

## International Discussions on Dilemma on Intellectual Property to Non-Biological Intelligence

By

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### Abstract

The current analysis specifically entails about the efforts taken by the international organizations/agencies/departments to decide artificial intelligence as author or inventor. WIPO along with the other states tries to clarify the picture whether different states are going to recognize artificial intelligence as author or inventor or not. In this regard many negotiations have been taken place and many states clarified their stand on this issue. But there is no consensus among the states to recognize artificial intelligence as creator. Most of the states still treat human being the only source of creativity and artificial intelligence as mere tool. In this paper the researcher tries to explain and analyze the different stands taken by the different states on granting IP rights to artificial intelligence.

**Keywords:** Artificial intelligence, Invention, Author/Inventor.

### Introduction

The fundamental premise of Intellectual Property Laws is to stimulate creativity and encourage the inventor of new particulars around the world. Many laws in the sphere of Intellectual Property are drafted with the intention to enhance protection. IPR laws concern themselves with the protection of creations of human beings alone and accepts human beings as the only source inhabiting the power or ability of creation. While human beings are the only ones covered under the relevant laws on IPR, there have been instances where the question of non-human beings claiming protection under IPR has surfaced. The general conclusion has always been that non-human being creature do not come under the applicability of IPR laws. Such creations have been treated as part of public domain.

Machines have traditionally been used as tools, something to assist human beings in their endeavours. Even the creations done on devices such as computers, it has been the user i.e., the human being that has been made well protected under the law. The engraved norm for long has been that it is the efforts and intelligence of humans that translates into the output produced by machines. The idea that machines themselves, without any human interference would produce or create work was perceived to be either silly or too futuristic. What the modern times are seeing is that machines without human input are capable of creating work that now seeks the protection of IPR Laws. The term 'Artificial Intelligence' is used to refer to the advancing abilities of machines to do what has usually been the work of humans. The advancement in the field of Artificial Intelligence has been such that it is possible for inventions and creations to be completely independent of human effort and intelligence. Artificial Intelligence is a significant element of the "Fourth Industrial Revolution."<sup>1</sup>

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<sup>1</sup>Routledge. <https://www.routledge.com/Artificial-Intelligence-and-the-Fourth-Industrial-Revolution/Chakraborty-Banerjee-Saha-Sarkar-Chakraborty/p/book/9789814800792>. (Last Visited Date).

Artificial Intelligence has been defined by John McCarthy,<sup>2</sup> who went to the Turing Prize for 1971 as "Making a machine in the way it is termed intelligent if it's human behaviour" In 1955. Artificial intelligence technology recently has progressed rapidly and became one of the world's hottest topics. It is not only the industry that needs to follow these rapid developments of Artificial Intelligence but also academicians, politicians, and the judicial community for the questions that these developments brings about affects everyone. Few academicians have termed this as 'extraordinary intelligence artificial insight'.

However, no new idea or concept is artificial intelligence alone. Amazingly, Greek, Roman, Indian, and Chinese traditions have throughout ancient scriptures made references to artificially intelligent beings.<sup>3</sup> However, it was back in 1936 that Turing created the first machine to employ Calgary, which was the birth of contemporary artificial intelligence. Artificial intelligence was formally introduced at the 1956 conference in Dartmouth where the word "artificial intelligence" was invented by John McCarthy.<sup>4</sup>

Artificial Intelligence research was launched in 1986 by the Government of India in association with the UN Development Program (UNDP). AI calls into question the most traditional foundations of intellectual property law, such as "author" or "creator". The machine may be an inventor or an author? Should the inventions developed by AI be regarded as state of the art? Who owns the works or inventions produced by AI? Who should be liable for AI developments and advances if they breach the rights of people or other laws? These are certain concerns of Intellectual property Law that legal fraternity must overcome with the increasing prevalence and capacity of AI.<sup>5</sup>

