3 and 4 of Article IX of the Marrakesh Agreement Establishing the World Trade Organization. https://docs.wto.org/.../Pages/SS/directdoc.aspx?filename=q:/WT/MIN22/W15R2.pdf&Open=True

[531]Anoo Bhuyan, *Patent waver for Covid vaccine without tech transfer won't speed up supply*, BUSINESS STANDARD, (May 18, 2021; 12:06 IS), https://www.business-standard.com/article/current-affairs/patent-waver-for-covid-vaccine-without-tech-transfer-won-t-speed-up-supply-121051800392_1.html.

from developed nations to countries where there is a lack of vaccine equity. Consequently, different initiatives were taken by various international organizations to ensure that there is a flow of technology.

VII. Evidence of Technology Transfers During COVID-19

During the time of COVID, we have seen the world standing in solidarity and making various efforts to fight the pandemic. One of the important efforts made was that the world's largest patent offices in China, Europe, Japan, and the United States have made patent databases available to the public, including medication search and patent analysis, to allow scientists to track and produce state-of-the-art innovation.[532] Subsequently initiative was the launch of WHO COVID-19 Technology Access Pool (C-TAP) in May 2020.[533] The C-TAP is a public-health-driven initiative that aims to create a single worldwide platform for COVID-19 treatments, diagnostics, vaccines, and other health-related goods to share their intellectual property through voluntary, non-exclusive, and transparent licencing. This helps in sharing of the know-how and flow of technology from knowledge concentrated west. It is notable that success of C-TAP was put in question as there was not even a single license made for more than a year since its inception in in 2020.[534] However, by the end of 2021, it was able to bag one license from Spanish National Research Council (CSIC) for a COVID-19 serological antibody technology.[535] The license's goal is to speed up the manufacturing and marketing of CSIC's COVID-19 serological test across the world. Along with C-TAP, WHO also initiated as platform for Medicine Patent Pool [MPP], which is based on the concept of mutual licensing, an essential tool for technology transfer. In these medical pooling practices, different companies enter into mutual voluntary license agreement, thus sharing their patent technology and the transfer, which help in mutual benefit. MPP has a goal to "*increase access to, and facilitate the development of, life-saving medicines for low- and middle-income*

[532]Weinian Hu, *Isthe proposed IP waiver to help combat Covid-19 all it seems?*, CEPS, (Aug 31, 2021,) https://www.ceps.eu/is-the-proposed-ip-waiver-to-help-combat-covid-19-all-it-seems/.

[533]*WHO COVID-19 Technology ACT* ,WORLD HEALTH ORGANIZATION, https://www.who.int/initiatives/covid-19-technology-access-pool.

[534]*C-TAP Has Not (Yet) Lived Up To High Expectations*, HEALTH ACTION INTERNATIONAL (28 May 2021) https://haiweb.org/c-tap-has-not-yet-lived-up-to-high-expectations/

[535]*WHO and MPP announce the first transparent, global, non-exclusive licence for a COVID-19 technology*, RELIEF WEB, (22 Nov 2021), https://reliefweb.int/report/world/who-and-mpp-announce-first-transparent-global-non-exclusive-licence-covid-19-technology.

countries through an innovative approach to voluntary licensing and patent pooling."[536] Once such successful example is when US based Merck Sharp & Dohme entered into an agreement with the MPP for development of its COVID-19 drug 'Molnupiravir'.[537] Also another pharmaceutical company Pfizer Inc has entered in an agreement with the MPP, for the production of its oral COVID-19 treatment drug Ritonavir.[538]

The upcoming concept of Patent Pledge, whereby a patent holder agrees to not implement his patent rights, if anyone uses their technology, can also be considered an important means of technology transfer or a type of free transfer. The patent holder may make patent pledges, even through a public disclaimer, to waive their rights, or he may agree to allow anyone to use his patent if certain conditions are met by paying a reasonable royalty[539]. Though the concept of patent pledge is not prevalent in pharam-sector, with the onset of COVID 19, world has see US-based multinational company Moderna Inc. has been pledging its patented m-RNA technology. It declared that it will not enforce its rights against those who use its technology to make vaccine for COVID-19 and have also agreed to enter into voluntary licenses to combat this pandemic.[540] By expanding the number of stakeholders involved, Morderna aimed to achieve the policy of "drive the diffusion" of mRNA technology into the drug development ecosystem and "build infrastructure" for mRNA-based technologies.[541] All these are vivid examples of technology transfer taking place during a pandemic in order to enhance access to pharmaceutical drugs.

[536] MEDICAL PATENT POOL, https://medicinespatentpool.org/. (last visited April 12, 2023)

[537] *The Medicines Patent Pool (MPP) and Merck Enter Into License Agreement for Molnupiravir, an Investigational Oral Antiviral COVID-19 Medicine, to Increase Broad Access in Low- and Middle-Income Countrie*s, MERK, (Oct 27, 2021 & 6.00 AM), https://www.merck.com/news/the-medicines-patent-pool-mpp-and-merck-enter-into-license-agreement-for-molnupiravir-an-investigational-oral-antiviral-covid-19-medicine-to-increase-broad-access-in-low-and-middle-income-countri/.

[538] *Pfizerand The Medicines Patent Pool (MPP) Sign Licensing Agreement for COVID-19 Oral Antiviral Treatment Candidate to Expand Access in Low- and Middle-Income Countries*, MEDICINE PATENT POOL (Nov. 16, 2021) https://medicinespatentpool.org/news-publications-post/pfizer-and-the-medicines-patent-pool-mpp-sign-licensing agreement-for-covid-19-oral-antiviral-treatment-candidate-to-expand-access-in-low-and-middle-income-countries.

[539] Contreras J. L. et al. *Pledging intellectual property for COVID-19, 38 NATURE BIOTECHNOLOGY* 1146, 1146, (Oct. 2020).

[540] Dan Shores, *Breaking Down Moderna's COVID-19 Patent Pledge: Why Did They Do It*? IP WATCHDOG (Nov. 11, 2020) https://www.ipwatchdog.com/2020/11/11/breaking-modernas-covid-19-patent-pledge/id=127224/.

[541] *Ibid.*

Keeping the pledged m-RNA technology as base, WHO announced opening of technology transfer Hub on June 21, 2021, for enhancing mRNA vaccine production capacity in low- and middle-income countries. The technology transfer hub is the center of excellence and training for to the interested vaccine manufacturers in the low and income countries. The training facility aims at providing know how on large-scale manufacturing and clinical research methods in regard to m-RNA technology and its use in developing vaccine through mRNA technology, as a step to make them self-capable for domestic production. The hub is located at Afrogen, Cape Town, South Africa, and will work with a network of technology recipients in low- and middle-income countries.[542] The hub was built keeping in view "*the pressing global challenges at the intersection of public health, intellectual property, and trade".*[543] It is the first concrete worldwide attempt to spread vaccine manufacturing to areas that are in severe need. The tech transfer hub, which is supported by WHO and its COVAX group which includes GAVI, the Vaccine Alliance; CEPI i.e the Coalition for Epidemic Preparedness Innovations; and UNICEF which aims to provide fair and equitable access to COVID-19 vaccines for all countries. The creation of a transfer hub might mark a turning point for future medication research in regard to vaccine production as well as other life-threatening diseases including cancer. In fact, even in India, the vaccine maker Biological E. has been selected to receive m-RNA technology from the WHO technology transfer hub.[544] Since the onset of the COVID pandemic, there has been evidence of technology transfers, but the result of such transfers is yet to be seen.

VIII. Conclusion

As can be seen, technology transfer may take place in a variety of ways. However, it is critical to remember that no technological transfer can occur without the means of production being owned. If a country possesses technology, only knowledge sharing can aid in the development of new drugs or enable the country to obtain a licence for drug production, thereby providing access.

[542] *The mRNA vaccine technology transfer hub*,WHO, https://www.who.int/initiatives/the-mrna-vaccine-technology-transfer-hub, (last visited May 13, 2023).

[543] Latha Jishnu, *Coronavirus vaccines: Tech transfer is the new mantra*, DOWN TO EARTH, (July 05, 2021) https://www.downtoearth.org.in/blog/world/coronavirus-vaccines-tech-transfer-is-the-new-mantra-77773.

[544] *Biological E. to receive mRNA tech from WHO*, *The Hindu*, (April 04, 2022, 20:44 IST) https://www.thehindu.com/sci-tech/science/biological-e-to-receive-mrna-vaccine-tech-from-who/article65290270.ece.

However, if there is a technological scarcity per se, what is required is not just knowledge sharing or IP rights sharing or waiver, but also investment in infrastructure development to ensure that there is a technology and, as a result of that technology, increased knowledge transfer and productive application can take place.[545] If countries lack infrastructure, the effectiveness of medical patent pooling or patent pledges will be null and void. Because if there is an existing infrastructure, countries can use tools such as compulsory licencing to ensure that vaccines are manufactured in their countries and made available to their citizens. Technology transfer is necessary, but because the country is lacking in infrastructure and basic facilities, radical forms of technology transfer like FDI, asset building, and collaboration are required. Especially when it comes to vaccines, which need highly specialised equipment and facilities to make, the transfer of knowledge alone will not be enough. All this does not negate the fact that technology transfer is a long-term solution for providing access to drugs, but the same can be achieved by the joint effort of developed countries willing to share the technology and the least or underdeveloped countries building their infrastructure to be able to accept that technology.

[545] *Capacity Building For Technology Transfer In The African Context: Priorities And Strategies.* UNFCCC CONFERENCE ON CLIMATE CHANGE, https://unfccc.int/files/documentation/workshops_documentation/application/pdf/maya.pdf.

UNIVERSAL ETHOS: NAVIGATING THE COMPLEXITIES OF AUTHORS' MORAL RIGHTS UNDER COPYRIGHT PROTECTION

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Abstract

Authors' moral rights have long been acknowledged as a crucial component of intellectual property law. These rights, which include the rights to acknowledgement, integrity, and withdrawal, guard authors' non-commercial interests in their creative works. Although moral rights are acknowledged by many legal systems across the globe, the extent and quality of protection varies widely between different countries. This research offers a thorough examination of the historical evolution, theoretical underpinnings, and contemporary state of moral rights within diverse legal frameworks, particularly United States of America (USA), Europe, Canada and India. This research delves into the complexities and controversies that arise concerning moral rights in the contemporary era through notable global controversies and judicial proceedings. It examines the effects of technological progress on the authenticity of artistic creations, as well as the significance of moral rights in the realm of safeguarding and cultural heritage. The outcomes of this worldwide investigation illuminate the resemblances and disparities in safeguarding ethical rights across diverse legal frameworks, offering significant perspectives for decision-makers, academics, and professionals operating in the domain of intellectual property law. This research highlights the necessity of adopting a well-rounded and adaptable perspective towards moral rights, taking into account the dynamic character of artistic creations and the obstacles presented by the digital age, all while upholding the moral and ethical concerns of authors on a global scale. In this research attempt, the author further posits a various suggestion, where through advancement of technology, strengthening legislations and proper enforcement of law one can uphold their moral rights and further facilitate the identification and prevention of copyright infringements.

Keywords: Authors, Canada, Copyright, Europe, India, Moral Rights.

I. Introduction:

Imagine a society in which writers and artists lose the ability to safeguard their original works and are helpless against unlawful use, alteration, or destruction. A category of legal protection known as copyrights is given to those who create original works of literature, music, art, and software to ensure that they being the author of the creation will be of an undivided exclusive authority to use, duplicate, transmit, and commercialize their works[546]. The legal right to regulate how one's works are used and to be paid for doing so is known as copyright and it is a type of intellectual property law. Copyrights in today's world have an immense amount of recognition. Countries like the UK and the US have a set of laws regulating rights concerning Copyright. There exist numerous misconceptions or assumptions regarding copyrights that are prevalent and may lead to misinterpretations or ambiguity. For instance, non-experts often assume that modifying a copyrighted work to a significant extent exempts it from infringing on anyone's copyright. Additionally, copyrights are often believed to have perpetual recognition. Furthermore, refraining from commercializing a copyrighted work or providing attribution is sometimes thought to absolve one of copyright infringement. The said assumptions are neither accurate nor true. The mere fact that something is accessible online does not entitle users to utilise it freely or without restriction. It is to be noted that, even though they are accessible online, many works are still covered by copyright.[547] Due to the ease with which information may be copied and distributed, the international scope of the internet, the general ignorance of copyright rules, the difficulty of discovering infringers, and fair use, safeguarding copyright in the age of technology is tough. To make certain that the copyright's owner rights are protected and preserved in the digital age, a combination of legislative measures, and technological instruments, through education and awareness efforts is required.

If an individual engages in the process of song creation and composition, followed by the subsequent recording of said song within a professional studio setting. The studio proprietor

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[546] Sivakumar, S. & Lukose, L.P., *Copyright Amendment Act, 2012: A Revisit*, 55 J. INDIAN L. INST. 149 (2013).
[547] Jansen, M., *The Protection of Copyright Works on the Internet — an Overview*, 38 COMP. & INT'L L.J. S. AFR. 344 (2005).

proceeds to disseminate the recorded composition without providing any form of notification to the originator. In this particular situation, there has been a violation of the musician's entitlement to the integrity of their artistic creation and their right to be acknowledged as the author of the song. The lack of proper attribution in this scenario can be regarded as a violation of the creator's moral rights pertaining to their work. The purpose of non-economic moral rights is to protect the good name and originality of the author and the work they have produced. There are two types of intellectual property rights: the right of attribution, which guarantees the creator credit for their work, and the right to integrity, which gives the creator the right to object to any modifications made to the work that might be seen as defamatory. These protections, which are recognized by copyright laws all around the globe, exist only to give authors a greater say over their creations.[548] Several international copyright laws recognize the equal value of writers' moral and commercial rights. However, there may be times when the line between moral and economic rights is blurry, and the two types of rights come into conflict.[549]

The present study explores the intricacies and disputes that emerge with respect to ethical entitlements in the modern age, by examining prominent international disputes and legal proceedings. This study investigates the impact of technological advancements on the genuineness of artistic productions and the relevance of ethical entitlements in the domain of preservation and cultural legacy. The global study's results shed light on the similarities and differences in upholding ethical rights within various legal systems, providing valuable insights for policymakers, scholars, and practitioners working in the field of intellectual property law. The present study underscores the imperative of embracing a comprehensive and flexible outlook towards moral rights, which acknowledges the fluid nature of artistic works and the challenges posed by the digital era, while also safeguarding the ethical and moral interests of creators on a worldwide basis.

I. Examining the Challenges to the Application and Enforcement of Moral Rights

[548] Rigamonti, C.P., *The Conceptual Transformation of Moral Rights*, 55 AM. J. COMP. L. 67 (2007).
[549] BRIGITTE VÉZINA, *Moral Rights: Copyright's Poor Relation*, in ENSURING RESPECT FOR INDIGENOUS CULTURES: A MORAL RIGHTS APPROACH (Centre for International Governance Innovation 2020).

In general, moral rights are applied in all artistic fields where works are produced, including, but not limited to, the visual arts, songs, literature, film, and photography. Moral rights, for instance, would safeguard a visual artist's right to stop their work from being altered or defaced or used in a manner that would damage their reputation. Parallel to this, in the music industry, moral rights would defend a composer's entitlement to be acknowledged as the creator of their musical piece and would forbid any revisions that would harm their reputation. Moral rights in literature would defend a writer's ability to claim credit for their literary creations and stop illegal modifications. Moral rights in the film industry would defend a filmmaker's right to stop any illegal changes to their picture or to stop using their movie in a way that would damage their reputation.[550] The right to be recognised as the photographer of a photograph and the right to prohibit unlawful edits or distortions of that photograph are both moral rights that are significant in the photography profession. In light of various considerations, moral rights play a prominent role within the realm of copyright protection legislation in the arts, as they afford authors a means to safeguard their reputations and exercise authority over the utilization and dissemination of their creative works to the broader public. [551]

The right to be recognized as the author of one's work and the right to protest any amendment or distortion of one's work that might be detrimental to one's reputation or honour are both examples of moral rights that are granted to creators of works, such as authors, originator, virtuosi, and filmmakers et cetera.[552] These rights safeguard the reputation and integrity of the creators of these works. Moral rights have the potential to be very successful in defending the rights of creators since they give them a legal framework through which to preserve control over their works and guarantee that they're presented following their intentions.[553] Also, moral rights might inspire artists to continue creating unique and original works since they know that their works will be protected. Yet, the scope of moral rights might differ based on the legal system and the kind of activity that is being protected. Moral rights may be seen as subordinate to economic rights in

[550]31 C TAN, REGULATION BY COPYRIGHT LAWS IN REGULATING CONTENT ON SOCIAL MEDIA: COPYRIGHT, TERMS OF SERVICE AND TECHNOLOGICAL FEATURES (UCL Press 2018).
[551]Gov't of India, Dep't for Promotion of Indus. & Internal Trade, Ministry of Commerce & Industry, *A Handbook of Copyright Law* (Apr. 29, 2023, 10:04 AM), copyright.gov.in
[552] Universal Declaration of Human Rights, G.A. Res. 217A, U.N. GAOR, 3d Sess., art. 27, U.N. Doc. A/810 (1948).
[553]MORAL RIGHTS BASICS, https://cyber.harvard.edu/property/library/moralprimer.html (last visited Apr. 29, 2023, 10:04 AM).

certain nations or perhaps be nonexistent in others, where they may be accorded the same weight as economic rights. However, some sorts of works, such as those in the visual or literary arts or music or cinema, may lend themselves to the enforcement of moral rights more readily than others.[554]

Indeed, moral rights may be influenced by cultural and societal factors, which can affect their effectiveness and implementation. The concept of individual authorship may hold less significance in certain cultural contexts where the communal creation of art or literature is valued.[555] In certain circumstances, moral rights may lack significance or relevance. Moral rights can serve as a valuable mechanism for safeguarding the rights of artists and promoting innovation. However, their effectiveness and implementation may vary depending on a range of factors such as jurisdictional considerations, the characteristics of the work in question, and the cultural and social context.

III. Tracing the Legal and Statutory Recognition of Moral Rights in Different Jurisdictions:

The theory of Personality has exerted a substantial impact on the development of moral rights. The theory suggests that creative works are a manifestation of the author's personality and therefore, they are entitled to inherent rights over their works that go beyond mere economic considerations.[556] During the beginning of the 20th century, the impact of continental European legal philosophy led to the theory having a notable influence on copyright law. In contrast to the Anglo-American tradition, the European tradition had a well-established notion of moral rights that regarded authors' works as an extension of their personal identity. The concept of 'moral rights' was solidified as a result of this development, and subsequently enshrined in international law via the Berne Convention for the Protection of Literary and Artistic Works in 1886. The Convention encompasses moral rights, which consist of the entitlement to attribution, or recognition as the

[554] Michael Rushton, *The Moral Rights of Artists: Droit Moral Ou Droit Pécuniaire?* 22 J. CULTURAL ECON. 15 (1998).
[555] Jansen, M., *The Protection of Copyright Works on the Internet — an Overview*, 38 COMP. & INT'L L.J. S. AFR. 344 (2005).
[556]Masiyakurima Patrick, *The Trouble with Moral Rights*, 68 MOD. L. REV. 411 (2005).

author of the work, and the entitlement to integrity, or the right to contest any adaptation of the work that could harm the author's reputation or dignity.[557]

The notion of moral rights has been variably adopted across different legal systems, yet it has undoubtedly exerted a significant influence on the development of international copyright law, highlighting the importance of safeguarding the intimate and affective bond between authors and their works. The theory of personality in copyright law acknowledges the economic significance of artistic works while also establishing the profound emotional connection that authors have with their creations. It is crucial for authors to be aware of the legal protections for their moral rights offered by their countries and to take action to safeguard those rights, such as incorporating wording protecting such rights in agreements and licenses.

1. Overview of Moral Rights Legislation in the United States (US):

In accordance with the Visual Artists Rights Act (hereinafter will be referred to as VARA)[558], which has been enacted in 1990, moral rights are recognised in the US. VARA gives visual artists a restricted range of moral rights over their works of visual art, such as paintings, sculptures, and photos, whether or not the work has been published. A VARA-compliant artist is entitled to the following:

- "Assert their claim to originality.
- Make sure their name isn't used as the author of anything they didn't develop.
- Avoid identifying them as the creator of any works that have been misrepresented, altered, or otherwise changed in a manner which would be detrimental to their reputation or honour.
- Avoid demolishing a piece of art with a reputable standing."[559]

The right to assert authorship is sometimes referred to as the "right of attribution," while the "right of integrity" is frequently used to describe the right to forbid the use of an artist's name. Even if an artist has sold or otherwise transferred the physical work, VARA nonetheless preserves their moral

[557] Johann Neethling, *Personality Rights: A Comparative Overview*, 38 COMP. & INT'L L.J. S. AFR. 210 (2005).
[558] Visual Artists Rights Act of 1990, Pub. L. No. 101-650, 104 Stat. 5128 (1990).
[559] MORAL RIGHTS IN U.S. COPYRIGHT LAW, https://www.copyrightlaws.com/moral-rights-in-u-s-copyright-law/(last visited Apr. 29, 2023, 10:04 AM).

rights. It is significant to highlight that VARA does not apply to other sorts of works, also including literary, musical, or theatrical works and only applies to visual works of art. Moreover, only works produced after the law's passage in 1990 is covered by the VARA.

2. Unveiling the Landscape of Moral Rights Legislation in Canada:

The Copyright Act, 1997 in Canada protects moral rights and defines them as "*the right of an author to the integrity of a work and to its presentation to the public in a manner that will not distort, mutilate, or otherwise modify the work in a manner that is prejudicial to the author's honour or reputation*."[560] The Copyright Act of Canada, 1997 encompasses several significant provisions pertaining to moral rights. The concept of the *right to truthfulness* is a fundamental principle that pertains to the ethical and moral obligation of individuals and institutions to be truthful in their actions and communications. This concept is based on the idea that everyone has a right to know the truth and that lying or hiding facts may have serious implications for both people and society.[561] Several international treaties and conventions emphasize the importance of the right to tell the truth in protecting human rights. The author should possess the prerogative to prevent any unauthorized transformations, modifications, or revisions to their work that may potentially harm their standing or dignity. The *right of affiliation* pertains to the author's entitlement to safeguard their identity or employ a pseudonym when their work is made available to the public, with the aim of preventing the association of their name with a work that they did not create.[562] The *right to disclosure* pertains to the authors' authority to regulate the dissemination of their work, encompassing the scheduling and configuration of its publication. Copyright holders possess the authority to restrict the dissemination of their copyrighted material without their explicit authorization.[563] Lastly, the *right of acknowledgement* refers to the author's entitlement to be recognized as the original creator of their work and to prevent others from falsely claiming authorship of said work.[564]

[560] Copyright Act, R.S.C. 1997, c. C-42, §§ 14.1, 28.2 (Can.).
[561] Copyright Act, R.S.C. 1997, c. C-42, § 28.2(1) (Can.).
[562] Copyright Act, R.S.C. 1997, c. C-42, § 14.1(1) (Can.).
[563] Copyright Act, R.S.C. 1997, c. C-42, § 14.1(2) (Can.).
[564] Copyright Act, R.S.C. 1997, c. C-42, § 28.2(1) (Can.).

Even if the author sells or transfers the copyright to their work, they still retain these moral rights, which cannot be sold or transferred.[565] The protection of moral rights lasts for the same amount of time as copyrights, which is the author's lifetime plus 50 years after death.[566] Moral rights, which can be waived or relinquished by the author, are distinct from commercial rights (such as the ability to duplicate or distribute a work). Such waivers or surrender of moral rights, however, must be made in writing and bear the author's signature.

3. Overall Sketch of Moral Rights in Europe:

The Berne Convention for the Protection of Literary and Artistic Works is an international treaty that establishes the fundamental principles of copyright law. It provides for the safeguarding of moral rights in Europe. Apart from other legislation that is applicable across all member states of the European Union (EU), the Berne Convention is implemented through national laws in each EU member state.[567] In the European context, authors are typically granted certain moral rights, including the Right of Acknowledgement. This right affords the author the ability to be recognized as the original creator of their work and to prevent others from making claims of authorship over said work. The Right to Truthfulness pertains to an author's entitlement to prevent any unauthorized modifications, or edits to their work that may potentially harm their reputation or honour. [568] The principle of the Right to Disclosure posits that authors should possess the authority to regulate the dissemination of their work, encompassing the scheduling and configuration of its publication. Authors possess the legal entitlement to restrict the dissemination of their copyrighted material without their explicit authorization. Furthermore, the right of revocation pertains to the author's ability to restrict the dissemination of their work or request its removal from circulation in cases where there are valid concerns that such actions may negatively impact their reputation.[569]

4. Moral Rights Laws in India:

[565] Copyright Act, R.S.C. 1997, c. C-42, § 14.1(2) (Can.).
[566] Copyright Act, R.S.C. 1997, c. C-42, § 6 (Can.).
[567] PETER BALDWIN, *The Strange Birth of Moral Rights in Fascist Europe*, The Copyright Wars: Three Centuries of Trans-Atlantic Battle 163 (Princeton Univ. Press 2014).
[568] Rigamonti, C.P., *supra* note 3, at 67.
[569] *Id*.

Under the Copyright Act of 1957[570], the idea of moral rights is acknowledged and safeguarded in India. In connection to their creations, authors and other creatives have non-economic liberties known as "moral rights." These legal rights are meant to safeguard the purity and image of the work as well as the creator's relationship to it. According to Indian copyright legislation, moral rights encompass three distinct rights. Firstly, the right of acknowledgement allows the creator to be recognized as the author of their work. Secondly, the right of integrity safeguards the creator's prerogative to object to any modifications, distortions, or mutilations of their work that may potentially harm their reputation. Finally, the right of disclosure grants the author the ability to disclose information pertaining to the utilization of their creations.[571]

Section 57 of the Copyright Act of 1957 safeguards moral rights, including the author's entitlement to assert authorship, object to any modification, mutilation, or adjustment of the work that may potentially harm their reputation, and seek restitution or prevent such variations.[572] The aforementioned rights are deemed to be inalienable and perpetual, irrespective of the expiration of the copyright pertaining to the work, and are non-transferable and non-assignable.[573] The Indian legal system recognizes the importance of moral rights in safeguarding the creative works of writers and artists, in addition to the Copyright Act. As such, it provides legal recognition and protection for moral rights. As per the Indian judiciary, infringement of moral rights can lead to the author receiving compensation and, in exceptional cases, injunctive relief to prevent any future violations of these rights. [574]

IV. Unmasking the Underbelly: An In-depth Analysis of Moral Rights Exploitation in Creative Industries

It is possible to abuse attribution rights by failing to give the author credit for their contributions. It might occur when a writer's work is plagiarised or utilised without their consent. Whenever an author's work is altered or misrepresented in a way that damages the author's reputation, integrity rights may be violated.[575] This might occur when a work of art is appropriated for political

[570] Copyright Act, No. 14 of 1957, § 57 (India).
[571] Upendra Baxi, *Copyright Law and Justice in India,* 28 J. INDIAN L. INST. 497 (1986).
[572]Copyright Act, No. 14 of 1957, § 57 (India).
[573]*Id*.
[574] Sivakumar, S. & Lukose, L.P., *supra* note 1, at 150.
[575]BRIGITTE VÉZINA, *supra* note 1, at 52.

purposes or when a book is modified without the author's permission. When a writer's work is utilised in such a way with which the creator no longer wishes to be connected with, withdrawal rights may be misused. When a writer's work is utilised in a contentious or offensive manner, this might occur. When a writer's work is made available without their consent or against their intentions, publication rights may be violated. An author's work may be released before it is prepared for publication or published by a publisher without the author's knowledge or approval. It is crucial to uphold writers' moral rights since they are crucial for safeguarding the rights of authors and preserving the authenticity of their work. [576]

1. The Exploitation of Moral Rights on Contractual Basis:

"There is a chance that writers' moral rights could be violated when they transfer their commercial rights to other companies and organisations. This is because of the likelihood that the owner of the economic rights could alter the work but with the author's knowledge or permission, which would be a violation of the author's moral rights."[577]

For instance, the owner of the economic rights may alter the work in a manner that distorts or harms the author's image or alters its tone or message. Additionally, they might apply the work in a manner that goes against their morals or views or that the author hadn't intended. This can be especially troublesome if the owner of the economic rights is more focused on making money than on upholding the validity of the work or the author's artistic intent.[578] Sometimes the owner of the economic rights will put their interests ahead of those of the author, ignoring or even violating the author's moral rights. The conditions of any agreement authors enter with an economic rights content owner should be carefully thought out in order to reduce this risk. They should make sure the contract contains clauses that safeguard their moral rights, including such demands that any adaptations be authorised by the author or that the work not be utilised in a manner that is damaging to the author's image. In addition, even if they transfer the financial rights to a 3rd person or party, authors may think about keeping some level of authority over the work. This can be

[576]Michael Rushton, *supra* note 9, at 16..
[577]*Id.*
[578]*Id.*

accomplished, for instance, through licencing arrangements that permit the author to keep some control and rights over the utilization and modification of the work. [579]

2. The Exploitation of Moral Rights in terms of Marketing:

The moral rights of authors have the potential to be utilized in various commercial marketing scenarios. The subsequent techniques are representative examples, including, the creators of literary or artistic works are entitled to moral rights, which are non-economic in nature. These rights encompass the author's entitlement to be acknowledged as the originator of the work, the right to preserve the integrity of the creation, and the right to object to any modifications or revisions that could potentially harm their reputation. In the realm of marketing, writers' moral rights may be infringed upon through the manipulation of the author's ideas or the misattribution of credit to another individual.[580] Unauthorized changes to an author's work may have negative consequences for their reputation, credibility, and artistic authenticity, and may also violate their entitlement to object to any revisions that could potentially harm the integrity of their original creation. Further, contracts have the potential to limit or waive an author's moral rights, thereby placing them at a disadvantage and allowing third parties to derive financial gain from their creative output. The moral rights of authors can be significantly compromised by marketing practices that infringe upon their image, credibility, and creative ownership of their written works.[581] In regards to utilizing an individual's work for commercial purposes, it is necessary for businesses and marketers to obtain the author's consent. It is imperative for authors to be cognizant of their moral rights and take measures to protect them via contractual and legal mechanisms.[582]

V. Through the Lens of Reality: Case Studies Illuminating the Application and Challenges of Moral Rights

1. Challenges to Moral Rights in the Digital Era:

The moral rights of authors with regard to their copyrights encounter several difficulties in the digital age. The ease of replication, issues with attribution, unauthorised changes, poor protection,

[579] BRIGITTE VÉZINA, *supra* note 4, at 50.
[580] Rigamonti, C.P., *supra* note 3, at 67.
[581] *Id*.
[582] *Id*.

and the internet's worldwide reach are a few of the major obstacles.[583] With the development of digital media, it has become easier than ever to distribute any copyrighted content without the author's consent, making it challenging for them to manage how their works are used and uphold their moral rights. As a result, the original source may be lost and writers may not be given credit for their contributions. Attribution is therefore sometimes difficult. Additionally, in the digital age, unauthorised changes to copyrighted works are frequent, harming the author's reputation or changing the work's original meaning. Although copyright regulations are in effect to safeguard authors' rights, they are frequently insufficient in the digital age due to enforcement difficulties and lenient penalties for infringement.[584] It has become difficult for authors to uphold their legal rights and defend their moral rights in every country where their copyrights are being infringed and are being utilised due to the worldwide spread of the internet.[585] Therefore, it is essential to make certain that authors' rights are properly upheld and protected as technology advances.

