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Adapting to Technological Inventions in Metaverse: Challenges in Indian Patent Law Through Case Law Analysis

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ABSTRACT

One of the most important aspects that stimulate innovation and creativity is the recognition of one's efforts through the grant of rights to safeguard such innovations. One type of promotion of growth is through giving of exclusive rights in the form of intellectual property rights, such as trademarks, patents, copyrights, and so on. Patents are granted to protect inventions in various fields by the Government to the inventor to give an exclusive right over the invention and to preclude others from using such an invention for any purpose for a specified length of time. As economies continue to evolve, countries are banking on the concept of the digital space, known as the "Metaverse." This is happening at a time when inflation has increased due to the ecosystem that hinders communication and cooperation, distribution nightmares and rising costs of governance which increases the urgent need for a scalable architecture. There are higher chances of increasing patent applications being filed in the field of metaverse inventions. Thus, there is a dire need to protect the Intellectual Property Rights in the 'virtual world'. In this paper, the author analyses the challenges that Indian Patent Law shall face in the process of incorporating the surging technological inventions in the field of metaverse. Further, emphasizing a need for balance between flexible legal regulations and technological inventions developing at a fast pace.

Keywords: Patent, Metaverse, Intellectual Property Rights, Legal Regulations.

I. INTRODUCTION

The term "metaverse" is defined by Cambridge dictionary to mean *the metaverse is a virtual world where humans, as avatars, interact with each other in a three-dimensional space that mimics reality. Thus, it describes the merging of real and virtual worlds that may be accessible via computers and have been made conceivable by immersive technologies like mixed reality, augmented reality, and virtual reality. "Pygmalion's Spectacles"*, written by American science fiction author Stanley Weinbaum, was published in

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1935². The book's protagonist uses a set of goggles that can see, hear, taste, smell, and touch to explore an imaginary universe. In 1956, Morton Heilig invented the Sensorama Machine, the first VR device. This device immersed the viewer by fusing 3D visuals, sound, smells, and a vibrating chair to replicate the experience of riding a motorcycle in Brooklyn. In 1960, Heilig also received a patent for the first head-mounted display that integrated stereo audio and stereoscopic 3D visuals. Neal Stephenson coined the word "metaverse" in his 1992 book *Snow Crash*. Individuals would head to Stephenson's metaverse, a virtual setting, to escape a grim totalitarian world. In the modern corporate world, the potential of metaverse to stimulate innovation and economic growth globally remains substantial. The metaverse could lead to the development of a new digital economy that promotes economic expansion. Granting of patent protection to innovations in metaverse can support economic growth, shield inventions from infringement and unauthorised imitation, provide businesses a competitive edge and exclusion of others' intervention over patented product.

Investigating the metaverse reveals its defining traits such as Immersion, Avatar, Interoperability, Non-Fungible token, Digital twins, Artificial Intelligence and Decentralisation³. Immersion is a key component of Metaverse where in a 3-D online world, people can interact, perform tasks, and have fun. The metaverse's graphics allow audiences to experience these virtual activations in lifelike spatial dimensions, distances, and objects. The sense of immersion has been rendered conceivable by 'extended reality', which incorporates virtual, augmented, and mixed reality. In virtual reality, immersive experiences are achieved by the use of virtual reality (VR) headsets, simulations, and so on. In augmented reality⁴, virtual objects are placed on top and monitored in a view of the actual world, giving the illusion that they share the same space. For example, businesses employ augmented reality whereby customers can get further details about a physical product, check reviews from other customers or examine a sealed package by scanning the product or special codes. The merging of the digital and physical worlds is known as mixed reality (MR). The user can engage with both the digital and physical components of MR experiences without being restricted to a screen. AR offers the least immersive experience and VR offers the highest. An avatar replicates a person's physical attributes, including body language and facial expressions. In a metaverse, interoperability is envisioned as a connected network that would provide continuity for the user

² Bernard Marr, A Short History of the Metaverse, *Forbes* (Mar. 21, 2022), <https://www.forbes.com/sites/bernardmarr/2022/03/21/a-short-history-of-the-metaverse/>.

³ Prajakta Kale, Patents in the Metaverse: An Analysis of Scope and Challenges, *Int'l Rev. L. Computers & Tech.*, <https://doi.org/10.1080/13600869.2024.2364992> (2024).