There are many National and International organisations/ agencies/ departments whose contribution or efforts in the field of interface of Artificial Intelligence and Intellectual Property should be appreciated. Thus, the efforts of few International or National Organisations/ agencies are mentioned here-

## **WIPO**

### ***Chairman Interview on AI and IPR***

WIPO Director General Francis Gurry in his interview (22<sup>nd</sup> January 2019 available at WIPO website) noted that 'it is too early to say, but it is clear that AI will have an impact on traditional IP concepts. Commercial AI-generated music and AI-created inventions are not far off, and will transform the concepts of the "composer," "author," and "inventor" – although precisely how is not yet clear'. The deployment and use of AI technologies will have implications both for Intellectual Property law and policy and the administration of IP systems around the world.

### ***WIPO Conversations Regarding the Interface of AI and IP***

There were many WIPO conversations on AI and IP. These conversations have been divided into number of sessions. There are important concerns regarding AI and IPR which are as following-

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<sup>2</sup>John McCarthy, *What is artificial intelligence?*, JOHN MCCARTHY (Nov. 12, 2007, 02:05 AM), <http://jmc.stanford.edu/articles/whatisai/whatisai.pdf>.

<sup>3</sup>Mrinmoy Roy, *An Exploratory Study On Origin Of AI: Journey Through The Ancient Indian Texts & Other Technological Descriptions, Its Past, Present & Future*, 12 TOJQI. 6528, (2021).

<sup>4</sup>Supra Note 2.

<sup>5</sup>iNurture, *Artificial Intelligence in India – A Sneak Peek Posted by nurture*, Inurture BLOG (July 11,2021. 3:25 PM), <https://inurture.co.in/artificial-intelligence-in-india-a-sneak-peek/>.

Impact of AI on IP: AI is the game changer and it may become one of the disruptive technologies and even it may be more than that. It also has the potential to become the core of the fourth industrial revolution. The following paragraphs are relevant here-

“The past 10 years have seen exponential growth in AI applications and an impressive increase in the number of papers published, patents, and venture capital investment. In Israel, for instance, over 1,000 AI start-ups open each year. The protection of AI inventions poses a number of challenges to the current IP system. One of the biggest issues surrounding AI innovation is its potential to reshape the nature of innovation itself. Innovators use machine-learning tools, setting a faster pace for innovation, and machine learning tools are developing innovations on their own<sup>6</sup>.”

“The IP system has an increasing role in incentivizing innovation, and the question is how to solve the particular challenges brought by AI to the IP system. AI poses policy, legal, and examination-based questions, and policy-makers should listen to practitioners from the sector and seek to improve examination criteria. In this regard, one panelist referred to a recent request for comments on patenting AI inventions (US Federal Register, Vol.84, and No.166, filed on August 26, 2019)<sup>7</sup>.”

- 1) AI is non-biological intelligence and it also questions the traditional concepts of IP.
- 2) Whether AI can replace human intelligence<sup>8</sup>.
- 3) If the contribution of both human being and AI is there how that will be addressed to recognize the paternity or source of origin<sup>9</sup>.

#### ***Patent and AI Related Concerns***

- 1) Relating to patents, a few points have been discussed like whether current patent laws are adequate to protect AI-related patents (AI as invention and AI-generated inventions), AI as patentee, its enforcements, and challenges of its management at the global level<sup>10</sup>.
- 2) IP laws were made at the time when only human beings were considered inventors but AI has put a challenge before patent laws by showing its potential to invent inventions in the sense of patent laws<sup>11</sup>.
- 3) AI is capable to invent thus such inventions should be patented. The patent application should not be rejected merely on the basis that there is no human inventor rather criteria of patentability should be focused upon.<sup>12</sup>. The following wordings are important for this point-

“Earlier this year two patent applications were filed at the United States Patent and Trademark Office (USPTO), the European Patent Office (EPO), and the United Kingdom Intellectual Property Office for inventions created by an AI system (DABUS), one for a food container and the other one for a flashing light. The system was created by Dr. Stephen Thaler, an AI expert based in the US, himself listed as applicant in those applications. Those applications play the role of test case. If a machine develops an invention, who is the inventor?

