ARTIFICIAL INTELLIGENCE ACCOUNTABILITY AND RESPONSIBILITY IN THE LEGAL REGIME FOR INTELLECTUAL PROPERTY PROTECTION

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ABSTRACT

The integration of Law and Technology forms new opportunities and challenges in the legal realms. Artificial Intelligence is such a technology which has created new paradigms in the legal world especially for Intellectual Property Rights regime. The increasing use of Artificial Intelligence technologies in industries like transportation, education, healthcare, space, and other emerging fields of technologies is leading to gradual rise of legal complications and complexities, with respect to the fundamental intellectual property issues like ownership of inventions or creations, authorship, inventorship, etc. Therefore, this paper would be significant in bringing out the legal relevance of Artificial Intelligence and Intellectual Property dealing with their interactions in the creative and innovative endeavours specifically in copyright and patent regimes. The current state of treating Artificial Intelligence as to its nature of work with and without significant human contribution is relied for the granting of copyrights as well as patents. It would encompass the contemporary stance of legislative and judicial paradigm in the emerging contours of Artificial Intelligence and Intellectual Property referring to specific countries like USA, UK, EU, Japan, India, etc. The jargon between Artificial Intelligence and its impact on copyright and patent laws and policies with the contemporary developments and case studies would show case the current realities and challenges of the integration of Artificial Intelligence and intellectual property rights. A brief reference to intersection of Artificial Intelligence and Trademarks is also provided in the paper. But specifically, the copyrights and patents are the types of the intellectual property that imply innovative and creative aspects which are the inherent qualities and capabilities of Artificial Intelligence, therefore requiring adaptation in view of the advances that are taking place in the technological domains. The Artificial Intelligence developments within their legislations and judicial interpretation so to accommodate Artificial Intelligence within the Intellectual Property framework. The accountability general and primary as

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a normative concept, which set of standards for the assessment of the activities of everyone. Understanding the significance of accountability and responsibility in AI is often defined imprecisely in reference to the practices and measures entangled and multifaceted nature of accountability and responsibility. To incorporate the AI mechanism, we need to create a structured AI governed by a sociotechnical system with framed rules and regulations. The definition of accountability and responsibility in case of AI is problematic reason behind where the laws are minimal focus and exist to define and ascribe accountability, rule and regulation is less developed. The concept of AI Accountability and responsibility is polysemic in nature is difficult to define . As there is no general agreement about the standards for such behaviour of quantification henceforth it is difficult to take into account of AI accountability. In given societal norm accountability is seen as a institutional arrangement of system in which an every actor will be held to account for his action before the forum.

Keywords: Artificial Intelligence, Intellectual Property, Patents, Copyrights, Trademarks, Inventorship, Authorship

I.   Introduction:

The question, "Do AI systems and the works generated by AI hold copyright or patents?" often arises when discussing the protection of AI-generated works under intellectual property rights. The IPR regime plays a vital role in safeguarding creative works and new inventions, making them more accessible and beneficial to the public. The AI-created works need recognition for the commercialisation of the same. And there comes up the question of whether AI-generated works are given protection, provided the owner or the author has to be recognised and whether this author or the owner should be human. Hence, the person to take ownership rights on the work generated by AI has to be the one who prompted the phrase for the AI algorithm, or the creator of the AI algorithm or the user who needs the work generated by the AI[2]. The intellectual property rights of the creators and owners are the rights given to them to exclude others from using their works. The owners or the authors can assign their works to other persons through licensing or assigning after the payment of royalties. This way the authors are protected from the unauthorised commercialisation of the works by other persons. This protection is given to the authors and the owners of the work through the intellectual property laws of the state. Furthermore, states are often members of various international conventions that establish standards for basic and minimum protections that must be granted to intellectual property works.

The Legal systems across the globe do not recognise AI as an author, owner or entity that is capable of holding intellectual property rights, mostly copyrights or patents. The recognition of the rights of AI-generated works needs amendments to the regulations and rules on intellectual property laws of the states. Let's consider a hypothetical example: the user gives prompts to an AI to generate an art of his taste. The AI-generated work is new, novel and attractive, which needs protection to avoid unlawful exploitation. The protection for the work needs to recognise the author of the work. The user or the AI algorithm creator, gets the ownership position for the work to be exploited. This is the lack in the legal system on intellectual property rights. The AI shall not be recognised as humans and hence not given the ownership/authorship rights.[3] The decision of the Monkey Selfie case sets a precedent for

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[2] Hafiz Gaffar & Saleh Albarashdi, *Copyright Protection for AI-Generated Works: Exploring Originality and Ownership in a Digital Landscape*, Asian J. Int'l L. 1-24 (2024).
[3] Astha Srivastava, *AI and Copyright: Who Owns the Rights to Machine-Created Content?*, Lawful Legal (Jan. 14, 2025)

almost all nations on the non-recognition of intellectual property rights of non-humans.

Before recognising the works of an AI there occurs a question arises whether AI can hold any moral rights to be enforced if violated, or economic rights are beneficial in any way to the AI. These questions also play a vital role in being answered in order to recognise the rights of the AI machines and the patentability of the works generated by them.

