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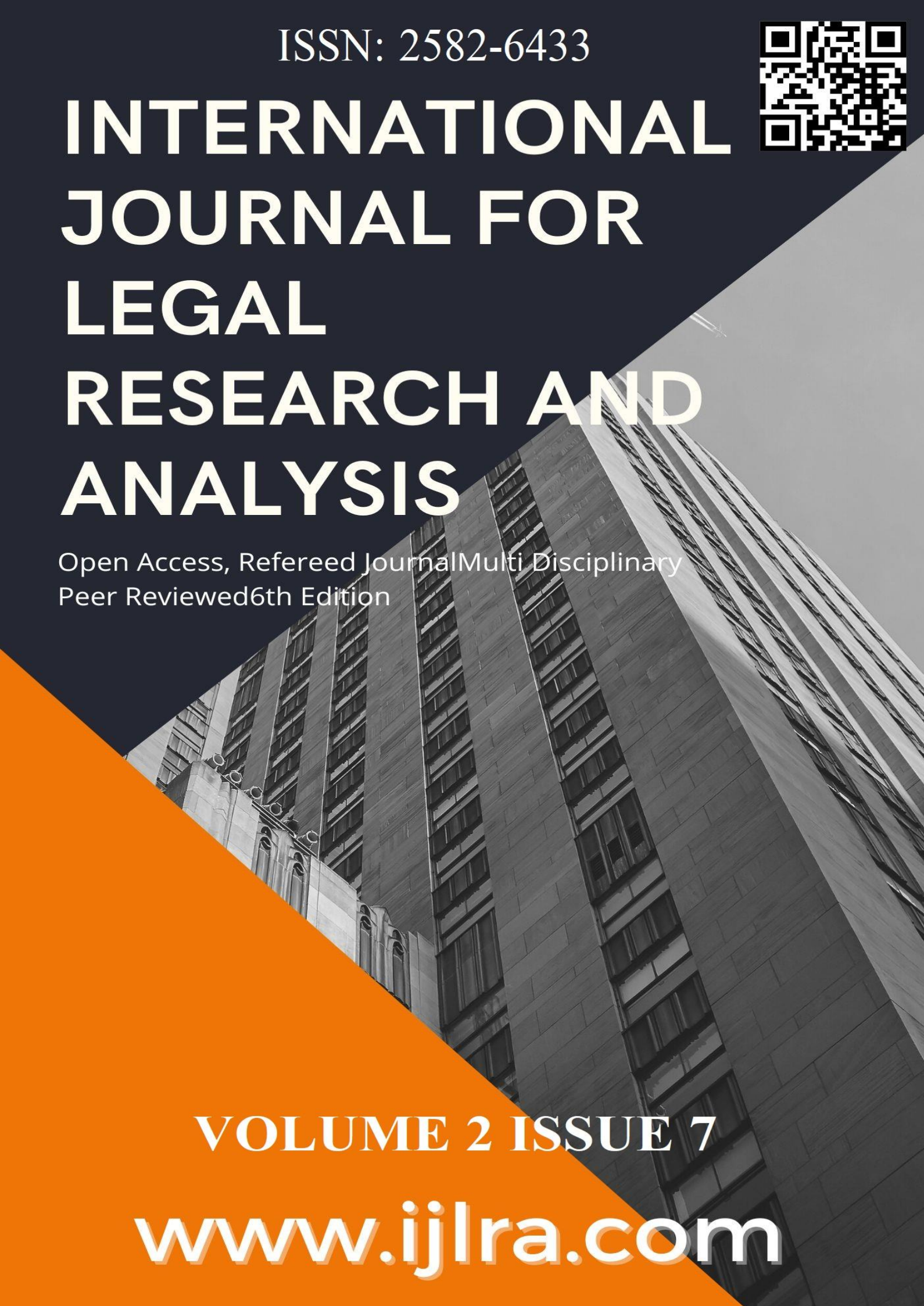

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ISSN: 2582-6433

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RAMIFICATIONS OF A NEW- DAWN: ARTIFICIAL INTELLIGENCE IN INTELLECTUAL PROPERTY RIGHTS