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<sup>6</sup> Point no. 24, WIPO Conversation First Session Summary available at [https://www.wipo.int/edocs/mdocs/mdocs/en/wipo\\_ip\\_ai\\_ge\\_19/wipo\\_ip\\_ai\\_ge\\_19\\_inf\\_4.pdf](https://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ip_ai_ge_19/wipo_ip_ai_ge_19_inf_4.pdf) (Last visited on Sept.21,2021).

<sup>7</sup> Ibid, Point no. 26.

<sup>8</sup> Ibid, Point no. 27.

<sup>9</sup> Ibid, Point no. 28.

<sup>10</sup> Ibid, Point no. 31.

<sup>11</sup> Ibid, Point no. 32.

<sup>12</sup> Ibid, Point no. 33.

If a patent were to be granted to a machine, then who would own the IP? The machine, its owner, the developer of the machine, the data supplier, the people who trained the machine?<sup>13</sup>

- 4) The main question that comes before us that whether AI should be recognised as a patentee. Here we find different definitions of inventorship in different jurisdictions and many jurisdictions the statutory requirement to become inventor is natural person (human being) like U.S. Most of the countries refer to Paris Convention (Paris Convention for the Protection of Industrial Property, 1883) to make patent laws in its country and these countries have provided in statutory provisions relating to patent laws that an inventor must be human being. However, the Paris Convention does not state that an inventor must be human being. The Paris Convention notes that “Inventor has a right to be named as such in the patent”<sup>14</sup>. Thus, is there scope that AI may be named in the patent application as patentee? The following paragraphs are very important for this issue-

“Several solutions could be contemplated to address this issue, such as nominating the machine as an inventor, but machines have no rights, duties or responsibilities, or list as inventors the humans who trained, coded or controlled the AI systems. One panelist suggested that expanding the terms of inventor to a natural or legal person, who controls and has responsibility of the AI process that created the invention, is considered a better option<sup>15</sup>.”

“Examination guidelines also differ from country to country which makes is even more challenging when it comes to AI patent applications. The field is so new that there is even little coherence between patent offices and their national courts. In the US, for example, since a Supreme Court ruling (*Alice v. CLS Bank* – involving a business method implemented by a computer, considered as abstract ideas, not eligible for patent protection), inventive step in the area of AI patents have been problematic. Even if the USPTO has published examination guidelines, those are not new law. There is uncertainty about how the US courts will consider AI-related applications, which makes a patentability analysis in the US rather uncertain for the moment<sup>16</sup>.”

“The EPO has released new guidelines on examination of AI inventions but a pending referral at the EPO Enlarged Board of Appeal on the patentability of computer-generated simulation (case number T 0489/14) is threatening to move the bar in terms of patentability on computer programs in Europe, where it has been somewhat higher than in other jurisdictions. This case also has direct implications on the patentability of AI, since some might argue that AI is merely a simulation of the human brain<sup>17</sup>.”

“In Japan, new examination guidelines institute machine learning as a technical field in itself, and the patentability analysis is closer to standard inventive step requirements applied to all types of inventions. This approach is in line with the International Association for the Protection of Intellectual Property’s (AIPPI) position that computer programs should be patentable, so long that they meet the traditional criteria of novelty, inventive step, and industrial applicability<sup>18</sup>.”

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<sup>13</sup> Ibid, Point no. 34.

<sup>14</sup> Ibid, Point no. 35.

<sup>15</sup> Ibid, Point no. 37.

<sup>16</sup> Ibid, Point no. 39.

<sup>17</sup> Ibid, Point no. 40.

<sup>18</sup> Ibid, Point no. 41.