II.   Artificial Intelligence as an Inventor for Patenting:

Patenting an invention shall require the subject matter of the invention to be new, novel, and should serve the purposes of utility. We know the content and the work created by the AI shall be qualified with all the characteristics necessary for patenting the work but IP laws do not provide room for recognising the same and there is another circumstance where inventors utilize an AI tool during their inventive process, leading to a patent application for the invention. The challenges IP laws face in recognising the works created by Artificial Intelligence algorithms. The creation of AI as well as the role of AI in the creation of an invention has given rise to various legal questions importantly who shall be the owner or the inventor and hence the patentability of the work. The legal frameworks of the state shall need the work to be unique in creation and the work has to be original and the work has to be most importantly done by humans. The rule is that the work can be assisted by the AI engine and the work has to be done by the human on a majority basis. The role of AI in the inventive process has raised important legal questions, particularly regarding inventorship and patentability.

Thaler v. Vidal[4] case is a landmark judgement made under the federal circuit of the United States Of America. The application was made in the name of the inventor "DABUS" to the USPT office and the sole inventor mentioned in the application was "DABUS" the AI machine. The invention was rejected patentability by the patent office on the grounds that AI cannot be the sole inventor. However the court insisted that the work created by the inventor assisted by AI shall be qualified for patent protection under the US patent laws.

A. USPT Office principles on recognition of AI-assisted human-made innovation:

The USPT office has given certain principles from the decisions made by the federal circuit on the "DABUS" case(upheld the decisions made by the USPTO). The court's

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

interpretation of 35 U.S.C. § 100(f) of non-recognition of AI as an inventor has led to questions on the patentability of the inventions done by humans with the assistance of AI. The inventions that used AI tools as an assistance for their inventions shall not be disqualified from the person becoming an inventor and thus the invention that was created with the help of an AI tool shall not be disqualified from getting patented. The guidelines are based on the fact that a person who has made a significant contribution and has taken some amount of assistance from the AI has to be recognised as an inventor. This means the USPTO office shall identify the works done by the inventor as inventions if the contribution to the invention is made significantly by the inventor along with the assistance taken by the inventor from the AI tools.[5] The determination of patent eligibility for AI-assisted inventions is indeed highly nuanced and requires careful, case-by-case analysis**.** The output after being taken from the AI tool and the modification and experimentation of the output significantly to a greater extent shall happen and this shall be considered for patenting the invention. Simply recognizing and appreciating the output of an AI system is not enough to qualify as inventorship. However, significantly modifying or experimenting with the AI's output can be done. The guidance plays a vital role in identifying the objectives of maintaining a balance between promoting innovation as well as ensuring the rights of the patentee that shall be granted when the contributions seem to be genuine.

Pannus case is another judgement that plays a vital role in recognizing AI-assisted inventions to be recognized for patents. The case does not involve the patenting eligibility of AI-generated or AI-assisted inventions but the co-inventorship was the subject matter of the dispute.[6] The facts of the case are that the improvements made to the intraocular lens that is implanted in the eyes during a surgery called cataract. Dr. Jawant S Pannu made an application and obtained a patent for this improvised technology because the improved version was able to reduce the snagging that happened during implantation in the eyes. Pannu had a discussion with Dr. William and he gave the suggestion of making the lens from a single piece of plastic. Now, Dr William opposed Dr Pannu for his claims on the patentability of the invention as a sole inventor. The idea taken from Mr., Williams shall also qualify him to be the co-inventor of the patents. This case raised the question of whether there needs to be requirements in determining ownership and inventorship when there happens contributions not necessarily

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[5] Kathi Vidal, *AI and Inventorship Guidance: Incentivizing Human Ingenuity and Investment in AI-Assisted Inventions*, USPTO Blog (Feb. 12, 2024)

[6] Michael P. Kahn, C. Brandon Rash, David C. Vondle & Ryan Dowell, *AI-Assisted Inventions May Be Patentable, but Only Humans Can Be Inventors*, Akin Gump Insights (Feb. 23, 2024)

significant ones from another person. This case led to the "Pannu factors" establishment and the federal circuit court favoured Dr. Williams to also be the co-inventor.

Hence from the decisions of Pannus's case and Thailr's case, the USPTO has laid down certain guidelines for identifying the inventorship recognition of works done by human inventors after taking assistance from AI tools. The relevance and the idea taken from the Pannu case decision is that the "significant contribution" of an invention has to be recognised by the patent office. On the other hand, the non-human contribution has to be excluded from the inventorship perspective. The case also highlights the fact that the person who has made significant or enough contributions to the inventions has also to be recognised as a patentee. Hence from the decisions it has been made clear to the people that the inventions made by AI tools will not be recognised as patentable subject matter but the contributions made by the humans assisted by AI tools shall have possibilities of getting recognised as patentable subject matter.