An American artist named Richard Prince created a series of "New Portraits" pieces using screenshots of Instagram images without getting permission.[586] These pieces were shown and sold for a high price. The original photographers asserted that Prince had violated their moral rights, notably their right to choose how their art is used and shown, by using their photographs.[587] They alleged that Prince's use of their work violated intellectual property rights and damaged the distinctive qualities and inventiveness of their creations. Prince claimed that his utilisation of the images fell within the definition of "fair use," but the judge eventually sided with the photographers, holding that Prince had violated their moral rights. Another good example of infringement of moral rights through digital means is “The Grumpy Cat Lawsuit.”[588] In 2015, The owner of the Grumpy Cat, a famous cat noted for her constantly grumpy face, filed a lawsuit

[583] Gregory Booth, *Copyright Law and the Changing Economics of Popular Music in India*, 59 ETHNOMUSICOLOGY 262 (2015).
[584]Llewellyn Joseph Gibbons, *Visual Artists Rights Act ('VARA') and the Protection of Digital Works of 'Photographic' Art*, 11 N.C. J.L. & TECH. 531 (2010).
[585] Desak Kasih and Putu Dewi, *The Exploitation of Indigenous Communities by Commercial Actors: Traditional Knowledge and Traditional Cultural Expression*, 8 J. ETHNIC & CULTURAL STUD. 91 (2021).
[586] Cariou v. Prince, 714 F.3d 694 (2d Cir. 2013).
[587]Lizzie Plaugic, *The Story of Richard Prince and his $100,000 Instagram art*, THE VERGE(Apr. 29, 2023, 10:04 AM), https://www.theverge.com/2015/5/30/8691257/richard-prince-instagram-photos-copyright-law-fair-use
[588]*Grumpy Cat wins $710,000 payout in copyright lawsuit*, BBC NEWS(Apr. 29, 2023, 11:04 AM), https://www.bbc.com/news/world-us-canada-42808521

against a coffee business for exploiting the cat's picture without authorization.[589] The business was accused of violating the cat's moral rights by utilising its likeness for profit without the cat's consent, according to the lawsuit. The owner said the cat's right to decide how its picture was used was being breached, and the image's usage was harming the cat's reputation. The owner of the cat was given compensation for copyright infringement of $710,000 when the court ruled in his favour.[590]

Further, Moral Rights in Digital Medium was questioned and interpreted in Google LLC V. Oracle America, Inc.[591], a case that the US Supreme Court determined in 2021. The dispute centred on Google's usage of Oracle-owned Java software code in their Android operating system. Oracle claimed that Google had illegally stolen numerous lines of code when it filed a lawsuit against it for copyright infringement. Google contended that their use of the code was legal under the fair use theory, which permits the unrestricted use of copyrighted works for purposes which included commentary, criticism, and transformation.[592] The court decided in favourable terms for Oracle, concluding that Google's usage of the Java code did not qualify as fair use and violated other people's intellectual property. Since Google's use of the code did not significantly alter the original work, the court determined that Google's use of Java coding was not transformative. The court further determined that Google's usage of the code would negatively affect sales of Oracle's Java software, which may have an effect on the motivation of writers to produce new works.[593] The case is relevant in the context of multimedia because it highlights the role of moral rights in preserving the authenticity and worth of works protected by copyrights, even when they are put to novel and creative applications.[594]

2. Scope of Preservation of Culture and Heritage through Moral Rights:

With his song "Genda Phool," the Indian musician Badshah had been accused of infringing on Ratan Kahar's moral rights in August 2020. According to Kahar, Badshah's song borrowed from

[589] Grumpy Cat Ltd. v. Grenade Beverage LLC, Case No. SA CV 15-2063-DOC (C.D. Cal. May. 31, 2018).
[590] *Id* .
[591] Google LLC V. Oracle America, Inc (2021) 141 S. Ct. 1163.
[592] *Id*.
[593] *Id*.
[594] *Id*.

his folk tune "Boro Loker Beti Lo" without his knowledge or credit, and the lyrics were altered without his approval.[595]

Creators have a set of legal protections known as moral rights that allow them to safeguard their non-commercial interests in their works, such as the ability to assert ownership and the right to protest any distortions. Badshah transgressed Kahar's moral rights as that of the original author of the work by exploiting Kahar's song without acknowledgement or permission and by changing its original lyrics without his approval. Following the accusations, Badshah apologised in front of the public and said that he had secured the required permits for the song and that any resemblance to Kahar's song was accidental. Nonetheless, the episode raised issues regarding the significance of recognising and protecting artists' moral rights, particularly those from disadvantaged areas who might not have the legal means to protect their rights.

In another scenario, Bhuban Badyakar, a street hawker from West Bengal who quickly rose to fame when his song ‘Kacha Badam’ went popular on social media, has claimed copyright infringement. When he wrote and performed a song regarding peanuts while peddling them by the side of the road and was caught on camera doing so in 2021, the West Bengali peanut vendor instantly rose to fame.[596] When Bhuban returned to his prior life he was condemned by a copyright issue that prevents him from even singing his music. Bhuban subsequently filed a case, stating that someone had wrongfully appropriated the rights to his song Kacha Badam.[597] In this case, there is a grave infringement of his copyrights which also pertains to his moral rights. The right of identification is one of the moral rights protected by Indian copyright law, which enables the creator to be recognised as the work's author was particularly infringed in this case. According to Section 57[598] of The Copyright Act of 1957, the author of a work has the right to assert his or her claim to authorship, to object to any alteration, mutilation, or modification that would harm the author's reputation, and to prevent or seek compensation for any such alteration, mutilation, or

[595] *Badshah: I just wanted to sample the Bengali folk song into my new single,* TIMES OF INDIA (Apr. 19, 2023, 09:04 AM), /timesofindia.indiatimes.com

[596] *Kacha Badam Singer Bhuban Badyakar Files Complaint Alleging Copyright Infringement*, NEWS18 (Apr. 19, 2023, 09:04 AM), www.news18.com (last visited on 2nd April 2023)

[597] *Id*

[598] *'Kacha Badam' singer files copyright infringement complaint,* INDIA TODAY(Apr. 19, 2023, 09:04 AM), https://www.indiatoday.in/law/story/kacha-badam-singer-files-copyright-infringement-complaint-2341402-2023-03-02

modifications. These rights remain in effect long after the copyright for the work has passed away and cannot be given or assigned to anyone else.

3. Judicial Responses on the Protection of Moral Rights:

2019 witnessed Taylor Swiftopenly accusing her previous record company, Big Machine Records, of transgressing her moral rights regarding her Music Catalogue by selling Scooter Braun her entire library of music which included high-grossing without her consent. Swift claimed that despite numerous requests, she has been unable to purchase her own songs.[599] An author does have the right to stop their work from being destroyed, altered, or misrepresented under US copyright law. They also have the right to forbid the use of their name in conjunction with any modifications of their products that would damage their reputation. Taylor Swift's moral rights were allegedly violated when her back catalogue was sold to Scooter Braun without her permission.[600]

Swift alleged that despite asking to be able to purchase her songs, this did not happen. She also claimed that Big Machine Records threatened to cease releasing her songs if she didn't agree to a new deal with the company. Swift claimed that there was a breach of her moral rights since the label denied all her requests for ownership over her music, which she had been requesting for years. Public discussion regarding artists' ownership rights and industry domination erupted in response to the circumstance. "Swift eventually parted ways with Big Machine Records"[601] and secured a new contract with Republic Records, which enabled her to own her own masters.

In the case of Anish Kapoor V. The National Rifle Association of America[602] Famous artist Kapoor is recognised for his enormous sculptures, such as "Cloud Gate" in Chicago. In 2012, Kapoor received a contract from the German firearms company Beretta to make a sculpture for their advertising campaign. "Dirty Corner," a sculpture made by Kapoor, was displayed in 2015 at the Palace of Versailles in France. The artwork was a huge steel construction with a red paint job that looked like a tunnel. Without his consent, the NRA utilised a picture of Kapoor's artwork "Dirty

[599] Jem Aswad, *Big Machine Records Denies Taylor Swift's Claims of Blocking Music Use*, VARIETY(Apr. 19, 2023, 09:30 AM), https://variety.com/2019/music/news/big-machine-records-denies-taylor-swift-claims-scott-borchetta-scooter-braun-1203406009/
[600] *Id.*
[601] *Id.*
[602] Anish Kapoor v. The National Rifle Association of America, [2018] EWHC 2833 (QB) (Eng.).

Corner" in their marketing campaign in 2016. Kapoor claimed that the addition of a pistol sticking out of the tunnel's aperture in the edited image violated his moral rights.[603]

For copyright violation and violating his moral rights, Kapoor brought a case against the NRA. He claimed that the variations to his artwork had compromised its original intent and meaning and had damaged both his reputation and his artistic integrity. The NRA had infringed on Kapoor's moral rights, the court found and agreed with him. The NRA was required by the court to make a public apology and pay Kapoor damages for infringing upon his moral rights. This situation demonstrates the value inherent to moral rights in maintaining the quality and credibility of an author's work, as well as the necessity of accurate credit and regard for the author's objectives. Furthermore, it indicates that even if an act of unlawful use of an artwork is not a direct replica, moral rights can still be enforced against it.[604]

In another case of Cariou V. Prince[605], Based on images shot by Cariou that Prince had edited and collaged, he produced several pieces of art. Cariou filed a lawsuit against Prince, claiming that his use of the images without his consent and without giving him credit amounted to copyright infringement and infringed upon his moral rights as the original photographer.[606] When the trial took place in 2011, the judge ruled in favour of Cariou, concluding that Prince had violated Cariou's copyright and that his use of the images had not been sufficiently transformative to meet the criteria of fair use. The judge further determined that Prince's utilization of the images infringed on Cariou's moral rights since the changes made to the images were seen as disrespectful and degrading to the original pieces.

The case was crucial in demonstrating the significance of moral rights as well as copyright law in the sphere of modern art, and it triggered a wider debate about the parameters of appropriate use and intellectual property violation inside the art world. The decision underscored the importance of carefully taking moral rights into account when producing new works based on older works,

[603] *NRA removes image of Anish Kapoor sculpture from advert*, THE GUARDIAN(Apr. 19, 2023, 09:30 AM), https://www.theguardian.com/artanddesign/2018/dec/06/nra-removes-image-of-anish-kapoor-sculpture-from-advert
[604] I*d.*
[605] Cariou v. Prince, 784 F. Supp. 2d 337 (S.D.N.Y. 2011), aff'd in part, vacated in part, remanded, 714 F.3d 694 (2d Cir. 2013)
[606] *Id.*

and it had substantial ramifications for artists who combine the works of other artists into their own.

IV. Guarding Creativity: Global Strategies and Countermeasures Against Infringement of Authors' Moral Rights

Despite their widespread recognition, an author's moral rights can be violated through various means. Legal recourse may be available depending on the jurisdiction, and there may be universal statutory or other limitations in place.

1. Injunctions

A typical legal remedy accessible to writers when their moral rights have been violated is an injunction. A court order is known as injunction orders the person that is violating the law to halt what they are doing right now. In the case of moral rights, an injunction may be requested to halt any unlawful modifications, distortion, or distortion of the author's intent or to demand that the author be properly credited for the work. Several nations acknowledge the existence of injunctive relief as a recourse for the violation of moral rights. For instance, the Copyright Act's Section 502[607] in the United States allows for injunctive relief as a recourse for copyright infringement, which includes the violation of moral rights. In particular, the clause enables a court to issue an injunction to stop or halt any copyright infringement, including the violation of moral rights like the right of acknowledgement or the right to integrity. Similarly, to this, the Copyright, Designs and Patents Act of the United Kingdom's Section 96[608] allows for the issuance of an injunction as a remedy for the violation of moral rights. A court may issue an injunction under this clause to prohibit or prevent any disparaging depiction of the author's creation or to demand that the author be properly given credit for the work. Canada's Copyright Act[609], Section 34(2)[610], allows for the issuance of an injunction as redress for copyright infringement, which includes the violation of moral rights. A court may issue an injunction under this clause to halt any illegal use or remoulding of the author's original work.

[607] Copyright Act of 1976, 17 U.S.C. § 501 (2018).
[608] Copyright, Designs and Patents Act 1988, c. 48, § 96 (U.K.).
[609] Copyright Act, R.S.C. 1985, c. C-42, § 34(2) (Can.).
[610] *Id*

Generally, for authors, when their moral rights have been infringed, injunctions can be a successful legal remedy. In accordance with the jurisdiction as well as the specific facts of the case, an injunction can act as a relief for the violation of moral rights and may be available or subject to other restrictions. As a result, writers should get legal counsel to identify the best course of action for their unique situation.

2. Damages

In the United States, statutes control the damages that are awarded for the violation of moral rights. For instance, the Visual Artists Rights Act (VARA) of 1990 in the United States focuses especially on the defence of moral rights for visual artists.[611] According to VARA, artists can assert the paternity of their projects, the right to stop having their names associated with works that they did not write, and the ability to prevent having their works altered in a way that would be detrimental to their reputation or honour. The statutory damages provided under the VARA case are capped at $150,000 per infringing work.[612] The Berne Convention outlines minimum requirements for the safeguarding of moral rights in the European Union. Nonetheless, every EU member state could have its own regulations that control the attribution of damages and offer further protection for moral rights.[613] In conclusion, a crucial component of the defence of copyrighted works is the granting of damages for the violation of moral rights.

3. Right of Attribution

The moral right of attribution and its incorporation into copyright law is regarded as a significant aspect by numerous countries. The entitlement to recognition as the creator of a piece of work is identified as the right of attribution, frequently denoted as the right of paternity. The objective of this legal safeguard is to maintain the author's attribution and assurance that their contribution to the production is duly recognized.[614]

[611] *Id.*
[612] Copyright Act of 1976, 17 U.S.C. § 504.
[613] *Id.*
[614] Michael Rushton, *supra* note 9, at 15.

In many nations, including the United States, this privilege is shielded by copyright legislation. The Visual Artists Rights Act (VARA) of 1990, which covers works of visual art, recognises the right of attribution in the United States.[615] The right of identification is what VARA refers to as the right of attribution.[616] This right grants the creator the power to assert the authorship of their creations and to have their names appropriately and conventionally affixed to their works. Likewise, several other nations acknowledge the right to attribution under copyright law with the United States as a moral right. For instance, the Copyright Act in Canada protects the right of attribution. The right to be recognised as the author of a work by name or by a pen name is granted by Section 14.1 of the Copyright Act.[617] The Copyright, Designs and Patents Act of 1988 also protects the right of attribution in the United Kingdom.[618] According to Section 77of the Act, the creator of a work has the right to claim authorship of the work.[619]

4. Public Apology

If someone's moral rights have indeed been infringed, there may be a remedy in the form of a public apology. This type of apology is a declaration made by the offender acknowledging the moral rights of the author was violated and expressing remorse for the harm done. This remedy is frequently applied when the harm to the author's integrity or reputation cannot be adequately made up for by monetary damages. This right is not expressly mentioned in several countries, including the United States, where laws are in place to safeguard moral rights. Yet, some courts have mandated that infringing parties offer an apology in public as a component of the remedy because they acknowledge the value of such statements in circumstances of moral rights infringement.

In accordance with the equitable principle of injunctive relief, it is possible for a court in the United States to mandate a public apology as a form of restitution for the violation of moral rights. In the realm of law, injunctive relief refers to a legal recourse wherein a party who has infringed upon the rights of another is directed to cease engaging in the harmful conduct.[620] A court may mandate

[615] *Id.*
[616] *Id.*
[617] Copyright Act, R.S.C. 1997, c. C-42, § 14(1) (Can.).
[618] Copyright, Designs and Patents Act 1988, c. 48, § 77 (U.K.).
[619] *Id.*
[620] Golden Gate Univ. Sch. of Law, GGU LAW DIGITAL COMMONS, digitalcommons.law.ggu.edu (last visited Apr. 2, 2023)

a public apology being part of the injunction remedies in situations when monetary damages are insufficient to adequately reimburse the author for the pain brought on by the breach of their moral rights. A writer may get a court order under the purview of the Canadian Copyright Act compelling the infringer to issue a clarification, reversal, or apology for violating their moral rights. The Copyright, Designs and Patents Act of 1988[621]recognises the right to a public apology in the UK as well. A court may require someone who has violated an author's moral rights to issue a correction, retraction, or declaration of apology, according to Section 101 of the Act.[622]

5. Criminal Sanction

The enforcement of criminal penalties is a possible response to moral rights abuses like copyright infringement. Copyright laws in many nations include civil and criminal consequences for infringement.

The enforcement of criminal penalties is a possible response to moral rights abuses like copyright infringement. Copyright laws in many nations include civil and criminal consequences for infringement. According to copyright legislation, the exclusive authority to duplicate, distribute, perform, and exhibit one's work belongs to the copyright holder. Without the owner's consent, violating one or more of these rights might lead to legal or criminal sanctions. Money damages, an injunction against further infringement, and legal costs are all possible civil punishments for copyright infringement. Criminal punishments, on the contrary hand, can include fines and incarceration and are normally only applied to more serious violations.

The federal Copyright Act codifies the criminal consequences for copyright infringement in the United States. The legislation delineates the legal ramifications for deliberate infringement of copyright, encompassing potential sanctions of a maximum fine of $250,000 and a maximum imprisonment term of five years for an initial offense.[623] The consequences for repeat violators may be substantially harsher. Numerous countries provide civil remedies for instances of copyright infringement, encompassing measures such as injunctions and the awarding of damages, in

[621] Copyright, Designs and Patents Act 1988, c. 48, § 107 (U.K.).
[622] Copyright, Designs and Patents Act 1988, c. 48, § 101 (U.K.).
[623] Copyright Act of 1976, 17 U.S.C. 17 U.S.C. § 506(A) and 18 U.S.C § 2319.

conjunction with the imposition of criminal penalties.[624] Some moral rights, including the right to identification as well as the right to integrity, can additionally be protected by legal remedies. In general, criminal penalties can be a useful weapon for defending the moral rights of copyright holders, especially where intentional violation is involved. However, other factors, such as the gravity of the conduct and the requirement to safeguard free expression and fair use, should be weighed against the employment of criminal punishment.

VI. Suggestion:

Within this section, we propose a range of recommendations with the objective of enhancing the safeguarding of authors' moral rights within the context of copyright legislation. The recommendations provided are guided by the objective of maintaining the uniqueness of artistic creations, while recognizing the crucial function moral rights serve in protecting the integrity and reputation of authors.

1. *Creating Awareness and Providing Guidance*: The enhancement of understanding and appreciation of moral rights is of utmost importance for creators, publishers, and stakeholders within the creative industry. Efforts such as awareness campaigns and specialized training programs can play a role in enhancing individuals' understanding of the importance of moral rights and their correlation with the integrity of authors' works.

2. *Skill Enhancement Initiatives*: The implementation of targeted skill enhancement programs for writers, publishers, and other stakeholders in the industry can effectively tackle the challenges associated with moral rights. The primary objective of these programs should be to provide individuals with the requisite knowledge and resources to effectively navigate the intricate landscape of moral rights. This would facilitate the creation of an environment that duly recognizes and safeguards the rights of authors.

3. *Legislative Enhancements for Comprehensive Protection*: Examining potential legislative amendments to expand the extent of moral rights protection represents a feasible strategy. This entails the contemplation of expanding the scope of moral rights protections to encompass a broader range of artistic creations. Furthermore, the implementation of stricter sanctions for

[624]Michael Rushton, *supra* note 9, at 15.

infringements on moral rights can serve as a preventive measure and emphasize the significance of upholding the rights of authors.

4. *Strengthening Enforcement Mechanisms*: In order to fulfill ethical obligations, it is imperative to establish and implement effective mechanisms for enforcement. One potentially effective approach could entail the establishment of specialized courts and tribunals specifically designed to handle cases related to moral rights conflicts. These institutions would serve as a forum for the resolution of conflicts, while also guaranteeing that authors are provided with access to legal resources and assistance.

5. *Utilization of Technology for extending protection*: Technology provides valuable resources to enhance the safeguarding of authors' intellectual property. Technology provides authors with the capability to actively monitor and track the utilization of their literary creations on the internet, thereby granting them the authority to address instances of unauthorized usage. Moreover, the implementation of sophisticated software for the detection and prevention of copyright infringements provides an additional level of safeguarding.

V. Conclusion

In the current context of intellectual property rights and creative pursuits, the safeguarding of authors' moral rights is of utmost significance. This paper has explored the complexities surrounding moral rights and put forth a set of perceptive recommendations with the objective of strengthening their protection and recognition. The suggested recommendations are in line with the overarching objective of cultivating a conducive atmosphere that upholds the moral rights of authors while simultaneously promoting innovation. The implementation of various initiatives aimed at increasing awareness, offering guidance, and improving the abilities of individuals involved is crucial in establishing a fundamental framework for fostering a culture that values and upholds moral rights. Through the enhancement of comprehension, individuals involved in the creative field, including creators and industry participants, can effectively navigate the intricacies associated with these rights. This, in turn, contributes to the development of a more cohesive and balanced creative ecosystem.

The potential implementation of legislative adjustments has the potential to signify a significant transformation in the safeguarding of moral rights. Expanding the range of safeguarding measures

and enhancing the severity of sanctions would effectively communicate the significance of moral rights, potentially discouraging instances of infringement. Utilizing technology effectively maximizes the opportunities presented by the digital era. By providing authors with the necessary resources to track their works on the internet and identify instances of copyright infringement, they are enabled to adopt a proactive approach in addressing such issues. This approach not only increases protection, but also functions as a proactive measure to ensure the preservation of creativity in the digital domain.

In a society characterized by a vibrant creative landscape and a flourishing climate of innovation, it becomes crucial to recognize and protect the moral rights of authors. The suggestions put forth in the paper collectively contribute to the establishment of a comprehensive framework that acknowledges and values the distinct contributions of creators, while simultaneously promoting the ethical principles that underpin the creative industry. By adopting these recommendations, stakeholders can collectively propel the creative landscape into a more inclusive, protected, and vibrantfuture.

PATENTABILITY OF ARTIFICIAL INTELLIGENCE INVENTIONS

Vedika Doiphode*& Anjali Singh**

Abstract

Artificial Intelligence refers to the capability of a computer or robot, operating under computer control, to execute tasks that are typically carried out by intelligent individuals. Artificial Intelligence has transformed the role of computers from being a simple calculating machine to an autonomously creative work generating system. In addition to understanding complex material and learning from it, artificial intelligence is assisting machines in producing novel works that have historically been linked with human genius. This brings up significant matters concerning IPR as it creates uncertainty not just around traditional interpretations of concepts like patents, but also gives rise to concerns about the management of such innovations and other related aspects.The invention of artificial intelligence has put the patent system's inventorship requirements, which do not recognize nonhuman entities as inventors, to the test. In this research paper we will discuss the issues regarding the patentability of AI inventions and the need of protection for AI inventions. It also attempts to provide suggestions.

Key Words: Artificial Intelligence, Patent, Inventorship, Ownership, Intellectual Property.

I. Introduction

Artificial Intelligence refers to the capability of a computer or robot, operating under computer control, to execute tasks that are typically carried out by intelligent individuals. The term commonly denotes the endeavour to create AI systems that possess cognitive abilities akin to those of humans, encompassing attributes like reasoning, comprehension, generalization, and the capacity to learn from past encounters. One definition of artificial intelligence cannot include the entire field. The goal of the field of science that is artificial intelligence is to develop robots and systems whichare conceived to accomplish tasks which would otherwise require human intelligence. AI is categorized into 2 main divisions, namely machine learning and deep learning. AI is typically thought of as synonymous with "deep supervised machine learning" due to the recent development of new neural network methodologies and hardware.

Even computers and human intelligence have been used to develop decision-making abilities. Today's definition of artificial intelligence refers to a computer system's capacity for independent decision-making. "AI" was first used by computer scientist John McCarthy in a 1956 conference. According to him, the concept involved a computer processing data and responding to it in a manner that is comparable to how a smart person would respond to the same input. Due to this reliance on and interest in machines, AI projects were developed in a way that enabled them to do tasks that required creativity comparable to that of humans. Nevertheless, doubts have been raised regarding whether the output of a machine is a result of its own intelligence or simply the outcome of predefined rules and algorithms. To address this concern, Sir Alan Turing proposed the "Turing test." In this test, individuals were instructed to engage in a text-based conversation with either a machine or a human, and then determine whether they were interacting with a human or a machine. While this test served its purpose for a limited time, its application was constrained to machines capable of speech and specific questioning scenarios.

The World Intellectual Property Organization (WIPO) identifies three categories of artificial intelligence (AI): expert systems, natural-language systems, and perception systems. Expert systems refer to computer software designed to tackle highly specialized knowledge domains, such as analysing geological conditions, providing recommendations, and diagnosing medical

diseases[625].These techniques are also used to create artwork and other related things, which are artistic pursuits. In 1956, the US Copyright Office denied registration for the musical composition titled 'Push Button Bertha', which was created by a computer.[626] This decision highlighted the legal ambiguity surrounding computer-assisted works and drew attention to this issue. Perception systems within artificial intelligence (AI) enable the system to perceive and interpret the surrounding environment through visual and auditory means. These systems are employed by experts in word context, topology, and various other domains. Last but not least, a dictionary database is necessary for a natural language programme to understand word meanings. The system's ability to deliver a semantic analysis while accounting for varied grammatical and textual contexts is outstanding. As result of the extensive utilization of these AI systems, numerous individuals endeavoured to safeguard the outcomes they generated.

The effects of AI technologies on people are probably going to be significant. Artificial intelligence (AI) has become a multipurpose technology with numerous uses in the economy and in society.[627] As more sophisticated software is included into modern artificial intelligence systems, they are growing exponentially. It already has a substantial impact on the development, distribution and production of commercial services and cultural goods and is projected to have an increasing impact in the future. Complicated works can now be created by AI systems like poetry and artwork in addition to simple computations. Since one of key aims of IP policy is the encouragement of creativity and innovation in cultural and economic systems, AI and policies of IP meet at a variety of key points.[628]

Many issues with the actual IP law have been raised with the increasing technology trends. The concept of inventorship in AI inventions remains uncertain and subject to debate within the field of IPR. This ambiguity arises from the fact that AI technology can either contribute to the development of a product or assist the innovator in its creation.AI innovations are similar to other

[625]WIPO Technology Trends – Artificial Intelligence, available at: https://www.wipo.int/tech_trends/en/artificial_intelligence/

[626]Samantha Fink Hedrick, *I "Think," Therefore I Create: Claiming Copyright in the Outputs of Algorithms*, 8 N.Y.U. J. Intell. Prop. & Ent. L. 2 (2019).

[627] Lea Gary, 'The *Struggle to Define What Artificial Intelligence Actually Means' Popular Science (3 September 2015).*

[628]Swapnil Tripathi & Chandni Ghatak, *Artificial Intelligence and Intellectual Property Law*, 7 Christ Univ. L.J. 1 (2018).

computer-aided technologies, like software for customer relationship management, in this regard. However, it seems clear that in light of AI's nature, this technology can autonomously come up with inventions.[629]

It is necessary to distinguish between human and machine-created works and inventions. The IP frameworks which are in existence now, such as copyright, industrial designs, patents and trade secrets, provide protection for qualifying human-created works and inventions. Whether those frameworks and processes should be altered to accommodate ideas and works produced by machines is still up for dispute. The following topics dominate discussions of works and inventions produced by machines:

i. Potential protection for the work or invention that was produced by a machine. This mostly focuses on the issue of whether AI qualifies as a creator or inventor under theAct.
ii. Protection for the AI algorithms.
iii. Rights that may apply to the data inputs and training data which is underlying.

The question of what level of human input or direction may be necessary to be indifferentiable, as well as where to draw the demarcation between machine and human creation, are also up for debate. The WIPO reports that there have been till now a number of patent applications wherein the invention of AI technology in general was claimed by the applicant. According to the WIPO publication 1055 - Technology Trends 2019, the areas of transportation, telecommunications and life and medical sciences have received the most AI functional application filings, with activity mostly in natural language processing, speech processing and computer vision.[630]

e. Can Artificial Intelligence Inventions Be Covered Under Indian Patent Law?

1. What are AI-Generated Inventions?

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[629] Peter Norvig and Stuart Russell, Artificial Intelligence – A Modern Approach (3rd edition, Pearson 2010), p. 1.
[630]WIPO, *The Story of AI and Patent*, https://www.wipo.int/tech_trends/en/artificial_intelligence/story.html (last visited May 28, 2023).

Both ideas that make use of AI and inventions created by AI are referred to as "AI inventions." Legal accounts of AI-generated innovations usually reference the Oral-B toothbrush and other triumphs of Dr. Stephen L. Thaler's "Creativity Machine," the NASA antenna, achievements in the field of genetic programming and AI uses in medication research and development[631]. The connectionist system DABUS recently received credit for a variety of innovations that were included in the "Artificial Inventor" project, including method for creating and modelling artificial neural networks, a container of food, tools, approaches for drawing more attention.[632]

Machines may be automated to carry out tasks that often need human interaction owning to AI. The field of AI includes developing new tools for voice recognition, visual perception, translation, and decision-making using databases that are now accessible, among other things.[633]

Technology advancements have made it possible for AI to currently produce genuine, patent-worthy creative notions. But does the law now in place recognise AI as an inventor?

We have rules that protect a person's concrete ideas as intellectual property when it comes to intelligence. The Indian Patents Act, passed in 1970, lays out the guidelines for granting intellectual property rights to those who create novel and ground-breaking innovations. The "inventor" is basically not defined in Act. Hence, it is more importantto know the whole Indian Patent Act, the legislative intent, and the meaning of the term "inventor." [634]

2. Inventions Under Patent Law

An "Invention" is defined as "a product or process that incorporates an inventive step and is capable of practical implementation in industries*"*.[635]

[631]Lea Gary, *The Struggle to Define What Artificial Intelligence Actually Means*, Popular Science, Sept. 3, 2015.
[632]Daria Kem, *AI-Generated Inventions': Time to Get the Record Straight?*, GRUR Int'l, 69 GRUR Int'l 5, 443 (May 2020), https://academic.oup.com/grurint/article/69/5/443/5854752 (last visited May 22, 2023).
[633]Roger C. Schank, "*What is AI, anyway*?" 8 AAAIM 4, 58-65 (2001).
[634]Archana Raghavendra, *Does AI Qualify As An 'Inventor' Based The Statute In Indian Patents Act, 1970?*,(Jan. 5, 2022), https://www.mondaq.com/india/patent/1147320/does-ai-qualify-as-an-inventor39-based-the-statute-in-indian-patents-act-1970 (last visited May 28, 2023).
[635]The Patents Act, 1970, § 2(j), No. 39, Acts of Parliament, 1970 (India).

An "inventive step" refers to "a characteristic of an invention that exhibits technical advancement compared to existing knowledge, holds economic significance, or both, and makes the invention non-obvious to a person skilled in the relevant field". [636]

A "new invention" defined as "any invention or technology that has not been previously disclosed in any publication or used anywhere in the world before the filing date of a patent application with a complete specification."Put simply, the invention's subject matter has not fallen into public domain or is a part of the state of the art.637

3. Inventions Which Can Be Patented?

The three primary requirements for patentability—novelty, usefulness, and non-obviousness[638]—can be inferred from the aforementioned categories. The Patents Act, 1970 does not include a comprehensive description of what qualifies as patentable subject matter.[639] "Novelty" and "Utility" are essential elements of patent law.[640]

However,S.3 of the Act specifically excludes some groups from the definition of "innovation."

4. Who Can Apply for a Patent?

As per the legislation, individuals falling under the following categories are eligible to apply for a patent for an invention:

i. Any person who asserts to be the genuine and initial inventor of the invention.
ii. Any person who has acquired the right to make such an application as an assignee from the person claiming to be the true and first inventor.
iii. The legal representative of a deceased person who had the entitlement to file such an application before their demise.

[636]The Patents Act, 1970, § 2(ja), No. 39, Acts of Parliament, 1970 (India).

[637] The Patents Act, 1970, § 2(1), No. 39, Acts of Parliament, 1970 (India).
[638]VK Ahuja, Law Relating to Intellectual Property Rights (3rd ed. 2017).
[639]Dr. M.K. Bhandari, Law Relating to Intellectual Property Rights, (6th ed. 2021).
[640] Biswanath Prasad Radhey Shyam v. Hindustan Metal Industries, AIR 1982 SC 1444.

Furthermore, the application mentioned in subsection (1) can be made by any of the individuals mentioned above, either individually or in collaboration with another person.[641]

The term "person" is included in S. 2(s) of the Act. Therefore, both natural and legal people would be covered under the aforementioned definition.[642]

The "DABUS"[643] is an AI system developed by Stephen Thaler. It has been programmed to emulate certain aspects of brain activity. Dr. Thaler, on behalf of DABUS, filed patent applications for two inventions created solely by DABUS: an enhanced beverage container and a flashing light designed to attract more attention. However, the Patent Controller General in India raised concerns in the Examination Report of Thaler's Indian patent application, stating that the application could not pass the technical and formal examination because it cannot be recognized as a person according to s. 2 and s. 6 of the Act.[644]

In "*V.B. Mohammed Ibrahim v. Alfred Schafranek*,"[645], it has been decided that neither afinancial partner nor the lone applicant who claims to be an inventor may be a business. From this, the Court emphasised that a natural person has to contribute skillsor any knowledge of technology to an inventionand must not be a financing partner or a corporation to claim inventorship.