- 5) The Patent cannot be granted if it is a prior art thus, in the case of AI it will be a challenging task to decide AI skilled in prior art<sup>19</sup>.
- 6) The issue of disclosure requirements of patents relating to AI up to the satisfaction of patent laws are there<sup>20</sup>. Whether AI will response the questions and meet the requirements of Budapest Treaty and how accountability of AI will be fixed<sup>21</sup>.
- 7) Relating to AI related inventions there are requirements of co-ordination among different jurisdictions and ultimately legal certainty is needed<sup>22</sup>.
- 8) The liability of AI is to be fixed if AI infringes patent laws<sup>23</sup>. Whether AI will alone be liable or every person connected to that shall also be held liable?

### ***Copyright and AI-Related Concerns***

- 1) AI is having the sufficient potential to produce creative work and it could pass the human creation. There are different laws to protect copyrighted work. Some countries have strict laws (only human creators are permissible) and some countries are very flexible laws to protect copyright specially to include no-human creators<sup>24</sup>.
- 2) India is one country which respects the creativity whether it is human being or non-human being like Holy Scriptures, Rivers and, animals and company are treated juridical persons. Such persons can possess the copyright<sup>25</sup>. Even courts of India have relied on the principles of modicum of creativity and this has been applied in many cases. India does protect database under the copyright law if the database is created by somebody and another person has copied it, this will be infringement of copyright law<sup>26</sup>.
- 3) The provisions in the Indian Copyright Act 1957 relating to authorship have wide scope and may include AI as author<sup>27</sup>.
- 4) Point 74 explains approaches of authorship in copyright law world-wide in following words-

“Three broad different approaches to authorship for AI creations can be found in jurisdictions across the world. The majority of countries, including continental Europe, Australia, and the United States require human creativity in their copyright law. Others, such as the United Kingdom, Ireland, South Africa, New Zealand, and India, adopted the wording of the UK Copyright Designs and Patents Act (CDPA), and award authorship to the person who arranged for the created work. It was originally based on the concept of “skill and labor” or “sweat of the brow.” Separately, Japan seems to be exploring a system, which would reward the investment put into the creation of a work.”

“According to a panellist, the CDPA language is best suited to answer questions of authorship for an AI-produced work. This because of article 9(3) of the CDPA which states that “In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.” That definition leaves originality out of the question.”<sup>28</sup>

- 5) No doubt AI produced challenges the basic principles of copyright like whether AI-created work can be treated as intellectual work in the sense of copyright law and if so

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<sup>19</sup> Ibid, Point no. 42.

<sup>20</sup> Ibid, Point no. 43.

<sup>21</sup> Ibid, Point no. 44.

<sup>22</sup> Ibid, Point no. 45.

<sup>23</sup> Ibid, Point no. 46.

<sup>24</sup> Ibid, Point no. 66.

<sup>25</sup> Ibid, Point no. 69.

<sup>26</sup> Ibid, Point no. 72.

<sup>27</sup> Ibid, Point no. 73.

<sup>28</sup> Ibid, Point no. 75.

whether threshold of creativity would be same as in case of human being<sup>29</sup>. Here the main problem comes to define “Intellectual Work” because different countries have different definitions of this term. Fundamentally, the intellectual work is judged or evaluated on the basis of originality and this concept of originality also differs in different jurisdictions and nature of work protected under copyright law<sup>30</sup>.

In some countries AI-created work may satisfy the statutory requirements but in some countries, requirements may not be satisfied for the same work<sup>31</sup>. In some countries the sweat of the brow doctrine is the criterion<sup>32</sup>.

- 6) Awareness of pre-existing work in the respective field is very important and on the basis of pre-existing work a new work is created and AI being a machine lacks that awareness conscience<sup>33</sup>.
- 7) If present copyright laws do not protect AI created work a special law should be made or new copyright laws transformation should take place to include AI-created work<sup>34</sup>.
- 8) If legislations of different countries are taking time to protect AI-created work under copyright laws, judiciary should take initiative on this and case to case basis this should be protected and problem may be solved. Other way may also be adopted by entering into multilateral international treaty<sup>35</sup>.
- 9) Following paragraphs are important to be looked into this matter-

“Panellists agreed that AI is getting very sophisticated and it is getting increasingly difficult to tell if a human has created a work, such as music or a painting, or not. A recurrent neural network dubbed “Bot Dylan”, trained with over 20,000 pieces of Celtic music (engineered by scientists from Kingston and Queen Mary Universities in London) is producing “very passable” folk music<sup>36</sup>.”