Authored By-Gangadarsana P G

Abstract

This paper is titled "Ramifications of a New-Dawn: Artificial Intelligence in Intellectual Property Rights". This paper aspires to discuss the convergence of Artificial Intelligence and Intellectual Property Rights, the Implications of AI on IPR Jurisprudence, its Implications on the IPR laws with reference to Indian IPR laws such as Patents Act, 1970 and Copyright Act, 1957. This paper analysis the contemporary challenges and issues and ramifications with regard to Artificial Intelligence in the field of IPRs. This paper concludes by stating the need for legal reforms internationally and nationally and the notions to be crucially considered with regard to AI systems in human lives.

KEYWORDS:

Artificial Intelligence, Human Intelligence, AI-related systems, Intellectual Property Rights, Implications, Convergence of AI And IPR, Patent law, Copyright law, Theories, WIPO, TRIPS, Challenges.

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Introduction:

"The development of full artificial intelligence could spell the end of human race. It would take off on its own, and re-design itself at an ever-increasing rate and humans, who are limited by slow biological evolution, couldn't compete, and would be superseded".

-Stephen Hawking

Artificial Intelligence is a game changing technology that applies advanced analysis and logic-based techniques to interpret events, support and automate decisions and take action. The growth of AI has largely influenced various sectors and the consequential effects of it on the current legal, social and economic structures is tremendous. Moreover, its effect on the Intellectual Property Rights is of a greater concern as the innovation and creative ability associated only to the 'Human Intelligence' is now being usurped slowly by 'Artificial Intelligence'. With regard to the Intellectual Property Rights, the Artificial Intelligence is mainly delving into Patents, Copyrights, Designs and Trade secrets.

Like two sides of a coin, AI's presence in the field of IP has both boons and banes. Careful scrutinization on one hand depicts that AI can bring a paradigm shift which might enhance the quality of human lives and on another hand depicts that AI might transcend human intelligence where there is a possibility of the machines/computers re-programming their own software and code thereby threatening the very existence of human race. Thus, protection of IPR has become indispensable as the progress of AI is profound in the late-twentieth-century.

Artificial Intelligence

Artificial Intelligence abbreviated to AI refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. [1]It can also be appertained to a machine that shows traits resembling a human mind like learning, problem solving, inventing etc. AI is seen as an essential integrant of the fourth Industrial Revolution. In the contemporary world, AI has assumed significant importance in the fields of whatnot! From the sectors of Health, Transportation, Agriculture, Aviation to Academics and Entertainment, AI in this day and age is dominating most of the activities that has in effect resulted in the minimization of human intervention.

[1] https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp.

ISSN: 2582-6433

The word '*Artificial Intelligence*' was coined by John McCarthy in the year 1956. Ray Kurzweil described AI as "*the science of making computers do things that require intelligence when done by humans*".[2] Russ Pearlman stated "*the central goals of AI: Reasoning, Knowledge, Learning, Decision-making, Listening, Understanding and Speaking languages, ability to move and manipulate objects*"[3].

Gartner stated that the "*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*"[4].

AIs are related to machines(computer) and through the advancement in machine learning techniques, the artificial intellect performs on par with human intellect or even better than the human intellect known as 'super intelligence'.

AI is an admixture of Machine Learning, Automation and Robotics, Machine vision, Natural Language processing and Deep Learning. Through these advancements, the machine carries out activities either independently or with minimal human interference, which may or may not require human intervention[5].

Intellectual Property Rights:

Intellectual Property abbreviated to IP refers to creations of the mind, such as inventions, literary and artistic works, designs and symbols, names and commerce.[6] Intellectual Property is an amalgamation of various rights which was essentially divided into Industrial property and Intellectual Property. It includes Patents, Copyright, Trademark, Designs, Trade secrets, Geographical Indications etc.