Given this assessment, it is conceivable that an AI may develop an idea and lend its expertise or technical knowledge. However, a legal "person" is defined under Indian law is by citing "*Som Prakash Rekhi vs. Union of India &Anr*,"[646]. The SC stated that a legal person's "personality" is its sole attribute. This type of "personality" is a thing that may sue or be sued by another thing. These rights and the independent obligations of any legal person cannot be exercised by an AI. It cannot, for example, enter into a contract, transfer, or purchase rights to a patent or a patent application. A

[641]The Patents Act, 1970, § 6, No. 39, Acts of Parliament, 1970 (India).
[642]Krithika Muthuraman, "*Artificial Intelligence Created Inventions In India – Whether Patentable*?," (Oct. 14, 2020),https://www.algindia.com/inventorship-artificial-intelligence-created-inventions-in-india-whether-patentable/. (last visited May 28, 2023).

[643] Device for Autonomous Bootstrapping of Unified Sentience
[644]Nayantara Sanyal & Simran Lobo, "*Inventions By Artificial Intelligence: Patentable Or Not*?," (Aug. 22, 2022), https://www.mondaq.com/india/patent/1223510/inventions-by-artificial-intelligence-patentable-or-not. (last visited May 28, 2023).
[645] V.B. Mohammed Ibrahim v. Alfred Schafranek, AIR 1960 Mys. 173.
[646] Som Prakash Rekhi vs. Union of India &Anr, AIR 1981 SC 212.

patent application could not be contested or withdrawn by AI, either. AI does not, therefore, satisfy the criteria for being recognised as an inventor in India.

It is apparent that, AI can just contribute their expertise or any knowledge related to technologyto invention and become the inventor in light of this judgement. But what a legal person constitutes is defined in the case "*Som Prakash Rekhi vs. Union of India &Anr*". According to the Supreme Court, a legal person's "personality" is its single attribute. And "personality" is an entity with the capacity to bring legal action or can sued by any another entity. AI lacks the capacity to independently exercise rights or perform the essential functions attributed to legal entities. For instance, it is not permitted to sign contracts, transfer rights to patents or applications, or buy them. Additionally, contest or withdraw a patent application would not done by AI. As a result, the requirements which are requires to be recognized in India as an inventor, AI does not able to meet them.

The "Ayyangar Committee report from 1959" provides insight into the legislative purpose behind the Indian Patent Act, stating that the inclusion of inventors in patent applications is a legal requirement.The genuine deviser has a moral right to be recognised as an inventor, regardless of whether he has a proprietary claim on the idea. This enhances the inventor's reputation and financial value. In certain cases, an inventor may relinquish their ownership rights to a patent through a contract or legal agreement. However, they typically retain their moral claim to the invention, which recognizes their role as the original creator or contributor.

To safeguard the moral rights of the creator or natural person who develops IP is evident when one looks at the motivations behind legislation and the course of current public policy. However, moral rights cannot be granted to an AI or made to appear to profit from laws or policies in the way that they were intended. Given this, it is challenging to recognise inventor to the AI or co-inventor until certain changes are made under the current Indian legal system.

II. Issues in Patenting AI Inventions

AI is becoming an increasingly important area of innovation, with the potential to revolutionize many industries and aspects of daily life. However, patenting AI inventions can be challenging, as various legal and technical issues need to be considered first.[647]

1. Inventive Step

The existence of an inventive step is an important requirement for an invention to be patentable.[648][649] This implies that, an individual being ordinarily skilled in the relevant field must find the invention non-obvious. In the context of AI, this can be particularly challenging, as many AI-based inventions rely heavily on machine-learning algorithms and other techniques that are already well-known in the field. This means that it can be difficult to establish whether an AI invention involves an innovative step or merely applies well-known methods in a new way.[650]

2. Lack of Human Intervention

The lack of human intervention in the developmental stages of the invention is another problem with patenting AI inventions. Without any major human intervention, machine learning algorithms completely produce a large number of AI-based inventions. This can raise questions about who should be credited as the inventor.[651] In many jurisdictions, it is necessitated by the law that the invention be the creation of a natural person for it to be patentable.[652] This means that if an AI-based invention is entirely generated by a machine learning algorithm, it may not be eligible for patent protection.[653]

3. Data Ownership

AI inventions often rely on large datasets to train machine learning algorithms. Issues can arise as to who owns or has the right to use such data, which can affect the ability to obtain a patent. In

[647]MC Donnel Boehnen Hulbert, "*Global Artificial Intelligence Patent Survey*," JDSUPRA, (Dec. 20, 2018), https://www.jdsupra.com/legalnews/global-artificial-intelligence-patent-21942/. (last visited May 28, 2023).
[648]The Patents Act, 1970, § 2 (1) (j), No. 39, Acts of Parliament, 1970 (India).
[649]Biswanath Prasad Radhey Shyam v. Hindustan Metal Industries, AIR 1982 SC 1444.
[650]Lexi Heon, *Artificially Obvious but Genuinely New: How Artificial Intelligence Alters The Patent Obviousness Analysis*, SETON. HALL. REV. (Vol. 53:359) (2022)
[651]Liza Vertinsky& Todd M. Rice, *Thinking About Thinking Machines: Implications Of Machine Inventors For Patent Law*, B. U. J. SCI & TECH. L. (Vol 8:2) (2002)
[652]Thaler v. Vidal, 2021-2347 (2022)
[653]Matthew Horton and Austin J. Kim (2022) *Federal Circuit Rules inventorship must be natural humanbeings, Foley & Lardner LLP*, https://www.foley.com/en/insights/publications/2022/08/federal-circuit-inventorship-natural-human-beings (last visited August 12, 2023).

some cases, the data may be owned by a third party, such as a data provider, and the right to use that data for the purpose of creation of the invention might not rest with the inventor.For example, an invention based on AI that relies on data from a third-party data provider might be ineligible for a patent if the inventor has no right to use the data.[654]

4. Algorithms as a Method

Some jurisdictions do not allow patents for abstract ideas or mathematical algorithms. This can pose a challenge for certain types of AI inventions, which may be seen as mathematical algorithms or abstract ideas rather than concrete inventions. This can pose difficulties while obtaining patents for inventions based on AI in these jurisdictions.[655]

VI. Why Do AI Inventions Require Patent Protection?

Works generated by AI would encourage innovation if they are made eligible for patent protection. [656]Although the possibility of owning a patent would not serve to directly motivate the AI, it would help to inspire individuals who use, create or own AI. Promoting the development of innovative AI by allowing patents on AI-produced works will consequently foster increased societal innovation.

Furthermore, the grant of patents can propel the commercialization of socially valuable inventionsandfacilitate the sharing of knowledge. Patents for AI-generated works can effectively achieve these objectives, on par with other forms of patents. Alternatively, if AI surpasses human capabilities in addressing specific challenges, there is a concern that businesses may be hindered from utilizing AI to generate future inventions unless legal protection is granted to AI-generated concepts. In such a scenario, there is a potential for misleading patent offices by not disclosing that a submission is based on an innovation produced by AI.

Ensuring that AI is recognized as an inventor, when it genuinely contributes to invention, will safeguard the rights of both AI-generated works and human inventors. Although an AI does not

[654]*Intellectual property in chatgpt*, IP HELPDESK (2023), https://intellectual-property-helpdesk.ec.europa.eu/news-events/news/intellectual-property-chatgpt-2023-02-20_en (last visited Aug 12, 2023).
[655]MC Donnel Boehnen Hulbert, "*Global Artificial Intelligence Patent Survey*," JDSUPRA, (Dec. 20, 2018), https://www.jdsupra.com/legalnews/global-artificial-intelligence-patent-21942/. (last visited May 28, 2023).
[656] Rebecca Currey & James Owen, *In the courts: Australian Court finds AI systems can be "inventors,"* WIPO (2021), https://www.wipo.int/wipo_magazine/en/2021/03/article_0006.html (last visited Aug 12, 2023).

desire to be acknowledged, allowing someone to claim credit for an idea they helped come up with wouldn't be unfair to the AI, but, on the contrary, it would lessen the importance of human creation. Recognizing AI as an inventor would create a fair and equal playing field for individuals who seek assistance from AI in problem-solving, ensuring their work is on par with those who are genuinely inventing something new.[657]

Patents for AI inventions are therefore specifically required to:

i. Safeguard technological advancements and problem-solving techniques
ii. Preventing exploitation of an inventor's AI invention by other parties
iii. Assist in establishing the boundaries of a patented product's legal exclusivity
iv. Generate an excellent return on investment by licencing the patented products.

Hence, the reasoning behind affording such protection for AI- generated inventions lies in the need to recoup the investments made towards the creation of such advanced AI technologies which subsequently encourages innovation, development and research on the part of developers and not just to reward the AI itself only. Additionally, organisations and academic institutions can reward AI creators financially or with accolades for their creativity based on the patents that AIs have received.

Contrarily, if patent protection is not granted to computer-generated ideas, two possible outcomes may arise: they could either fall into the public domain or AI owners to safeguard TS of the inventions. The former is undesirable since innovators won't be as driven to come up with new ideas without the temporary monopoly granted by the patent right. The public will be deprived if fewer inventions are made public. The latter is particularly troublesome because it requires inventors to invest a lot of money in protecting their secret which makes trade secret protection generally more expensive and perhaps less secure than patent protection. The inventions are still quite susceptible to competitors' reverse engineering. Trade secrets are intentionally used to keep

[657]Ryan Abbott, "*The Artificial Inventor Project*," WIPO Magazine, (Dec. 2019), https://www.wipo.int/wipo_magazine/en/2019/06/article_0002.html (last visited May 29, 2023).

scientific knowledge from the public, but patents encourage information sharing, undermining the patent system's objective of publicly exposing creative details in exchange for exclusive usage.[658]

III. Should AI Inventions Be Protected Under a Sui Generis System?

The implementation of appropriate laws to govern works generated by AI is necessary. The role of creative AI in invention today may be quite minimal. With the rapid advancements in artificial intelligence surpassing those of human researchers, it is apparent that creative AI will likely have a substantial impact on R and D in the near to medium term. Consequently, it would be highly problematic if we lack definitive legislation that establishes the criteria for identifying inventors, determining inventorship, and clarifying ownership rights pertaining to these inventions and any related patents.

Innovative AI presents new challenges to various aspects of intellectual property (IP) law, including the "PSITA" test, which is crucial in determining inventive step and patentability. Traditionally, this test evaluates whether a patent application would be considered obvious to a researcher with access to existing public knowledge. As AI continues to enhance the capabilities and knowledge of average workers, the concept of the skilled person must be expanded, similar to the inclusion of skilled persons in Europe where team-based research is common. This expansion should raise the bar for patentability, reflecting the evolving landscape shaped by AI advancements.

When an AI owns the intellectual property rights to an innovation or work, problems about infringement also arise. First, if AI is given the same status as a person for creating or inventing a work, it should be forced to enter the realm of infringement and enforcement. It would make sense if AI software could sign contracts on its own and face legal action for infringement, but it would also seem to be impossible. This demonstrates the impossibility of AI as a legal entity. Second, in case where the action of the AI is infringing the rights of a third party, the issue of accountability arises. If conditions arise where trade secret rules apply to the systems, transparency of AI systems

[658] *SUI GENERIS RIGHT FOR TRAINED AI MODELS, A PAPER PRESENTED BY: INTELLECTUAL PROPERTY OWNERS ASSOCIATION, ARTIFICIAL INTELLIGENCE AND EMERGING TECHNOLOGIES COMMITTEE,* (2020) https://ipo.org/wp-content/uploads/2020/11/SG-model-rights-committee-paper-pub.pdf (last visited Aug 11, 2023).

may be restricted. Transparency and accountability for the decision-making process are becoming more and more necessary and important as time goes on.

Therefore, a uniform regulation for AI has become the need of the hour because despite being a pertinent upcoming issue it has only been recognised in a few countries like USA, England. Specific rules governing the protection of AI inventions need to be formulated to introduce uniformity and avoid discrepancies in implementation globally. A specific legislation like an Artificial Intelligence Regulation Act must be introduced entailing sanctions for offences which AI commits against its humans in both cases of criminal and civil offences. The Act might also offer a framework for regulating, assessing, and looking into AI behaviour and potential violations.

The lacunae in the liability arising from criminal actions of the AI also need to be addressed. The creator of an AI holds copyright over its code which results into actions. In a similar manner, in case a criminal liability was to arise, it would also be placed on the one who created, may not be aware of the actions of the AI. It is important to close this gap and provide an enforceable remedy, perhaps by destroying the AI or preventing the advancement of the technology responsible for the liability. This would significantly contribute to protecting innocent inventors who bear no control or influence over the actions of AI from facing undeserved repercussions. In the meanwhile, it's important to clarify any confusion over how patent laws should be applied. While the differentiation between the roles of the inventor and the invention is distinct, progress of AI systems underscores the importance of legislators tackling the issue of including AI systems in this particular category. With widespread adoption of AI and broad dissemination of the solutions they generate, issue of protection becomes a critical concern that requires attention. Adequate restrictions are urgently required in order to prevent danger of allowing total autonomy to these highly smart systems and to encourage development of these systems by human scientists.

Hence, the following measures can be adopted to provide a more effective IP Protection to creations of AI-

i. It is important to develop a specialised test that is capable of distinguishing between works produced with AI assistance and produced entirely by AI. Identification of the precise holder of the IP can be made possible by way of this test.

ii. While the patent law makes the line between an inventor and an invention quite clear, it is currently unknown which category artificial intelligence systems fall under. The text of the law has to be more comprehensible, more precise, and should address such ambiguities.

iii. The WIPO has previously recognised and debated the forthcoming AI concerns through a variety of channels, but appropriate international policy has to be developed.

iv. It is essential to enact a specific law that specifically addresses data privacy concerning AI software. This legislation should comprehensively cover all obligations and offenses, both civil and criminal, to ensure equivalent protection across all aspects.

v. In the future, it may be possible for the AI's creator and the AI itself to share IP. It will be an important step in the overall advancement strategy and maintainability.

IV. Conclusion

Today, it has been demonstrated that AI can provide complicated solutions to problems in daily business. This technology has been widely used for many years. It can swiftly and efficiently manipulate enormous amounts of data while determining the best possible solution. Thanks to sophisticated AI technologies, strategists no longer need to worry about finding a competitive analysis for patents for day-to-day IP management jobs where analysts used to spend hours and days conducting a relevant search for patents. However, as AI develops at a faster rate, it eventually becomes more difficult for IP portfolios to handle such large databases and more difficult for people to bridge the gap between technology and protection. The current method of resolving the challenges relating to AI and IPR is through judicial interpretation. Additionally, clear, well-structured laws and regulations are required. Existing IPR rules need to be changed to take AI into account as well. Future creations could profit more from the application of AI. The IP industry has acknowledged the issues throughout time and has adjusted its regulations in response to AI inventions so that it can fit within this system. IP experts have a great chance to use AI and gain insights from it because it is now widely accessible and contains a vast amount of data. Future decisions about research and development investments may be influenced by this, and it may also assist businesses in identifying their relative competitive advantages and disadvantages, as well as new market opportunities. By leveraging the expertise of IP professionals, valuable business insights can be derived. These insights can contribute to market expansion, accurate evaluation of an IP portfolio, and a clearer understanding of future IP investment opportunities. Considering the

nature of AI inventions, it may appropriate to explore more collaborative patent protection. This is due to the fact that the administration of rights and limitations associated with patents necessitates human involvement and cannot be solely entrusted to machines. Moreover, granting patent protection to certain anthropomorphic agents is necessary to enable identification in case of invention malfunction or potential legal violations, thereby holding the inventor accountable for any criminal liabilities. This is because AI-enabled networks with the potential to employ thousands of nodes that operate without or with human intervention are possible. While adapting IP laws to keep pace with evolving technologies, it is crucial to ensure that the necessary implications of criminal laws are not undermined. Criminal laws inherently rely on human elements to maintain their efficacy and relevance. Therefore, in the process of updating IP laws, it is essential to strike a balance that preserves the human aspects integral to the functioning and enforcement of criminal laws. In addition to regulating legislation, it's also important to decide on better infrastructure so that these laws can be implemented. Achieving a balance between the commercialization and utilization of innovative creations that benefit the public interest, while upholding the fundamental goals of IP law, requires addressing both the criteria for recognizing works under IP law and the potential liability implications associated with AI. By carefully examining these aspects, we can ensure that the boundaries for qualifying works under IP law are appropriately defined while also addressing the legal consequences that may arise from the involvement of AI.

BEYOND THE CANVAS: AN EXPLORATIONOFINDIAN COPYRIGHT LAW IN THE WORLD OF AUGMENTED REALITY ART

Aditi Rathore*

Abstract

The world is currently experiencing the fourth industrial revolution, which includes Augmented Reality (AR) technology. This form of technology enhances our perception of reality by superimposing computer-generated images, sounds, and other sensory inputs over the real world, providing a more immersive experience. It is accessible through different devices, such as smartphones and smart glasses and has been adopted by various industries, including education, gaming, marketing, and industrial design. The expressive nature of AR technology has made copyright a significant issue for companies investing in it.

This article discusses the concept of AR Art, which involves overlaying artistic works onto real-world environments using AR technology. AR Art can be either enhanced or created, with enhancements ranging from digital projection and 2D-to-3D transformation to animated rearrangements. It discusses the subsistence of copyright in both forms of AR art and an exploration of situations where AR Art violates existing copyright. To encourage creative expression, it is necessary to confirm that AR works are eligible for copyright protection and that users are recognized as the authors of the works they create within the platform. However, reproducing existing works or creating derivative works in AR may lead to copyright violations, and it may be challenging for potential infringers to determine if they are violating someone's copyright at the time of creation due to the unpredictability of fair use as a defence.

AR Art provides a new avenue for artistic expression, but it also poses legal challenges in terms of intellectual property rights. This technology has the potential to revolutionize the way art is created and experienced, and it will be interesting to see how it evolves in the future. Therefore, copyright law needs to be reviewed to ensure users can access AR technology without the risk of copyright infringement.

Key Words: Augmented Reality, Copyright, Artistic Works, Infringement.

I. Introduction

We are living in the era of the fourth industrial revolution, which means we are creating new realities different from our own: Virtual reality (VR), Augmented reality (AR) and Mixed reality (MR) are the modern technologies that have the potential to separate us from the real world. While VR lets us be in an altogether different reality, AR and MR put digitally created content in our real-time environment. The key difference between AR and MR is that MR enables users to interact with digital content like in real life.

AR is a technology that blends digital content with the real world. It enhances our perception of reality by superimposing computer-generated images, sounds, and other sensory inputs over the real world. AR creates a more immersive experience by adding digital information to what we see and hear in the physical world. AR can be experienced through numerous devices such as smartphones, smart glasses, head-mounted displays, etc. Several industries, including education, gaming, marketing, and industrial design, use AR technology.

In 2021, the movie "Free Guy" dealt exclusively with this technology. It is a movie about a man discovering that his reality is a video game and his journey to become a hero and save it, all within the context of advanced AR technology. The journey was shown in the AR where the character could change controls using smart glasses. This concept has also been utilized by the game "Pokémon GO" wherein the users could find different creatures (Pokémon) in their real-time environment and play battles in the real world as well through the super-imposition done by their smartphones. Commercially, products like Myntra and Lenskart have enabled users to try on the product using applications on their smartphones. The digital scrimmage and first-down lines that have appeared on the field in televised sports for decades are among the earliest examples of this concept being provided to a mass audience.

In this article, the concept of AR Art is explored, which involves overlaying artistic works onto real-world environments using AR technology. It is focused on the issue of copyright subsistence for AR Art according to the Indian Copyright Act, 1957 (the act) and is divided into four parts: Part I is the introduction; Part II analyzes the criteria for copyright subsistence as it pertains to AR

Art; Part III considers the situation in which AR Art infringes on existing copyright belonging to others; and Part IV, presents the conclusion.

II. Copyright Subsistence in AR Art

An AR technology is a "computer programme" and is a Literary work[659] which is eligible for copyright protection if it meets the requirement of originality[660]. The originality standard, laid down in *EBC v. DB Modak*[661], is a requirement for copyright protection, and an author must demonstrate a certain level of intellectual effort and creativity depending on the circumstances. If AR technology meets this standard of originality, it would be eligible for copyright protection in India. Authorship is not confusing in the context of AR technology. The programmer who wrote the code for the AR application, "caused the work to be done"[662] and therefore is entitled to copyright, unless there are any contractual limitations.

The focus of this discussion is on the issue of subsistence for artistic works created using AR technology-

- ***Artistic Work***

AR can digitally overlay an Artistic work[663] (paintings, drawings, sculptures, or photographs) onto the real world captured using a device's camera and screen. The work can be created physically and enhanced using the AR[664] or it can be digitally created using the tools in the application.[665]

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[659] Section 2(o), The Copyright Act, 1957, No. 14 of 1957 (India).

[660] Section 13, The Copyright Act, 1957, No. 14 of 1957 (India).

[661] Eastern Book Company v. D.B. Modak, (2008) 1 SCC 1.

[662] Section 2(d)(vi), The Copyright Act, 1957, No. 14 of 1957 (India).

[663] Section 2(c), The Copyright Act, 1957, No. 14 of 1957 (India).

[664] *See e.g.,* Artivive and Spark AR are AR technologies that enable artists to create digital art experiences by linking digital content to physical artworks or creating AR experiences. In Artivive, artists upload digital content, such as animations, videos, or audio, to the platform and link it to a physical artwork. When a viewer scans the artwork using the app, the digital content is displayed on the viewer's device as an augmented reality experience, superimposed over the physical artwork. Spark AR allows users to create a wide range of AR experiences, from simple face filters and animations to interactive games and product demonstrations.

[665] *See e.g.,* Pokémon Go is a popular mobile game that uses AR technology to overlay virtual creatures onto the real world, allowing players to capture and collect them. The game offers various customization options for players to express their artistic style, including avatar appearance, pose, and in-game items such as selecting a Pokémon companion. Limited-time customization events also allow players to display their individuality through exclusive items and apparel. These options provide a fun and engaging way for players to express themselves and personalize their in-game experience.

In the first instance where a physical artwork is uploaded to an AR application, the AR art is a reproduction of the artistic work in an electronic medium[666] using a smartphone or AR glasses and overlay it in the real environment, also scanned through the same device. A 2D work can also be reproduced in a 3D form[667]. If the work is enhanced digitally to an animation using AR, it can be considered a cinematograph film. Animation creates an illusion of motion, by rapidly displaying a sequence of images or frames, each slightly different from the previous one. Physical artwork can be reproduced into a cinematograph film. Its definition[668] is broad enough to cover animations, which are typically created by recording a sequence of images or frames. The enhancement of an artwork into an animation can also be considered an adaptation[669] under Section 2(a)(v) of the Act as any "rearrangement or alteration"[670] of the work. Using animation tools in an AR over to create an impression of motion involves rearranging and altering the artistic work.

When the artwork is created digitally directly in the AR application, it just has to be a painting, drawing, sculpture or even a model of a building or structure created using AR tools, it need not have any artistic quality.[671] This work can be enhanced using animation and it can be considered a cinematograph film and also an adaptation.

- ***Fixation***

A vital requirement for a work to qualify for copyright protection is that it needs to be recorded or fixed in a tangible medium. According to the *Berne Convention*, each member Union has the power to decide whether "fixation in a material form" is necessary for granting copyright protection.[672] This requirement is also enshrined in the *TRIPS Agreement*[673] and the *WIPO Copyright Treaty*[674]. Although the Copyright Act does not mandate this requirement, copyright protection still

[666] Section 14(c)(i)(A), The Copyright Act, 1957, No. 14 of 1957 (India).
[667] Section 14(c)(i)(B), The Copyright Act, 1957, No. 14 of 1957 (India).
[668] Section 2(f), The Copyright Act, 1957, No. 14 of 1957 (India).
[669] Section 14(c)(v), The Copyright Act, 1957, No. 14 of 1957 (India)
[670] Section 2(a)(v), The Copyright Act, 1957, No. 14 of 1957 (India).
[671] Section 2 (c)(i) and 2(b), The Copyright Act, 1957, No. 14 of 1957 (India).
[672] Article 2(2), International Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, as revised at Paris on July 24, 1971, and amended on Sept. 28, 1979, S. Treaty Doc. No. 99-27 (1986), 828 U.N.T.S. 221.
[673]Article 9(2). Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994).
[674]Article 2. WIPO Copyright Treaty, Dec. 20, 1996. S. Treaty Doc. No. 105-17 (1997); 2186 U.N.T.S. 121; 36 I.L.M. 65 (1997).

recognizes the need for the material form.[675] The *Copyright Manual's*[676] Section 2 states that any work that is original and fixed in a tangible form can be registered with the Copyright Office, regardless of whether it has artistic merit. AR art, therefore, needs to be "fixed in a tangible form," to be registered. Even though Indian courts have not elaborated upon the fixation criteria of artistic works for copyright subsistence, artistic works need to be fixed, or else the work would not be an expression, and copyright subsists on expression and not on an idea.[677]

Reproduction of artistic work "in any material form" includes ephemeral work, such as short-term installations, use of transient materials, landscape/architectural works, and murals/graffiti. AR art can be considered ephemeral art to some extent. While the digital file that contains the AR art may be stored indefinitely, the actual display of the AR art is transient and dependent on a range of factors, such as the availability of the AR technology, the physical location of the viewer, and the duration of the AR experience.

The Indian courts are not yet presented with the fixation question in VR/AR; however, they are likely to agree with the findings of the U.S. Courts, which have determined that digital media can be considered a fixed medium because of the underlying code. U.S. cases such as *Fire Sabre v. Sheehy*[678] and *Williams Electronics, Inc. v Artic International, Inc*.[679](the Defender case) have established that copyrighted works in VR/AR can be considered fixed, despite the interactive nature of the medium, as the copyrighted instructions determine the arrangement of audiovisual elements.

The *Fire Sabre* case centers on a teacher's creation of "Rampao Islands" in Second Life, aided by an education-focused virtual-world content creation company (the Plaintiff). Conflicts arose over a payment dispute, and the plaintiff alleged copyright infringement and breach of contract regarding ongoing content utilization. The court concluded that the terraforming content could be copyrighted since it existed on servers and remained visible over time, even if users could modify it.[680] In the *Defender* case, Williams (the plaintiff) created a video game named Defender, with

[675] Section 14(c), The Copyright Act, 1957, No. 14 of 1957 (India).
[676]Practice and Procedure Manual on Artistic Works, Section 2 (2018).
[677] Idea-Expression Dichotomy, AlkaChawla, *Work in which Copyright Subsists*, *in*LAW OF COPYRIGHT-COMPARATIVE PERSPECTIVES (1 ed. 2013).
[678]FireSabre Consulting LLC v. Sheehy, 497 N.Y.S.2d 30 (2013).
[679]Williams Elec., Inc. v. Artic Int'l, Inc., 685 F.2d 870, 874 (3d Cir. 1982).
[680]FireSabre Consulting LLC v. Sheehy, 497 N.Y.S.2d 30 (2013), *Supra* note 20.

distinct audiovisual elements. It obtained copyrights for the game's computer program and its audiovisual effects in "attract mode" and "play mode." Artic International (the defendant), a competitor, sold circuit boards containing a virtually identical copy of Williams' program, leading to a lawsuit. On the question of fixation, the court held that the game's audiovisual features were sufficiently permanent for protection, dismissing arguments about player interaction and said the sequence is repetitive and is mostly constant over the game.[681]

Similarly, AR video games may use copyrighted images, and although the presentation is not fixed in the traditional sense, the user interacts with copyrighted content in a predetermined way. While AR images do not physically exist in the environment, they do exist in a tangible digital intermediary such as on a lens of a mobile device or in a cloud-based computer server.[682] Therefore, AR Art satisfies the fixation requirement for copyright.

- ***Originality***

The creation of an artistic work, say a drawing, in the AR using the paint tools in the application has to be judged in the same way a physical artwork is judged for originality. However, the question remains whether AR art that is created using alteration on existing artwork, are derivative works to be considered for originality or not.

A derivative work refers to a newly created work that incorporates or builds upon existing works. Examples of derivative artistic works include adaptations, translations, compilations, and new editions. These are only protected under copyright law if they meet certain requirements, such as bringing about a material change in the original work, being of the right kind, and using raw material that is different from the end product[683] and also satisfies the Indo-Canada test (laid down in *EBC v. D.B. Modak*[684] case). Under this test, a work is considered original if it involves a "minimal degree of creativity" meaning that the work is not merely a slavish copy of a preexisting work, but instead reflects some creative choice or judgment on the part of the author.[685] This standard is positioned between the "sweat of the brow" standard that only necessitates minimal

[681] Williams Elec., Inc. v. Artic Int'l, Inc., 685 F.2d 870, 874 (3d Cir. 1982), *Supra* note 21.
[682] MmaAfoaku, *The Reality of Augmented Reality and Copyright Law*, 15 NW. J. TECH. &INTELL. PROP.111 (2017), https://scholarlycommons.law.northwestern.edu/njtip/vol15/iss2/4 (last visited Feb 20, 2023).
[683] ALKACHAWLA, LAW OF COPYRIGHT-COMPARATIVE PERSPECTIVES (1 ed. 2013).
[684] Eastern Book Company v. D.B. Modak, (2008) 1 SCC 1, *Supra* note 3.
[685] N. S. Sreenivasulu, *Protection of Copyright*, *in* INTELLECTUAL PROPERTY RIGHTS (2007).

effort or investment by the author and the "modicum of creativity" standard that demands a greater degree of originality and creativity.

In the context of AR Art, the artwork uploaded on the application is the original work and the enhancement like animation or 3D modelling. is an adaptation, the resultant work is a derivative work, as it is fixed in a tangible form and is capable to be distributed.[686] The owner of the physical artwork retains the right to reproduction and adaptation of their work, so the work created using AR art would be derivative work. In AR games, avatars and other creatures (e.g., Pokémon -GO) are customizable; an avatar could be considered a derivative work if it's a pre-existing work or has limited customization options. The originality of these customizations depends on the detailed and distinct addition to the generic character.[687]

Whether the AR Art derived from a physical work is transformative enough to be considered original is another question:

As per the U.S. jurisprudence on the matter, AR art can be compared with a photograph. The court in *Schrock* case, has determined that technical decisions made by a photographer were evaluated for originality, and noticeable alterations made the photographs eligible for copyright protection as derivative works.[688] The photographs, depicting toys, were deemed accurate representations of 3D models transformed into 2D images.[689] The court affirmed the "substantially different" standard in *Gracen v. Bradford Exchange*[690] which requires sufficient nontrivial expressive variation in the derivative work to make it distinguishable from the underlying work in some meaningful way. In this case, Gracen (the plaintiff) won a painting competition to create "The Wizard of Oz" character plates but declined to sign a contract with Bradford Exchange (the defendant). Bradford later had another artist create a Dorothy painting based on Gracen's work. Gracen alleged copyright infringement, but the lower court ruled against her, citing lack of originality and MGM's copyright.[691] Just as the photograph of toys was deemed a meaningful alteration from its original 3D models, AR art's conversion from 2D to 3D can also be viewed as transformative, creating a

[686]Anjali Bhaskar, *Beyond Physical Reality: Intellectual Property Concerns in Augmented and Virtual Reality*, 3 INTERNATIONAL JOURNAL OF LEGAL SCIENCE AND INNOVATION 597 (2020).
[687]Tyler Trent Ochoa, *Who Owns an Avatar?: Copyright, Creativity, and Virtual Worlds*, 14 VAND. J. ENT. & TECH. L. 959 (2012), https://ssrn.com/abstract=2473335.
[688]Schrock v. Learning Curve Int'l, inc., 586 F.3d 513, 518 (7th Cir. 2009).
[689]*Id.*
[690]Gracen v. Bradford Exch. & MGM, 698 F.2d 300, 305 (7th Cir. 1983)
[691]*Id.*

distinct and interactive experience from its original form. To validate this transformative quality, AR art, like in the Gracen case, must successfully meet the "substantially different" test.