“The copyright status of those 20,000 pieces of music is impossible to discern, there are no authors, nobody knows who owns the music, and the project, which created that neural network, is almost a copyright-free area. The program generated codes, which are under open source license, as explained by a panellist<sup>37</sup>.”

### ***Conclusion given in Second and Third Summary Reports Regarding Definitions***

- 1) AI and AI related terms must be defined which should be unambiguous and clear although it is very difficult task because of several complicated factors like to define human intelligence. But to address the issues relating to AI and IP, these terms must be designed in such a way that may also include future framework also<sup>38</sup>. All states must be agreed upon such definitions<sup>39</sup>. Such definition should be designed keeping in mind AI created work independently (without human intervention), AI assisted work and AI as a tool<sup>40</sup>.

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<sup>29</sup> Ibid, Point no. 76.

<sup>30</sup> Ibid, Point no. 77.

<sup>31</sup> Ibid, Point no. 78.

<sup>32</sup> Ibid, Point no. 79.

<sup>33</sup> Ibid, Point no. 80.

<sup>34</sup> Ibid, Point no. 81.

<sup>35</sup> Ibid, Point no. 82.

<sup>36</sup> Ibid, Point no. 83.

<sup>37</sup> Ibid, Point no. 84.

<sup>38</sup> Point no. 15, WIPO CONVERSATION ON INTELLECTUAL PROPERTY (IP) AND ARTIFICIAL INTELLIGENCE (AI) Third Session Geneva, November 4, 2020 SUMMARY OF SECOND AND THIRD SESSIONS Document prepared by the WIPO Secretariat available at [https://www.wipo.int/edocs/mdocs/mdocs/en/wipo\\_ip\\_ai\\_3\\_ge\\_20/wipo\\_ip\\_ai\\_3\\_ge\\_20\\_inf\\_5.pdf](https://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ip_ai_3_ge_20/wipo_ip_ai_3_ge_20_inf_5.pdf) (Last visited on Jan. 24, 2022).

<sup>39</sup> Ibid, Point no. 16.

<sup>40</sup> Ibid, Point no. 17.

- 2) If AI created work or inventions are to be protected under IP laws, the definitions of author and inventor are to be revisited<sup>41</sup>.

***Regarding AI-assisted and AI-created work***

AI should be considered as an inventor but the question relating to ownership of patents is still unanswered<sup>42</sup>. The following paragraph is relevant here for this point-

A number of speakers observed that there are already applications pending for inventions that are claimed to have been autonomously generated by AI and that name AI as the inventor, with potentially divergent positions being taken on the patentability of such inventions. A speaker involved in the filing of these patent applications naming an AI as the inventor argued that when an AI system invents something, it should be named as the inventor. The intention of this approach is to prevent individuals from taking credit for work they have not done rather than to give rights to machines<sup>43</sup>.

It was also suggested that AI should be granted the status of moral co-inventor in inventions done autonomously and without human interventions<sup>44</sup>. Although other countries opposed this view that AI should not be granted the status of an inventor because patent laws are to incentivise human being, not machine and it will be a haste to make any law or policy changes on AI-created work<sup>45</sup>.