⁴ Nathan Chandler, What Is Augmented Reality? *LifeWire* (Feb. 22, 2023), <https://www.lifewire.com/augmented-reality-ar-definition-4155104>.

as he moves between virtual spaces. Non-fungible token is a non-replicable digital receipt on a blockchain which corroborates ownership of a digital asset purchased in metaverse. A digital twin is a computerized model of a system or object that is intended to precisely replicate a real physical one. Before investing heavily in any project, businesses use digital twins to analyse and assess how well it is accomplishing. Using AI in metaverse facilitates a more immersive experience to customers as it can generate new content and usefully applied in metaverse. It is a decentralized process where users are not dependent on single authority as like in a centralized process by which transparency spreads across the ecosystem.

Companies are making significant investments in the field of metaverse to boost their trade. Therefore, safeguarding technological innovations created in the metaverse becomes crucial. Since it grants inventors exclusive rights, draws investment, and is a valuable asset in and of itself, protecting inventors carries commercial value. Patents are one of the safeguards offered to innovations in the metaverse space. Patents in the field of metaverse can be granted for products i.e. hardware components or devices used to access VR, AR like wearable glasses or lenses etc. and process for accessing metaverse The Indian Patent Act of 1970 specifies requirements that must be met in order to receive patent protection under the Act. The core tenet of Patent Law is that an invention must be novel and useful, it must be an inventor's original discovery rather than a mere verification of existing one. Further, the product must be substantially improved by an inventive step i.e. the invention must include technical advancement or economic significance or both. And, the invention must be non-obvious to a person skilled in the art and must be capable of industrial application⁵.

(A) Literature Review:

Ms. Prajakta Kale in her research paper titled 'PATENTS IN METAVERSE: AN ANALYSIS OF SCOPE AND CHALLENGES'⁶ has concluded that Since patents are a territorial idea, national laws will continue to be important. However, because of the characteristics examined in this study, patents in the metaverse face a distinct set of difficulties. Therefore, it will be beneficial if various jurisdictions modify their patent systems to better accommodate new technologies, such as the metaverse, in terms of patentability standards, subject matter eligibility, ownership, and patent enforcement.

Nishith Desai Associates in their research paper titled 'METAVERSE: A NEW UNIVERSE –

⁵ V.K. Ahuja, *Law Relating to Intellectual Property Rights* (3d ed., LexisNexis 2017).

⁶ Prajakta Kale, Patents in the Metaverse: An Analysis of Scope and Challenges, *Int'l Rev. L. Computers & Tech.*, <https://doi.org/10.1080/13600869.2024.2364992> (2024).

LEGAL, REGULATORY AND TAX ISSUES'⁷ has concluded that making the Metaverse a trustworthy and safe environment while avoiding undue burdens on technological advancement should be the strategy. Platform operators and related stakeholders should therefore, on the one hand, move toward self-regulation so that issues can be tackled at the fundamental level. Strong platform governance guidelines that are developed with user interests in mind and are intended to deter dishonest actors would also be crucial for this.

Ms. Anshika Srivastava in her research paper titled 'METAVERSE AND INTELLECTUAL PROPERTY RIGHTS'⁸ has concluded that as metaverse is bringing in new developments in NFTs, trade secrets, VR and AR technology it is essential for intellectual property law to advance with the same pace of technology. It is best to understand the underlying laws of the metaverse because compatibility with it is becoming increasingly vital. Non-IP holders will find it harder to hang onto their place in the metaverse as technology advances and IP rules are unavoidable.

Shabib Ahmed Shaikh, Alok Khode and Nishad Deshpande in their research paper titled 'PRIOR ART SEARCHES IN SOFTWARE PATENTS'⁹– ISSUES FACED' have concluded that Patent experts are limited in their ability to perform thorough searches by the inherent features of software patents and the technologies as they cover mostly non-patent documents. These software patents face challenges like multiple overlapping of technologies, different rules in different jurisdictions, non-availability of resources and dependency on human intervention.

(B) Research Problem:

Businesses are investing greater amounts in metaverse as a way to adapt to the rapidly evolving digital world. Indian Patent Law, however, lacks legal framework to acknowledge the patentability of inventions in metaverse specifically in software/computer related inventions. This legal gap is an impediment to innovations in the field of metaverse. This research aims to analyse the patentability of metaverse technologies under Indian Patent Law and challenges in this process.