The European courts have established a much rigid test. The *Infopaq*[692] ruling established the "intellectual creation" test, which requires work to reflect the author's personality through free and creative choices. The court ruled that even very short excerpts of news articles, as brief as 11 words, could be eligible for copyright protection if they demonstrated originality and intellectual creation by the author. On this rationale, it can be said that the European courts may be less willing to grant independent copyright to AR art as they may require the underlying physical artwork to be present for the full image to be visible.[693]

In the Indian case of *Chancellor Master's and Scholars of University of Oxford v. Narender Publishing House*[694], the defendant's guidebook replicated questions from Oxford Textbooks to furnish solutions for students. In this context, the court applied the "substantially different" test for transformative use and held that a work is considered transformative if it differs in character from the original work, regardless of whether the copying is complete or substantial.[695] On this principle, it can be suggested that Indian courts would consider AR art to be original if it is substantially different in character from the original artwork.

- ***Authorship and Ownership***

The author of the AR art would be the artist[696] for the art created using AR tools. For the derivative AR art, the author would be the one who produced the animation, i.e., the producer[697] and if the work is customized (e.g., Avatar) joint authorship status can be granted to the user along with the programmer as he has the role of enabling the user to create the art, this is however limited to the conditions of the End User License Agreement (EULA) of the application.[698]

[692]Infopaq Int'l A/S v. DanskeDagbladesForening, [2009] Case C-5/08 (Den.).
[693]Joseph Carrafiello, *No Trespassing: A Lawmaker's Guide to Protecting Property Rights in the Age of Augmented and Mixed Reality*, 80 OHIO ST. L.J. 583 (2019).
[694] Chancellor master's and Scholars of University of Oxford v. Narender Publishing House, 2008 (38) PTC 385 (Del.).
[695]*Id.*
[696] Section 2(d)(iii), The Copyright Act, 1957, No. 14 of 1957 (India).
[697] Section 2(d)(v), The Copyright Act, 1957, No. 14 of 1957 (India).
[698]AlkaChawla, *Supra*note 25.

The author of the AR art is "the first owner of a copyright"[699]. A user engaging in AR art creation can be likened to a painter, while the application programmer can be seen as the tool or brush used to create the artwork. Initially, it may seem like the user should automatically receive copyright ownership for the image created. However, there can be an argument that the creator of the AR tool has significant control over the output and, therefore, deserves rights to it.[700] Some might also contend that AR tools are more restrictive than a paintbrush since they are limited to the code created by the programmer, and the user's creative input is restricted by the pre-existing code used in the creation of the digital overlays. In the case of *Tata Consultancy Services v. State of Andhra Pradesh*[701], the Supreme Court of India held that a programmer has ownership over the software. Users are only granted a license to use the software. The ownership extends to the source code as well as the object code of the application.[702]

The ownership question is answered by the EULA of the applications[703] with respect to user-generated content (UGC), for example, the VR application "World of Warcraft" retains full ownership of all virtual property within its gaming site, including UGC. This demonstrates the extent of ownership rights maintained by game developers. In contrast, virtual universes like "Second Life," developed by Linden Labs, allow users to retain intellectual property rights over the virtual properties they create.[704]Minecraft provides for joint ownership of the intellectual property of any UGC created based on authorized content in the software.[705] Similarly in AR applications, Artivive and Spark AR's EULA states that ownership of the artwork uploaded remains with the user, and it is granted a license to use and distribute their content for providing the services. Pokémon GO also allows users to retain ownership of the UGC but keeps a similar broad license to use and exploit the content in any manner.

- ***Infringement***

[699] Section 17, The Copyright Act, 1957, No. 14 of 1957 (India).
[700]MmaAfoaku, *supra* note 24.
[701] Tata Consultancy Services v. State of Andhra Pradesh, (2005) 1 SCC 308.
[702]Section 2(ffc), The Copyright Act, 1957, No. 14 of 1957 (India).
[703]MmaAfoaku, *supra* note 24.
[704]NS Nappinai, *IPR and Games*, *in*TECHNOLOGY LAWS DECODED (1 ed.).
[705]Zhaoxia Deng, *Illegal to Play? Re-Examining the Copyright Ownership of Player-Created Content*, 8 GNLU L. REV. 22 (2021).

If copyright subsists in an AR Art, the owner will have the rights under Section 14 of the act.[706] Copyright infringement occurs when an individual, who is not the rightful owner of the copyright or has not been granted a license, performs an act that is exclusive to the owner's rights or violates the terms and conditions of the granted license.[707] Thus UGC in AR, when copyrightable can be protected from infringement. Though the EULA of most AR applications allows the developers to have broad licenses to exploit users' artworks, it prevents third-party to infringe the AR art without the permission of the owners.

Enforcing copyright rights for users of AR who create original work may prove challenging due to the unique characteristics of AR. For instance, if the AR Art is prompted by a specific location, a user may be able to download and make a copy of the digital image, which would constitute copyright infringement.[708] It could be exceedingly difficult to identify and locate the alleged infringer, as many factors would have to be considered, such as smart-phone or smart glasses used to access the content, the location of individual users, and even the direction of the user's gaze when content was displayed.[709]

III. Infringement by AR Art

AR technology's very nature allows for the reproduction of preexisting works and the creation of derivative works, which can lead to copyright infringement. To prove infringement, copyright owners must demonstrate a "substantial similarity" between their work and the infringing work.[710] Imposing traditional notions of copyright law on AR could limit the technology's potential to enhance the physical world with digital subject matter. Finding infringers in the vast world of AR can be difficult and unfeasible, especially with the vast scale of video technology that AR applications depend on.

The AR application owners can be held responsible through the legal concept of secondary liability, even if the users themselves are not sued. However, platforms can protect themselves by implementing policies within the scope of UGC, such as not materially contributing or inducing

[706] Section 14(c), The Copyright Act, 1957, No. 14 of 1957 (India).
[707] N. S. Sreenivasulu, *Infringement of Copyright*, *in* INTELLECTUAL PROPERTY RIGHTS (2007).
[708] MmaAfoaku, *supra* note 24.
[709] Brian D. Wassom, *IP in An Augmented Reality*, 6 LANDSLIDE 8 (2019).
[710] MmaAfoaku, *supra* note 24.

infringement, not gaining any direct monetary benefit from the infringement and ceasing to offer their services to those who have been found to be infringers.[711]

- ***Circumstances of Infringement***

The use of AR technology could give rise to copyright infringement in two potential scenarios:

The creation of AR art involves a significant dependency on the original copyrighted work, which means a substantial portion of the new work created is being occupied by the copyrighted work. As a result, the replication of copyrighted work in the virtual space may not meet the originality and skill and judgment tests.

In AR applications like Pokémon Go, the content is placed in public places, including copyright-protected buildings or sculptures, users may capture and reproduce copyrighted work while using the application, and these images may be shared on multiple forums for both commercial and non-commercial purposes, raising concerns about copyright infringement.

- ***Available Exceptions***

To determine whether using copyrighted work without permission is considered infringement, it is important to consider any exceptions outlined in the law. One such exception is the doctrine of Fair Dealing or Fair Use, which has different applications in the United States and India. It is worth noting that while the terms "fair use" and "fair dealing" are often used interchangeably, there are subtle differences between them. In the U.S., fair use is assessed based on four factors, whereas in the U.K., fair dealing is narrower and subject to various exceptions.[712] In India, exceptions to infringement[713] includes fair dealing[714] according to which, certain acts may not constitute infringement if they are performed for specific purposes such as research, private use, criticism, or review, and do not substantially harm the interests of the copyright owner.[715]

The important focus of the first factor (purpose and character) of the Fair Use doctrine, is whether the use is "transformative". The more transformative the new work, the less significant the other

[711] *Id*.
[712] Prathiba M. Singh, *Evolution of Copyright Law - the Indian Journey*, 16 IJLT 38 (2020).
[713] Section 52, The Copyright Act, 1957, No. 14 of 1957 (India).
[714] Section 52(1)(a), The Copyright Act, 1957, No. 14 of 1957 (India).
[715] *Id.*

factors will be. In the U.S. case *Cariou v. Prince*[716], the Second Circuit held that the artist was deemed to be protected under fair use when he utilized photographs and modified them by painting new images over the subject's facial features in varying sizes. The court's primary consideration was whether the artist had transformed the original paintings into something new and distinct. However, other circuits, on this issue diverted from the reasoning of the second circuit, contending that accepting any "transformative use" as "fair use" could potentially blur the boundaries between derivative works.

Indian courts have been deviating from the traditional interpretation of the Fair Dealing doctrine and have been adopting a test that combines the U.S. Fair Use test and Fair Dealing to determine copyright infringement. This test as laid down in *Civic Chandran v. AmminiAmma*[717]considers factors such as the purpose, quantity, likelihood of competition, and public interest. In another case *D.B. India TV v. Yashraj Films*[718], the court accepted the four-factor test of Fair Use in U.S. to be applied in Indian scenario as well and held that using of small portion of copyrighted music during an entertainment show does not constitute fair use. This approach indicates a shift towards a more adaptable fair dealing test in India, which is advantageous for creative works produced using modern technologies such as AR. This approach allows for a more nuanced evaluation of alleged copyright infringement in AR, rather than a blanket determination of infringement.

There is currently an uncertain scenario regarding the application of the Fair Use doctrine to AR art. Since AR applications are inherently "transformative" in nature and may use the entire underlying work to create a new image, it is difficult to determine how the fair use doctrine would apply. The market effect factor is likely to be a crucial consideration, as AR could have a significant impact on the author's long-term commercial prospects. Due to these complexities, it is anticipated that courts would have inconsistent approaches to applying the current fair use doctrine to AR applications.

- ***Freedom of Panorama***

For site-specific AR applications that capture and reproduce copyrighted works in public places, one could use the Freedom of Panorama exception, which allows for such use. It is a provision

[716]Cariou v. Prince, 714 F.3d 694, 706-08 (2d Cir. 2013).
[717]Civic Chandran v. AmminiAmma (Kerala High Court) 1996 PTR 142.
[718]D.B. India TV Independent News Service Pvt. Ltd. v. Yashraj Films Pvt. Ltd., (2012) 192 DLT 502.

that permits individuals to share photographs of public domain artworks, monuments, sculptures, and buildings, even if they are protected by copyright law.[719] In India, Section 52(1)(s) and (t) of the Act allows for the creation and publication of paintings, drawings, photographs, sculptures, and other works of artistic craftsmanship located in public places.[720]

Considering AR's ability to superimpose digital elements onto the physical world, these permitted acts could extend to encompass the incorporation of virtual architectural structures and other artistic works into AR environments. The dynamic nature of AR fosters user interaction with these digital creations, potentially blurring the lines between "public display" and individual engagement. An example of this is Pokémon Go, which utilizes geographical locations to activate digital overlays. If platforms were required to exclude certain copyrighted works located in public areas, it would diminish their appeal and impose a significant burden.

Furthermore, Section 52 (1) (u) of the copyright law pertains to the incorporation of artistic works within cinematograph films.[721] It encompasses two distinct scenarios: firstly, the inclusion of artistic works permanently situated in public places or accessible premises; and secondly, the addition of other artistic works as background elements or minor components that complement the primary focus of the film.[722]

For instance, consider a scenario where an artist crafts a statue and places it in a public garden. During the filming of a scene for a movie, the director chooses to capture the lead actors playfully interacting around the statue.[723] In this context, the filmmaker's decision to feature the statue in the film would not be considered a violation of copyright, be it of the statue's creator or any other relevant copyright holder. The jurisprudence on incidental and background usage, as determined in *SuneetVarma Design Pvt. Ltd. v. Mr. Jas Kirat Singh Narula*[724], says that the artistic work that is alleged to be infringed has to be a prominent part of the cinematographic film and is to be determined by the facts and circumstances of the case. In this case, the costumes worn by the actors in the film were held to be a matter of trial to determine incidental or background usage.[725]

[719]Anjali Bhaskar, *supra* note 28.
[720] Section 52, The Copyright Act, 1957, No. 14 of 1957 (India).
[721] Section 52(1)(u), The Copyright Act, 1957, No. 14 of 1957 (India).
[722]*Id.*
[723]AlkaChawla, *Supra*note 25.
[724]SuneetVarma Design Pvt. Ltd. v. Mr. Jas Kirat Singh Narula, 2007 (34) PTC 81 Del.
[725]*Id.*

AR art, as discussed earlier, can be an animation created through enhancement of an existing artistic work. In the AR realm, as exemplified by the game Pokémon GO, this could translate into the integration of artistic works, sculptures, or architectural elements into AR-enhanced cinematic experiences. An artistic work, that is used as a background for display of AR art (Pokémon, avatars etc.) cannot be said to infringe the copyright in the work; and it does not affect copyright of another, if the said work is placed permanently in a public place.

This exception is not limited to non-commercial or educational purposes. Therefore, it is improbable that using AR to create art by reproducing copyrighted work in the public domain would be considered copyright infringement.

Conclusion

The digital technology industry is currently experiencing an exciting period of rapid advancements. While VR offers users a way to completely immerse themselves in an alternate reality, AR provides endless possibilities for enhancing one's physical surroundings through digital technology. Various versions of AR have been created, and investors are investing heavily in AR businesses as companies introduce their own AR devices. As with all technological advancements, intellectual property concerns must be considered, and copyright is likely to be a significant issue for AR users due to the expressive nature of augmented reality.

To determine authorship in AR, it was first important to establish that AR works are eligible for copyright protection, which they were found to be. Afterwards, it was necessary to determine whether the user is the author of the works created within the AR platform. As copyright law aims to protect creative labour, it is reasonable for users to benefit from their work, or the potential of AR may not be fully realized.

Copyright infringement may pose a complex challenge in the context of AR due to the vast amounts of digital data generated and the possibility of reproducing existing works or creating derivative works, which may lead to copyright violations. Furthermore, creators of copyrighted works may face difficulty in detecting infringement. Although fair use may be used as a defence against copyright infringement, its unpredictable nature makes it challenging for potential infringers to determine if they are violating another's copyright at the time of creation. The Freedom of panorama exception is another defense to copyright infringement for AR art that

captures and reproduces copyrighted works in public places. Consequently, it may be necessary to review how copyright law applies to AR to ensure that the technology's essence remains accessible to users without the risk of copyright infringement.

To strike a balance between original authors and developers, the Copyright Act should be updated to reflect modern technology. It should safeguard the original authors from AR applications seeking to monetize their works in unintended ways while permitting AR applications to use underlying works with copyright protection. Additionally, the reforms should incorporate the fair use factor test to balance the interests of the original author and subsequent uses of the work. With the rise of digital technologies, copyright laws must evolve to prevent them from hindering the expression of ideas.

THE LEGAL DILLEMA OF GENE ALTERATION: A COMPARATIVE APPROACH

Ankit Gupta*

Abstract

An organism's DNA can be changed using a process known as gene editing, which also known as genome is editing. The procedure may involve the addition, removal, or alteration of genetic information inside the genome. When compared to other ways, this methodology has gained appeal due to its increased efficiency, precision, and affordability. The potential of gene editing is fascinating because it holds great promise for both the treatment and prevention of disease. It attempts to treat a wide range of complicated disorders, including, among others, mental illness, cancer, and HIV. The concept of "Designer Babies" was introduced as a result of gene editing. A designer baby is one that has undergone in vitro genetic engineering for particular qualities like disease risk reduction or gender selection. While Designer Babies are not yet a practical reality, they represent an area of embryology that raises ethical considerations about whether constraints on their development would be necessary in the future.

It is not impossible to design children with specified qualities. This article examines the patentability of various life forms and argues against such patentability. The introduction of designer babies is also covered, along with extensive discussion of the concept's moral and ethical issues.

Keywords*:* **Genome, Designer Babies, gene editing, patentability, life forms**

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I. INTRODUCTION

"With the advent of genetic engineering the time required for the evolution of new species may literally collapse."

– **Dee Hock**

Gene editing, also known as genome editing, is a form of genetic engineering that involves modifying an organism's DNA. It may entail adding, deleting, or changing genetic material in the genome. The CRISPR-Cas9 (Clustered regularly interspaced short palindromic repeats) approach is a prominent one among the different developed approaches. The popularity of this technique stems from its increased efficiency, accuracy, and low cost in comparison to other methods. The excitement surrounding gene editing stems from its promise for both disease prevention and treatment. It aims to address a wide range of complex diseases, including mental illness, cancer, HIV, and others.[726]

CRISPR babies were named after the first three genetically engineered infants. The embryos of these babies were changed using CRISPR technology in this study to safeguard them from inheriting HIV from their fathers. The scientist who created this device, "He Jiankui," was sentenced to three years in prison for unlawful medical practises. The Royal Society of the United Kingdom, the Hong Kong Academy of Sciences, and the National Academy of Sciences of the United States of America sponsored the second international summit, where his experiment was first made public.[727]

Both reproductive cloning and germline genome editing are forbidden in India. Additionally, it is forbidden to use cells from different or distinct species in xenogeneic clinical trials. On top of that, the ban on germline gene editing is justified by the risk that it will lead to the creation of designer offspring with unnatural advantages. While germline editing is prohibited in India, therapeutic editing is allowed but is subject to strict regulations. To be clear, gene editing and germline gene editing are two different but related processes. While modifying particular, individual genes is the

[726]Lucy Thorne, Biocompare: The Buyer's Guide for Life Scientists, Biocompare, (Sep. 3 2021) https://www.biocompare.com/Editorial-Articles/578958-The-History-and-Evolution-of-CRISPR/.
[727]Henry T Greely, CRISPR'd Babies: Human Germline Genome Editing in the 'He Jiankui Affair', 6 Journal of Law and the Biosciences 111-183 (2019).

main focus of genome editing. Other than the sperm and egg cells used for reproduction, this procedure can be carried out on cells and tissues. The editing of DNA in these reproductive cells or early-stage embryos is known as germline gene editing. The controversial nature of germline genome editing stems from the fact that the editing or alteration will be passed down and inherited, raising concerns about ethics, morale, and safety. There are several safety issues concerning the gene editing procedure, as well as issues about the life that a gene edited person would have to live in the event of an error or failure. Furthermore, unlike many other medical procedures, it is challenging to get the consent of future generations who will have to live with gene editing because it is frequently requested during the embryonic stage of development.[728]In 2015, the genes of a one-year-old girl were modified to cure her of leukaemia using TALENS technology rather than CRISPR; while this saved her life, it is still viewed with caution due to the multiple hazards and ethical concerns that it provides.[729]In addition to the general ethical and moral concerns associated with the process of gene editing, there are also a number of safety concerns, some of which are as follows: the editing may result in some unintended changes that could have a negative impact on the health of the individual whose gene is being edited as well as future generations; gene editing technology, which is still in its early stages of development, may have numerous restrictions; the better option would be to begin its development sooner or later.

The manipulation of genes has given rise to the novel concept of "Designer Baby." A designer baby is one who has been genetically altered in vitro for specified qualities such as disease risk reduction or gender selection. Prior to the advent of genetic engineering and in vitro fertilisation (IVF), designer babies were mostly a science fiction concept. Designer babies are becoming a more real possibility, because to the tremendous growth of technology before and after the turn of the century. As a result, designer babies have become a hot topic in bioethical debates. Designer babies are a field of embryology that has not yet become a practical reality, but raises ethical questions about whether or not restrictions on designer kids will be required in the future. It is not impossible to imagine creating a child with specific traits through genetic engineering.[730] IVF has

[728]Srishti Choudhary, ack Designer babies: Indian scientists question implications of gene editing, Mint, (Nov. 20, 2018), https://www.livemint.com/Science/pqID8sFJCoKFza0LEc5zjI/Designer-babies-Indian-scientists-question-implications-of.html.

[729]Dorota Krekora-Zając, Civil liability for damages related to germline and embryo editing against the legal admissibility of gene editing, Nature.com (Mar. 19, 2020), https://www.nature.com/articles/s41599-020-0399-2.

[730]Philip Ball, Designer babies: an ethical horror waiting to happen?, The Guardian, (Jan. 8, 2017), https://www.theguardian.com/science/2017/jan/08/designer-babies-ethical-horror-waiting-to-happen.

grown in popularity as a method of helping infertile couples conceive children since it allows for the pre-selection of embryos before implantation. An early and well-known instance of gender selection occurred in 1996, when Monique and Scott Collins sought in vitro fertilization at the Genetics & IVF Institute in Fairfax, Virginia. The Collinses planned to have a girl because their first two children were boys and they desired a daughter in the family. One of the earliest widely reported PGD examples in which the embryo was selected not to treat a particular medical ailment but rather to fulfil the parents' desire for a more harmonious household. When the Collinses were profiled in Time Magazine's 1999 article "Designer Babies," their decision to have a "designer baby" by selecting the sex of their child became well-known, it became known as "designer babies."[731]This article is an analysis of moral or ethical issues against the patenting of life forms specifically dealing with the case of designer baby. In the first part, I discuss about patent on various life forms and arguments against the patenting of life forms, secondly the article will discuss about the designer baby third part discusses about ethical & moral issues related to it, fourth part discusses about legal framework around the world.

II. RESEARCH QUESTION

1. Is the current legal frame work enough for keeping in check, the experiments related gene editing and specifically talking in the context of designer baby?
2. Are the ethical and moral challenges of designer babies hindering the developing world, considering the tremendous benefits of gene editing and designer babies in healing or almost curing many detrimental hereditary disease conditions in future generations?

III. PATENTING OF VARIOUS LIFE FORMS

The concept of patenting was developed for devices, instruments, and other things. But as biotechnology develops, it is increasingly imposed upon living things. Animals, plants, and microorganisms are all examples of living and non-living species that are relevant to biotechnology. Biological innovations are typically broken down into three categories.[732]An invention relating to life forms was not considered to be protected by a patent prior to 2002 in

[731]Sarah Ly, Ethics of Designer Babies, The Embryo Project Encyclopedia (Mar. 31, 2011), https://embryo.asu.edu/handle/10776/2088.
[732]Can You Seek a Patent on Life Forms?, (Dec. 8, 2021), https://www.kashishipr.com/blog/can-you-seek-a-patent-on-life-forms/.

India. However, in **Dimminaco A.G v. Controller of Patent and Design**, the Calcutta High Court ruled that a method for preparing a vaccine containing a live virus is patentable because the term manufacture includes even living organisms. Even if the finished product contains a live virus, the method of manufacturing the end product, according to the Court, is an invention. It should be noted that, as of this writing, no decision has been made specifically on the application of the inventive step rules to inventions related to biotech patents in India. In light of TRIPS Article 27, Section 3 of the Patent Act of 1970 has been revised. The definitions of "invention," "new invention," and "inventive step" demonstrate a restricted approach to the legal protection of living materials. In the absence of a definition for terms such as "plant," "animal," "microorganism," "basically biological process," "non-biological process," and "plant variety," the patent office's interpretation becomes critical. Because the term "microorganism" can have a range of definitions, some of which may not be exhaustive enough to cover genetic material, it is stated that relying on the TRIPS agreement's guiding provision is safer. Another issue is that defining an "inventive step" as only a technological advancement or one of significant economic importance lowers the bar for patentability, which is something that shouldn't be allowed. Because these characteristics were only considered as secondary considerations and were never used to define the term "inventive step." In 2008, the patent handbook includes sections that the patent office used as assistance when interpreting certain Act provisions. Standing Issue, Distance, Surprising Effect, Long Felt Need, Failure of Others, Work Complexity, Commercial Success less expensive and more cost-effective The product and simplicity of the proposed technological solution are deemed markers of inventive step in the 2008 draught Manual of Patent Practise and Procedure.

In light of the fact that all life forms, including microorganisms, transgenic animals, plants, and people, are subject to patenting, several positions have been taken. When it comes to the position taken in cases involving microorganisms, it can be seen that although the Patent Act does not define the term itself, microorganisms can currently be patented in India. This has given rise to a lot of debates over the patentability of microorganisms. The nation must distinguish between innovative products of human intervention and those that arise naturally because the TRIPS agreement lacks a precise definition of microbe and microbiological process.

Whereas, in the case of transgenic animals, a Harvard University biologist was awarded a patent in 1988 for a mouse that had been genetically modified to be more susceptible to cancer. When

DNA from another species has been artificially inserted into an animal's genome, that animal is referred to as "transgenic". Transgenic animals have been created for purposes that could be advantageous, like producing organs or proteins, enhancing food production, or conducting medical research. However, the genetic modification of animals, especially mammals, also raises a number of moral questions that can be very contentious. These concerns go well beyond those of patentability. Furthermore, governments have the right to outright ban any technology they deem to be inherently unacceptable at any point in its research and development.[733]The US Patent and Trademark Office classified the Harvard "Oncomouse" as an invention as the first mammal. It established a precedent for the legalisation of the patenting of genetically altered animals. Although improving human health was the study's aim, the morality of patenting complex living things remains a contentious issue. By 1997, more than forty animals, including mice, rabbits, worms, and turkeys, had been granted patents. Numerous other patents, including those covering pigs, cows, fish, sheep, and monkeys, are still pending.

Tracy (1990-1997) was a transgenic ewe whose milk contained a human protein termed alpha antitrypsin, which could be used to cure cystic fibrosis. One of the top institutions for animal research in the world is the Roslin Institute. Its programs in genetics, genomics, early development, reproduction, animal behaviour, and welfare are well known around the world. It has also developed early techniques for genetically modifying and cloning farm animals. Dolly the sheep, the first ever cloned animal, was created as a result. Dolly was a part of a project to create reliable offspring for Tracy's animals.[734]The copyright is owned by Pharmaceutical Proteins Ltd. (PPL). Their spokeswoman described Tracey, who resembled a sheep, as "furry little factories walking around in fields." According to reports, Tracey's success has given transgenic sheep "a strong impetus to the further exploitation of transgenic sheep as bioreactors for the production of large amounts of pharmacologically active proteins."

The primary concern highlighted by the patenting of transgenic animals is that transferring genes between species breaches their natural barriers and imperils the integrity of the host species. Even

[733]Bioethics and Patent Law: The Case of the Oncomouse, WIPO Magazine, (Mar. 12, 2006), https://www.wipo.int/wipo_magazine/en/2006/03/article_0006.html.
[734]Image of tracy, a transgenic sheep, 1999. by Science & Society Picture Library, https://www.scienceandsociety.co.uk/results.asp?image=10321988.

though they vary significantly from region to region as a result of environmental factors, species that belong to the same group share the same gene pool.

Animal patenting raises some social concerns. The majority of them deal with the potential consequences of animal patenting, while the remaining arguments are based on religious, philosophical, and spiritual principles. The arguments against animal patenting are difficult to prove because many of them are factual statements that have yet to occur or be proven.

The patent over humans is the most significant and contentious component of patenting life forms. One of the most alarming parts of life being patented is the patenting of human DNA, cell lines, and tissues. Corporate patent attorneys have persuaded the Patent Office to rule that once isolated to generate a form not found outside of a lab, these natural products are patentable. For instance, John Moore, a leukaemia patient, underwent a splenectomy at the University of California in 1976. Later, a patent was granted to the University for a Cell Line called Mo that was taken from the spleen and had the potential for producing useful proteins. The cell line's long-term commercial value was expected to be more than one billion dollars. Mr Moore demanded the return of his cells as well as authority over his body parts, but the California Supreme Court ruled that he had no rights to his cells after they were removed from his body.

IV. OBJECTIONS ON PATENTING OF LIFE FORMS

- The first criticism is that it violates people's rights to patent living things. Patents on living things, no matter how small the microorganism, should not be allowed, according to supporters of this strategy. Living things are only distinct. The opposition is based on moral principles; it is against patenting living things, including microorganisms, not against patenting in general. This kind of thinking should be noted, rejects any patenting of life forms, does not distinguish between "higher" and "lower" life forms, and is not concerned with the advantages and disadvantages of patenting a particular life form.
- The second argument is that life cannot be owned, at least not in the way that scientists currently perceive it.
- Justice-related issues are the subject of another set of objections. According to the argument, authorising patenting runs the risk of fostering social injustice because big firms will be granted patents. Such power over human life should not be given to corporations.

In fact, there is a fundamental problem with most of the publically financed research that is now producing private profit.

- The latest breakthroughs in genetic engineering seem to strip human and nonhuman life down to their most basic molecular components, taking away the significance and wonder that we have long attributed to ourselves and our surroundings. As a result, patenting seems like the ultimate means of objectifying living creatures; they will now be classified as "inventions," much like VCRs or computers.
- The emergence of new animal species through genetic modification has raised a number of objections, particularly from religious circles. Creating life forms in this manner is seen as an act of playing God and usurping divine authority. The National Council of Churches has released a statement signed by several prominent theologians, expressing concern that the patenting policy will undermine the sanctity of all life created by God.

V. DESIGNER BABY

The concept of "genetic engineering" or "gene editing" pertains to the alteration of an organism's genetic code by humans in order to modify its biosynthetic properties. This involves directly manipulating an organism's genes to bring about specific changes in its features. The technique has found extensive application in in vitro fertilisation ("IVF"). With the rapid progress made in this method, medical science has now made it feasible to "design" a baby with desired characteristics. Genetic engineering technology is rapidly evolving, and one of the most debated outcomes is the concept of a designer baby. This refers to an infant who has undergone germline gene editing, which involves modifying the genetic makeup of cells that produce sperm or egg cells responsible for transmitting genetic information to offspring.[735] The genetic composition of the organism is changed as desired through germline editing.

The concept of a designer baby, defined by the Oxford Dictionary as "a baby whose genetic makeup is chosen to eliminate a particular defect or guarantee the presence of a specific gene," was once unimaginable. However, it seems that this idea will soon become a reality. Recent reports indicate that a Chinese scientist has successfully altered the germ line of live foetuses to make

[735]Hefa, Third scientific review of the safety and efficacy of methods to avoid mitochondrial disease through assisted conception:, Australia parliament house (Jan. 6, 2014), https://www.aph.gov.au/DocumentStore.ashx?id=bd2f664c-c87e-4da0-a119-6b71c78bc73a.

them HIV-free through genetic manipulation. The two female twins who underwent this alteration have since given birth, marking an unprecedented development in the field of genetics.[736]

The delivery of the first designer baby to the Nash family in Denver, Colorado, 20 years ago was a miraculous occurrence that continues to captivate many. Adam Nash was conceived for his umbilical cord stem cells, which were used to save his sister's life from Fanconi's Anemia- a rare genetic disorder. While this decision proved successful in saving his sister's life, it sparked an ethical debate and the family is still grappling with its aftermath. Some questioned their motives for conception, while others raised concerns about questioning Darwin's theory of evolution. Scientists remain apprehensive about the potential consequences as technology advances and gains widespread acceptance.

The success of the first designer baby opened doors for many families with inherited genetic diseases around the world since 2000. In 2018, India welcomed its first savior baby - Kavya Solanki - who was conceived to save her brother Abhijit from thalassemia major - a rare blood disorder. The idea behind designer babies is that parents can choose how their child's genes are altered - whether it is disease eradication or enhancing certain characteristics. While some believe parents should have such authority over their children, there are still unanswered questions surrounding genetic enhancement. Such enhancements could lead to a more efficient and superior section of society but will also create one where equal opportunity loses its meaning gradually. Additionally, this may widen the gap between rich and poor where only modified people will have access to white-collar jobs and lifestyles while others may be relegated to menial positions.

Moreover, genetic editing by parents intending to change their child's skin color could lead to further racial prejudice and other inequalities in society. The better approach would be learning and teaching tolerance instead of accommodating prejudices. In conclusion, while designer babies offer hope for families grappling with inherited diseases, ethical dilemmas persist as we face unknown future consequences stemming from technological advancements in gene editing that require careful consideration before implementation.

[736]Antonio Regaladoarchive pa, Chinese scientists are creating CRISPR babies, MIT technology review (Nov. 25, 2018), https://www.technologyreview.com/2018/11/25/138962/exclusive-chinese-scientists-are-creating-crispr-babies/.