The conclusion in recognising the patentability of ai generated or ai assisted inventions is that AI shall be seen as a tool and it can be used to assist the inventors in coming up with inventions and shall essentially help the inventor to inventorship.[7] Because AI generates data, helps in finding solutions, analyses problems etc., the same cannot be called an inventor but shall contribute to the inventorship recognition of humans. Provided the human has to prove the significant contribution he has made to the invention. The verdict on AI systems holding patent rights is definitively no. However, humans can take assistance from AI tools in their inventive process. The main factor is that humans must have made a 'significant contribution' to the invention for humans to be recognised as inventors. AI, in its current state, is considered as a tool to assist invention and AI cannot become an inventor**.**

III.   AI Systems Copyright Recognition:

The copyright exists on works that are original and are performed by humans by using their intelligence. The ideas are generally not protected under the copyright laws of the country but the expression of the ideas is protected under the copyright laws of the state. The state shall have laws on copyright protection for the works of the creators. The copyright laws are jurisdictional and the states across the globe shall have their regulations based on the

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[7] G. R. Raghavender & Gurujit Singh, *Can Artificial Intelligence (AI) Machine be Granted Inventorship in India?*, J. Intell. Prop. Rts. 28(2), 123-131 (Nov. 2022)

international treaties they have signed as members. The subject matter of copyright shall include artistic, literary, and musical works.[8] Works like cinematographic films and sound recordings are also eligible for protection under the copyright regime. The work has to be original shall be the basic requirement for protection. The registration of the works for copyright protection is not necessary to seek protection under the copyright laws of certain states like India. Whereas registration of the works in the copyright office is mandatory in some countries like America to seek protection for the works from unlawful exploitation by others. The exclusive rights given to the copyright owners shall be to license the works or assign the works to others for royalties. Similarly, copyright protection shall exclude others from using the works of the creators without their permission. The copyright protection shall give the creators exclusive rights, moral rights and economic rights on their creation for a limited period of time i.e. sixty years after the death of the author creator.

Artificial Intelligence, called AI plays a vital role in various aspects of human lives. AI are data-driven approach to the concepts of deep learning and machine learning algorithms thus making predictions and creating works that are novel and original in nature and are eligible for copyright protection. AI are used to solve various problems in various sectors and some of them shall include healthcare, finance sectors, educational field, transportation, and entertainment. Any works that are original need protection from unlawful exploitation. The work shall have certain ethical implications and there is a need for regulations as well as ethical guidelines in using AI-generated works because AI is becoming more integrated into our society. The Intellectual Property laws of any state across the globe shall not recognise the works of the AI to be protected under their copyright laws. This means the AI works shall not be copyrighted[9]. Any AI-generated content shall not be protected because the AI shall not be recognised as a creator of the work.AI-generated works create mixed emotions among people because of the existence of the complex relationship between AI and human creativity. The concern is that human creators will become unrecognized because of AI's efficiency and hence the easy accessibility of AI tools shall lead to a preference among the individuals for AI-generated content. The non-recognition of copyright ownership in AI-generated works shall raise questions and critical scenarios on whom the ownership rests for the created works. The person who owns the rights over the works can be either the user who gave the phrase the data provider

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[9] Mackenzie Caldwell, *What Is an "Author"?-Copyright Authorship of AI Art Through a Philosophical Lens*, 61 Hous. L. Rev. 411 (2023)

whose work was used by the AI algorithm to generate the work or the creator of the AI algorithm. The necessity to recognise the person to hold the rights of the works generated by AI in order to prevent the unlawful exploitation of the works. There are several questions on who should be responsible for the obligations that arise from the creative works, who shall hold the economic rights and whether does AI tool has moral rights to fight against the person who infringed the same.

The copyright recognition of works that have been created by AI music generators like Suno and Udio remains questionable and problematic. Generally, traditional copyright law necessitates the author to be human, whereas the U.S. Copyright Office has explicitly mentioned that works solely generated by AI are not eligible for protection under the Copyright Act. Generally, the courts do not reject applications of creations that involve AI, they shall rigorously check the degree of human intervention and the extent to which the AI tools are used in order to express ideas. The system of laws and regulations are in such a way that the creative works able to show substantial human intervention and have taken assistance from the AI tools are eligible for protection under the copyright regime.

But in cases like our example, completely AI-generated music platforms that create music based on the prompts given by the user shall possess challenges in recognising the works. The music platforms Suno and Udio are trained using the available copyrighted works, and with this data and user prompts, the AI tool creates music as it includes copyrighted material from the database, as per the prompts of the user. Here is where the created music cannot be protected, which means there is no copyright recognition of the work done and hence no creator is recognised. Now, who shall be responsible for the infringement made by Suno or Udio? The user shall not be responsible for the infringement, but it is an obligation of the user using such platforms to carefully read the terms and conditions given on the websites of Suno and Udio. Now, suppose the user has to make significant changes by adding substantial music elements to the music generated by the AI music platform, he might be eligible for copyright protection after the examination process is completed by the copyright office. The outcome of this situation is that there is no recognition of the works done purely by the AI tool under the copyright regime of any state. Hence, the parliament and the courts have to take into consideration the developments the AI platforms are creating, and the AI-generated works are to be handled as per the regulations for AI-generated copyright works.