(C) Research Objectives:

⁷ Nishith Desai Assocs., Metaverse: A New Universe, Nishith Desai Assocs. (July 2022), https://www.nishithdesai.com/fileadmin/user_upload/pdfs/Research_Papers/Metaverse_A_New_Universe.pdf.

⁸ Anshika Srivastava, Metaverse and Intellectual Property Rights, Jus Corpus (Mar. 2023), <https://www.juscorpus.com/wp-content/uploads/2023/03/42.-Anshika-Srivastava.pdf>.

⁹ Shabib Ahmed Shaikh, Alok Khode & Nishad Deshpande, Prior Art Searches in Software Patents, vol. 23, J. INTELL. PROP. RTS. 243 - 249 (Nov. 2018).

1. To examine the patentability of metaverse technologies under Indian Patent Law.
2. To find out the challenges involved in patenting metaverse technologies.
3. To determine whether modifications to Indian Patent Law is necessary to make it more responsive to rapidly evolving technologies.

(D) Research Questions:

1. To what extent are the metaverse technologies patentable under Indian Patent Law?
2. What are the challenges involved in patenting metaverse technologies?
3. Whether modifications to Indian Patent Law is necessary to make it more responsive to rapidly evolving technologies?

(E) Research Methodology:

In this research, the author has adopted a doctrinal research methodology which is primarily theoretical and library based. It involves the analysis of regulations, policies and legal texts. The legal framework analysis will include an analysis of laws related to Patents in India such as Indian Patents Act, 1970, The Patents Rules, 2003 and Draft Guidelines for Examination of Computer Related Inventions.

(F) Research Method:

This research primarily relies on secondary sources of data and information, such as newspaper articles and cited published research papers. These sources provided valuable insights and perspectives, which allows to build on existing knowledge and enhance the depth of our analysis.

II. FINDINGS & DISCUSSION

Under the Indian Patents Act, 1970 the foremost criteria for a product to qualify for a patent is novelty. When a product is anticipated by publication in any document or forms part of the state of the art, it lacks novelty. Here, the patentable products can be classified into hardware and software. Hardware is mainly associated with Augmented reality and Virtual reality. Since these technologies already have patents attached to them, patent applications based on them would be hit by requirements of novelty. Fast-paced inventions in this industry have a tendency to make software shortly obsolete. In addition to this, software by itself is autodidactic and thus it is highly hit by the prior art and becomes vulnerable to rejections for lack of novelty. The patenting of digital twins is an appropriate illustration of the innovation problems that software applications encounter. A computerized model of a system or object that is meant to accurately

mimic an actual physical one is called a "digital twin." An application will be attacked by previous art and fail to meet the requirements of novelty suppose an invention that has been tested using a digital twin is put through the patenting procedure or vice versa. The second criteria is that the invention should involve an inventive step. S. 2(1)(ja) of Indian Patent Act, 1970 defines inventive step as an invention holding a technical advance or having economic significance or both and it must be non-obvious to a person skilled in the art. Software meets the inventive step requirement quite well because it is always evolving. Person skilled in the art means a person holding an ordinary skill for whom the invention should be non-obvious. What is the degree of ordinary skill should he/she possess to decide the obviousness of an invention is dubious and requires integration of multiple disciplines. The next most important criteria is the subject matter eligibility of software related patents under S. 3(k) of The Patents Act, 1970¹⁰. This section lays down that a mathematical or business method or a computer programme per se or algorithms are not patentable under the Act. The Indian Patent Office has always followed a restrictive approach and have rejected applications related to patentable software or computer programmes. In *Accenture Global Service GMBH v. The Assistant Controller of Patents & Designs (2012)*¹¹ the Patent Office insisted on a twofold criterion for granting a patent under S.3(k) and asserted that novel hardware is mandatory for patentability of an invention under the said section. However, the Intellectual Property Appellate Board (IPAB) observed that in the event of an invention being an improvement of existing software, the novel hardware is not mandate for obtaining patents under S.3(k) as it is not belonging to the category of a mere computer programme. Thus, the Patents Office brought about Draft Guidelines for Examination of Computer Related Inventions (CRIs) in the year 2013 where it laid down that inventions would be patentable under S.3(k) if they feature technical contribution or technical effect. However, these guidelines were not strictly followed and varied among the controllers and was censured. Thus, these guidelines were revised in 2016 and further in 2017 for it was highly restrictive in comparison to the version of 2013. In the case of *Intex v. Ericsson, (2023)*¹² the Delhi High Court held that inventions featuring technical contribution or technical effect would not come under the category of 'computer programme per se' and it should be patentable under S. 3(k). In the case of *Microsoft Technology*