While some argue that gene editing is an ethical nightmare waiting to happen, others believe that it presents an opportunity for a superior class of people to emerge, with everything becoming more efficient and improved versions of what exists now. The ability of this technology to cure or lessen the severity of life-threatening illnesses or ailments that could interfere with daily life is its most alluring feature. Parents who are worried about passing on hereditary disorders to their children include those with diabetes, cancer, high cholesterol, asthma, and other conditions. Their worries can be resolved by a technique called gene editing that simplifies the likelihood that their child will inherit these diseases.

However, due to transgressions of the "Declaration of Helsinki-Ethical Principles for Medical Research Involving Human Subjects," gene editing is strictly prohibited in the majority of nations. A study that was published in a CRISPR publication found that more nations are enacting legislation to control gene editing. Out of 96 nations, only roughly 40 have definite rules on germline gene editing, with 23 forbidding research and 11 permitting it. On the other hand, about 70 nations have banned heritable gene editing, and five more have done so with some specific restrictions.

In the case of ***Association for Molecular Pathology v. Myriad Genetics***[737], in this legal case involving Myriad Genetics, it was found that the company had patented specific genes that were linked to a higher risk of breast and ovarian cancer. However, the court ultimately deemed Myriad Genetics' patenting of these BRCA genes invalid since they occur naturally and are not eligible for patent protection under US law. Although the defendant argued that the genes they patented were not naturally occurring and had undergone purification, the court maintained its previous ruling. It stated that while naturally occurring genes cannot be patented, synthetic genes that have been manipulated can be protected through a patent.India has not yet explored many cases of gene editing, but there is a growing interest in this field. This is evident from the ICMR's regulations and guidelines for research on human gene editing. According to Indian patent laws, any invention that can be used to harm public order or pose a threat to life, health, or the environment cannot be patented in India.[738]The patenting of gene engineering for designer babies is not possible due to concerns related to public order and decency. This is because the mere discovery of a living or

[737] Association for Molecular Pathology v. Myriad Genetics, 569 (U.S. Supreme Ct. 2013).
[738]The Patents act, 1970, § 3.

non-living object in nature does not qualify for patent protection. Therefore, identifying an already existing gene does not make it eligible for a patent. While modifying the gene to a point where it can be deemed "novel" may seem innovative, it still cannot be patented due to imposed restrictions against prejudice.[739]

VI. ETHICAL AND MORAL CONCERNS

- Gene therapy may be very successful in preventing hereditary and genetic illnesses. It can be utilised to instill in the germline new and enhanced traits that will be passed on to next generations, resulting in quick societal growth. However, the concept of "designer babies" raises moral and legal concerns. A scientific procedure that allows parents to select the gender of their kid has the potential to significantly lower the sex ratio in India, a country with a predominance of men. The argument is based on the concern that, if this process is openly permitted, children who have undergone genetic modification will be viewed as "better" than those who have not, leading to a variety of social divides.
- Dr. Ashutosh Kumar, an assistant professor in the department of anatomy at the AIIMS in Patna, wrote a letter to the Department of Science and Technology outlining his fears about CRISPR. He said, *"CRISPR has emerged as a promising gene editing technique which can be used to eliminate many human diseases. The existing form of CRISPR may also introduce new errors in human genome, which may have serious consequences on the individual's health. Rampant use of genome editing may also destabilize genome pool of a human population, in turn, may cause more gene-based diseases like cancers and birth anomalies."*[740]
- People who don't adhere to the standards of beauty set by society will come across hostility. Designer babies run the terrifying risk of promoting discrimination if specific traits like skin and hair colour can be chosen. A biological basis for sexual orientation was revealed through a genome-wide association study. If parents can purposefully alter the gene to produce a heterosexual child, this raises the possibility of a rise in homophobia. The gap between the wealthy and the less privileged is going to widen.

[739]The Patents act, 1970, § 3.
[740]Cheena Kapoor, AIIMS doctors seek laws against 'designer babies', DNA, (Jan. 17, 2019), https://www.dnaindia.com/india/report-aiims-doctors-seek-laws-against-designer-babies-2708798.

- The potential for the health gap between the wealthy and the poor to expand, both within and between communities and countries, is another worry with germ line gene editing. [741]
- A more extensive use of gene editing is hindered by religion, which is another important element. The Catholic Church has spoken out on a number of issues, including its strong opposition to artificial reproduction, in addition to gene editing. Gene editing is not morally acceptable, according to the church, because "the only way a gene must be bequeathed is through the natural act of procreation, and not through any other artificial method." Furthermore, it makes the case that using gene editing just for therapeutic purposes is sensible, even though changing genes that would be passed down to subsequent generations would be bad. Such manipulation, according to them, would constitute an abominable assault on a person's dignity and the integrity of their personality.[742]
- Religions like Judaism, on the other hand, hold that humans are co-creators with God in the process of creation, and that this is a promising strategy that is under consideration. Accordingly, there is no reason to worry that people are now "playing God." Similarly, Buddhism, which places great emphasis on compassion and altruism, sees this technology as being helpful to humanity in that it may be able to prevent or cure someone of the sufferings of a genetic disease, though it does question germline cell therapy in humans due to a number of ethical issues.[743]

VII. LEGAL FRAMEWORK

1. CHINA

Chinese law forbids the use of gene editing for reproductive purposes under the "Technical Norms on Human Assisted Reproductive Technologies, 2003." Many Chinese scientists continue to use germline gene editing because the prohibition only applies to reproduction and not research. Furthermore, these criteria cannot be utilised to convict anyone. Hello,

[741]Philip Ball, Designer babies: an ethical horror waiting to happen?, The Guardian, (Jan. 8, 2017), https://www.theguardian.com/science/2017/jan/08/designer-babies-ethical-horror-waiting-to-happen.
[742]Andrew Pace, The Catholic Theology of Genetic Manipulation, 71 The Linacre Quarterly 6-9 (2004).
[743]Martina Cornel, GenEthics and religion : Editors: Georg Pfleiderer, Gabriella Brahier, Basel, Switzerland; Klaus Lindpaintner, Newark, USA. 154 pages, hard cover, 2010, Karger, Basel, Switzerland. ISBN 978 3 8055 8973 4 (Book Review), Academia.edu (Sept. 6, 2021), https://www.academia.edu/51396705/GenEthics_and_religion_Editors_Georg_Pfleiderer_Gabriella_Brahier_Basel_Switzerland_Klaus_Lindpaintner_Newark_USA_154_pages_hard_cover_2010_Karger_Basel_Switzerland_ISBN_978_3_8055_8973_4_Book_Review_.

Jiankui, a well-known researcher who utilised CRISPR to make identical female twins after removing a specific HIV gene. Later, he was fired from SUSTech in China. To prevent this from happening again, China has proposed draconian restrictions that include hefty penalties for the unauthorised use of high-risk biomedical technologies, as well as giving misleading information in order to secure authorization.

2. UNITED STATES OF AMERICA

Designer babies have slowly but surely acquired acceptance as an idea. The National Institutes of Health issued "NIH Guidelines for Research Using Recombinant or Synthetic Nucleic Acid Molecules" in 2016, which stated that the NIH would not fund a gene editing project that required a specific attempt to introduce genetic changes into a person's reproductive cells with the intention of modifying the set of genes passed on to the person's offspring.[744]

The National Academy of Science ("NAS"), which advises the US government on scientific problems, published a report titled "Human Genome Editing Science, Ethics, and Governance" in March. The Report advocated for gene editing research trials to be permitted, but only for compelling reasons, such as correcting serious disability, and under rigorous supervision. In addition, the committee cautioned against employing gene editing for purposes other than disability treatment.[745]

3. UNITED KINGDOM

In recent years, the UK has been slow to approve gene editing after certain conditions are met. Embryo research rules are governed by the Human Fertilisation and Embryology Act of 1990 ("HFEA"). The HFEA permits approved embryo research as long as the embryo is not held for more than 14 days and is not transplanted into a woman's womb.[746]The United Kingdom has taken a more objective approach to germ line gene editing than other

[744] Research Involving Recombinant or Synthetic Nucleic Acid Molecules (including Human Gene Transfer Research), https://grants.nih.gov/grants/policy/nihgps/html5/section_4/4.1.26_research_involving_recombinant_or_synthetic_nucleic_acid_molecules_including_human_gene_transfer_research_.htm.

[745]Townsend BA, Human Genome Editing: Science, Ethics, and Governance, PubMed https://pubmed.ncbi.nlm.nih.gov/28796468/.

[746]Human fertilisation and embryology act, 2008 H.F.E.A. § 3 (2008).

countries across the world. It is permitted in the UK to generate and use genome modified human embryos, sperm, or eggs in research under strict licencing regulations.

Using genome-edited human embryos in assisted reproduction, on the other hand, remains unlawful.[747]The Act's regulatory power authorised researchers to change the genes that are active in healthy human embryos. The DNA modifications could help researchers begin infertility treatment. This is the first time a national regulatory body has countersigned a consent for genetic editing research.[748]

The UK's ethics body, the Nuffield Council on Bioethics, published a report titled "Genome editing and human reproduction: social and ethical issues" in July 2018, concluding that the use of genome editing interventions to influence the characteristics of future generations may be justified in some circumstances if basic principles of social justice are followed. As a result, UK regulations are clearly more liberal and accepting of "designer babies" research.

4. INDIA

In India, there is no particular regulation that expressly prohibits or allows germline gene editing. Though the standards prohibit designer babies, the question is whether the ICMR guidelines are legally obligatory on their own. The Indian Medical Council (Professional Conduct, Etiquette, and Ethics) Regulations, 2002 ("MCI Code") govern licenced medical practitioners in India. According to the MCI Code, breaking ICMR guidelines is deemed professional misconduct. In-vitro research, on the other hand, can be done on embryos that will not be put in the womb. In ***Roche Products India Pvt v. Drugs Controller General of India[749]***the Delhi High Court upheld the legality of the government's ICMR recommendations until they were contradictory with existing legislation. As a result, we may conclude that India does not encourage the use of gene editing to create designer babies.

[747](July 12, 2018), https://www.nuffieldbioethics.org/assets/pdfs/Genome-editing-and-human-reproduction-short-guide.pdf.

[748]Ewen Callaway, UK scientists gain licence to edit genes in human embryos, ThNature (Feb. 1, 2016), https://www.nature.com/articles/nature.2016.19270.

VIII. CONCLUSION

The perplexing topic of human genome editing's legality is complicated. It would have to solve a number of ethical, moral, and safety concerns before it could become fully authorised and freely practised. While hereditary abnormalities can be decreased or eradicated to a significant extent, the risk of establishing socioeconomic disparities will always be present.There is no doubt that designer babies can be the key to developing innovative answers to a range of medical issues. The spread of congenital illnesses can be suspended and a country's military can increase. As a result, there are constant confrontations between scientific development and societal ethical duties. Because gene editing is a huge and unexplored field of science, there is concern that it will produce unknown and long-term medical problems. It will result in a plethora of socio-legal complications if done at random.

In my opinion, India has to set applicable guidelines for monitoring human cell lines, embryos, and human clinical trials. Informed permission in conformity with local circumstances and the educational background of the participants would be required. Whether or not India chooses to take this bold step, there is an urgent need for legislative frameworks to control gene editing in the country. A lack of legislation, as with stem cell therapy, resulted in the expansion of unlicensed stem cell clinics. The Western world insisted on outlawing all germ line genome modification. However, such trials are now permitted in the United States, the United Kingdom, Japan, and China. Last but not least, when thinking about patenting living forms, it is vital to take ethics and morals into account. However, taking into account the benefits of designer babies in fixing medical problems, the legislature should take a balanced attitude when developing a framework for dealing with gene editing. It is now entirely up to India to either develop its own healthcare solutions or to rely on Western support.

UNRAVELLING PATENT WEB: EXPLOITATION OF PATENTS BY PAE

Debapriya Biswas*

Abstract

Since time immemorial, inventions have been a part of human history without which the current advancement in technology and other sectors would have been next to impossible. To protect the rights of the inventors for their novel inventions, the law of Patent was made and explored – its primary objective being to reward intellectual labour and facilitate innovation to further the development of both the economy and society.

However, nothing is perfect and so is the case for Patent laws as well – with how some entities such as the Patent Assertion Entities (PAEs), or the Patent Trolls, exploit the loopholes of such laws to take unjust benefit of the other small inventors. This paper discusses the concept and workings of such entities while unravelling their motives in detail.

It would also legally analyze the loopholes used by these entities to make Patent a lawful weapon against legitimate users and inventors. A comparison between the USA and Indian Patent systems would also be made, highlighting the reason for the prevalence of Patent Trolls in the former than the latter nation and how it can be reduced.

Lastly, the paper discusses some countermeasures that can be taken against these Entities while concluding on the note that awareness of the issue is currently the priority, right after a change in the Patent system.

Keywords: Patent Trolls; Patent; Intellectual Property laws; NPEs and PAEs.

I. Introduction

Intellectual property rights, as one may already know, are the rights conferred by the State to those who create something innovative with their human intellect that did not exist before. Such is also the case for the inventors, who invent something of a novelty and get it registered under the 'Patent law' for the legal protection and the exclusive rights that let them reap the profits of their invention for a set amount of time.[750]

These exclusive rights include most of the economic rights that an owner shall have, like the right to manufacture, market and sell. No one else can interfere with their rights and if it is done so, then they can invoke infringement against the perpetrator – unless they have authorised permission from the patentee, such as a licensor does. These rights, as mentioned earlier, are protected by the State as a benefit of all the effort and labour being put in by the inventor for their innovation – giving them a blanket of protection from any other individuals who attempt to exploit their intellectual property without any permission.

This 'blanket of protection' provided by the State is usually through the legislation on Intellectual Property Law and the Patent Offices, specifically in the case of inventions. Since the inventor would like to use their innovations commercially as well to gain a monetary benefit, the Patent system helps them seek the return on their investments in the innovation and provides a platform necessary for the establishment of the invention in the market. This, in turn, also helps in the innovation of society as it sparks ideas and creativity in other inventors.

However, while all this may seem sound, many such inventors are also using these rights as a manner to take unjustified benefit from other companies and/or individuals by filing infringement suits against them – especially in cases where their inventions have a vaguely similar concept or design. This form of abuse of rights is most notable in the case of low-quality inventions that are patented to be used against other companies and individuals as a means of threat to an infringement suit.

In fact, as it is observed, most of this abuse is done by entities that themselves do not create or make any products; instead, using the low-quality patents bought off the market. In a nutshell,

*Author is an 4th year BA.LLB (H) student from Amity Law School, Noida.
[750]*Bishwanath Prasad Radhey Shyam v. Hindustan Metal Industries*, (1979) 2 SCC 511 at 517.

these entities or agencies pick up such almost-generic or low-quality patents off the market and take advantage of the asymmetries of the system to make some quick and easy money.[751] A 2018 study has estimated that more than thirty percent of the issues of patents in the USA are of such low-quality nature.[752]

Such an act of Patent abuse is commonly known as 'Patent Trolling' and the inventors using such methods are referred to as Patent Trolls. In simpler terms, Patent Trolls are nothing but inventors who make money off the threats to litigation and licencing of their inventions than actually marketing them or selling them to the customers. And while it may not sound like something illegal, it is extremely harmful to society and for the purpose of facilitating innovation.

The main objective of giving the protection of patency to any invention is for putting it to use for the good of society by either commercialising it or using it to manufacture other inventions. However, the Patent Trolls buy or make inventions exclusively to use them as an object of litigation for infringement against other inventors. They use these exclusive rights and blanket of protection to threaten other inventors in the name of litigation, which in itself is quite pricey and tedious for many people. Thus, to avoid such litigation, many companies or individuals settle outside of the Court.

In simpler terms, Patent Trolls are entities or agencies that own and enforce patents without even putting those patented inventions to use, with their only objective being to collect fees from licencing, royalties and out-of-court settlements.[753] These trolls are also known as Non-Performing Entities (NPEs) or Patent Assertion Entities (PAEs).

II. Low-quality Patents

While the term itself is used quite frequently, only a few people understand what exactly the term 'low-quality' patent means. And no, the term does not refer to the quality of the inventions themselves. To be explained in simpler terms, a low-quality Patent is a patented invention that does

* 4th year BA.LLB (H) student from Amity Law School, Noida.
[751] John R. Allison, Joshua H. Walker and Mark A. Lemley, *Patent Quality and Settlement among Repeat Patent Litigants*, 99 Georgetown Law Journal, 679 (2010).
[752] Josh Landau, *A Little More Than Forty Percent: Outcomes at the PTAB, District Court, and the EPO*, Patent Progress, (Feb. 20, 2023, 8:30 PM), https://www.patentprogress.org/2018/05/a-little-more-than-forty-percent/
[753] John M. Golden, *Patent Trolls and Patent Remedies*, 85 TEX. L. REV. 2111, 2167 (2007).

not have much marketability or usage in the real life.[754] Such inventions can be patented since they are 'innovative', but rarely are they required much due to their usage being limited and being already covered by other inventions.

Such can be seen especially in the cases of pharmaceutical products and drugs where symptom-specific drugs can be patented but not used much since other drugs already treat these symptoms as well as others altogether. Such inventions, thus, become hard to market due to low demand and are instead bought by the Patent Trolls to be used as a means to extort settlements from individuals, startups and small companies who may not be able to afford litigation at all.[755]

This is especially the case for small-scale companies with no in-house patent counsel and even less legal knowledge, which leads to a fear of going bankrupt due to the costs of litigation concerning infringement claims. While the big companies may not face such repercussions, for small companies and startups, it is very well a death sentence. Thus, to avoid such litigation and the impending legal fees that may come with it, most such companies opt to settle the matter outside of Court and licence the patents from the Patent Trolls instead.

Such cases can be seen in the USA the most since the invention qualification for the grant of a Patent is much more flexible there than in any other nation. Meanwhile, the USA also provides the most protection for the rights of Patent owners as well, which creates the loophole that is exploited by most Patent Trolls.[756] These Trolls exploit the system as well as people's fear of high legal fees to essentially blackmail them into an out of Court settlement and licencing their low-quality patents.

In fact, many USA-based companies are receiving demand letters with vaguely phrased threats to file lawsuits of infringement against them due to the usage of commonly used everyday equipment such as WiFi routers, tracking machines and many more, even when all these pieces of equipment are bought from legitimate manufacturers.[757] These demand letters are sent by the Patent Assertion Entities with nothing but the aim that these companies would buy the licencing of the low-quality

[754] Allison, Walker and Lemley, *supra* note 2, at 680.
[755] Colleen V. Chien, *Startups and Patent Trolls*, Santa Clara Univ. Legal Studies Research Paper Series, No. 09-12 (2012).
[756] Raymond L.X. Bai, *Patent Laws: Advancing Innovation for the Public or Inflating Private Profits*, 6 Western Journal of Legal Studies (2015).
[757] Robert L. Stoll, *Patent Trolls: Friend or Foe*, WIPO Magazine, (Feb. 20, 2023, 9:30 PM), https://www.wipo.int/wipo_magazine/en/2014/02/article_0007.html.

patent inventions the entities currently have – all as a part of the strategy to build up enough means to attack the medium-scale and big-scale companies later on.

While the whole of this debacle can be easily resolved by researching the background of the plaintiff, it is not possible so in these cases since most Patent Trolls transfer the ownership of the Patent or a certain right of that Patent to its shell companies that, in turn, acts as a plaintiff with a fresh slate. This makes it harder to identify the real-party interest, making many companies fall by the tricks of the same Patent Assertion Entities again and again by just different shell companies.

Besides the usage of these low-quality Patents in such a method of abuse, the means of obtaining a low-quality patent itself is an abuse of the Patent system. As mentioned earlier, since the USA has a very flexible threshold for the qualification of a Patent, many low-quality patents are granted over the years with the abuse of such a threshold. And even if the Patent application is rejected, they could simply keep filing the same for reconsideration again and again – putting strain on the already backlogged Patent system.

According to the PTO of the USA, it is estimated that the Patent agency receives over six hundred thousand Patent applications every year, making the examination time for each application quite less than it should be for proper inspection. It leads to the humane mistake of granting Patents to more of those of low-quality. This results in the increase of patent litigations and their associated costs on the rise, which have been estimated to be twenty-nine billion dollars per year in the USA.[758]

Such litigations not only harm the economy by discouraging startups and innovations but also reduces the scope of investment in research and development since the funds needed for this is instead spent on Patent litigations. This is what causes many companies to go bankrupt in the USA while feeding more power to these Patent Trolls as they create the 'Patent Web' to entrap more of the startups as their victims.

III. The Cycle of Patent Web

As everyone may know, the growth of the economy of any nation depends significantly on its industries and new companies as well as startups play a vital role in this development. Not only

[758] James Bessen, *The Evidence Is In: Patent Trolls Do Hurt Innovation*, Harvard Business Review, (Feb. 20, 2023, 10:00 PM), https://hbr.org/2014/07/the-evidence-is-in-patent-trolls-do-hurt-innovation.

do startups create jobs but also help in modernization and innovation. However, the increase in the number of Patent Trolls has led to many startups failing and falling back, which discourages aspiring entrepreneurs from setting such harsh negative examples.

While the Patent ecosystem is becoming even more challenging due to Patent Trolls, many people are still not much aware of Intellectual Property laws, including Patent law. This unawareness as well as the lack of establishment of in-house Patent counsel leads to many such startups falling victim to fraudulent methods, specifically that of the Patent Trolls.

According to the studies conducted in the USA, the victims of most of the patent trolling cases and demand letters are companies of small-scale nature than those with a big organizational background. Businesses with less than hundred-million-dollar yearly proceeds have seen to occupy more than sixty percent of the troll suits as the respondents.[759] And a large amount of the aforementioned respondent companies either failed to keep cases due to fees or had to alter their products which led to a loss in the valuation of business either partially or completely.

This, in turn, results in a cycle to which most startups are susceptible to fall into. The cycle, referred to as the 'Patent Cycle', starts with the startups filing for Patent ahead of time as a means to reassure and attract their stakeholder's trust. These filing leads to the Patent Trolls hunting down startups with vaguely similar inventions to their low-quality patents; after which they threaten to file an infringement suit against the startup.

Such announcement leads to disturbance in the productivity of the startup and distracts them from their already present resources. Since most of the startups do not have any knowledge or counsel for Patent, they either attempt to represent themselves in the lawsuit by hiring an attorney or simply opt for an out of Court settlement through monetary compensation and licencing.

However, since the monetary damage is already done, the foundation of the startup becomes shaky – let it be due to the lawsuit itself causing loss of confidence of the stakeholders or their Patented invention not doing as well as anticipated. Added to the fact that they have to pay for the licencing fees as well, this leads to many startups failing and leaving behind their patents disowned or sold

[759] *Id.*

at a very low price – which is bought by the Patent Trolls and used further to trap the other startup companies as a low-quality patent.[760]

This vicious cycle of the Patent Web can go on for years and no one might be able to trace it to them due to the shell companies used by the Patent Trolls to act in their stead as the plaintiff while later on buying the disowned patent themselves before assigning its rights to another shell company to start the cycle once again.

IV. Fear of Litigation

As mentioned earlier, a Patent Troll uses the loophole of the Patent system as a legal weapon to trap the startups as its victims rather than using it to make new inventions as it is intended. This is only possible through low-quality patents that have a very broad application and very common base design that can be vaguely correlated to many other innovative patents. This is observed the most in pharmaceutical patents where the chances of such low-quality patents being granted are quite easier.

The issue, however, is not just in the way the Patent Trolls trap their victims but also the fear of litigation and legal fees most of the victims have. This is especially prevalent and seen through the manner in which the victim, let's suppose a startup, reacts upon getting a 'demand letter' from Patent Trolls. Demand letters are a tactic used by Patent Trolls to destroy the confidence in the victim company by threatening to file a lawsuit for infringement than filing the suit directly.

In a nutshell, it is a flexibly worded letter with vague interpretation, indirectly threatening or 'informing' the victim companies regarding the 'infringement' committed by the victim company. It is vague enough to skip legal repercussions upon reporting to the Patent system but descriptive enough to scare the victim companies not knowing any better. Once the victim company contacts back to the Troll concerning their demand letter, they step into the trap of the patent web.

The usage of this tactic can be seen widely practised in the USA, where Patent Trolls are reported to send out demand letters to hundreds of random small businesses and companies at a time, through their shell companies.[761] Most of these demand letters have little to no evidence behind

[760] Scott Burt, *It's Time to Stand Up to Patent Trolls*, WIPO Magazine, (Feb. 20, 2023, 11:30 PM), https://www.wipo.int/wipo_magazine/en/2015/01/article_0002.html.

[761] *Id.*

their claim, beyond the mention of 'infringement' and a demand for licencing fees to avoid the infringement lawsuit.

Most of the owners of the companies typically give in rather than go forward to the Court with it and that is so because they fear the cost of the legal fees that such a suit can bring to them. While a big company may be able to fight through and compensate for such losses, such monetary losses may mean a complete shutdown to the small-scale companies.

Comprehensive data collected in recent studies[762] show that the economic harm done by such demand letters is quite significant when coming to the creative sectors since they discourage innovations as well as wreck the confidence of people in the Patent system even further. Not to mention, since most people fear litigation due to its complexity and high fees, it makes it harder to report such instances of scams.

People's unawareness concerning such laws also creates a huge issue, since most people are not even aware of the scam, let alone have the ability to identify and avoid it. Such is true for almost all aspects of Intellectual Property law, not just patented inventions.

In addition to that, most business attorneys are not well-versed in Intellectual Property law, mostly because it's a very niche field in commercial law and only specialised Patent Attorneys are sufficiently skilled enough to realise the vagueness in the demand letters and their possible scams. A general business attorney cannot help one in such an endeavour.

And even if one does decide to go to a Patent attorney, their per-hour fees are extremely high, which makes many business owners reluctant to even visit one. And while ignoring the demand letters can also be a viable option, many small companies are not aware of such scams to not take these letters as legitimate legal notice.

Furthermore, the chances of the Patent trolls proceeding with the suit even after not being responded to creates a very big issue for the small companies who would not be able to cope with the possible legal fees. Thus, to avoid any such scenario, most companies just pay up the 'licencing fees' demanded in the said letter.[763]

[762] Lauren Cohen, Umit G. Gurun and Scott Duke Kominers, *Patent Trolls: Evidence from Targeted Firms*, Harvard Business School, Finance Working Paper No. 15-002 (2018).
[763] Chien, *supra* note 6.

While one may suggest taking the matter to the Court and fighting the case through with their righteous mindset, it is not an economically rational decision as such a lawsuit may take years to settle and hundreds of thousands of dollars of investment with little to no return in the end. In the end, fighting the Trolls in Court is a ruinously expensive method to go bankrupt. Such is the mentality that causes the Patent Trolls to thrive while decreasing confidence in the overly complicated Patent procedure and system.

V. Position in India

Up until now, most of the focus was on the USA since Patent Trolling is much more prevalent there for reasons already expressed and explained above. However, as we shift our focus now on India, it is important to note that Intellectual Property law has developed a lot in the past few decades and is still currently developing at a fast pace.

Thankfully enough, as compared to the USA, India does not suffer greatly from Patent Trolls – which can be contributed towards the fact that India is more of a Manufacturing Hub than an innovative or inventive one. In addition to that, the Indian Patent system is much stricter with a narrow interpretation of its legal provisions than the USA, making the chances of low-quality patents being approved quite low.

However, Patent Trolls are as opportunistic as they can be and exist in every economy regardless of how strict the legal provisions can be. And so is true for India as well, where most of the public is not legally aware even of the basic laws, let alone in a niche field like that of Intellectual Property law. This makes the Patent Trolls even more powerful and deceitful in India since most companies would even avoid going to a Patent advocate.

Ironically enough, it also acts as a shield since many people are not aware of the loopholes enough to exploit it either, making the number of Patent Trolls very limited. The fact that the companies to target are very small as well due to India's status as a Manufacturing Hub rather than an inventive one also contributes to the fact.

On the other hand, Indian Patent provisions do not specifically provide any remedy against Patent Trolls since it is a very recent concept that most developed countries are still not familiar with, let alone a developing country like India. However, India does provide provision for the enforcement

of Patents; or rather, submission of information on the usage of the said Patent to the Controller of Patent Office when required, under Section 146 (1) of the Indian Patent Act.[764]

In a nutshell, there are inspections of whether a Patent is being commercially used by the authorities, which decreases the scope of patent trolling significantly. The Indian Patent Act makes it mandatory for each patented inventor/company to submit a statement concerning their usage at the end of each financial year – which, if not filed, can lead to a fine, imprisonment or both. In case of suspected patent trolling, the patent can be revoked as well. In case of any Patent not being in use for three years after its granting or is deemed to not being used enough,[765] then the option of compulsory licencing is also available – especially for the patents which have significant non-commercial usage to the public.

As mentioned earlier, the scope of patent trolling is very limited in India; however, it is still there, which can stand as a very dangerous practice, especially for startups in India. As in the judgement of *Spice Mobiles Ltd. v. Somasundaram Ramkumar*,[766] one of the rare cases of patent trolling in India, the Intellectual Property Appellate Board held in the favour of Spice Mobile Ltd, who is the appellate and victim of patent trolling in the said case. The lack of novelty and inventive step of the trolling patent was highlighted as the Board revoked the patent under Sections 57,[767] 59[768] and 64 (1) (e) & (f)[769] of the Indian Patent Act. The Board also invoked costs on the respondent for filing such a frivolous application, while also cautioning the Patent Office of India to look out for such Patent Trolls in the future.

While the Indian Patent system is quite efficient in dealing with Patent Trolls currently, the practice of such trolling was once prevalent in India as well – especially in the era before the amendment was brought in the Indian Patent Act in 2005. Most of it was seen in the Information Technology as well as Communications sector since they were the sectors with the most innovations as technology rapidly advanced under the introduction of the internet and the world wide web in India.

[764] Indian Patents Act, 1970, § 146 (1), No. 39, Acts of Parliament, 1970 (India).
[765] Indian Patents Act, 1970, Section 84 (7) (d), No. 39, Acts of Parliament, 1970 (India).
[766] *Spice Mobiles Ltd. and Anr v. Somasundaram Ramkumar and Ors*, 2010 (43) PTC 692 (IPAB).
[767] Indian Patents Act, 1970, § 57, No. 39, Acts of Parliament, 1970 (India).
[768] Indian Patents Act, 1970, § 59, No. 39, Acts of Parliament, 1970 (India).
[769] Indian Patents Act, 1970, § 64 (1) (e) & (f), No. 39, Acts of Parliament, 1970 (India).

In the end, while India may not be able to stop the Patent Trolls completely, it has a strong Patent system that threatens such entities at each step. This not only deters such malpractices but also safeguards startups and small-scale companies since they would face most of the brunt of such trolling if these entities entered the Indian market without any restriction or obstruction. Thankfully enough, India only allows the introduction and protection of domestic patents over international ones without an Indian patent also helps in this endeavour.

VI. Countermeasures to be taken

The problems discussed above are very recent and still not addressed, making the small-scale companies suffer the most as innovation is sacrificed at the price of the opportunistic behaviour of another. This not only goes against the very objective of granting patents but also highlights the incompetency of the Patent system. These become the barriers to the creation of jobs and diversification of the economy as well.

While such problems are not yet being faced by most countries except some developed ones, it does not mean it is not an issue to be addressed; especially since it can enter the market of other nations as well, just as it happened in India. The fortunate thing about the Indian Patent system is its stricter interpretation, which creates other issues for the patentees while protecting them under the same blanket.

To counter such abuse, there is an urgent need to both address this issue at a higher level and make legal provisions to identify such behaviour while punishing them the same for doing so. In this manner, it would be possible to deter the trolls from stepping into the market in the first place.

Focusing on only the offenders would do no help either; the main focus should be on the malpractice itself and how to evaluate such scams from genuine legal procedures and notices. Both the public and the Patent system should be aware of these to challenge the existence of Patent Trolls directly. If it is not possible to completely curb their existence out of the market, then it is better to make it harder for them to operate – just like how it is in India.

Since these Patent Assertion Entities also use some common tactics, they can be used to identify their traces at one glance – especially in cases like fraudulent demand letters with no actual legal backing, lack of any product manufacturing/production or even filing a suit against a large number of defendants together to save the overall litigation costs for the same purpose.

By recognising these patterns, both the system and the companies can benefit in disposing of cases by the earliest. The system of harsher penalising and compensating the loss faced by the victim companies should also be considered to deter the Patent Trolls further as a negative reinforcement to their actions. Checking on the yearly commercial usage of certain patents can also help in reducing the chances of circulation of low-quality patents in the market, as done so in India.