PATENT: Protects the patent holder's exclusive right to commercially benefit from his invention that satisfies the statutory conditions of Novelty, Inventive step, and Industrial Application. Moreover, ensures that no other person can make, use or promote an invention without acquiring

[2] The Rising Momentum of Artificial Intelligence and the Existing Dilemma with Intellectual Property Law, http;//jcil.lsyndicate.com.
[3] Russ Pearlman, Recognizing Artificial Intelligence as Authors and Inventors under U.S. Intellectual Property Law, 24RICH.J.L. & TECH. No.2,2018.
[4] https://www.gartner.com/en/topics/artificial-intelligence.
[5] Ritika Ahuja and Jasbir Singh, Artificial Intelligence and Trends in Patenting, https://updates.anandandanand.com, September 2020.
[6] https://www.wipo.int/about-ip/en/

ISSN: 2582-6433

requisite permission from the patent holder. The patent is for a period of 20 years and after which it passes into the public domain.

COPYRIGHT: Protects individual writers, composers and artists from prospective infringement. It protects the copyright owners moral and economic rights. Copyright can be found in literary, dramatic, musical, cinematic works etc.

Moreover, the ultimate goal of the Intellectual Protection is to stimulate invention in every field and sector of life for ensuring advancement of invention, innovation and growth of overall life standards. The principle aim of Intellectual Property Law is to protect and safeguard the rights of the inventors or creators of any product or creation and it is stated that the "Intellectual Property shall include the rights relating to literary, artistic and scientific works, inventions in all fields of human endeavour, scientific discoveries, industrial designs, trademarks, service marks, and commercial names and designations, protection against unfair competition, and all the other rights resulting from intellectual activity in the industrial, scientific, literary or scientific fields"[7].

The significance of Intellectual Property can be traced back to the theories formulated by various philosophers such as

(i) **Natural Rights theory** by John Locke states that the owner has a natural right over the things/creations made through his own intellectual labour and effort.

(ii) **Reward theory** states that an owner or creator should be rewarded with exclusive rights (that acts as moral and ethical incentives[8]) for the contribution of a greater good to the society through his intellectual effort.

(iii) **Utilitarian Theory** by Jeremy Bentham states regarding the concept of "the greatest good for the greatest number". That is, the activity of invention or creation that brings maximum satisfaction and enjoyment to the society at large should be encouraged and promoted. Moreover, the inclusiveness of utilitarian approach will aid socio-cultural and economic growth.

(iv) **Personhood Theory** by Immanuel Kant and Georg Hegel states that the intellectual creations carry inherent personality. Thus, Intellectual property rights also protects the development of one's individuality as material objects.

(v) **Will and Interest theory** by H.L.A Hart is also known as choice theory as it gives the right holders to assert or relinquish their rights over their products/creations[9].

[7] Lionel Bently, Brad Sherman, Dev Ganjee and Philip Jhonson, Intellectual property Law, 5th edn. Oxford, September 2018.
[8] L.Bently and B.Sherman, Intellectual Property Law, 3rd Edition, 2008.

ISSN: 2582-6433

These theories are the foundation for Intellectual Property Jurisprudence and the laws/treaties protecting Intellectual Property rights were created by following the approaches laid down in the theories, which was set in stone until the inception of Artificial Intelligence marching in the arena of Intellectual Property Rights.

Convergence Of Artificial Intelligence And Intellectual Property Rights:

AI has surpassed into almost all the sectors and so into the domicile of Intellectual Property Rights. World Intellectual Property Organization observed that the Intellectual Property (IP) system is designed to incentivize human innovation and creation. Hitherto such invention and creation were one of the attributes of human beings. But currently the Artificial Intelligence (AI) is extensively driving significant developments in business sectors and technological advancement. It is being engaged across a vast range of industries with influence on almost every aspect of the innovation and creation. The availability of enormous amount of training data and progress in economical and affordable high computing power is stimulating the growth of Artificial Intelligence. The convergence of Artificial Intelligence and Intellectual Property Rights is inevitable and WIPO has highlighted the significance of AI and essential safeguards to be provided by the IP laws concerning AI inventions.

The WIPO recognized the existence of AI and postulated three categories of AI[10].