In conclusion, the current copyright regime does not recognise works purely generated by AI. This creates a necessity for the legislative and judicial systems of the state to make regulations as per the rapid developments in AI technology[10]. Parliament and the courts in India, as well as the other states have to establish regulations as well as guidelines to address the unique challenges posed by AI-generated works, ensuring that a balance is maintained between innovation and the rights of human creators. From the perspective of AI companies, it has been raised concern that when Suno and Udio violated the copyrights of the owners of the work, though these works are not recognisable, the infringement obligation has to be taken up by the AI companies. The verdict stressed that "AI companies, like all other enterprises, must abide by the laws that protect human creativity and ingenuity"

In the USA, a similar case happened in the year 2023, "Zarya of the Dawn", the author of the book is Kristina Kashtanova[11] and the book is fiction, and she took assistance from AI to generate images. The story was original, and the literary work, along with the images, were protected under US copyright law. Later, the US copyright office revoked the registration given for the AI-generated images, and the rights were only for the literary work created by the author.

Similarly, in China, a 2023 case of Li vs Li, the Beijing Internet Court ruled that the AI-generated image that seeks protection is the outcome of the plaintiff's input, and the output shall be qualified as a personal expression of the user hence the work shall be copyrightable with human authorship recognition. Hence, the defendant shall be prevented from using the image without the permission of the plaintiff though the image is AI-generated.

IV. Case Studies on AI-Assisted Creations and IPR:

Computers are smarter enough in today's era to digest lots of data available, analyse the data fed and produce results that are beyond expectations. As the works created by AI are eligible and mostly the subject matter of copyrights and patents, here comes the real challenges in recognising these works under the IPR regime of various states. The patentability and copyrightability of these AI-generated works are not recognised anywhere across the world. The AI-generated works shall not be patentable, or copyrightable but the AI-assisted works shall be considered for patentability and copyrightability. The assistance shall be taken from

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[10] Nayantara Sanyal, Sheetal Mishra & Nihal Shah, *Intersection of Intellectual Property Rights and AI-Generated Works – Part I*, Bar & Bench (Mar. 5, 2024)

[11] Alex Ouyang, *MIT Researchers Develop an AI Model That Can Detect Future Lung Cancer Risk*, MIT News

the AI tools and the significant intervention shall be given by the humans and these works or inventions shall be eligible for protection under the copyright laws and patent laws of the state. Let us look into the judicial decisions on the patentability and copyrightability of AI-assisted works in several countries.

A. Copyrights:

"*Théâtre D'opéra Spatial* " created by the author Jason Michael Allen is said to be a digital image and it was created by Allen using Midjourney an Artificial intelligence platform.[12] The image was displayed in the "2022 Colorado State Fair's annual fine art competition in the digital art category" and also won the prize for artificial intelligence-created artwork. Allen contended that the picture was created after he prompted around 624 phrases to the AI tool. Allen then upgraded the image using applications like Abode Photoshop.

In the year 2021, September Allen made an application to the USPTO office in order to register the copyright of the image and to be the author of the art created. The USPTO office rejected the applications on the grounds that the work created by Artificial Intelligence and hence is not qualified for registration. Allen made a request again in the month of January 2022 to reconsider the application and to grant him the authorship rights for the image because he had given more than 600 phrases to the AI tool to create the image and he has used Abode Photoshop to finally obtain the given output. The USPTO office in the year 2023, January rejected the application and contented that the image edited through the photoshop application shall be registered but the AI-generated part of the image has to be excluded from registration. Allen opposed the decision made by the Review Board. The Copyright Office Review Board stated the art created shall not be given the copyrights to the applicant because the substantial part of the work was done by AI and hence the work of the applicant was De Minimis, which shall not be eligible for copyright protection. The rules "exclude works produced by non-humans" were the intention of the USPTO office.

Andersen v. Stability AI[13]:

The case is related to the derivative works created by the AI tool seem to be

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[12] Andrew Kenney, *Jason Allen's AI Art Won the Colorado Fair — but Now the Feds Say It Can't Get a Copyright*, CPR News (Sept. 6, 2023)
[13] *Andersen v. Stability AI Ltd.*

substantially similar to the works created by the visual artists and, in this case, the plaintiff. The plaintiffs shall include Sarah Anderson and certain other visual artists. The plaintiffs contended that the defendant companies, "Stability AI, Midjourney Inc., DeviantArt Inc., and Runway AI Inc.," have used the works of the plaintiffs to train their AI tools, and the effects of the same could be seen in the outcomes of the AI tools. The AI-generated artworks shall be the derivative works of the plaintiffs. This means the AI-generated works are similar to the works of the plaintiff, thus infringing the works of the plaintiff because the data fed to the AI algorithm are the works of the plaintiff.

The case was partially dismissed, and the plaintiffs came up with an amended plaint, and the case was again partially dismissed. This points out the lack of an IPR system to handle the issues on AI-generated copyrightable creations. The decision has to be made to foster a balance between the moral rights of human creators and the innovation that happens using AI tools. The final outcome shall also be the landmark precedence when considering the recognition of works created by AI under the copyright law. The crucial point is that if AI-generated works were recognized as copyrightable, then the responsibility for any infringement they commit would also be determined, thus potentially holding the AI tool or the AI company accountable for the infringement.