¹⁰ Pankaj Soni & Neha Malhotra, Evolution of the Patenting of Computer-Related Inventions in India, *MANAGING INTELL. PROP.*, Sept. 15, 2023, at <https://www.managingip.com/article/2c70158hpascb1vwe248w/expert-analysis/special-focus/evolution-of-the-patenting-of-computer-related-inventions-in-india>.

¹¹ IPAB, OA/22/2009/PT/DEL, 28th December, 2012

¹² 2023:DHC:2243-DB

Licensing, LLC v. Assistant Controller of Patents and Designs (2023)¹³, the Delhi High Court observed that technical effect shall mean an invention curing a technical defect or showing a technical benefit or enhancing a technical process. The Court further emphasised the need for a uniform approach in examining the patent applications for CRIs. Thus, the Court in this case granted patent protection for the invention as it solved a security problem through its two-tier authentication process. Despite these judicial pronouncements, Patent Office continues to follow a restricted approach in interpreting section 3(k). Thus, the Patent Office must adopt unified and harmonious approach to enable the deserving applicants to receive patent protection and set the pace for economic expansion. When a patent granted is exploited without the consent of the patentee it amounts to infringement. The scope of protection granted through patents can be analysed through doctrine of equivalents primarily or through purposive construction. Since interoperability is one of the main features of metaverse it is very difficult to determine the jurisdiction when an infringement is done through metaverse. It is also difficult to identify who has committed an infringement as technology has advanced drastically that an avatar may infringe a patent and an avatar can be customised to be different from the real person to hide the identity of original infringer.

(A) Scope and limitation of the study:

1. This research paper analyses the patentability of metaverse technologies under the Indian Patent Law.
2. It addresses the challenges within the Indian Patent Law to adapt to growing technologies by citing various judicial pronouncements.
3. This research paper could benefit from examining the context in comparison with efforts in other countries, which may provide valuable insights for implementation in India.
4. Ethical and Data privacy issues in metaverse which are barriers to patentability could be analysed.

III. RECOMMENDATIONS

1. Digital twin of a product affects its patentability as a physical object. Novelty requirement here could be relaxed.
2. For an invention to be non-obvious to a person skilled in the art, the degree of ordinary

¹³ 2023:DHC:3342

skill to be possessed by such person should be clearly defined.

3. Uniform approach must be adopted by the Indian Patent Office in examining the patentability of software/computer related inventions.
4. Interoperability feature of metaverse facilitates cross-border transactions which poses jurisdictional challenges when infringement occurs. Thus, Indian Patent Law must clearly lay down where an infringement occurs, who shall be held responsible and how enforcement is done across different jurisdictions.

IV. CONCLUSION

Metaverse, an immersive technology is having immense potential for opening the gateway for substantial economic benefits for a nation as a whole and for the entrepreneurs individually. As technology is rapidly evolving, entrepreneurs are inquisitive to expand their trade by using the advancing technologies to gain a commercial advantage. This makes them intrigued to bring about more innovations in business. One such innovative space is metaverse where entrepreneurs aim to grant an immersive experience of their products through the use of Augmented reality, Virtual reality and Mixed reality. Such inventive pursuits of entrepreneurs are likely to be discouraged when there is lack of legislative framework to protect such innovations. Indian Patent Law is narrower to recognise patentability of traditional products and less recognise those of advancing technologies. The traditional criteria of novelty, inventive step and non-obviousness must be amended to align with the feature of metaverse products so that inventions in this field lays the path for economic development. In this research paper, the author has analysed the challenges in the Indian Patent Law and has recommended the changes to overcome them. Thus, there is a dire need to bring about changes in the legislative framework to include products of advancing technologies within the patentable criteria. The Delhi High Court in the case of *Opentv Inc v. The Controller of Patents and Designs* has observed that the patent law must be amended to keep in pace with the advancing technologies. Thus, a legislative attempt must be made to bring about a balance between flexible regulations and adopting technological innovations.

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