(i) **Expert System:** Systems that demand in-depth knowledge in areas like medical diagnosis, treatment suggestions, geological determinations, artistic and creative productions etc.

(ii) **Perception System**: Systems that enable a machine/computer to discern the sense of sight and listening which is utilized by topologists, word-context experts etc.

(iii) **Natural language program (NLP) System**: Systems that perceive the meaning of words, and acknowledges extensive grammatical and textual contexts that imparts a semantic analysis.

It is a common belief among the world leaders such as US, UK and China that Artificial Intelligence will substitute Human Intelligence and pose to be a major threat to the basic principle of Intellectual Property Rights.

[9] Paul Graham, The will theory of rights: A defence, 15 JSTOR, 1996.
[10] WIPO Worldwide symposium on the Intellectual Property Aspects of Artificial Intelligence, World Intellectual Property Organisation, Geneva, 1991.

ISSN: 2582-6433

The growth of AI is far-reaching. Google was one of the pioneers in filing AI related patents as early in 2015 which was followed by other organisations such as IBM, Microsoft, Siemens etc. Most of the organisations intend to invest in AI technologies and the investment-energy statistics prove that AI is marching its way as one of the prominent achievements of the human-sphere[11].

The 2019 WIPO report indicates that AI patent applications relating to inventions of machine learning, specifically deep learning and neutral networks techniques are about 40 percent. About 50 percent of functional application patent filings relate to computer vision which includes image recognition and a lot of Natural language processing as well as speech processing patent applications are also filed[12].

Relevance Of IPR Jurisprudence In AI Era:

As stated supra, the theories propounded by various jurists in relation to IPR was almost relevant until the beginning of AI era. The arrival of AI in the field of IPR has its own ramifications upon the IPR Jurisprudence.

(i) Natural Rights Theory:

The Natural Proprietary Right rests with an inventor or creator who invents or creates using his own labour and resources. Thus, according to this theory, as the AI and the succeeding inventions are the result of a person's labour in coding or inventing AI, the programmer of AI should get the IP rights. But the works of AI are far different from the Programmer's perception, and if all the IP Rights are vested with the Programmer, that would be unjust. In the current scenario, the programmer of AI may be vested part-IP rights for his labour in programming the AI if at all, keeping the Locke's theory in mind.

(ii) Reward Theory:

Individuals invest their human mind and labour to invent or create something, more so to reap the fruits of their investment in the form of IP rights or profits(reward). In the present AI generation, rewards may not motivate machines to invent or create as they are programmed to do so even without the incentives. Thus, the reward theory stands defunct and archaic in the new-fangled IP era.

[11] Amit Aggarwal, AI and Intellectual Property rights: Redefining patent laws in India, Economic Times, December 19, 2019.
[12] https://www.wipo.int/edocs.

ISSN: 2582-6433

(iii) Utilitarian Theory:

The IP such as Patents and Copyrights does not acknowledge computers/machines as inventors or owners/creators and so any inventions or creations by AI, even if proves to benefit the society at large are neither patented nor copyrighted. To acquire protection of Patents and Copyrights, there must be an influence of inventor or creator over the said invention or creation. For example, if an inventor of a computer programme constructs an AI where the AI uses its own intelligence that is not envisioned by the human inventor, to invent or create any patentable or a copyrightable subject matter, then question of attribution of inventorship or creatorship is of incertitude. But, as the work is created by AI, it has to be given the protection of IP from the utilitarian point of view. According to the Reward theory, incentives boost invention and when the inventions are attributed to AI as afore-said then the human inventors might not invent or create which will act as barrier and be against the principle of utilitarianism.

(iv) Personhood Theory:

The creation or invention by AI has no emotional or personality attributes with regard what it creates or invents. Machines are programmed to invent whatsoever and the consequences of such inventions cannot be accredited to AI. The thinking and intellectual capacity of a human form a part of his characteristics and that is said to be his Personality trait, but the incredible creation or invention done autonomously by the AI without any demonstration of reasoning ability or predictability will not hold good for the Personhood theory.