Furthermore, societies or associations should be formed by the system or the companies themselves to create a sort of herd immunity against such demand letters, which can be done by disclosing the pattern of shell companies and helping to identify the interested party more transparently.

In the end, it all comes down to general awareness of the legal provisions against such scams and the changes that are needed in the legal provisions and institutions related to the Patents.

VII. Conclusion

Intellectual Property law is a field that is quite a niche and still developing, making it the best arena to explore for both opportunities and scams. Thus, it becomes important to comb through the entities to remove those abusing the system to do such malpractices than leave them unchecked and make the newcomers suffer arbitrarily.

The right to Patent, in its very essence, should only be granted to those who aim to commercially use their inventions rather than those who are not even producing them but rather using them to file suits against others. This facilitates a harsh environment for individual innovators and small-scale companies as well as startups, which is neither fair nor justified.

Thus, it is important to let most patentees know about such dangers as they file for their patents while focusing on the utility of the patent as much as the novelty of it to avoid low-quality patents.

INTELLECTUAL PROPERTY RIGHTS (IPR) AND INNOVATION: IMPLICATIONS INVOLVED IN ITS TECHNOLOGY TRANSFER WITH SPECIAL EMPHASIS ON COVID-19 PANDEMIC

Vibhu Bhardwaj*

Abstract

The concept of intellectual property rights (IPR) has evolved over centuries, with the term "intellectual property" gaining popularity in the 19th century and becoming widely used in legal contexts in the late 20th century. The Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement, implemented in 1995, brought significant changes to the IPR regime. It aimed to reduce trade barriers, protect intellectual property, and promote legal trade. Developing nations were given a 10-year window to comply with the agreement, while wealthier nations had a 6-year window. India, as a signatory to the General Agreement on Tariffs and Trade and the World Trade Organization, was obligated to adhere to the TRIPS agreement. This paper examines the impact of the TRIPS Agreement on IPR and discusses the transfer of technology in relation to Covid-19 vaccines. It argues that temporarily waiving patent rights was crucial during the pandemic, despite certain hindrances to such a waiver. The article also explores the implications involved in technology transfer and the need to strike a balance between protecting intellectual property and facilitating technology transfer to foster innovation and economic development. Subsequently, the article delves into the influence of IPR on artificial intelligence (AI) and proposes ways to balance the protection of intellectual property with technology transfer. AI has significant effects on IPR, including creating new works, aiding in invention processes, analyzing copyrighted works, automating trademark protection, and raising ethical and legal challenges. To address global IPR concerns effectively, the article suggests international collaboration, robust IPR laws, technological advancement, and a balance between accessibility and protection.

Keywords: Intellectual Property Rights, Patent Waiver and Covid-19 Vaccine, Technology Transfer and Innovation, AI and its effects on IPR, IPR Enforcement and Protection.

I. Introduction

The contemporary concept of IPR evolved in the late 17th and early 18th centuries. The terminology "intellectual property" first came into being in public discourse in the 19th century. But the prevalent use of the term intellectual property was initiated in the late 20th century in legal parlance. The British statute of Anne[770] and the statute of Monopolies are widely recognised as the origin of copyright and patent law, establishing the pillar for intellectual property. In the decades of the 1760s and 1770s, there was tremendous development in the field of poetry and literature in England and there was felt a need to protect the original work of poets and writers and this encouraged the evolution of copyright laws to a great deal. In India the first presence of IPR can be seen in the year 1856, the Indian Patents Act came into being which introduced IPR in British India. The very first international Organisation that was formulated in the year 1967 was the World Intellectual property organization (WIPO), to look after matters involving IPR at a worldwide level. India becomes a member of this organisation in the year 1975.[771] This required India's acceptance and compliance with international rules and regulations involving the matter of Intellectual Property Rights around the globe.

II. Changes Brought Post TRIPS

On the 1st of January 1995, the agreement named Trade-Related Aspect of Intellectual Property Rights also called TRIPS short abbreviation came into force. This agreement was aimed to be implemented within 10 years from the date of its coming into force for the developing countries while in the case of developed countries, the period within which it was to be implemented was within 6 years. As a member of the General Agreement on Trade and Tariff (GATT) and the World Trade Organization (WTO), India was bound to comply with all the annexes and instruments of the Trade Related Aspect of Intellectual Property Rights.[772] The main purpose behind the implementation of the Trade-Related Aspect of Intellectual Property Rights agreement was to subside hindrances and impediments to international trade, proper protection of Intellectual

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[770] Jean-Paul A. Yaacoub et al., Digital Forensics vs. Anti-Forensics: Techniques, Limitations and Recommendations, 2103 ARXIV 1, 2-5 (2021).

[771] Zhang SX, et al, *unprecedented disruption of lives and work: health, distress, and life satisfaction of working Adults in China one month into the COVID-19 outbreak,* PSYCHIATRY RES 11 2 958 (2020)

[772] Andrea Shalal, Ivin Georgy, *Trips and its impact on the Indian Regime*, THELAWBRIGADE (May 14, 2023, 5:25 PM),https://thelawbrigade.com/intellectual-property-laws/trips-and-its-impact-on-the-indian-ip-regime/?amp.

Property Rights, facilitating legitimate trade, etc. After TRIPS, there have been several developments in the field of intellectual property rights. Increased patent protection for many technological domains, minimum copyright protection standards, and regulations that reconcile IP rights with public health concerns, particularly in the area of pharmaceutical access, are a few of these. Countries have made use of flexibility measures like mandatory licensing to guarantee access to cheap healthcare. Ongoing conversations center on finding a balance between safeguarding intellectual property and encouraging innovation, while also taking into account problems like developing country technology transfer and gaining access to important medications.

III. IPR and Technology Transfer Special Emphasis on Covid-19

Intellectual Property is all about new brainchild and innovation, Intellectual Property law deals with protecting ideas and innovation and subsequently incentivizing the appropriate owners for those ideas and innovation. These rights enable the creators a kind of full control and monopoly over their creation of mind for a specified period and allow them to negotiate the use of their creation with other players who seek to use their technology and in return the creators get an incentive as per the negotiated agreement. Thus, the creators of these technologies enjoy total control over their creation and can charge as much as they want to, in return for the monetary claim, to cover the Research and Development cost involved in creation of the creation. Normally, the creators earn a huge bunch of money which is far more than the cost of R & D in the creation of such technology.[773]

IPR had played a pivotal role in the Covid-19 era. Especially Patent rights had a great role in international and global healthcare and dealing with the pandemic. In the case of covid 19-vaccines, medical equipment, diagnostics, special medicine, and new innovative medical device, are all related to IPR. The main rights related to Intellectual property are copyright, trade secrets, etc. Some other form of right that are prevalent in the field of technology is a Patent that is being used to protect and promote software and business. Trademarks can be applied to different spheres of technology such as data transfer, software, and several other technologies.

IV. Patent waiver and vaccine in covid times

[773] *Id.* at2.

Vaccine developers get exclusive rights over their creation by virtue of patents to produce and manufacture the vaccine shots developed by them. As the developers get exclusive rights over their vaccine they can charge as much price as they deem appropriate from the persons or entities seeking to get the technology of that vaccine in the name of the cost involved in the R&D of the vaccine. A conflict of opinion was seen among member nations of the World Trade Organisation on the matter of waiving patent rights on covid vaccine at a time when covid 19 was at its peak.[774] When Covid 19 was at its peak and the whole world was in dire need of vaccines, India moved an application for the temporary waiver of the Agreement on Trade-Related Aspect of Intellectual Property Rights administered by the World Trade Organization to allow local manufacturers of developing and underdeveloped countries particularly the third world countries to produce the vaccine as per their requirement without the consent of the patent holder. This proposal was vehemently opposed by the developed countries and Unions, particularly the United States of America, the European Union, and other first-world countries by providing the rationale that it will adversely affect the innovation of Covid vaccine along with infringement of reasonable rights of the patent holder. This proposal of India found the support of South Africa at the World Trade Organization. South Africa's largest trade Union- the federation Congress of SA Trade Unions (COSATU) also backed this proposal.[775] Later on, the European Union submitted a declaration stating the nonacceptance of the joint proposal on waiver of patent rights moved by India and South Africa on Covid vaccines and drugs. While it was backed by over 100 out of 164 members of the World Trade Organization for any agreement to be adopted it must be accepted by a total membership of 164 members.[776] The main problem behind not granting a patent waiver on covid vaccine was that the companies that are holders of patent rights are not able to keep up with the ever-growing rate of demand for the vaccine as the deadly virus was spreading like a fire in the bush. Moreover, we saw that once a wave of the virus subsided, another variant of it was hitting the door, and hence for better dealing with such implications, the waiver of patent right which was confined to some companies and entities, needed to be waived off so that there would be a better transfer of technology among the pharmaceutical sector of the world and hence creating advanced

[774] Hall Bronwyn Hetal, Recent Research on the Economics of Patents, 4 ANNUAL REVIEW OF ECONOMICS 541, 565 (Oct. 24, 2019), www.jstor.org/stable/42949948.
[775] Emma Farge, *U.S., EU, India, S.Africa reach compromise on COVID vaccine IP waiver text*, REUTERS (May 22, 2023), https://www.reuters.com/business/healthcare-pharmaceuticals/us-eu-india-s-africa-reach-tentative-pact-covid-vaccine-ip-waiver-sources-2022-03-15/.
[776] *Id.*

and up to date vaccine to neglect the danger of new variant of Covid virus. One cannot overlook the developing and underdeveloped countries in the fight against the deadly Covid virus who are unable to vaccinate due to a lack of proper technologies and formulas for developing effective vaccines against the virus.

The rationale that those who are against compulsory licensing or patent waiver provides is – While at first sight, it might seem that waiver of the patent is the panacea to all problems but in reality, that is not the case. There is no concrete evidence or guarantee that compulsory licensing will solve the problem of production in the short term. This temporary waiver of patent rights on covid vaccine could result in the patent owner failing to recover the money and investment that they put into its development. Ultimately this would result in the discouragement of innovators to put much effort into the development of such technology. Thus, the absence of any mechanism like patent rights to protect industrial property rights could well act as dissuasion for these companies and for the development and discovery of such other medicines and drugs. In this regard, the state regulatory authority of Intellectual Property Rights will have to take appropriate steps in order to reach an agreement with companies in which the waiver of a patent doesn't adversely affect the research of new drugs and medicines.

V. Implications Involved in Intellectual Property Rights (IPR) Technology Transfer

Technology transfer involves a cooperative exchange of scientific discoveries, ideas, and intellectual property from creators like research institutions and universities to public and private beneficiaries, intending to convert innovative scientific findings into fresh goods and services that enhance the welfare of society. Technology transfer and knowledge transfer are closely linked. To ensure successful technology transfer, universities, and research institutions must function within an efficient innovation ecosystem, which is a network comprising governmental, industry, and research institutions, as well as supporting elements like skilled personnel, technology transfer mechanisms, and a high level of business and market expertise. This ecosystem facilitates the pooling of resources and knowledge among the parties involved, leading to collaborative innovation that supports regional and economic growth.[777]

[777] *Christaki E, New technologies in predicting, preventing and controlling emerging infectious diseases.* VIRULENCE 6(6) 558–565 (2015)

The importance of technology transfer of IPR is the necessity to build technology readily available for transfer and the need to secure transfer of IPR whenever wherever there arises an urgent need for it. While IPR rules that are in force are sacrosanct to maintaining and pioneering the proper functioning of these IP and innovation markets and industry but at the same on the other hand overprotective and stringent IP regulations can result in the anticompetitive and monopolistic approach of inventors and creators. IPRs and Innovation.[778]

To promote national innovation, creating institutions that support it is encouraged through incentives. Intellectual property rights (IPRs) play a role in this facilitating structure for innovation by assisting new companies to access funding from capital markets, form strategic partnerships and alliances, establish licensing agreements, and create innovative industrial organizations like virtual corporations. Intellectual Property Rights can also reduce the transaction costs involved in organizing innovative capabilities, which can lead to the creation of new industrial structures that support innovation.[779] IPRs can aid in the transfer of technology by encouraging institutional modifications at the company level. IPRs, industrial structure, and technology transfer all have significant connections that policymakers should take into account.

Technology transfer is significantly impacted by intellectual property rights (IPR). By giving innovators and investors legal protection, IPRs can make it simpler for them to share their knowledge and experience with others without worrying about losing control or money. In turn, this might support innovation, expansion of the economy, and development. By establishing monopolies and restricting access to technology, IPRs can, however, also serve as a barrier to the transfer of technology. As a result, there may be less competition, higher prices for technologies, and fewer chances for cooperation and information sharing. To prevent the use of IPRs to restrict innovation or impede economic development, policymakers must find a balance between safeguarding intellectual property and encouraging technology transfer.[780]

VI. Intellectual Property Rights and Innovation

[778]13Avgousti S, Christoforou et al, *Medical telerobotic systems: current status and future trend*s. BIOMED ENG ONLINE 15(1) 96 (2016)
[779]*Id.*
[780]Chandan Nath Saha and Sanjib Bhattacharya, *Intellectual Property Rights: An Overview and Implications in Pharmaceutical Industry*, 2(2)Apr-Jun, J ADV PHARMA TECHNOL RES., 88-93 (2011).

Intellectual property rights (IPR) play a significant role in fostering innovation by providing legal protection for innovative ideas and inventions. IPR laws and regulations help to incentivize creativity and encourage individuals and organizations to invest in research and development. By protecting their intellectual property, inventors and creators can profit from their innovations, which in turn provides a financial reward for their efforts and supports further innovation.

Although the major benefit that is claimed for strong Intellectual Property Rights is by giving or allowing innovators to claim a share of benefits for their work of mind encourages Research and Development are encouraged which results in innovation and better long-run growth. R&D spending is a way to measure the resources invested in innovative activities.[781] Patents are considered the most important form of protection for industrial innovation and are used to measure the output of these activities.[782] However, the importance of patent protection varies across industries. Evidence suggests that while patents are crucial for some industries such as pharmaceuticals and chemicals, they are not very effective in other industries in advanced countries. This is because patent protection does not have a significant impact on the rate of entry into those industries. Hence, Intellectual Property Rights is vital for the protection of the economic right of the innovators and also to encourage further future innovation which will ensure better protection of the future by way of better technological development.[783]

VII. Artificial Intelligence and its Effects on Intellectual Property

The effect of AI (Artificial Intelligence) on IPR (Intellectual Property Rights) can be significant and multifaceted. Here are some key ways in which AI has influenced IPR:

- ***Creation and Innovation:*** AI technologies have the capacity to produce fresh and original ideas for inventions, designs, and works of art. Artificial intelligence algorithms are capable of producing music, visual art, and literary content, raising concerns about ownership and copyright.

[781] *Id.* at *6.*
[782] Vaishali Singh, *Open innovation and Intellectual Property Rights – A Paradox?*, (May 17, 2023, 10:12 PM), SCCONLINE, https://www.scconline.com/blog/post/2018/03/22/open-innovation-and-intellectual-property-rights-a-paradox/.
[783] Manfredi Christopher, Why Do Formal Amendments Fail? An Institutional Design Analysis, 50 (3), WORLD POLITICS 377, 400 (Oct. 28, 2019), www.jstor.org/stable/25054046.

- ***Patent and Invention***: By helping creators find prior art, perform research, and even come up with new ideas, AI helps speed up the invention process. When AI is used in the creative process, the issue of who should be credited as the creator emerges.
- ***Copyright and Creative Works***: AI is capable of analysing enormous amounts of previously published works that are protected by copyright and producing new content as a result. This raises questions concerning the violation of copyright and how to distinguish between authentic work and reproductions produced by AI.[784]
- ***Trademarks and Brand Protection***: AI tools can automate the process of looking for potential trademark infringements by sifting through a ton of data and spotting similarities or inconsistencies. This can support the defence of brand rights and trademark protection.
- ***Data Protection and Privacy:*** AI frequently needs access to massive datasets for training. To avoid unauthorised use or disclosure of protected information, compliance with data protection regulations and privacy protection become essential.
- ***Enforcement and Piracy:*** AI-powered tools can be used to detect and combat intellectual property infringement, such as identifying counterfeit products or monitoring online platforms for copyright violations. However, sophisticated AI can also be employed by infringers to circumvent detection measures.[785]
- ***Licensing and Royalties***: AI technologies that automate content generation or analysis may require new licensing models or royalty structures to properly compensate creators and rights holders.[786]
- ***Ethical and Legal Challenges***: The use of AI in IPR raises several ethical and legal considerations, such as accountability, transparency, bias, and fairness. The development and deployment of AI systems should align with legal frameworks and ethical guidelines to ensure the appropriate protection of IPR.[787]

It's important to note that the impact of AI on IPR is an ongoing and evolving area of study and regulation. Laws and regulations related to AI and IPR may vary across jurisdictions, and

[784] Vindhya S Mani, Gandhuli Nanda, *Impact of US Copyright Office Guidelines on AI -Generated Work* (May 23, 2023, 9:29 PM), SCCONLINE, https://www.scconline.com/blog/post/2023/04/15/impact-of-us-copyright-office-guidelines-on-ai-generated-work/.
[785] *Id.*
[786] Nomani, M.Z.M, *Right To Health: A Socio- Legal Perspective*, UPPAL PUBLICATIONS, 56 (2004).
[787] Nomani, M.Z.M., Rahman F, *Intellection of Trade Secret and Innovation Laws in India*, JOURNAL OF INTELLECTUAL PROPERTY RIGHTS, 16(4) 341-350 (2011)

policymakers are continuously addressing these complex issues to strike a balance between encouraging innovation and pro.[788] In simple language, artificial intelligence and Intellectual Property Rights are two facets of the same coin, in one hand artificial intelligence will prove to be a vital resource in the field of patents such as in conducting accurate and timely research while on the other hand, it will prove to be detrimental for creativity and invention which is the heart and soul of the Intellectual Property Rights.

VIII. Conclusion

Problems with intellectual property rights (IPR) are a complicated and difficult matter that calls for serious thought and calculated answers. The protection of creators' and inventors' rights as well as invention and creativity are all facilitated by intellectual property rights. They significantly contribute to the improvement of the economy, technology, and a free market. Its problems cross international borders and have an impact on people, businesses, and economies everywhere. The difficulties with IPR enforcement and protection have increased as a result of the widespread use of digital technology and the internet. The rapid development of emerging technologies, including artificial intelligence, blockchain, and 3D printing, poses new challenges for IPR. These technologies enable the easy reproduction, distribution, and alteration of digital content, requiring innovative approaches to IPR protection. Encouraging international collaboration and cooperation among governments, law enforcement agencies, and industry stakeholders is crucial for addressing global IPR problems. Sharing best practices, intelligence, and resources can enhance the effectiveness of enforcement efforts. Governments should enact robust IPR laws that align with international standards and provide effective enforcement mechanisms. Law enforcement agencies need adequate resources and training to combat counterfeiting and piracy effectively. Embracing technological advancements can help protect and enforce IPRCovid-19. Technologies such as blockchain can provide transparent and tamper-proof records of ownership and transactions. Digital rights management systems can be employed to control access and usage of digital content. Striking a balance between incentivizing innovation through IPR protection and ensuring reasonable access to essential goods and services is crucial. Policymakers should carefully consider the impact of IPR laws on access to medicine, education, and technology.

[788] *AI and Intellectual Property Rights*, INDIAAI(May 13, 2023, 9:48 AM),https://indiaai.gov.in/ai-standards/ai-and-intellectual-property-rights).

INTELLECTUAL PROPERTY PROTECTION FOR ARTIFICIAL INTELLIGENCE: TRADE SECRETS AND PATENTS

Priyanshi Agarwal*, Devanshi Bang**

Abstract

The use of "artificial intelligence" technologies is expanding rapidly and as AI becomes ever more sophisticated, it is moving closer to joining the "creative class." Technology that resembles human intellect in any way is referred to as artificial intelligence. By this meaning, AI specifically refers to the ability of computers to carry out certain tasks without having been explicitly trained to do so. The interplay between "artificial intelligence" (AI) and intellectual property (IP) law has already sparked a heated academic discussion. The interaction of AI and IP seems to be moving into a more relevant stage right now. High company investments produce a lot of AI-related, IP-protected (or possibly IP-protectable) output, and businesses have started fiercely fighting in this space. National and supranational IP Offices along with World Intellectual Property Organization (WIPO) are holding consultations to gather stakeholder opinions on the subject and determine what their AI/IP policies may be, also with an eye toward competition between jurisdictions and national economies.

Key Words: Intellectual Property Protection, Artificial Intelligence, Patent, Trade Secrets, World Intellectual Property Organization.

I. Introduction

The history of artificial intelligence may be traced at least as far back as the 1950s, when Alan Turing started studying the idea of machine intelligence. He claimed that a machine was "intelligent" if someone using it could not determine whether they were speaking to a human or a computer, which is now known as the Turing test. Even after several decades of AI study, there is still no widely agreed-upon definition of AI.[789]

One of the foundations of the contemporary economy is artificial intelligence (AI). One widely cited research from 2017 estimated that by 2030, the world economy might boost by up to $15.7 trillion by artificial intelligence technology.[790] Therefore, it should come as no surprise that businesses are making significant sums to safeguard the intellectual property that results from their AI technology investments.[791] It is more important than ever to safeguard AI innovations given their rapid advancement and potential advantages.

Legal protection through Intellectual Property laws can play a significant role in safeguarding AI innovations. In this paper we will discuss about AI protection through patents and trade secret. Also, the best way a company can protection their AI innovations is through the combination of patent and trade secret as they are complementary in nature. Companies should adopt a multifaceted strategy for safeguarding AI discoveries since certain components may be best protected through patents while others may be better protected through trade secrets. Each type of IP protection has its obstacles and possible drawbacks, especially given how protection is growing and the lack of clear guidelines, but each type also has its advantages.[792]

II. Trade Secrets and Artificial Intelligence

1. Overview of Trade Secrets

The agreement which is the most extensive on intellectual property currently in effect is the Trade-Related Aspects of Intellectual Property Rights Agreement by WTO. It went into effect on

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789 Jessica M. Meyers, *Artificial Intelligence and Trade Secrets*, 11 Landslide 17,18 (2019).
790 PwC, GLOBAL ARTIFICIAL INTELLIGENCE STUDY: SIZING THE PRICE (2017).
791 PwC, MoneyTree Report, Q4 2018 (2018).
792 JD Supra, Protecting AI Innovations Through Trade Secrets and Patent Protection, Jones Days White Paper 1 (2021).

1January, 1995. For protection on trade secrets on International level, the agreement contains Article 39.[793] TRIPS protects "undisclosed information", which is seen as being akin to trade secrets even if the phrase "trade secret" is not used.

According to Article 39.2, data that is deemed private, has financial value because it is kept secret, and has previously been the focus of adequate efforts to keep it hidden must likewise be protected. The TRIPS Agreement does not mandate that confidential information be treated as assets, but it does mandate the fact that the party officially in charge of it have the authority prohibit third parties from learning about it, acquiring it, or employing it in a way that is not in accordance with ethical business practices.[794]

Trade secret protection is not specifically addressed by TRIPS; as a result, member nations either have separate trade secret laws, include trade secret protections in their laws against unfair competition or contracts, or depend on common law.[795]

The TRIPS Agreement was the very first global agreement to exclusively protect trade secrets. The guiding concept of the strategy set by the TRIPS Agreement is that private data ought to be safeguarded against unjust rivalry. The Paris Convention for the Maintenance and Protection of Commercial Property is mentioned in the TRIPS Agreement, a convention that predates it and is administered by the WIPO, when defining this approach since it offers protection against unfair competition.

Despite being confidential, the information protected by trade secrets is still commercial. To be of any practical value, in order to function with a select set of coworkers and company collaborators, a trade secret proprietor typically needs to reveal it. As consequently, regulations foresee and permit a certain level of safeguarded disclosure under an acceptable range, Even if they are not "secret" in the strictest sense of the word, trade secrets nonetheless need to be kept private and only known by a select few people. Trade secrets, which are often seen as being equivalent across

[793] Gregory G. Greer, *Artificial Intelligence And Trade Secret Law*, 21 UIC Rev. Intell. Prop. L. 252, 259-260 (2022).
[794] WORLD TRADE ORGANIZATION, https://www.wto.org/english/tratop_e/trips_e/intel2_e.htm#:~:text=The%20TRIPS%20Agreement%20is%20a,own%20legal%20system%20and%20practice, (last visited May 26, 2023).
[795] D.C. Lippoldt & M.F. Schultz, *Approaches to Protection of Undisclosed Information (Trade Secrets): Background Paper*, OECD Publishing (OECD Trade Policy Papers, No. 162) Jan. 2014, at 130.

national boundaries, are therefore addressed for their dual nature as confidential yet commercial information.[796]

It is essential to make it clear that the legislation governing trade secrets does not provide right holders a monopoly over the topic of trade secrets. Rights holders may only limit the misuse of trade secrets by preventing inappropriate obtaining, employing, or releasing trade secrets in violation of moral business practices, such as contract violations, commercial or industrial espionage, confidentiality breaches, etc. The majority of nations offer criminal, administrative, commercial, and/or civil law remedies. In principle, a trade secret owner has the right to ask for compensation for the economic harm they have endured. They may also request injunctions, such as the prohibition on using anything that was produced as a result of the trade secret misappropriation.[797]

2. Importance of Trade Secrets for AI

A growing amount of attention is being paid to artificial intelligence technologies these days. From a legal perspective, the main worry of policymakers and academics is how to adequately secure the AI components in order to foster future innovation. Trade secrets are proving to be a viable legal instrument in this situation for protecting innovations in artificial intelligence, especially as many businesses have started using them to safeguard the technology's constituent parts.[798] In the contemporary world, the greatest method of protecting algorithms' intellectual property is through trade secrets. This is especially important because even the most basic AI designs require basic instructions to operate, that's where algorithms fit into the bigger picture. Algorithms aremathematical instructions, yet they are not covered by copyright or patent laws.[799]

Trade secret usage encourages AI innovation and gives a framework and legal assurance for knowledge and restricted data sharing between selected parties. Trade secrets are subject to a variety of national legal frameworks that are typically out of sync and have their roots in tort, privacy, confidentiality, or unfair competition legislation. In the field of AI, which involves a variety of organizations, including research institutions, software developers, computer scientists,

[796] *Id* at 130.
[797] Hawraa Hammoud, Trade Secrets and Artificial Intelligence: Opportunities & Challenges, 2 (Feb. 10, 2021) (unpublished manuscript) (on file with the author).
[798] *Id* at 1.
[799] Greer, *supra* note 5, at 263.

private entities, data producers, and data hosts, trade secrets serve as the basis for the controlled sharing of otherwise confidential information and the promotion of collaboration.[800]

Protecting a company's sensitive information is the goal of a trade secret. A corporation cannot divulge these secrets to a third party since they are vital to the business. In order to safeguard their trade secrets, corporations frequently demand that both workers and business partners sign confidentiality agreements. Additionally, utilizing such material without the owner's consent is considered unfair and a breach of laws protecting trade secrets.

Trade secret protection is unquestionably a successful way to guarantee the privacy of AI. Data and algorithms used to create and implement a product or service will be protected.

3. Advantages and disadvantages of trade secret protection for AI

Trade secret legislation safeguards the information as long as it is kept confidential. AI systems Particularly suitable for the safeguarding of trade secrets are those that are challenging to reverse engineering. By keeping this AI technology secret from the outside world, the person who developed it would be preventing others from acquiring and possibly employing the innovation. These developments could involve methods and know-how for extracting relevant information from large amounts of unstructured data, utilizing that information to build models, and then utilizing the models that were built.

Trade secret protection is a potential for AI technology where violation would be challenging to detect. In situations where infringement is challenging to identify and demonstrate, it might be challenging to enforce an AI patent. Trade secret protection can be taken into consideration for such technology.[801]

Trade secret protection is more comprehensive when compared to patent protection and can be appropriately utilized for things with commercial value when preserved secret and comprehended only by those within the organization. For inventions that is not qualified for protection through

[800] WIPO Secretariat, WIPO Conversation On Intellectual Property (Ip) And Artificial Intelligence (Ai),Second Session, at 13 (2020) https://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ip_ai_2_ge_20/wipo_ip_ai_2_ge_20_1_rev.docx.
[801] Jones Days, *supra* note 4.

patent, like unprocessed data, data used for training, and breakthroughs created by Artificial Intelligence systems, the trade secret protection may be applicable.

In addition to its economic advantages, trade secret protection helps the businesses to give their trade secret proper legal protection by avoiding infringement and effectively enforcing their rights when it does.[802]

The proposition that protection can only be obtained when the intellectual property must be kept confidential is a basic issue when employing trade secrets despite the fact that trade secrets are becoming more and more crucial for AI companies. It can be difficult and operationally demanding to keep software a "secret" for a number of reasons, including strong employment agreements are required given the high turnover at technology companies, as well as the ease with which software can be "stolen," making it necessary to create and enforce strong cybersecurity policies. Software must be created and used in a way that prevents reverse engineering because it can be used as a defense to trade secret appropriation and Technology must frequently be shared broadly among partners and employees in order to conduct business which raises the possibility that a trade secret may be made public. Because of these concerns, keeping trade secret protection in place may be costly for a business and necessitates intense ongoing vigilance.[803]

Trade secrets are not sufficient for preventing independent invention. It can be challenging to stop a competitor from utilizing the innovation if they independently produce it. Additionally, given that trade secret protection is permanently lost once exposed, it might be challenging for prospective investors to quantify the value of trade secret protection. Additionally, by keeping technological breakthroughs confidential, it might be argued that safeguarding trade secrets hinders collaborative and creative thinking, even if this may not be a business's top concern.

For businesses, trade secret creates significant intangible assets that provide them a competitive edge in the domestic and international market, particularly in a data-driven economy. For instance, a crucial aspect in the success and profitability of the Google is the search engine's algorithm. In addition, businesses might profit from licensing or selling their trade secrets.[804]

[802] Hammoud, supra note 9, at 6-7.
[803] *The Rising Importance of Trade Secret Protection for AI-Related Intellectual Property* (Quinn Emanuel Trail Lawyers) Apr. 24, 2020, at 6-7.
[804] Jones Days, *supra* note 4.

4. Challenges for protecting AI-related trade secrets

The effectiveness of trade secret protection for technology connected to AI is limited by a number of factors, despite the fact that it has several benefits that make it an attractive option for businesses. The primary component is losing secrecy as a result of a theft or a violation of contract that deprives AI-components of TS protection. The difficulty of enforcing rights and demonstrating violation is another problem that trade secret owners face.

Given that trade secret theft frequently evades detection or is difficult to prove, it poses a genuine threat to companies' growth and success.[805]

Reverse engineering of technology or independent discoveries are not prohibited under trade secret protection. While businesses can take precautions to safeguard data privacy, they are powerless to stop individuals from lawfully reverse engineering ideas represented by protected information. Reverse engineering and independent discovery might be challenging in the context of AI currently.

Trade secret holders face difficulties linked to the challenge of upholding rights and proving infringement. When pursuing their right, businesses must first demonstrate that the stolen trade secret actually is a trade secret. Trade secrets do not have a formal registration with the government. This suggests that businesses are without a written document to rely on and must prove that their TS satisfies the requirements set out in the legal jurisdiction's definition of Trade secret. Companies must then provide evidence of Trade secret misappropriation. In reality, it is difficult for companies to demonstrate theft, especially in nations with little resources for discovery.[806] Furthermore, it is increasingly challenging to establish infringement because of the technological complexity and dynamic behavior of AI devices, as well as the huge volumes of technical data that describe these behaviors.

When it comes to applying Trade secret rights worldwide, the issue is far more challenging. Companies must take into account a variety of factors while doing this, such as venue selection, relevant legislation, the location of resulting injury, the location of the injury that results from those

[805] Brian T. Yeh, *Protection of Trade Secrets: Overview of Current Law and Legislation*, Congressional Research Service (Federation of American Scientists) Apr. 22, 2016.
[806] *International Harmonization of Trade Secret Rights and Remedies*, Bradley Arant Boult Cummings LLP (Lexology) Dec. 12, 2016.

acts, and the location of recoverable damages, among others.[807] Time and money are frequently wasted in this type of litigation.