Deep Fritz:

The Deep Fritz is a chess program and an algorithm framed to play the board game popularly called as chess. The AI tool plays the chess game with people of all skills from beginners to grandmasters.[14] The playing strength is often adjustable. Deep Fritz is an in-depth analysis tool that has achieved attractive victories as well as draws against some strong chess players. The AI software has made a draw against the champions Vladimir Kramnik and Garry Kasparov. The moves done and the calculations made during the play shall not be copyrightable because almost all of the legal interpretations including the USA. The reasoning is that while the underlying algorithm is created by humans, the specific moves done during a game are executed by the algorithm itself and are based on the state of the game also lack direct human intervention in their selection and execution, hence they are not considered protectable under copyright. The DEEP FRITZ software is copyrightable and the moves made by the software

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[14] Damian Mazurek, *AI Journey — From Chess to Software Development!*, Medium (Dec. 19, 2022)

are not copyrightable.

Thaler v. Perlmutter[15]:

The case is yet another significant case in the recognition of AI-generated images under copyrightable subject matter. The case challenged the authorship rights of an AI model that created an image without any intervention autonomously. The AI system named DABUS was given as the sole authorship in the application form and the same was rejected by the USPTO office. The application was rejected by the USPTO office and the appeal was made by the author of the DABUS algorithm to the District Court of Columbia the court also upheld the decision of the USPTO office and refused to direct the office to accept the application for registering the image in the name of the AI tool. The decision of the lower court is under appeal and is yet to be decided in the upper court.

The current regime on copyrights almost in all countries across the world shall recognise the creative works of humans and protection is given as a fruit of the labour of humans' intellectual knowledge. But the recognition shall be tedious for the works done by the AI tools, the AI-assisted works with more human intervention shall be recognisable but the sole authorship of a work shall not be recognised under the copyright law. The case-to-case analysis happens in the court to recognise the works of AI-assisted works and is proportional to the degree of human intervention in the creation. However, the algorithm is copyrightable as software under the copyright law. In the light of AI tools as a base, it is necessary to maintain a balance between human creativity and innovation.

B. Patents

States like India, Japan, Canada, USA have this principle in common of not recognising the works generated by AI as patentable though it has novel, unique and utility characteristics.[16] However, they differ in their laws concerning the use of copyrightable or patentable materials to train the AI algorithm. The efficient and effective functioning of AI tools needs lots of data to be fed and the laws in various countries differ in handling the infringement proceedings when it comes to feeding data (other person's copyrightable patentable works) to the AI. Japan

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[15] *Thaler v. Perlmutter*, 23-5233 (D.C. Cir. 2025).
[16] Morris Odeh, *The Rise of Machines: Patenting Inventions Generated by Artificial Intelligence in Canada*, Dalhousie Univ. Schulich Sch. L. Theses (Aug. 2022)

has a deliberate approach to using copyrightable material to train the AI algorithm. The result shall be an innovation eligible for protection under the patent law or a creation that is eligible for protection under the copyright law but is not protected because of the work not done by humans.

DABUS Case:

The DABUS'S case decision was made by the USPTO office to reject the patentability recognition and this was followed by the next to next rejections by the EPO, UK, JAPAN country's patent office because the inventor was solely the AI tool. The Dabus algorithm is patentable but the invention of the DABUS algorithm is not patentable in nature.

Japan:

The decision made in the Dabus case is the latest decision made in the Japanese court to highlight the rejection of the application of the invention made by the AI tool. The invention made by Dabus also known as "Device for the Autonomous Bootstrapping of Unified Sentience" is an AI tool created by Dr. Stephen Thaler. The two main inventions made by DABUS shall include: "An interlocking food container based on fractal geometry" AND "A flashing beacon for attracting attention in an emergency". The purpose of the first creation is to easily hold the container with grip stability and the same shall be used as a container to be cooked by the robots and is used for reheating. The second invention shall be said to be an emergency warning light. Both inventions were novel, unique and non-obvious in nature but were not human-invented but machine-invented. Hence the application was rejected by the Japan Patent Office because of the absence of human intervention. The non-patentability decision was made by the Tokyo District Court and the same was upheld by the Intellectual Property High Court Ruling (appellate court) in Japan.

The DABUS case shall be the talk of the globe in making decisions on recognising an AI tool to be an inventor. Like the USA and Japan, the patent application was rejected in Germany but the court quoted that the AI-assisted inventions shall be patentable provided the human intervention in the invention is substantial. The DABUS case was considered patentable in certain countries like South Africa and Australia[17]. But this decision by the court to recognise an AI as the sole inventor is under debate and hence they set no precedence. Followed by the

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[17] Ed Conlon, *DABUS: South Africa Issues First-Ever Patent with AI Inventor*, IPWatchdog (July 29, 2021)

South African court the decision to recognise the patentability of the work done by AI and grant inventorship to AI tools was made by the Federal Court of Australia in the year 2022. However, this decision was overturned by the Full Court in Australia which stated that the natural person should be the inventor and not the machines.

Patentability of AI Algorithms:

The patentability of the AI algorithms is a different perspective wherein the same is patentable under the laws of intellectual property rights. Humans create the AI algorithms and the same shall be copyrightable as software under the copyright regime of the states. However, the AI algorithms shall be patentable when the AI algorithm software is integrated into a physical product. A tangible presentation of the AI algorithm is necessary for the applicant to apply for the patenting rights for the AI algorithms in India[18]. Most state laws on patents also have the same criteria for patenting the AI algorithm if it is integrated into a tangible medium. The AI algorithms are copyrightable as software that comes under the literary works of the creator and hence he can protect the same under the copyright regime of the state.