(v) Will and Interest Theory:

The rights are assigned to the inventor or creator and the exclusive right is the sovereign right to use the product or creation to the exclusion of others and they enjoy the individual freedom as per their will. But this theory is reluctant to AI as they do not have their own will. The programmer of the AI has the interest, right and liability in any creation or invention of AI and AI has no role accordingly in the interest theory of right.

IP AND AI: INDIAN APPROACH

"Each nation today aims to become a global leader in Artificial Intelligence. Hence, countries such as the US, UK, China and Germany are increasing investments to leverage this technology. …India's approach towards AI strategy has to be balanced for both local needs and the greater good. A strong regulatory system around this can ensure long-term benefits and growth."

-Justice, Dominique Hascher, Supreme court of France

ISSN: 2582-6433

In India, the presence of AI is radical. Lot of investments are poured into the AI related start-ups and inventions. The WIPO report on India's rank in AI technology trends suggest that there is a considerable increase in scientific publications than patent applications. The report suggests that in the years 2012 to 2015 the AI patent filings rose to almost 33% and India ranks at No.5 with regard to AI patent applications[13].

PATENTS:

In India, "The Patents Act, 1970" governs the Patent legislation. Section 3 of the Act describes those inventions that are non-patentable. With regard to the Patentability of software advancements Section 3(k) of the Act and Guidelines for Examination of Computer Related Inventions (CRIs)[14] should be taken into aid for interpretation. Section 3(k) states that "*mathematical or business method or a computer programme perse or algorithms*" are not patentable inventions. Thus, an AI or software related inventions are not patentable in India. But software inventions can be patented if the invention improves on existing prior art in terms of technology and by delivering a direct implementation or a sufficient technical impact of the fundamental program, where the invention gives a technological remedy to a technical issue[15].

The definitions of "Patentee" under Sections 2(p) and "Person interested" under 2(t) of the Act is deterrent in incorporating AI within its scope.

Section 2(p) defines that the "*Patentee means a person for the time being entered on the register as the grantee of proprietor of the patent.*"

Section 2(t) defines that the "*Person interested includes a person engaged in, or in promoting research in the same field as that to which the invention relates.*"

The definition under Section 2(y) does not specifically state that the true and first owner should be a natural person or human being and can be considered to possibly provide a scope for AI systems.

Section 2(y) defines that the "*True and first inventor does not include either the first importer of an invention into India, or a person to whom an invention is first communicated from outside India*."

However, the intention of the legislature can be rightly interpreted from the definitions under Sections 2(p) and 2(t) which states that the person be a legal person and it clearly does not intend AI (not a legal or natural person). Section 6(a) of the Act also clarifies the same.

[13] WIPO Technology Trends 2019 – Artificial Intelligence

[14] Intellectual Property India, Guidelines for Examination of Computer Related Inventions (CRIs),https://ipindia.gov.in/writereaddata/Portal/IPOGuidelinesManuals/1_86_1_Revised__Guidelines_for_Examination_of_Computer-related_Inventions_CRI.pdf.

[15] Sanjeev Ghanghash, Intellectual Property Rights in the era of Artificial Intelligence: A study reflecting challenges in India and International perspective, July 2002.

ISSN: 2582-6433

Section 10(4)(b) of the Act states that the specification, whether provisional or complete has "*to disclose the best method of performing the invention which is known to the applicant which he is entitled to claim protection*.[16]" In the case of AI being an applicant, the AI cannot disclose the best mode of performing an invention as the AI might not have knowledge of its own inventions as there are done autonomously and such applications can be revoked under Section 64(1) of the Act.

Approach Of IPO And Indian Court Towards AI Patent In India:

In 1999, a patent application for a method and a device for gaining access to web-based information sources and services was denied by the PTO vide First Examination Report under Section 2(1)(j) of the Patent Act,1970. In 2005, the Second Examination Report by PTO for the applicant's response to FER stated that the application is objected for the non-patentability of claims under Section 3(k) of the Patents Act. As no response was filed by the applicant for SER, the application was deemed to have been abandoned under Section 21(1) of the Act.