Relating to copyright protection to AI-created work, the following paragraph is noteworthy here-

“A number of views centered on the fundamental question of whether copyright protection should be granted to AI-generated works at all. One participant stated that no existing copyright regime could cover AI-generated outputs without doctrinal inconsistencies or imbalances between human-created and AI-generated works. Several more speakers voiced opposition to giving copyright protection to AI-generated works. Another speaker said that the notion of human authorship is a bedrock principle of copyright law, while the conceptualization of AI is still in flux. One speaker remarked that given the current, rapid growth of the AI sector, AI-generated works did not appear to lack incentives negating the need for copyright protection. Another speaker said that the technical nature of human inputs combined with the mechanistic nature of AI algorithms currently provides little ground to justify copyright protection for AI works. AI generated works should be in the public domain, the speaker added<sup>46</sup>.”

The following options are provided by the panellists relating to copyright protection of AI-created work<sup>47</sup>-

- a. AI is based on human creativity thus, AI should be considered a tool only for human authors.
- b. Because AI is capable enough to create work independently thus, AI-created work should be treated as derivative work.

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<sup>41</sup> Ibid, Point no. 24.

<sup>42</sup> Ibid, Point no. 31.

<sup>43</sup> Ibid, Point no. 32.

<sup>44</sup> Ibid, Point no. 33.

<sup>45</sup> Ibid, Point no. 35.

<sup>46</sup> Ibid, Point no. 36.

<sup>47</sup> Ibid, Point no. 37.

- c. A sui generis legislation should be made to deal with AI-created work and copyright protection should be given.
- d. Co-authorship should be given in AI-assisted or AI-created work<sup>48</sup>.

### ***Stand Taken by USPTO***

- USPTO has released a report titled “Inventing AI: Tracing the diffusion of Artificial Intelligence with US Patents<sup>49</sup>” in which the data of AI patents have been shown that in last 16 years (between 2002 to 2018), the AI related patents have been increased 100% and these patent applications reached from 30,000 to 60,000.
- In 2019, USPTO has prepared and issued revised guidance titled “Revised Patent Subject Matter Eligibility Guidance, 2019<sup>50</sup>”.

“USPTO's Subject Matter Eligibility Guidance in two ways. First, the 2019 Revised Patent Subject Matter Eligibility Guidance explains that abstract ideas can be grouped as, e.g., mathematical concepts, certain methods of organizing human activity, and mental processes. Second, this guidance explains that a patent claim or patent application claim that recites a judicial exception is not “directed to” the judicial exception if the judicial exception is integrated into a practical application of the judicial exception<sup>51</sup>.”

### ***USPTO AI Policy<sup>52</sup>***

“There are following questions posed by this policy-

- a) What level of detail is necessary in a patent disclosure as to the structure and functioning of the algorithm that underlines a new AI tool?
- b) Under what circumstances, if any, could a machine “conceive” of an invention?
- c) Could a machine be named as a co-inventor?
- d) What are the elements of an AI invention?
- e) What are the different ways that a natural person can contribute to the conception of an AI invention and be eligible to be named as an inventor?
- f) Do current patent laws and regulations regarding inventorship need to be revised to consider inventions where an entity or entities other than a natural person contributed to the conception of an invention?
- g) Are there any patent eligibility considerations unique to AI inventions?”

On the basis of the USPTO reports and instructions issued, we can reach to the conclusion that USPTO is still discussing the questions posed by the advent and development of AI technology and not yet reached to any concrete conclusions.

### ***European Union on AI and IP***

- A Study has been published by EPO Titled “Patent and Fourth Industrial Revolution<sup>53</sup>” in December 2017 in which it was shown that-

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<sup>48</sup> Ibid, Point no. 38.

<sup>49</sup> Available at <https://www.uspto.gov/ip-policy/economic-research/research-datasets/artificial-intelligence-patent-dataset> visited on 24.01.2022.

<sup>50</sup> Available at <https://www.federalregister.gov/documents/2019/01/07/2018-28282/2019-revised-patent-subject-matter-eligibility-guidance> (Last visited on Jan. 24,2022).

<sup>51</sup> Ibid

<sup>52</sup>WIPO,[https://www.wipo.int/export/sites/www/scp/en/meetings/session\\_32/comments\\_by\\_participants/usa\\_item6.pdf](https://www.wipo.int/export/sites/www/scp/en/meetings/session_32/comments_by_participants/usa_item6.pdf) (Last visited on 25.01.2022).