III. Patents and Artificial Intelligence

1. Overview of Patents

Knowledge-based assets play a critical role in establishing the limits of businesses and their viability in the competitive environment. Intellectual property must be protected effectively, which is dependent on both the available legal tools and the actions taken by the innovators. Thus, "Patent protection" is the technique of intellectual property protection that businesses use the most commonly. In simple terms, a patent is a legal document issued by the government that, gives the inventor/creator a privileged license to market, produce, use, and import the new product for a specified length of time after revelation of the invention.[808]

The trade-related provisions of the TRIPS Agreement were developed by the World Trade Organization (WTO). In accordance with the standard parameters of "creative thinking, novelty and industrial utility." all inventions—whether methods or tangible products—in all disciplines of technology must qualify for protection against patents under the TRIPS Agreement.

There are three legal exceptions to the fundamental norm of patentability, as stated in Article 27.2[809]. One advocates inventions that are against public morality or order; this expressly includes inventions that are harmful to the health or well-being of people, animals, plants, or the environment. "The Members may exclude from patentability diagnostic, therapeutic, and surgical methods for the treatment of humans or animals," which is the second exclusion indicated under subclause (a). The Members may not include biodiversity other than microorganisms and fundamentally biological processes for the "growth of plants or animals other than non-biological and microbiological processes," which is the third exemption indicated under subclause (b). Any nation that exempts plant species from patent protection, meanwhile, must have a strong sui generis method of defense.[810]

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[807] *Id* at 19.
[808] Bayya S. Rao, *An Overview of Patent System*, The Pharma Rev. 71, 71-76 (2014).
[809] Trade-Related Aspects of Intellectual Property Rights (TRIPS) art. 27(2), Jan. 1, 1995.
[810] WORLD TRADE ORGANIZATION, Overview: the TRIPS Agreement https://www.wto.org/english/tratop_e/trips_e/intel2_e.htm#patents, (last visited May 29, 2023).

In compliance with Article 28[811], a product patent must grant an exclusive license to "make, use, offer for sale, sell, and import" for these purposes. Processes that are safeguarded by a patent have to assign privileges to both the objects that are directly produced by the process and their usage. Additionally, patent owners will be permitted to enter into licensing agreements and convey or pass their patents by inheritance. The time frame of the protection offered cannot end before 20 years have passed starting on the date of registration. When particular circumstances that suggest that there is an opportunity that the secured process as described in Article 34 was carried out have been established, the court system shall have sufficient power to direct the defendant to establish that the method employed for acquiring a similar product is distinct from the patented system.[812]

When it comes to securing a patent for a technological inventiveness, the innovation must meet the criteria for "novelty, usefulness, inventive step, patentable subject matter, and commercial application."[813] The primary requirement of the patenting process is that the inventor of the patent disclose the innovation in the patent request, in contrary to the standards of the protection of trade secrets. In accordance with the law governing patents, an applicant must expressly offer sufficient details about the invention to let an individual with basic expertise in the relevant field to make and employ all variationsof the patent-protected goods. Consequently, "fostering the development of invention and the propagation of newly developed technology" are the two objectives associated with the safeguarding of patents.[814] Even if an infringing party creates the patented innovation independently, this will not serve as a defense against patent infringement.

The Paris Convention and Patent Co-operation Treaty play a crucial role in dealing with patents, which is advantageous with "unattached filing, examination procedures avoiding translations, and repetition of patent office procedures."[815] These agreements are among the various conventions and treaties relating to intellectual property rights. Additionally, the provision saves time while lowering expenses during filings.

[811] Trade-Related Aspects of Intellectual Property Rights (TRIPS) art. 28, Jan. 1, 1995.
[812] WORLD TRADE ORGANIZATION, *supra* note 22.
[813] Francesco Pitton, Dirk Crass, Christian Rammer & Francisco Garcia Valero, *Protecting Innovation Through Patents and Trade Secrets: Evidence for Firms with a Single Innovation*, 26(1) Int. J. Econ. Bus. 117, 129 (2019).
[814] ROBERT P. MERGES, et al., INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 110 (3rd ed., Clause 8 Publishing) (2022).
[815] Rao, *supra* note 20, at 71-76.

2. Understanding Patents in the context of Artificial Intelligence

The core of societal change is newly emerging learning and innovation. Patents are the cornerstone of the "system of intellectual property law" that has consistently guarded inventions. The world is currently on the verge of a profound change, whose effects on the regulation of patents specifically are so extensive that it is difficult to predict how they will affect the law as a whole. This is the AI revolution.[816] Increased productivity and prospects for economic development in industries like "healthcare, banking, national security, and transportation" are just a few of the numerous significant advantages that AI breakthroughs provide to society as a whole.

It is more significant than ever to preserve AI technologies given their quick development and potential rewards. As opposed to the idea of generic AI, when AI is considered in relation to patents, it is typically used as a collective word for specific 'AI concepts or technologies' ("neural networks with artificial intelligence, training systems, and algorithms for learning"). The standard reaction in some businesses is to use patents to protect developments linked to artificial intelligence (AI) because patents are frequently thought of as the most effective means of "tech" protection. Over the course of the previous decade, the number of patent filings for AI technology has grown significantly with nearly 154,000 entries issued worldwide. Advances in machine learning are largely accountable for this growth.[817]

In consideration for disclosing the invention, a patent right grants the patentee the sole authority to manufacture, assemble, employ, or trade the patented good. The definition of an invention is any "Any artwork, technique, machinery, fabrication of materials, or modification of them, which is novel, practical, and not evident." Patents "coax" individuals into disclosing concealed inventions so that society as a whole is able to benefit from this understanding through promoting innovation. Without an opportunity to get patent rights, an inventor may choose to keep the creative idea a secret, limiting mankind of information regarding the innovation and the building instructions.

[816] Garikai Chimuka, Impact of artificial intelligence on patent law. Towards a new analytical framework – [the Multi-Level Model], 59 World Pat. Inf. (2019).
[817] Andrew Toole, Nicholas A. Pairolero& Alexander V. Giczy, Identifying artificial intelligence (AI) invention: A novel AI patent dataset 9 (August 2021) (USPTO Economic Working Paper No. 2021-2) (on file with the SSRN).

Basically, two key challenges emerge when interpreting patents in the wider setting of AI:[818] An instance of argument is whether AI technology can meet the current legal standards for a patent. The second set of concerns occurs when intelligent agents either assist "human inventors and decision-makers" or take on those roles themselves.

Although the code may hold the hidden key to the development, most countries do not allow the patenting of algorithms. As a result, it becomes vital to relate the application of the algorithms to a concrete outcome. The recommendations offered by various patent office's make this more apparent. Artificial intelligence (AI)-related regulations have not yet been made accessible by the United States Patent and Trademark Office (USPTO), so AI-related inventions are treated in the same manner as inventions which employ the use of "Theories and techniques in mathematics," which are classified as "Subject-Matter Not Patentable." Such mathematical structures however, are regarded as patentable if they are connected to a real-life application.

AI inventions are considered "computer implemented inventions" by the European Patent Office (EPO). The EPO stipulates that inventions involving artificial intelligence (AI) must possess a definite technological objective, i.e., be associated with a particular use, and that the technical impact of deploying the algorithm must be stated. It is also advised to employ this strategy to disprove objections made in accordance with "Section 3(k) of the Indian Patents Act, 1970."[819]

In every instance, the claims made in the applications pertaining to these inventions must explicitly state how the "computer system and the abstract mathematics" relate to one another. It will ultimately become possible for powerful AI systems to execute the patent assessment uniformly and mechanically in the future.

3. Advantages and Disadvantages of Patent Protection for Artificial Intelligence

The manner in which we conduct ourselves and communicate with the world around us has evolved as a result of artificial intelligence (AI). Daily goods and services now include AI systems and services. Increased productivity and chances for economic development in industries like

[818]Xiaoqiong (Jackie) Liu & Shlomit Yanisky-Ravid, *When Artificial Intelligence Systems Produce Inventions: The 3A Era and an Alternative Model for Patent Law*, 39 Cardozo Law Rev. 2215, 2241 (2018).
[819]Essenese Obhan and Joyita Deb, *India: Patenting AI Inventions: Best Practices from Around The World*, MONDAQ (Feb. 05, 2020), https://www.mondaq.com/india/patent/890652/patenting-ai-inventions-best-practices-from-around-the-world.

"healthcare, banking, national security, and transportation" are just a few of the numerous significant advantages that AI breakthroughs provide to society as a whole.[820] In the present circumstance, getting patent secured for an innovation provides a means of protecting the innovator's rights in a marketplace that is highly competitive. The constantly changing nature of protection and ambiguous guidelines present difficulties and potential barriers for each type of IP protection through patents. However, it also has certain positive aspects.

Patents has been held by AI much like many other sectors. The automatic response in some businesses is to use patents to protect developments linked to artificial intelligence (AI) because patents are frequently thought of as the most effective way to provide "tech" protection. The primary advantage of AI would be to speed up and streamline the process at all levels, including "patent licensing, inspection and issuance, and searching for patents."[821] The information for patents is fairly structured globally; for example, there is a set manner of drawing a patent and a section ii patent must contain a certain amount of evidence.

It will be quite simple for an AT engine to absorb patent data and detect patterns if AI systems can assist in the consumption of unprocessed information and help identify trends from it. Al is already incorporated into several patent search engines nowadays, which is increasing the efficiency of the search process. A search engine supported by AI produces fewer erroneous favorable outcomes for the same search query.[822] By transcribing patents into English, artificial intelligence-based translation technologies are opening up an increasing number of patents to people worldwide.

Benefits of patent protection for artificial intelligence (AI) include the ability to prevent others from "creating, using, commercializing, or exploiting the idea."[823] Even if the invention is separately developed by another party, this protection still applies. The potential to monetize patents through "litigation and licensing" makes their value to investors typically simpler to evaluate and estimate when compared to the value of many other types of IP. Inventors are adequately protected legally if they have a valid patent.

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[820] Rainer K Kuhnen&Kuhnen & Wacker, *Artificial intelligence: the implications for patents*, IAM (Apr. 11, 2019), https://www.iam-media.com/regionindustry-guide/patents-in-europe/2019/article/artificial-intelligence-the-implications-patents.

[821] Jones Days, *supra* note 4.

[822] Anthony Arundel, The Relative Effectiveness of Patents and Secrecy, 30(4) Research Policy 611, 618 (2001).

[823] Michael Borella, *How to Draft Patent Claims for Machine Learning Inventions*, PATENT DOCS(May 23, 2023), https://www.patentdocs.org/2018/11/how-to-draft-patent-claims-for-machine-learning-inventions.html

Patent search tools are being transformed by artificial intelligence-driven search. The most accurate and advanced prior art technologies available today use AI to speed up and organize searches. It might be challenging to determine whether searches on a given topic are exhaustive when there are countless results to filter through in both local as well as overseas databases.[824] AI makes it simpler by conducting more searches more quickly, and with more relevant results. Projects for "patent research and verification" that once required several weeks or even months can now be completed in just a couple of minutes.

When determining how to best protect and monetize the relevant IP, consideration should be given to the difficulties and potential dangers of securing patents for AI.

Now if we talk about the downsides of patent protection then obtaining an AI patent can be challenging: Before receiving a patent, applicants must overcome a number of obstacles. "Subject matter eligibility" which indicates that patent applications involving specific computer-implemented operations were abstract notions inadmissible for patent protection, is one particularly challenging barrier for AI inventions.[825] For example, an advancement in artificial intelligence might be prohibited on the grounds that its claims merely describe mental operations that one could carry out on one's own, for instance, regular information tampering, computations that can be performed using pencil and paper, or strategies for organizing human actions are all judged metaphorical and ineligible for patent protection. Additionally, receiving and maintaining a patent could be expensive. The process of obtaining a patent might take a long time, and ongoing maintenance costs follow.

It may be challenging to uphold AI patents:[826] When a technology has been disclosed in a patent, there is the possibility that other parties will misuse exploiting the data for their own commercial advantage. In these situations, the patent holder must prove that infringement took place in order to receive compensation or an injunction. As a result, it may be impossible or exceedingly challenging to determine whether the product of a competitor incorporates identical technique. Furthermore, by enforcing a patent, the patent holder faces the danger of having the invention contested in court. However, there are a number of defenses an alleged patent infringement may

[824] Obhan & Deb, *supra* note 31.
[825] Patrick Thomas & Dewey Murdick, *Patents and Artificial Intelligence: A Primer*, CSET Data Brief (Georgetown University) Sept. 1, 2020, at 13.
[826] Jones Days, *supra* note 4.

put forward, such as the "defense of prior commercial use." The initial user would be allowed unrestricted previous and subsequent exploitation of that protected subject matter provided the aforementioned defense is employed for a minimum of one year before the patent's operative filing date.

Technology must be considerably disclosed in order to obtain a patent: By their very essence, AI patents must reveal a "patent holder's technology to competitors," along with any prospective advantages. Patents must be presented with sufficient specificity.[827]

AI technology advance swiftly: it may take some time for a patent application to become approved. There is the possibility that the AI under consideration could be quickly improved upon or entirely displaced by new technologies during this time, decreasing the monetary worth of any granted patents.

4. Challenges for Artificial Intelligence Patenting

As AI develops further and the law adjusts to reflect a developing technical environment, businesses must proactively and continuously think about how to effectively protect their AI technology through intellectual property (IP). Despite the fact that there is still much to be done in the fields of artificial intelligence and machine learning, the difficulties associated with securing a patent for AI-driven technology must also be taken into account.[828] The rate of technological advancement may be slightly slowed down when innovators get stuck down in legal battles over seeking to patent their innovations.[829] Therefore, it is necessary to investigate the difficulties and potential solutions associated with patenting and protecting artificial intelligence.

Patent law primarily pertains to inventions made by human beings. Numerous patent applications have been denied because computational intelligence deliberately industrialized these innovations. More specifically, new forms of invention that only minimally need human input have been made possible by technologies like artificial intelligence (AI). This has prompted a number of vital inquiries, the most significant among them being whether the patent system can continue to

[827] WORLD ECONOMIC FORUM, *Artificial Intelligence Collides with Patent Law*, White Paper (Apr. 2018)
[828] Ahmed Elmallah, *Artificial Intelligence Patenting: Top Challenges and Key Considerations*, BENNETT JONES (Nov. 15, 2022), https://www.bennettjones.com/Blogs-Section/Artificial-Intelligence-Patenting-Top-Challenges-and-Key-Considerations.
[829] Patenting Artificial Intelligence: Challenges and Solutions, AIIOT (Dec. 1, 2020), https://www.aiiottalk.com/patenting-ai-challenges-and-solutions/

promote and acknowledge creation. Given the development of artificial intelligence (AI) tools, we believe that rapid adjustments regarding the patent mechanism are necessary to prevent grave negative effects from a disparate extent of protection being granted to the by-products of AI activities, which could have detrimental societal, financial, and moral repercussions.

To begin with, a patent application ought to satisfy every prerequisite for patentability. This should be straightforward, but patenting technologies that use AI comes with a multitude of challenges. Patent seekers must take care to make certain that the claims they submit do not contain abstract concepts that are ineligible for patent protection. Patent claims will undoubtedly encounter issues with algorithms or specific applications of current technology. In essence, the patent needs to prevent exceeding any of the following requirements: "Natural laws, physical phenomena, and abstract concepts."[830] The fields of machine learning (ML) and artificial intelligence (AI) frequently fall into the following classifications, making it difficult to secure a patent for these inventions because they are considered abstract concepts: mathematical ideas, human activity organization techniques, and thought processes. It is improbable to comply with the requirement that a request for a patent include sufficient data for backing up a declared innovation if all that is stated about a method or system's use of "any machine learning" is that, without further clarification.

It is also detrimental whether AI can meet the criteria for obtaining a patent because intellectual property rights related to ownership are additionally associated with the efficacy of innovation and development. More importantly, if AI is granted a patent and copyright, it would be troubling to enforce it against numerous infringers. It seems difficult to prove an infringing behavior when it comes to enforcement. It can be challenging to prove that the infringing product uses the same technique because it is frequently impossible to pinpoint exactly how AI methods operate.

The question of whether a human created the answer by designing the AI or if the outcome was a result of the AI's innate competence, independent of an average individual, forms the basis of the subject matter in the majority of cases. In a nutshell, someone must explicitly demonstrate the steps in their methodology that led the AI to arrive at a solution. In other words, AI cannot simply arrive at a solution without anyone knowing how it happened, then go ahead and apply for a patent

[830] Borella, *supra* note 35.

on it. One requires concrete proof that they were in charge of and controlling the AI. It is because human innovators support and direct artificial intelligence (AI), because without AI, innovation would not be achievable.

A significant consideration when assessing whether an innovation will receive a patent depends on if it can successfully pass the examination for patentability requirements. This necessitates that it be "innovative, creative, and have an industrial applicability." Completing this three-step assessment is the main obstacle to acquiring a patent for inventions using AI-powered technologies. In order exhibit novelty, it becomes crucial for the invention to diverge from what is known in the preceding art. Due to the oversight of human scientists who provide data, an AI system will undoubtedly have exposure to "prior art." But can an AI system actually evaluate whether or not its innovation qualifies as novel? Or is it even capable of doing so? Addressing what constitutes a creative step, it is unquestionably more difficult to produce innovations on existing models or concepts that are unclear to an expert in the field if originality itself is challenging for the artificial intelligence (AI) algorithm for assessment.[831]

As a direct consequence, one must show how the AI addresses a real-world problem in order to constitute patentable subject-matter and create better AI applications that comply with patenting standards. This makes it clear that the idea offers a technical improvement rather than being a purely mathematical formula. To achieve this objective, showcasing the application of well-known machine learning algorithms to fresh use cases can likewise exhibit innovation.[832] To comply with the confidentiality specifications, the application must at least outline one potential execution. Another point of differentiation may be considered in the manner in which the framework is demonstrated to be modified for a certain use-case.

There is no question of dispute that the use of AI systems will ultimately render the process faster and more efficient, which will be advantageous for everyone. It will be intriguing to observe if this

[831] Joshua A. Kroll et al., *Accountable Algorithms,* 165(3) U. Pa. L. Rev. 633, 657 (2017).
[832] STUART RUSSELL, HUMAN COMPATIBLE: ARTIFICIAL INTELLIGENCE AND THE PROBLEM OF CONTROL 9-11 (Penguin Books) (2019).

method works for the resilient swift creation of AI super-software in the educated society of today's date.

IV. Combining Trade Secrets and Patents

In order to secure technology and have a competitive advantage, trade secrets and patents are both crucial kinds of intellectual property (IP) protection for AI. These two types of IP protection serve distinct but complimentary purposes.

It should be clear from their distinct historical backgrounds that the two systems of law that govern trade secret and patent law serve quite distinct purposes. Patent law primarily encourages the exchange of information while trade secrets mainly promote confidentiality by protecting commercial information of a person or business from theft or misappropriation.[833] Despite these important distinctions, trade secrets and patents are interwoven and capable of working together to completely safeguard information. In certain cases, they might complement one another rather than only act as a substitute for one another.[834]

In the early phases of the creative process, trade secret law supports patent law by enabling inventors to develop their ideas until they are patented. Patent and trade secret protection can both be used to protect after the innovations are made patentable.[835] When it comes to this process, trade secret and patent policy complement one another to the extent that each one fills a need that the other cannot. The two types of protection complement one another as long as inventors employ trade secret and patent protection to safeguard themselves from appropriation at various phases of the creative process.[836]

In *Kewanee Oil Co. v. Bicron Corp.*,[837]the merger of trade secret law and patent law had been authorised by the US Supreme Court. In most, if not all, of the instances where they overlap, The US Supreme Court concluded that the goals and practises of national trade secret law and national patent law were fundamentally compatible and could coexist alongside one another. In the United

[833]McGurk, Michael R. & Jia W. L, *The Intersection of Patents and Trade Secrets,* 7(2) Hastings Sci. & Tech. L.J. 189, 196 (2015).
[834]*Id* at 191.
[835]NisvanErkal, *On the Interaction between Patent Policy and Trade Secret Policy*, 37(4) Aust. Econ. Rev. 427, 428 (2004).
[836]*Id* at 428.
[837] Kewanee Oil Co. v. Bicron Corp. 416 U.S. 470 (1974)

States, trade secret law and patent law have coexisted for almost a century, the court stated. Each has a certain duty to perform, and neither one's operation can eliminate the necessity for the other. The creation and commercialization of products with a lesser or different innovation than those that could be protected by patent laws but that are nevertheless crucial to the country's growth in science and technology are encouraged by trade secret legislation. Exchange of data and effective company management are facilitated by patent law by enabling entrepreneurs to reap rewards from their work by signing a contract with a company with enough resources to commercialise and monetize it.[838]

The safeguarding of patents and trade secret protection are not incompatible, regardless of whether a request for a patent or a patent error is made public. One notion can be protected by a patent at a given point, yet in reality, most inventions are only partially covered by each patent. As a result, A detailed description in writing and an assertion that supports what was invented are all that are required for a patent. which has been asserted, not the whole body of understanding necessary for describing how to produce and utilise every aspect of the exhaustive invention. Both trade secrets and patents could potentially be requested for according to such circumstances.

As a result, choosing which elements of an innovation to patent and which elements to keep secret should be a company's top priority. It is important to take into account both types of protection while defending priceless innovations. Therefore, trade secrets and patents offer various kinds and degrees of protection, and a business may employ both to get the most out of what these protections have to offer.[839]

V. Conclusion

A product or service can only be made, used, sold, or imported with permission from its proprietor under the regulations of a patent, which is a kind of intellectual property. For AI firms, patents may be a potent tool since they can be used to safeguard their fundamental technology and stop rivals from exploiting it. However, acquiring a patent may be expensive and time-consuming, and there is no assurance that one will be approved. On the other hand, trade secrets are a type of IP that

[838] McGurk & Jia, *supra* note 45, at 197-198.
[839] *Id* at 212.

safeguards confidential information that offers a company a competitive edge. Algorithms, source code, client lists, and other private corporate data are examples of what are referred to as trade secrets. Due to the lower amount of public disclosure required by trade secrets compared to patents, trade secrets can be a more economical and effective approach for entrepreneurs in the AI industry to protect their technology. However, because the company must take efforts to protect the information's secrecy, trade secrets may be more challenging to enforce than patents.

As AI advances and the law adjusts to suit the dynamic technical world, businesses should routinely and aggressively consider the best approaches to protect their IP connected to AI. A corporation frequently chooses between trade secret and patent protection based on the circumstances surrounding the business and its technology. However, patents and trade secrets must be combined in order to fully protect AI inventions. For instance, the concerned party might apply for patent for an AI breakthrough that meets the requirements for patent protection while keeping the training data and operating conditions of the invention as trade secrets.

The relationship between trade secrets and patents can be thought of as a delicate balancing act between secrecy and transparency. A corporation may benefit from both types of protection and gain a competitive edge if it understands them and uses them effectively.

CONSTITUTIONAL VALDITY OF DIGITAL PERSONAL DATA PROTECTION BILL, 2022

Dumpala Aparna* Likhitapudi Mounisha**

Abstract

India has advanced significantly since the time when the idea of data protection was only applicable inside the confines of the information technology industries. As previously mentioned, the usage of data has become a crucial component of the Indian economy, necessitating the creation of a comprehensive framework to meet the country's needs for data protection. The threat to informational privacy today looms larger than ever due to the widespread use of high-speed Internet across the nation[840]*. While the economy's digitalization has created a wealth of job prospects in the fields of governance, education, and health, the requirement to have a robust legal framework in place in order to assure maximum protection.*

Due to several suggestions made during public consultation, the ***Personal Data Protection Bill, 2019,*** *was withdrawn by the Ministry of Electronics and Information Technology (Government of India). On November 18,2022 , the government published the* ***Digital Personal Data Protection Bill*** *as an updated version of its predecessor*[841]*. The 2022 Bill's goal is to "provide for the processing of digital personal data in a manner that recognises both the* ***right of individuals to protect their personal data*** *and the need to process personal data* ***for lawful purposes***[842]*".*

*Both author and the co-author are LL.M scholars.

[840] SC notice on privacy concerns to Google, WhatsApp, Amazon, HINDUSTAN TIMES, UPIshttps://www.hindustantimes.com/india-news/sc-notice-on-privacy-concerns-to-googlewhatsapp-amazon-upis-101612192948826.html, (Last visited 12/02/2021).

[841] https://kpmg.com/in/en/home/insights/2022/12/privacy-digital-personal-data-protection-bill-2022.html

[842] https://www.thehindu.com/news/national/new-data-protection-bill-likely-to-be-introduced-in-monsoon-session-in-parliament-centre-to-supreme-court/article66723887.ece

I. Introduction:

Center's Ministry of Electronics and Information Technology (MeitY) recently tabled another version of the data protection bill called the Digital Data Protection Bill, 2022[843]. This is the fourth instance when the Center presented a bill on data protection.

Several attempts have been made to create a data protection regime in India since a nine-judge Supreme Court bench declared the right to privacy as a basic right in Justice K.S. Puttaswamy vs. Union of India[844] . In 2017, the Supreme Court of India established some privacy principles that are pertinent to informational privacy (i.e., data privacy), after recognising the Right to Privacy as a fundamental right under the Constitution. The Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules, or SPDI Rules, announced in 2011[845] have gaps that limit their utility for protecting personal data, and the court acknowledged the lack of a comprehensive privacy law. The most recent Personal Data Protection Regulation Bill was released for public consultation.

The Digital Personal Data Protection Bill 2022 was put forth by the Ministry of Electronics and Information Technology on November 18, 2022[846]. It would replace the 2011 regulations as well as other sections of the current law once it was approved by Parliament. The proposed legislation would impose duties on businesses that choose the aims and methods of processing data (referred to as "Data Fiduciaries"). For instance, businesses that solicit user personal information in order to simplify the purchase and delivery of groceries decide that this data gathering is necessary.

It also aims to regulate entities which process such data (known as "Data Processors") as decided by such companies. For example, an application which uses services of a cloud storage provider for storing personal data, such cloud storage service provider would only act on instructions of the

[843]https://www.meity.gov.in/writereaddata/files/The%20Digital%20Personal%20Data%20Potection%20Bill%2C%202022_0.pdf
[844]Justice K.S.Puttaswamy(Retd) vs Union Of India And Ors. on 24 August, 2017
[845]https://cis-india.org/internet-governance/files/it-reasonable-security-practices-and-procedures-and-sensitive-personal-data-or-information-rules-2011.pdf
[846]https://www.meity.gov.in/writereaddata/files/The%20Digital%20Personal%20Data%20Potection%20Bill%2C%202022_0.pdf

company. Apart from that, the bill contains the rights of individuals to whom the personal data relates (known as "Data Principals")[847].

The Justice B.N. Sri Krishna Committee report's recommendations were used to write the Personal Data Protection bill[848]. The committee examined the necessity for legislation to protect people's rights in an era of fast growing digital economies[849]. The committee's draught adhered precisely to the Aadhar Case principles and the right to personal privacy. However, the bill's inconsistencies were examined. The constitutionality of the measure is a key point of emphasis in the current research. Notably, the questionable element was not addressed in the bill at all. Even after it was introduced, Justice Sri Krishna urged its revision because he was unhappy with its features and warned that they would create an Orwellian society[850].

Despite the Bill's praiseworthy efforts to achieve compliance with international data protection standards like the General Data Protection Regulation (GDPR)[851], it has a number of flaws that call into doubt its legitimacy. The Puttaswamy ruling by the Supreme Court appears to have been completely forgotten, or worse, ignored, by the Data Protection Bill, 2022. The Supreme Court placed some constraints on the State by defining the circumstances under which the State may interfere with or violate a person's right to privacy, which ultimately advanced safeguards for data and informational privacy. The Data Protection Bill, 2022, on the other hand, maintains the broad and ambiguous exclusions granted to the State in its prior incarnations, failing to meet the principles of appropriateness, need, and proportionality outlined in the judgment[852].

II. Evolution of Right to Privacy:

A number of judicial and legislative changes over the years can be traced to the growth of this right in India.

[847]https://economictimes.indiatimes.com/wealth/legal/will/digital-personal-data-protection-bill-what-rights-does-it-give-individuals/articleshow/96535688.cms?from=mdr
[848] https://prsindia.org/policy/report-summaries/free-and-fair-digital-economy
[849]https://www.juscorpus.com/the-digital-personal-data-protection-bill-an-analysis-into-the-relevance-and-constitutional-validity-of-the-bill/#_ftnref3
[850]Mayank Tripathi, Personal Data Protection (05/04/2020) https://economictimes.indiatimes.com/news/economy/policy/personal-data-protection-bill-can-turn-india-into-orwellian-state-justice-bn-srikrishna/articleshow/72483355.cms?from=mdr
[851] https://www.consilium.europa.eu/en/policies/data-protection/data-protection-regulation/
[852]https://www.barandbench.com/columns/the-data-protection-bill-fails-indians-substantively-and-procedurally

- *Kharak Singh vs. State of Uttar Pradesh - 1963*[853]

According to Article 21 of the Indian Constitution, the Supreme Court determined that the right to privacy is a crucial component of the right to personal liberty.

- *R. Rajagopal vs. State of Tamil Nadu - 1994*[854]

The right to live a quiet life and the right to be left alone are both included in the Supreme Court's decision in this case that the right to privacy applies to both. The Court also recognised that the right to privacy is not a given and can be subject to reasonable limitations.

- *PUCL vs. Union of India -1997*[855]

According to the Supreme Court, phone tapping is illegal unless it is authorised by law and necessary for preserving public order or national security in a democracy.

- *Naz Foundation vs. Government of NCT of Delhi - 2009*[856]

According to the Delhi High Court, it is against people's rights to privacy and dignity in this instance to criminalise homosexuality.

- *Unique Identification Authority of India &Anr. vs. Central Bureau of Investigation (2014)*[857].

For the purpose of looking into a criminal offence, the Central Bureau of Investigation requested access to the enormous database compiled by the Unique Identity Authority of India. However, the SC ruled that the UIDAI could not transfer any biometric data without the individual's permission.

- *Justice K.S. Puttaswamy (Retd.) vs. Union of India - 2017*[858]

The Indian Constitution's Articles 21 and 14 preserve the right to privacy, according to the Supreme Court, which also ruled that this right is a basic one.

[853]Kharak Singh vs The State Of U. P. & Others on 18 December 1964 SCR (1) 332
[854]R. Rajagopal vs State Of T.N on 7 October 1994 SCC (6) 632
[855]PUCL v Union of India (1997) 1 SCC 301
[856]Naz Foundation v/s Government of NCT of Delhi &Ors. 160 Delhi Law Times 277
[857]*Unique Identification Authority of India &Anr. vs. Central Bureau of Investigation*No (s).2524/2014
[858]Justice K.S.Puttaswamy(Retd) vs Union Of India And Ors. on 24 August, 2017

- *Aadhaar judgment -2018*[859]

Because the right to privacy is acknowledged as a fundamental right protected by the Indian Constitution, the Supreme Court determined that the Aadhaar scheme infringes that right. In order to determine whether any abuses of privacy rights are permissible, the Court also created the proportionality test.

There are numerous regulations that safeguard an individual's right to privacy in addition to the Indian Constitution's protection of that right. This comprises the Indian Penal Code 1860[860] , the Information Technology Act 2000[861], and the Right to Information Act 2005[862].

The Government of India has also launched the Personal Data Protection Bill 2019, which seeks to control the gathering, storing, and processing of personal data by enterprises, as part of its attempts to protect the privacy of its residents.

III. Scope:

The most recent part of legislation under consideration to control how personal data is processed and protected in India is the Digital Personal Data Protection Bill, 2022 (DPDP Bill). The Personal Data Protection Bill, 2019, which it aspires to replace, was introduced in the Lok Sabha on December 14, 2022.

The goal of the Data Protection Act is to establish standards for the handling of digital personal data. It focuses on the processing of all digital personal data while acknowledging the need to process personal data for legal purposes, as well as any issues that are connected to or incidental to those purposes, as well as the right of individuals to have their personal data protected.