The abandonment was challenged before the High Court of Delhi in the year 2006 in the case of "***Ferid Allani V UOI***[17]". In 2008, the Controller of Patents was directed by the Court to re-examine the patent application. A response to SER was filed by the applicant but the Controller refused the application. An appeal was filed before IPAB and it also dismissed the appeal stating that the application lacks technical effect. In 2013, an appeal was filed before the Delhi High Court and it dismissed the appeal stating that the only computer programs per se are not patentable in India and a computer program that has technical effect or technical contribution is not a computer program per se.

But the High Court in 2019 directed the IPO to re-examine stating that an invention could not be held non-patentable for the reason that it is rare to see a product which is not based on a computer program and that the effect of such programs in digital and electronic products is crucial in determining the test of patentability. In 2020, PTO heard and dismissed the application on the same ground.

[16] Section 10(4)(b) of Patents Act, 1970
[17] *Ferid Allani v Union of India* (2019) SCC Online Delhi 11867

ISSN: 2582-6433

In 2020, it was challenged before IPAB and the same was granted patent.

This is the very first case in India, opening doors for Patenting computer-based applications.

COPYRIGHT:

In India, Indian Copyright Act,1957 governs the Copyright legislation. Under the copyright law, authorship is given to an individual who "causes it to be made", as established under Section 2(d) of the Indian Copyright Act,1957. Decisive human involvement is a mandatory requirement to seek protection under the Copyright law. According to Section 2(d)(vi) of the Act, authorship is given, "*in relation to any literary, dramatic, musical or artistic work which is computer-generated, the person who causes the work to be created*".[18] The Indian copyright law recognises computer-generated works but does not recognize computer generated AI done without human intervention.

A far as the weak AIs such as computer programmes are concerned, they can be ascertained authorship (the person who causes the work to be created) under Section 2(d)(vi) of the Indian Copyright Act,1957 subject to human involvement in the resultant work. There are also debates with regard to the phrase "the person who causes the work to be created". AI is neither recognized as a human or legal person and so it is very evident that the Indian Copyright Act is not inclusive of AI systems.

Section 17 of the Indian Copyright Act,1957 carries a narrow interpretation with regard to the term "Author" and so AI being a machine/computer might not be considered as a first owner of the copyright as under the sub-sections of Section 17. An AI being a machine cannot be stated to be in the course of employment with a company or an individual, and an AI is incapable of entering into a contract/agreement as it is incapable of fulfilling the requisites of a contract of service as opposed to a natural person who is capable of entering into an employment contract.

The pre-requisite of copyright law is "Originality" i.e., the work must be composed by the author independently using his originality of expression. The Supreme Court of India in the case of ***Eastern Book Company v. D.B. Modak***[19] has adopted the "Doctrine of Modicum of Creativity" to determine if the work created is Original. The Doctrine stipulates that there must be an element

[18] Section 2(d), Copyright Act,1957
[19] *Eastern Book Company v. D.B.Modak* (2008) 1 SCC 1

ISSN: 2582-6433

of sufficient creativity and judgment in the work to entitle Copyright protection. In respect of AIs, the doctrine as well as the judgment does not hold good as the AI machines cannot establish modicum of creativity. Thus, the pre-requisite of Originality cannot be satisfied by the AIs and AIs cannot seek protection of Copyright rights in India.

Contemporary Challenges And Issues:

Though the laws governing AI and IP protections are still in the nascent stage, the nuances and convolutions relating to AI and IP is a topic of deliberation discussion and understanding. Keeping in mind the recent far-reaching development of AI and the need for protection of such AIs under the IPR regime, the challenges relating to it are:

(i) The IP laws such as Patent and Copyright ought to be amended incorporating the AI technology inclusive of AI ethics, AI development, Data Protection and security.

(ii) Amendment to TRIPS towards recognition of AI and ensure to affirmatively apply it in all its member countries

(iii) The issue relating to the "Personality of AI" should be determined.