<sup>53</sup> Available at [http://documents.epo.org/projects/babylon/eponet.nsf/0/17FDB5538E87B4B9C12581EF0045762F/\\$File/fourth\\_industrial\\_revolution\\_2017\\_key\\_findings\\_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/17FDB5538E87B4B9C12581EF0045762F/$File/fourth_industrial_revolution_2017_key_findings_en.pdf) visited on 25.01.2022.

- More than 5000 thousand applications have been filed relating to AI for patent in 2016 and its growth is increasing very fast.
- Europe, Japan and USA are the main centers for the innovations relating to AI in 2016. Republic of Korea and Peoples Republic of China are also rapidly growing on AI.
- Europe. France and Germany are much a head on AI relating vehicles and manufacturing.
- European Patent Convention 1973 (Convention on the Grant of European Patents 5<sup>th</sup> October 1973 revised in 17<sup>th</sup> December 1991 29<sup>th</sup> and November 2000) in which Article 52 (1) defines Patentable Inventions as “European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application.” Thus according to this definition any invention may be patented either invented by human being or by non-human being.
- A virtual conference on 17 and 18 December 2020 on Role of Patents in an AI Driven World (this conference was based on success of EPO’s First Public Conference 2018)
  - The concept of data economy
  - The concept of AI as inventor; not as inventor because AI has no obligation in the society and cannot possess rights.
  - Before going to make any law, we have to measure the impact of AI in the society.
  - Ultimately AI or IP are for human welfare thus rules must be human centric not machine centric.
  - AI involving inventions were termed as “Computer-Implemented Inventions” thus proper guidelines have been issued to examine such inventions.

### ***EU on AI as an Inventor***

“The impressive developments in the area of AI have sparked suggestions that AI could invent just as humans can and that it should be accepted as inventor. From the perspective of inventorship, three categories of AI inventions may be identified-

- human-made inventions using AI for the verification of the outcome
- inventions in which a human identifies a problem and uses AI to find a solution
- AI-made inventions, in which AI identifies a problem and proposes a solution without human intervention”.

“In the first two categories, AI is used as a tool for human inventors, augmenting their capabilities. In the third category (AI-made inventions), scientists seem to agree that AI which could invent independently of human direction, instruction and oversight is a matter of undefined future and thus science fiction<sup>54</sup>.”

“There is a common understanding that the inventor is a human being: the person who created the invention by their own creative activity. This has been confirmed by an academic study on AI inventorship commissioned by the EPO and in the discussions with the EPC contracting states<sup>55</sup>.”

“Furthermore, the EPC requires that an inventor designated in the application be a human being and not a machine. The designation of an inventor bears a series of legal consequences, notably to ensure that the designated inventor is the legitimate one and that they

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<sup>54</sup> Available at <https://www.epo.org/news-events/in-focus/ict/artificial-intelligence.html> (Last visited on Jan., 25, 2022).

<sup>55</sup> Ibid.

can benefit from rights linked to this status. To exercise these rights, the inventor must have a legal personality that AI systems or machines do not enjoy<sup>56</sup>.”

“The legal concept of inventorship requiring a human being to be the inventor was challenged when two applications indicating an AI system (DABUS) as the inventor were filed with various patent offices worldwide. In 2019, the EPO refused these applications (EP 18275163, EP 18275174) on the ground that the EPC requires the inventor to be a natural person. The applicant filed appeals which are pending as cases J 8/20 and J 9/20. In June 2021, the EPO Legal Board of Appeal issued a preliminary opinion stating, among other things, that under the EPC the inventor must be a person having legal capacity. Oral proceedings have been scheduled for 21 December 2021<sup>57</sup>.”