An AI algorithm is a set of instructions or rules created by computer programmers, software developers or the software company. The algorithms are the set of codes to be called as software whereas the AI algorithms are created to process the phrases in the form of information provided, incorporate the fed data, analyse the data as per the phrase and identify the patterns thus making decisions and providing the output which is the method of solving a problem by giving solution to the user who prompted the phrase. the novelty in AI algorithms is that the AI tools do not take any human intervention to solve a problem.

These AI algorithms are used in almost all industries across the globe. The applications we use almost every day are AI-based algorithms that include search engines, Digital assistants like Siri, Google Assistant, and Alexa and the most commonly used social media platforms like Facebook, Instagram and so on. E-commerce applications like Amazon and Flipkart also use the AI-based algorithms. Let's take an example Google Maps. Google holds a number of patents related to Google Maps. The same shall include digital mapping technology, route planning algorithms, real-time data on traffic, street view technology, indoor Mapping etc. Let us look into the route planning algorithms. The route planning algorithms of Google Maps are one of

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[18] Khurana & Khurana, *Guarding The Code: Evaluating Intellectual Property Frameworks For AI Algorithms*, Khurana & Khurana Blog (Nov. 18, 2024),

the features in Google Maps and are patentable. The patentability needs the software to be presented in a tangible medium. Google Maps is software and has to be incorporated into hardware (smartphones). The route planning algorithm is a novel, non-obvious and industry-applied utility model and is patentable when incorporated into hardware.

Hence, the perception is that the algorithm is more than an idea, and it can be protected under the literary works as software under copyright laws of the state and the patenting of the same shall be done by incorporating the AI algorithms into a particular apparatus or system thus giving a tangible improvement to the software[19].

C. AI and Trademarks:

Trademarks play a vital role in protecting the identity as well as the reputation of businesses, and the Trademark laws of the state shall protect and promote the trademark rights of the owners on registration. The trademark rights are not absolute and are subject to restrictions[20]. The trademarks that are protected under the Trademarks Act have to be distinct, and the same shall be protected from unauthorised uses. The AI-generated content can create an asset as per the data given by a user, and the created AI-generated work may create a scenario of diluting the existing trademarks. AI may generate logos or brand names as per the instructions or the prompts given by the user, and the same shall be unintentionally similar to existing registered trademarks. This is where trademark dilution happens. An AI-generated logo or brand name shall dilute the existing trademark of a registered owner, and this is the risk associated with the dilution of registered trademarks because of AI-generated logos or brand names.

On the other hand, AI can play an effective role in identifying Trademark infringement. Artificial Intelligence shall play an effective role in the detection of infringement by performing fast as well as accurate searches in order to identify infringements of deceptively similar marks used by anyone. The AI shall also be used to identify the unauthorised use of registered trademarks by another person to pass off their goods.

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[19] Syed Wajdan Rafay Bukhari & Saifullah Hassan, *Impact of Artificial Intelligence on Copyright Law: Challenges and Prospects*, 5 J. L. & Soc. Stud. 647 (2024)
[20] Carla Tardi, *Trademark: Definition, What It Protects, Symbols & Examples*, Investopedia (July 25, 2024)

V.   CASE LAWS: Copyrightability and patentability of AI-generated works

1. Getty Images v. Stability AI (U.S. & U.K.)[21]

Facts of the case:

The claimant, Getty Images (US and UK) Inc., has brought a suit in the court of law against Stability AI Ltd (defendant) for using their images to train the Artificial Intelligence model. The defendant is an open-source AI company, and they created an AI model called as Stable Diffusion. The allegations made by the claimants are that the defendant company has infringed the intellectual property rights of the claimants by using the copyrighted images of the claimants to train their model called as "Stability Diffusion". Simply, the copyrighted images were used as a database by the defendants, and the claims consist of copyright infringement. The images were taken from the websites of the claimants without any authorisation. The contentions of the claimants are that they downloaded the images from the Getty Images website and imported the copyrighted images, thus violating sections 16 and 22 of the Copyright, Designs and Patents Act 1988. The images generated by the stability Diffusion were substantially similar to the copyrighted images of the claimants.

Issues:

The claimant's action against the defendant was on behalf of around 50,000 copyright owners whose works were licensed to the claimant. Whether the stability AI infringed on the copyrights of the claimant company. Whether the claimant shall act as a representative on behalf of the copyright owners of the images. Does the court have the discretion to declare the claimant not to act as a representative?

Court's decision:

The court contended that they do not have jurisdiction to allow the claimant to take representative action on behalf of the copyright owners against the defendants. The claimants were not able to say the images that are used to train the AI model, but definitely at least some of the images might be used. The court suggested that cooperation between the parties would

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[21] *Getty Images (US), Inc. v. Stability AI, Inc.*, No. 1:23-cv-00135 (D. Del. filed Feb. 3, 2023)

help manage the litigation in a better way. The court further said that similar kinds of challenges need to be addressed by a structured and well-maintained legal mechanism.