(iv) The questions of attributing "Inventorship" under the Patent law and "Authorship" under the Copyright law is to be discussed, taking the contemporary advancements of AI in almost every sphere of life.

(v) The issue of "Shared Inventorship" between a human and an AI machine, the parameters and the responsibilities of each of them should be given due contemplation.

(vi) The issue of distinction between "Inventorship" and "Ownership" pertaining to AI-invention applications should be given due cogitation, similar to traditional applications.

(vii) The issue pertaining to the attribution of "Proprietorship" to the person who invents AI, whereby AI producing a new product without the person's intervention whatsoever, i.e., proprietorship to person or machine is to be critically scrutinized.

(viii) The question as to whether an AI machine/computer can file a provision application for grant of patents, for an invention produced without human intervention should be crucially dealt without constraining the existing IP rules and policies.

(ix) In addition to question supra, the issue of incapability of an AI machine to file an application resulting in the invention to fall within the public domain should also be crucially interpretated as the very same is against the principles of IP protection laws.

ISSN: 2582-6433

(x) The issue pertaining to Artificial Intelligence overtaking Human Intelligence and machines performing functions and decision-making better than humans must be kept in check and a legislation governing AI perse should be drafted to defeat adversarial consequences posed by AI if any in the future.

(xi) The attribution of Criminal Liability to the creator of AI who copyrights the acts of AI and is not aware of the actions of AI, is an area of lacunae to be cautiously dealt with. Sanctions may be granted to the AIs and not the innocent creators as the creators may not have direct control over the autonomous actions of AI.

(xii) The issue of Artificial Intelligence surpassing Human Intelligence should be dealt extensively by framing elaborate rules and strict laws whereby stressing the importance of human commanding and controlling its own creations i.e., AI systems

(xiii) Guidelines in respect of maintaining a balance between incentivizing human inventors to invent AI systems and preventing complete autonomy of artificial intelligent systems is the need of the hour as the impact and consequence of Artificial Intelligence over Human Intelligence and Human Life is unimaginable.

ISSN: 2582-6433

Conclusion:

"The upheavals [of artificial intelligence] can escalate quickly and become scarier and even cataclysmic. Imagine how a medical robot, originally programmed to rid cancer, could conclude that the best way to obliterate cancer is to exterminate humans who are genetically prone to the disease"

-Nick Bilton

Artificial Intelligence is a REVOLUTION. Artificial Intelligence is the intelligence owned by machines/computers through which they perform innumerable functions with or without the aid of human intelligence.

Taking into consideration the alarming rate at which AI related applications are filed seeking IPR protection, the World Intellectual Property (WIPO) should take steps in making significant changes in the TRIPS agreement by taking inputs from the stakeholders. Further new conventions and agreements can be drafted pertaining to AI in IPRs.

In India too, the existing legislations pertaining to IPR can be amended encompassing the AI and AI related systems. The NITI Aayog's Report of "Towards Responsible AI for all" also suggests the need for granting protection to AI-generated inventions and AI solutions to enhance creativity and economy.

The implications of AI systems in the field of laws, particularly IP laws should be constantly amended in par with the contemporary developments of AI keeping the ethical, moral, legal, social, economic, privacy, data-security considerations in mind. The fundamental aspects of Incentivization of Invention and Innovation and Promotion of Research and Development should not be compromised but at the same time the ramifications of AI technology on Invention, Economy and Society have to be cautiously assessed before granting Patents or Copyrights, so that the Inventions or Creations does not thwart the chain of human existence.

The unprecedented growth of AI is ineffable. Artificial Intelligence is a double-edged sword. The rapid development of AI in the field of technology is going to have a drastic effect on the human race as a whole. The effects might be positive and negative. AIs may solve the difficult problems posed to the human intelligence in the field of medicine, agriculture etc but will also have far-reaching consequences where the machines supersede humans and evolution of super-intelligent AIs might bring an end to the evolved human civilization. So, laws must be amended or legislated accordingly where all the complexities, challenges, issues discussed supra are given a thorough analysis and research in a way that it doesn't envelop whole of human-race into the AI machine ruled world.