Any "digital personal data" processed within India is covered by this Bill. The DPDP Bill defines "data" as the "representation of information, facts, concepts, opinions, or instructions in a manner suitable for communication, interpretation, or processing by humans or by automated means,[863]" while "personal data" is defined as "any data about an individual who is identifiable by or in

[859]Justice K.S.Puttaswamy(Retd) vs Union Of India on 26 September, 2018
[860]https://www.advocatekhoj.com/library/bareacts/indianpenalcode/index.php?Title=Indian%20Penal%20Code,%201860
[861] https://www.meity.gov.in/content/information-technology-act-2000-0
[862] https://dopt.gov.in/sites/default/files/CompendiumIRDivision_Latest.pdf
[863] Section 2(4) of Digital Personal Data Protection Bill 2022

relation to such data[864]." In the DPDP Bill, the phrase "digital personal data" refers to both data acquired offline and afterwards converted to digital format as well as data gathered online by a "Data Principal" (i.e., the person whose personal data is being processed)[865]. In particular, if such a private individual is a "child" (i.e. younger than 18 years old)[866], then the term 'Data Principal' includes the parents or lawful guardian of such a child.

It is important to note, however, that the DPDP Bill's territorial reach extends beyond India and includes digital personal data processed outside of the country, provided that the processing is done for one of the following purposes:

1. "Profiling," or processing personal data particularly to "analyse or predict aspects concerning the conduct, behavioural attributes, or interests" of an individual in India;

2. Offering goods or services to people in India.

The DPDP Bill does not apply to personal data that is handled "offline," though. Additionally, it explicitly excludes from its scope any data processed by an individual for "personal or domestic purposes," any personal data contained in a record that has been around for at least 100 years, and/or any "non-automated processing" (or physical processing) of personal data[867]. This penalty amount is much higher than proposed by a previous draft.[868]

1. Rights of Individuals:

Access to Information[869]:

The measure provides that people should be able to "access basic information" in the languages included in the Indian Constitution's eighth schedule.

Right to Consent[870]:

[864] Section 2(13) of Digital Personal Data Protection Bill 2022
[865] Section 2(6) of Digital Personal Data Protection Bill 2022
[866] Section 2(3) of Digital Personal Data Protection Bill 2022
[867]https://www.linkedin.com/pulse/digital-personal-data-protection-bill-2022-analysis-arvind-sehdev#:~:text=The%20Digital%20Personal%20Data%20Protection%20Bill%2C%202022%20(DPDP%20Bill),Personal%20Data%20Protection%20Bill%2C%202019.
[868] https://www.thehindubusinessline.com/info-tech/draft-data-protection-bill-government-raises-maximum-penalty-to-500-crore-for-data-breach/article66152900.ece
[869] Section 12 of Digital Personal Data Protection Bill 2022
[870] Section 7 of Digital Personal Data Protection Bill 2022

Before their data is processed, individuals must provide their consent, and "every individual should know what items of personal data a Data Fiduciary wants to collect and the purpose of such collection and further processing," according to the law. Additionally, people have the option to revoke their consent from a data fiduciary[871].

Right to Erase[872]:

Data principals will have the ability to request the deletion and updating of data that the data fiduciary has acquired.

Right to Nominate[873]:

In the case of their death or disability, data principals will also be able to designate someone to act in their place.

2. Seven Principles of the 2022 Bill:

- First and foremost, organizations using personal data must do so in a way that is legal, fair to the individuals involved, and transparent to individuals.
- Second, personal information must only be utilized for the reasons it was originally collected.
- The third tenet discusses data minimization.
- The fourth principle emphasizes the need of accurate data collecting.
- The fifth principle discusses how gathered personal data cannot be "stored perpetually by default" and should only be kept for a specific amount of time.
- According to the sixth principle, there should be enough measures in place to guarantee that "no unauthorized collection or processing of personal data" takes place[874].
- According to the seventh principle, "the person who determines the aim and procedure for accomplishing personal data should be accountable for such processing".

IV. Concerns Regarding the Bill:

[871]https://www.legaleraonline.com/technology-media-and-telecom/data-fiduciary-under-the-digital-personal-data-protection-bill-2022-865648?infinitescroll=1
[872] Section 13 of Digital Personal Data Protection Bill 2022
[873] Section 15 of Digital Personal Data Protection Bill 2022
[874] https://jlrjs.com/the-digital-personal-data-protection-bill-2022/

One of the main issues identified by experts across a range of papers is that the Indian government and state agencies currently enjoy a number of exclusions from the proposed law due to concerns about national security. In the explanatory note, it was stated that "national and public interest is sometimes greater than the interest of an individual," and that "a clear grounds-based description of exemptions has been incorporated in the Bill.[875]"

The number of clauses in the Data Protection Bill, 2022, has significantly decreased from earlier versions of the proposal, which included more than 90 clauses. According to the explanatory memorandum, this was done to achieve drafting simplicity, but it left the current version devoid of first principles in a number of locations. The Bill struggles in several places to withstand the scrutiny of a Puttaswamy lens due to this and the fact that it leaves much to the formulation of subsequent Rules. This is significant since the right to privacy has been recognised by the Supreme Court in the two Puttaswamy v. Union of India judgments (2017 and 2019) as a fundamental right, and a Data Protection Bill will unavoidably affect the private rights of Indian users. Any state action or law that affects Indians' privacy must comply with and follow the established proportionality criteria that were set out in the Puttaswamy matter[876].

Regarding the draft bill's exemptions, Section 18(2)(a) states that the government may process users' personal data "in the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, maintenance of public order, or preventing incitement to any cognizable offence relating to any of these" without their consent. These exemptions such as “security of the state”, “public order” etc... can ironically work against the public interest.[877] Based on such grounds, there have been horrific and arbitrary usages of laws like UAPA, Sedition Law, section 144 CRPC, and internet shutdowns to cite some as glaring examples having sufficient contemporary and historic evidence[878]. Moreover, the alleged involvement of central agencies in Pegasus Spyware for unauthorized snooping and the surveillance of personal data should be

[875]https://www.washingtonpost.com/business/indias-data-protection-bill-has-a-privacy-problem/2022/11/22/972e6a90-6ac2-11ed-8619-0b92f0565592_story.html
[876]The DPDPB, 2022 does not meet Puttaswamy standards (internetfreedom.in)
[877] https://jlrjs.com/wp-content/uploads/2023/04/85.-Nisha-Singla.pdf
[878] https://www.atlanticcouncil.org/blogs/southasiasource/indias-new-data-bill-is-a-mixed-bag-for-privacy/

considered an alarming red signal while vesting central government with extensive sub-delegation and such sweeping powers.[879]

According to reports, government organizations may also be able to hold personal data indefinitely under certain conditions. As a result, the Delhi-based Internet Freedom Foundation warned that "mass surveillance could result from data collection and processing in the absence of any kind of data protection standards" if the law is not applied to government instrumentalities[880].

The following questions, which we must consider, are

1. Does our nation have the necessary infrastructure, such as cutting-edge servers, server rooms, and data storage facilities?

2. Who will provide the necessary infrastructure?

3. Who will keep an eye on this data?

4. Will technological giants like Amazon, Google, and Facebook provide user personal data for storage in India?

5. Who will ensure that our government won't use the data they provide to us against us if they let our government access to their data?

Consider the potential consequences of asking Google to store a copy of user data in our nation. Because Google currently has an infrastructure for storing the personal data of millions of users, Google may ask our government to provide a storage facility for the data. Why would Google spend millions of dollars building a new infrastructure in India to store the same data? Who will be held accountable if data leaks after being stored in India: Google or the Indian government? Although this measure talks about protecting user privacy, it also gives the government and other organizations access to that information[881].

[879]https://www.fortuneindia.com/amp/story/opinion%2Fdraft-data-protection-bill-free-pass-to-breach-privacy%2F110505
[880]https://www.wionews.com/india-news/explained-experts-raise-concerns-about-indias-digital-data-protection-bill-2022-545276
[881]https://economictimes.indiatimes.com/tech/technology/concerns-raised-over-exemptions-to-govt-in-data-bill/articleshow/102399458.cms?from=mdr

The GDP of our nation is already declining, and new laws would make it difficult for businesses to do business with India. Government officials talk about making it simple to conduct business, but they also erect barriers to that. The Bill may also have implications for cross-border data transfers, particularly where data is transferred to countries that do not ensure an adequate level of data protection.[882]

Any deviation from the principles of rule of law and basic structure may lead to harmful consequence, theseconsequence may not seem great concern to some class of people but consecutive violation of established democratic principle may lead to great damage soon, hence it is essential to hold these establish principle as guiding light to ensure welfare and development of a democratic society.[883]

According to the Supreme Court, a strong regime like this one must pass the three requirements of legality, legitimacy, and proportionality. This indicates that in order to legitimise an invasion of privacy, there must be a valid legal justification, a legitimate state goal, and a restriction that is appropriate for the objectives and goals of the legislation[884].

While the Data Protection Bill, 2022 may pass the first legality test since it will give the government a legal foundation for its acts because it is a statute, the existence of a legitimate state objective that can pass the second test is less certain. The Data Protection Bill, 2022's statement of objects and purpose states that its goal is to "provide for the processing of digital personal data in a manner that recognizes both the right of individuals to protect their personal data and the need to handle personal data for legitimate reasons and for matters associated therewith or incidental thereto". It is important to emphasize that the Data Protection Bill, 2022 does not have as its goal the recognition of the right to personal data protection so as to permit the processing of digital personal data. It is not intended to be a data protection bill, but rather a bill for data processing.

When the Data Protection Bill, 2022 and all of its clauses are read together, this becomes more apparent[885]. For instance, it is clear from clauses 7 and 8's low threshold for permission

[882] https://www.linkedin.com/pulse/digital-personal-data-protection-bill-2022-analysis-arvind-sehdev
[883] https://indraprasthalawreview.in/wp-content/uploads/2020/10/Paper-29-converted.pdf
[884]Justice K.S.Puttaswamy(Retd) vs Union Of India on 26 September, 2018
[885]https://www.khaitanco.com/thought-leaderships/Digital-Personal-Data-Protection-Bill-2022-A-snapshot-of-the-much-awaited-draft-law

requirements and clause 18's broad exclusions that the Data Protection Bill, 2022's main goal is to permit processing of data rather than to protect it.

Clause 16 of the Data Protection Bill, 2022, which imposes obligations on Data Principals and carries a penalty of up to Rs. 10,000, further undercuts the legislation's validity. These obligations include abiding by all applicable laws' provisions, not filing a false or baseless grievance or complaint with a Data Fiduciary or the Data Protection Board, not providing any false information or concealing any important information, and only providing information that can be verified as authentic. These are alarming developments since a law that was created to defend the rights of individuals is now punishing them.

The state goal of protecting the personal data of Indian people and users is more valid, despite the fact that one could argue that data processing is a legitimate state goal. This is due to the fact that safeguarding user data directly derives from the Indian Constitution and the fundamental rights it upholds, as opposed to the state's goal of data processing, which derives from the state's and data fiduciaries' business interests.

V. Conclusion:

In terms of privacy and data protection, the year 2021 was a turning point for the country. In response to the urgent necessity for thorough data protection regulations, numerous legislative and executive actions were required. Undoubtedly, India has a long way to go before figuring out what will work best for a country like ours, especially given how poorly understood data privacy is here. To grant these rules and regulations legislative authority, India has made and is still making a number of attempts. It is important to educate people about their rights to privacy and the legal framework governing it, as well as to implement the necessary regulations for its administration.[886]

One obvious conclusion may be drawn from the analysis: The Data Protection Bill, 2022, does not meet the proportionality criteria set by the Supreme Court in Puttaswamy, I and II. If we apply the test of proportionality with regard to the violation of article 21 on the proposed draft then several provisions like Section 18 will fail the test[887].The Data Protection Bill, 2022 will pass the legality test and may even pass the legitimacy test, but due to its incapacity to adequately achieve a

[886]https://blog.ipleaders.in/data-protection-laws-in-india-2/#Digital_Personal_Data_Protection_Bill_DPDP_Bill_2022

[887] https://www.livelaw.in/articles/an-analysis-of-the-digital-personal-data-protection-bill-231161

legitimate state objective, lack of consideration for less intrusive alternatives, and complete lack of procedural safeguards, it constitutes an excessive invasion of user privacy and may even be unconstitutional as a whole. Further, the presence of the term "any individual" includes non-citizens and anti-societal elements, and compromising data of any person for service to the person who is not equivalent will amount to inequality.The expression "arbitrary interference" can also extend to interference provided for under the law.[888]

The only member of the judiciary who has spoken about this bill is Justice BN Shri krishna, who served as the head of the committee that drafted the Personal Data Protection bill[889]. At the moment, no one is brave enough to speak out against the government's decisions, and those who do so are labeled as terrorists. They have taken away the security measures, according to Justice BN Shri Krishna. It's hazardous. For reasons of sovereignty or public order, the government may at any moment access information held by private parties or by government agencies. This has risky ramifications. This measure will transform India into an Orwellian state, according to Justice BN Shri Krishna as well. An Orwellian State is a governmental structure that strives to maintain control over every part of people's lives. By looking at the statement from the person who led the drafting committee of this Personal Data Protection Bill we can say that this bill is not good enough for protecting the personal data of users and violates fundamental right to privacy.

[888] Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data, European Treaty Series - No. 108, Article 8, (1981).

[889]https://www.business-standard.com/article/economy-policy/govt-messed-up-control-mechanisms-b-n-srikrishna-on-data-protection-bill-120013001855_1.html

AN ANALYSIS: INFORMATION TECHNOLOGY (INTERMEDIARY GUIDELINES AND DIGITAL MEDIA ETHICS CODE) RULES 2021

Ujjuval Garg*

Abstract

This article outlines the growing sector of online gaming with growing insurgencies and the problem of data breaches. The central theme of this article focuses on the analysis of the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rule 2021 which came to regulate online gaming platforms for ensuring transparency between the users and the internet gaming platform providers. The problem of data security is pertinent in India. As MeitY ensures such protection by taking the initiative to frame the rules for the gaming platforms in order to curb illegal E-Gambling practices. The author highlighted the provisions of the rules framed and the arising inadequacies it which make these guidelines somehow inconsistent and require revision. The objective of this article is to identify whether the enacted rules are enough to ensure security for the individuals who are operating in the digital space and to relinquish the inadequacies arising out of it. Moreover, to evaluate the functioning of the regulatory bodies made under these guidelines. The author provided the possible reasons for which these rulesor guidelines need to be reviewed and suggestions to think upon. Therefore, the author suggested the revaluation of these guidelines as it not only dangers the data security of the individual but also hampers the privacy of the individual under Article 21 of the Constitution of India.

Keywords: Online Gaming, IT Rules, Data Breaches, Users Information, E-Gambling

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I. Introduction

The online gaming sector become undoubtedly a massive platform for earning and a major contributor to the country's GDP. It has witnessed a new set of dimensions and a new sense of liveliness. With this advent, there is a high amount of financial risk for the stakeholders putting their money in it and the liquidation of the user's personal information. Thereby, there is a complete overhaul from functioning to regulatory mechanisms for online gaming platforms. Since India is the ever-growing established hub for the online gaming industries after the United States and China, therefore there is a need for forefront channelizing and bringing considerable protection changes to this dormant industry[890]. To make the internet safe & open and trusted & accountable the Central Government vested this work of framing regulations for online gaming to the MeitY (Ministry of Electronics and Information Technology). MeitY comes up with the IT (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, to legitimately compartmentalize online gaming and the illegal gambling platform which are running overly in this industry[891].

II. About IT Rules 2021

The IT (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 are the guidelines which come within the framework of the IT Act 2000 which expands the scope of its regulations by including Online gaming in it. This set of rules creates an obligation for the intermediaries including those who offer online gaming to observe diligence regarding the money put in by the users and the personal data that is shared[892]. Now, no intermediary can be exempted from the liability under the law for third-party information or data or communication link hosted by them.

Moreover, it mandates Self-Regulatory Organizations with its framework regarding online gaming platforms to not be used as a platform for making illegal money. They are required to be registered with the MeitY and ensure their compliance with the IT Rules before acquiring the mark. These rules also made mandatory KYC verification of the users, to appoint compliance and nodal officers, and to have a physical address in India. It also forbids such organizations to portray sexual

[890] *Regulating social media and OTT services: Comparing rules from around the world,* THE WEEK (Feb. 25, 2021), https://www.theweek.in/news/biz-tech/2021/02/25/indias-new-social-media-laws-comparing-regulations-around-the-world.html.

[891] Information Technology (social media intermediary guidelines and Digital Media Ethics Code) Rules 2020, (India).

[892] *Online gaming rules for intermediaries, advisory to media to make internet open,* THE ECONOMIC TIMES, (Feb.26, 2023), https://government.economictimes.indiatimes.com/news/governance/online-gaming-rules-for-intermediaries-advisory-to-media-to-make-internet-open-safe-and-accountable/97636466.

and abusive content and made obligatory to advertise the financial risk involved to the users in such online games[893].

The purpose of setting such standards for this dormant industry is to bring the gaming firms under the umbrella of safety harbor protection as per section 79 of the IT Act 2000. This restricts the intermediaries from inappropriately using any user's personal data or third-party platforms. In IT Rules 2021, Rule 2(1) (qb) defines 'Online gaming intermediaries' as intermediaries that offer one or more games. However, this proposal suggests, including online gaming intermediaries within the category of social media intermediaries[894]. IT Rules 2021, SROs will give marks only to skill-based online games which help legal enforcing agencies, marketers, influencers, or other stakeholders to differentiate between legal skill games and unlawful gambling games. All this will boost the safety of the users, gaining the investors' confidence and transparency within the industry.

1. Features of IT Rules 2021

IT rules 2021 are specifically for the inclusion of online gaming intermediaries within the category of social media intermediaries. With this, all online gaining firms are expected to follow certain sought of due diligence which applies to social media and a few additional requirements specific to gaming platforms. There are certain features as per proposed amendment 4A of IT Rules 2021:

a. ***Grievance Redressal Mechanism*:** Grievance Redressal Officer will be appointed as per these guidelines from every company registered with Self-RegulatoryOrganization. The officer details will be published so that users can file their complaints through it. Moreover, the officer should be an employee of the company and a resident of India. The period of resolving grievances is 15 days and acknowledgement of the complaint will be done within 24 hrs. If the users will not satisfy with the decision of the Grievance Redressal Officer, they can approach the Grievance Appellate Committee which is in the making as of now.

[893]*Proposed Amendment to IT Rules 2021 | Online Gaming*, KING STUBB & KASIVA, (Jan. 17, 2023), https://ksandk.com/information-technology/it-rules-2021-online-gaming-industry/.
[894]Information Technology, supra note 2, at 2.

b. ***Registered games with verification mark*:** Before hosting or publishing or advertisement any online game, the intermediary must ensure that the game is registered with the Self-Regulatory Body and also the visible mark of the registration on the game is present or not.

c. ***Monetary Transparency*:** As per rules and regulations, the users will be informed before thereof, about the platform offering "the withdrawal mechanism of deposited money in expectation of winning, any fee or charge which users have to pay while registering to the particular game, all potential financial risks associated with the game, and the mechanism for the safety of the deposits by the users".

d. ***Voluntary verification & Know-Your-Customer***: These rules ensure that whosoever is creating an account on these online gaming platforms and for the same, if they are providing any personal details, then such should be verified as per KYC norms of the Reserve Bank of India for the financial sector. The same should be conveyed to the users. Moreover, it mandates that gaming platforms must allow their Indian users to voluntarily verify their accounts by using active mobile numbers and shows the verification mark which must be visible to all users.

e. ***Appointment of Compliance Authority:***As per guidelines, the gaming platforms are required to appoint a Chief Compliance Officer, who will be a senior employee of the platform and must check the adherence to compliance as per the IT Act 2000. It also instructed to appoint a 'Nodal Person' who will make 24x7 coordination with the legal agencies and officers to ensure compliance with their orders.

f. ***Physical contact address in India*:** Gaming platforms are obliged as per these guidelines to have a physical contact address in India which must be published on their websites or applications.

g. ***Ensure Availability of Information within 24 Hrs*:** Online gaming platforms are required to provide all requisite information which is in their possession or control to the government within 24 hrs of receiving the order from the government which is lawfully authorized to investigate the cybersecurity activities.

2. SRB (Self-Regulatory Bodies) and its functions

As per the proposed amendment 4B in the IT Rules 2021, the Self-Regulatory Body must be formed to issue directions relating to online games under section 69A of the IT Act 2000 by the Central government. Any company incorporated as per section 8 of the Companies (Amendment) Act 2013 or Society registered under the Societies Registration Act 1860, can apply to be an SRB to the IT Ministry. IT ministry can accept the registrations on factors like the number of online gaming intermediaries that are members of SRB, their track records, absence of conflict of interest etc.

As per the proposed amendment, 4B clause 3(d) shall have a framework of SRB including the Board of Directors as:

1) An eminent person from the field of online gaming or entertainment or sports or other relevant fields;
2) One who can represent online game players;
3) An individual from the field of psychology, medicine or consumer education or other fields;
4) An individual nominated by the Central Government who has experience in the field of public policy, public administration, law enforcement, or public finance;
5) An individual in the field of information communication technology."[895]

These guidelines ensure that every SRB must function independently and at arm's length from its member online gaming intermediaries. All SRBs are required to develop a framework for the verification of the online games they take into consideration: (a) registration of the online content to ensure the safeguard of the users against harm or self-harm, (b) Congruous measures for safeguarding children & against financial frauds and (c) measures against game addiction & financial loss. As per rule 4B clause 5, SRB can register any online game (rule 2qa) which is above the age of 18 years and in compliance with the 'interest of sovereignty & integrity, defense, security of the State, friendly relation with a foreign States, or public order' and also accompanying with other laws including gambling & betting[896].

[895] *India: Online Gaming Update*, MAJUMDAR & PARTNERS (18 Jan. 2023), https://www.mondaq.com/india/gaming/1271696/online-gaming-update.
[896] *id.* at 6.

Exponentially, SRBs are obliged to submit the report of all the registered online games and their bases. They can also grant membership to online gaming intermediaries as long as they are serving games registered with SRB, fulfilling all compliances and securing the interests referred to the section 69A of the IT Act 2000. There are other miscellaneous features of SRB are, to redress grievances of the users which have not been resolved satisfactorily by the gaming platform within a certain time and revocation of the SRB can be done by the IT Ministry if it does not comply with the directions of the IT Ministry.

3. Case Laws

A. Play Games 24x7 Private Limited and another v. State of Tamil Nadu and others 2023[897]

In this case, there was an online rummy player who had killed his wife and two children before ending his life. The investigative agency has sent a notice to the gaming company stating that the company has been charged under section 302 of IPC. Alongside, the company was asked to disclose the details of bank statements, details of the game played by the deceased, and the details of the person against whom he has played etc. Thereafter, the company contended that the charge under section 302 is '*ex-facie absurd*' & '*untenable*' and State's intention to put a complete ban on online gaming involving pure and substantial skills after failing to do it directly.

Furthermore, the company submitted that the whole investigation, in this case, was done with a predetermined conclusion. The company point out the major facts which clearly show how the investigative agency is trying to conclude that the death was caused due to online gaming which was arbitrary, illegal and violative of article 14 & 19.

This case shows the need for the requirement intermediary guidelines which need to be passed to give protective safeguards to such online games and against the arbitrary imposition of criminal charges. There is a requirement for a full-fledged framework to be established for the regulations of online games and the crimes associated with them.

B. Myteam11 Fantasy Sports Private Limited v. Union of India 2023[898]

[897]Play Games 24x7 Pet, Ltd. and Anrs v. State of Tamil Nadu and Ors; Civil Writ Petition No: 7693, Tamil Nadu, India (2023).

[898]Myteam11 Fantasy Sports Pvt. Ltd. v. Union of India; Civil Writ Petition No: 1100, (Raj. January 18, 2023).

In this case, Myteam11 Fantasy Sports Pet. Ltd. provides is engaged in providing online games like rummy, poker, and other games on their website. The GST authorities served the notice to the company for the misclassification of its supply as services as per section 74(1) of the Central Goods & Service Tax, 2017. GST authorities contend that the petitioner has providing gaming services which are actionable claims on goods under GST laws as they are undertaking activities in the form of betting by avoiding the tax. The petitioner submits that no such show cause notice can be served by the GST authority as the court has already specifically classified the goods to be taxed under GST Law. Secondly, the notice given to the company was not a notice but a final order which determined the petitioner's liability along with interests and penalty. Moreover, the GST department reiterated that the service provided by the gaming company is not based on the nature of skills but purely on the nature of betting or gambling.

The HC of Rajasthan cites the cases from HC benches in ***Chandresh Sankhla v. State of Rajasthan[899]&Ors, Ravindra Singh Chaudhary v. Union of India[900], Dr K.R. Laxmanan v. State of Tamil Nadu[901]& Varun Gumber v. State of Chandigarh[902]***, and concluded that the game in question is of pure nature of skills not of nature of betting or gambling, therefore they are exempted to be taxed as per GST laws.

This is another case where the problem of classifying any online game as the nature of skills or the nature of gambling or betting is decided. Here, it showcases the need for intermediary guidelines to be issued to specify the games as of skills and of gambling nature. Moreover, it will able to give legitimacy to all those games which require monetary deposits and give benefits to its users but of games of pure skill nature. This will help in classifying online games as legal or illegal. Ambiguity arising out of the definition under 2 (1) (qb) of the 'Online game' is not adequate which let the court step in to interpret and decide whether the particular game will be under that definition or not. All these require the reconsideration of the guidelines to leash out the inadequacies arising out it.

C. Gameskraft Technologies Pvt. Ltd. v. State of Karnataka 2022[903]

[899]Chandresh Sankhla v. State of Rajasthan, 2020 SCC OnLine Raj India 264.
[900]Ravindra Singh Chaudhary v. Union of India, 2020 SCC OnLine Raj India 2688.
[901]K.R. Lakshmanan (Dr) v. State of T.N., (1996) 2 SCC 226.
[902]Varun Gumber v. UT, Chandigarh, 2017 SCC OnLine P&H 5372.
[903]Gameskraft Technologies Pvt. Ltd. v. State of Karnataka, WP No. 22010 of 2021.

In this case, there is an online gaming company name GameKraft Technologies Pvt. Ltd. which deals with the online game of 'Rummy' which they claim a game of skills by relying on the judgment of ***State Of Andhra Pradesh vs K. Satyanarayana &Ors***[904]where the court held that the game of rummy over the online platform is a game of skill for which the standard tax levy on online gaming will be applicable. The Directorate General of GST Intelligence has made an argument that the game dealt by the company qualifies as the game of cache therefore the tax rate applicable is 28% but the company claim that it should be 18% as it is a game of skills.

The government also claims that people who are playing such are making money out of it as well company being an intermediary also makes money out of it which means they are earning profit out of such which is illegal as per the law. In the submission of DGGI, the company was asked to pay the 21, 000 Cr as a GST liability. The Karnataka High Court put a stay on this matter and will be heard in the further subsequent days.

This case again shows the ultimatum need for the guiding rule for the online gaming platform for the proper classification of particle rummy or other games which serve monetary purposes to users and the producers are legal online games. Due to absence of classification one Fundamental Right under Articles 19(1)(a) and 19(1)(g) is getting violated because due to absurdity in guidelines and more power to the government not only taking away the freedom of doing their business but also encroaching upon them without any justifiable justification. Therefore, though guidelines are there but short-falls in the several provisions do not make it effective and less useful for the ultimate users.

4. Concerns for IT Rule 2021

The draft amendments, 2023 have been released without prior discussion or white paper, which shows the government's intention concerning the regulation of the online games. The notice states that the purpose of introducing such draft amendments was to safeguard the interest of the users of online gaming. But, there are certain major loopholes itself in the proposed amendments i.e.:

***A. Definition Ambiguity*:** As per the concerned rules the online intermediaries are included with the social media intermediaries for the surveillance of the online gaming platforms. Furthermore, rule 2(1) (qb) defines the term 'online gaming intermediary' as the intermediary

[904]State of A.P. v. K. Satyanarayana, (1968) 2 SCR 387.

that is offering one or more games. The ambiguity factor arises whether non-gambling online games will also be covered under the same rules. This vagueness in the classification of online games will not only affect innovation but also hinder the growth of the industries. Secondly, the wide spectrum of the 'Online Intermediary' and further creates ambiguity on whether the single-player offline modes & online multiplayer modes such as EA sports, titles etc. will also be included in the definition of the online intermediary[905].

And, will both the service provider platform & game provider offer online gaming services will have to give due diligence as per the rules? As per rule 2(1) (qb) online game is a "*game that is offered on the Internet and is accessible by a user through a computer resource if he deposits with the expectation of earning winnings*". By this, it is worth noting that both 'deposits' and 'winnings' will be in cash or kind. The component 'Kind' has been introduced to cover non-monetary 'tokens' or 'online gaming currency' which can also create probable chances for those online games which do not include any monetary deposits and incentives to be dealt under the ambit of 'online game' as per rules and abide by the same stringent regulations.

***B. Breach of Powers*:** As per the rules the online gaming intermediaries are required to maintain due diligence, for which the requirement of KYC of registered users is mandatory. Under rule 4A (d), the intermediary is vested with verification of the user's identity at the time of commencement of users based relationship with the online game. This rule of IT Rules 2021, is concerned because of the power of classifying any intermediary as an online gaming intermediary and exercising the regulatory power of the KYC only the Union government have that over-board power but these rules lack such legislative basis. These rules are further passed by the executive without parliament deliberation, which in itself may even be unconstitutional[906].

***C. More governmental control*:** These proposed amendments, allow the concerned ministry to assess the application of and register a self-regulatory body. These rules require all online games to be registered under a self-regulatory body with a visible mark of verification.

[905] Tejasi Panjiar, Tanmay Singh and Prateek Waghre, *Centre's Recent Move to Regulate Online Gaming Will Further the 'Illegalities' of IT Rules*, THE WIRE (Jan. 4, 2023), https://thewire.in/rights/online-gaming-regulation-it-rules.
[906] *id.* at 16.

Moreover, as per rule 4B (10) MeitY can also revoke the application of registration of any Self-regulatory body but the wordings of the same rule like '*as it may deem necessary*' and '*if it is satisfied that it is necessary so to do (sic)*' are such which give arbitrary power to the ministry to regulate such SRBs. Secondly, these SRBs have to function by rule 4B (9) where they will be monitored by the MeitY. Further, this board the ministry with a high level of government discretion, in such areas of regulation of the exercise of power by the SRBs and how they will exercise it.

Ambiguity arises when such powers of the ministry are reinforced by rule 6A which empowers the ministry to declare any online game even if there are no monetary deposits, as an online game under the definition of rule 2(1)(qb) if it harms or is addicted to children. Again, they do not specify on what grounds they will specify 'harm among children'. For this, there is a high requirement for a white paper to be released for public comments before issuing such guidelines.

D. Misuse of Article 19*:** It was held in the case of ***Shreya Singhal v. Union of India[907] that the circulation of information over the internet cannot be restricted or denied, if it is done then it would be considered an unreasonable restriction placed and subsequently leads to internecine in the enjoyment of right freedom of speech and expression. As per IT rules 2021, as per the court order any 'illegal or objectionable content or game' can be removed or an order can be passed by an appropriate authority to remove that content within 36 hrs. Now, these rules give arbitrary powers to the authority to define any content as objectionable content because there is no set of parameters to define content as objectionable which ultimately encroaches on intermediaries' right to freedom of speech and expression[908].

III. Conclusion

The IT (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021, are the stimulus for the unrepaired wounds of the digital rights of the users which have been deepened now. There is a need for the utmost attention to be given by the constitutional/courts to the increasing executive

[907] Shreya Singhal v. Union of India, (2015) 5 SCC 1.

[908] Rajeev Rambhatla, *IT Rules 2021 (Intermediary Guidelines & Digital Media Ethics Code) - Everything You Need to Know*, KING STUBB & KASIVA, (June 28. 2021) a, https://ksandk.com/information-technology/social-media-intermediary-guidelines/.

control by proposing such amendments without any discussion or deliberation. Moreover, this step of the executive in the positive sense will help in the expansion of the gaming industry on the global gaming map, will increase job opportunities and strengthen India's position as an evolving gaming hub globally.

These rules cannot be passed without proper discussion as they have been widely criticized and challenged on the ground of undermining the freedom of speech and expression enshrined under part III of the constitution as a Fundamental Right. Further, the MeitY must publish a white paper specifying the government's intention toward online gaming regulations as well as 'users harm'.