2. Tremblay v. OpenAI[22]

Facts of the case:

The authors, Sarah Silverman and Paul Tremblay, filed a complaint against the giant technology company Open AI and their contentions were, the company used their books that are protected as literary works under copyright law and the books were taken to train their Chatgpt an AI model without taking the legal permission from the authors of the book. The case raised certain ethical questions of not recognising the copyrights of the original owners when their works are used to train their AI models.

Issues:

The issues were whether the action of the defendants amounted to infringement, negligence and unjust enrichment.

Decision of the court:

The court allowed the claim partially and held that the defendants made direct infringement and unfair business practices. The court declared that Open AI had made a direct infringement by copying the work of the claimant without obtaining legal permission. Also, the court declared that OpenAI has done unfair business practices by using the work of the author to train the Chatgpt(AI model) and has achieved commercial benefits, and this amounts to infringement. The court ordered the plaintiffs to amend their plaint to include the claims of direct infringement and unfair business practices and the same is open for final disclosure and judgment in the US court.

3. ANI Media v. Open AI[23]

FACTS:

ANI Media is a news agency based in India that covers events and news from South

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[22] *Tremblay v. OpenAI, Inc.*, Nos. 23-cv-03223-AMO, 23-cv-03416-AMO (N.D. Cal. 2024).

[23] *ANI Media Pvt. Ltd. v. OpenAI Inc. & Anr.*, CS(COMM) No. 1234/2024 (Del. High Ct. filed Nov. 19, 2024).

Asian regions. ANI media provides the news content in various platforms like the internet, TV, and newspapers. The contentions of the ANI media to the Delhi High Court are that the defendant Openai is using the news content of the plaintiff that is available in the public to train their AI model, that is Chatgpt. This training without authorised permission to use the literary works of the plaintiff amounts to infringement. The defendant gives a counterargument that the use of literary works that are available to the public to train their AI models does not amount to infringement.

ISSUES:

Whether the court can issue an order of injunction to stop the defendant from using the copyrighted content of the plaintiff in training their AI models?

Judgement:

The Delhi High Court has not passed any injunction against the defendants but has issued a notice of cease and desist order to the defendants to not use the works of the plaintiff in training their chatbot. Openai has also issued a notification that they have blocked the contents of ANI news works in training their chatbot, which is Chatgpt, an AI model. Openai has taken an opt-out defence to block the websites that raised infringement proceedings against them.

Observation:

Artificial Intelligence plays a crucial role in automating tasks, making effective decisions, and performing functions across various fields. To generate precise outcomes, AI models require vast amounts of data for training. Models like Chatgpt rely on data sourced primarily from the internet, often without the explicit authorisation of content owners. As a result, AI systems can become "black boxes," where users accessing information from them are unaware of the original sources, leading to a lack of recognition for the original creators.
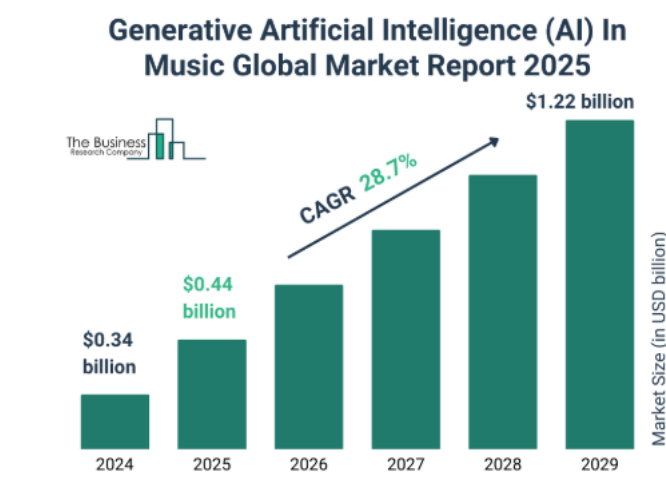
This issue highlights gaps in intellectual property laws that fail to adequately address and support AI-generated works[24]. Therefore, there is a need for legal frameworks that ensure proper acknowledgement of original authors, mandate their permission, and require fair

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[24] *ANI Media v. OpenAI: The "Opt-Out" Strategy*, SpicyIP (Nov. 20, 2024),

compensation, such as royalties, when their work is used for training AI models.

VI.   Empirical analysis on AI-generated music and human-composed music in various fields:

The AI-generated works have to be protected for various reasons, and some among them shall be the works when protected get good recognition, and the same shall encourage more innovation, recognition under the intellectual property laws shall give protection and promotion of the works and hence to prevent the work from getting unlawfully exploited proper protection through recognition is necessary. Also, companies investing in AI-generated works need protection for commercial exploitation. The state shall make initiatives in the form of laws to protect the AI-generated works. Also, AI companies need to recognise the original authors and owners of the work they made use of to generate an AI work[25]. The below is the graphical representation that shows the Generative Artificial Intelligence in music global market.

Generative Artificial Intelligence (AI) In Music Global Market Report 2025

$0.34 billion (2024), $0.44 billion (2025), CAGR 28.7%, $1.22 billion (2029)

Market Size (in USD billion)

Source: Generative Artificial Intelligence (AI) In Music Global Market Report 2025

As per the survey, the annual growth rate seems to increase exponentially in the next to next years as per the figure[26]. This raises a question about is the AI-generated work, in the current scenario in the music industry, is protected under the IP regime to prevent unlawful exploitation of the work if they are generated by AI tools. Like we have recognition of AI-

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[25] H. Gaffar & S. Albarashdi, *Copyright Protection for AI-Generated Works: Exploring Originality and Ownership in a Digital Landscape*, 15 Asian J. Int'l L. 23 (2025)

[26] *Generative Artificial Intelligence (AI) in Music Global Market Report*, Bus. Research Co. (2024)

assisted works under the IP regime, there have to be laws to protect the works of AI tools for companies to have commercial benefits.

VII.   Conclusion:

With regard to the copyrightability and patentability of Artificial Intelligence generated outputs, the global practices as to the legislative analysis have been harmonized fairly treating them as the sub set of computer generated works or computer implemented inventions. But the legal requirement of the level of human involvement is strictly construed before the recognition of the works under copyright or patent regimes as per the nature of the work. United States of America, United Kingdom, European Union, India, etc., though have slightly varied criteria for the protection of the copyright and patent due to their distinctive historical background of development of intellectual property laws, but have similar approaches towards the status of Artificial Intelligence in the intellectual property framework. Each of these nations have signified their steps towards including Artificial Intelligence within the copyright and patent laws by conceiving new regulations pertaining to the usage of Artificial Intelligence tools in development of outputs, guidance with regard to handling Artificial Intelligence related inventions by the intellectual property offices.

Bridging the gap between the Artificial Intelligence and Intellectual Property Rights in addressing the inventorship and authorship issues have been the significant effort of this research by referring to various global perspectives on the development of intellectual property mechanisms. The current laws cannot accommodate Artificial Intelligence within the domain of copyright ownership but can adopt utilisation of Artificial Intelligence as an assisting tool for the creation of the art work provided there is a requisite and substantial human involvement in the process. The movement of Artificial Intelligence from an assisting tool to creative tool is expected in the near future which is evident globally in the fields of music, entertainment, etc. The Artificial Intelligence and Patents integration is invariable and it is consistently leading to the evolution of traditional legal mechanisms. The advanced nature of the Artificial Intelligence in the inventive procedures are posing challenges to the existing legal and judicial perspectives and would affect the future mechanisms. With regard to Artificial Intelligence, the patentability has been discussed on various contours. The differentiation between the Artificial Intelligence generated inventions and Artificial Intelligence assisted inventions, lies in the autonomous acts performed by the Artificial Intelligence. So, if there is more autonomy where

the role of the developer or the programmer who can essentially be the inventor of the Artificial Intelligence is minimal in nature, it would lead to the denial of the patent. It proceeds to state that significant human contribution in the generation of the outcome which can be a product or process is crucial for the grant of the patent. The emergence of Artificial Intelligence needs the patentability criteria to adapt to the technological shifts taking place in the modern world. There is a transformation of human inventive capabilities which is intellectual in nature to the notion of technological inventiveness which is more efficient and technically competent in nature with the same sense of novelty, inventive step existing in the process which are ultimately useful and commercially significant. The patentability of Artificial Intelligence is comparably handled within the existing computer programmes framework with extension of the principles, but what is challenging is the role of Artificial Intelligence in deciding the inventorship of patents. Law and policy in this regard would provide clarifications on the subject matter regarding the ownership and liability of the Artificial Intelligence. As per the current interpretation, only humans as natural persons are eligible to apply and hold rights in a patent. This view is uniformly observed in various countries like United States of America, United Kingdom, European Union, India, etc. All these laws in those respective countries were framed to accommodate humans or natural persons to be eligible for the patent inventorship and subsequently ownership. But the rise of Artificial Intelligence has posed a challenged to the traditional interpretation of these provisions like in the DABUS case.

So there is a definite need to bring out changes in the existing intellectual property legislations and policy documents so as to accommodate Artificial Intelligence related works and inventions. There needs to be specific changes in the registration criteria where specific distinction is to be made as to general works and Artificial Intelligence generated or assisted works. Subsequently, amendments can be brought in to place as to the management of these works in terms of ownership and liability as well as licensing models specific to Artificial Intelligence involved works. There needs to be coordinated effort at the global level as Artificial Intelligence is impacting most of the sectors where intellectual property plays a vital role.

AI has the ability of human cognitive function relating to the learning and problem-solving. The concept of artificial intelligence accountability and responsibility is risk based regulatory framework. The AI creator or user held accountable based on varying degree and depending on risk level associated with AI system. In case of AI accountable and responsible

can be achieved based upon the transparency in identification and mitigation biased and discriminatory pattern that AI algorithms accelerates the development mechanism pattern.

The cardinal principle states that whoever develops, deploys, or uses AI systems should be accountable for the actions and decisions of these systems. There are legitimate standards of operation and procedures for AI accountability, in such instances, an obligation of authority recognition is created and developed, and certain duties, and responsibilities are created.Interrogation plays a vital role in examining accountability and responsibility; accountability clearly indicates that one must answer to someone else for the actions. It is the process of questioning or examining someone about their actions or decisions through a systematic approach.