“Corresponding applications have been filed with many patent offices around the world, including the United Kingdom's Intellectual Property Office (IPO), the United States Patent and Trademark Office (USPTO), the German Patent and Trade Mark Office (DPMA) and the Korean Intellectual Property Office (KIPO). All these patent offices have argued that the inventor must be a human being. The IPO decision was confirmed by the UK High Court. The USPTO and DPMA decisions have been challenged and the related cases are pending<sup>58</sup>.”

### ***Latest Stand of EPO on AI as an Inventor***

In the cases relating to J 8/20 and J 9/20, the “Legal Board of Appeal of EPO” has given its final take that AI cannot be named as inventor. This has been also clarified that only human being can be named as inventor in patent application. This appeal has been decided on 21<sup>st</sup> December 2021. The following paragraph is very relevant here for this point-

“The European Patent Office to refuse the applications EP 18 275 163 and EP 18 275 174, in which an artificial intelligence system called DABUS was designated as inventor in the application forms. The Legal Board of Appeal also refused the auxiliary request on the basis of- the designation submitted by the applicant not to be consistent with Article 81<sup>59</sup> EPC for two reasons. Firstly, it concluded that only a human inventor could be an inventor within the meaning of the EPC. For this reason, designating a machine as inventor did not comply with the requirements set out in Article 81 and Rule 19(1)<sup>60</sup> EPC. Secondly, the Receiving Section was of the opinion that a machine could not transfer any rights to the applicant. The Receiving Section considered therefore that the statement that the applicant was successor in title because they owned the machine did not satisfy the requirements of Article 81 EPC in conjunction with Article 60(1)<sup>61</sup> EPC<sup>62</sup>.”

## **Policy of Australia on AI and IPR**

The Government of Australia issued a “Draft Issues Paper on Intellectual Property Policy and Artificial Intelligence<sup>63</sup>” in which the government has discussed many issues

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<sup>56</sup> Articles 60 and 62 of “European Patent Convention, 1973”.

<sup>57</sup> Ibid.

<sup>58</sup> Ibid.

<sup>59</sup> Article 81- Designation of the inventor: The European patent application shall designate the inventor. If the applicant is not the inventor or is not the sole inventor, the designation shall contain a statement indicating the origin of the right to the European patent.

<sup>60</sup> “Rule 19- Designation of the inventor: The request for grant of a European patent shall contain the designation of the inventor. However, if the applicant is not the inventor or is not the sole inventor, the designation shall be filed in a separate document. The designation shall state the family name, given names and country and place of residence of the inventor, contain the statement referred to in Article 81 and bear the signature of the applicant or his representative.”

<sup>61</sup> “Right to a European patent- The right to a European patent shall belong to the inventor or his successor in title. If the inventor is an employee, the right to a European patent shall be determined in accordance with the law of the State in which the employee is mainly employed; if the State in which the employee is mainly employed cannot be determined, the law to be applied shall be that of the State in which the employer has the place of business to which the employee is attached.”

<sup>62</sup> Available at <https://www.epo.org/law-practice/case-law-appeals/communications/2021/20211221.html> (Last visited on Jan.25, 2022).

<sup>63</sup> Available at [https://www.wipo.int/export/sites/www/aboutip/en/artificial\\_intelligence/call\\_for\\_comments/pdf/ms\\_australia.pdf](https://www.wipo.int/export/sites/www/aboutip/en/artificial_intelligence/call_for_comments/pdf/ms_australia.pdf) (Last visited on Jan. 26, 2022).

relating to IP protection on AI generated works. The Government of Australia has clearly expressed its willingness towards the recognition of AI generated works to be protected under IP laws. The Government also said that the time has come to change our IP laws according to advancements of technology especially IP laws according to AI generated works. The Government further added that we should not feel any hesitation to protect AI generated work under IP laws.

## **India on AI and IPR**

### ***Anandi Chandrashekhar, Current Patent Laws are Inadequate For Artificial Intelligence-Related Intellectual Property: Report64 (Economic Times, 2019)***

In Mumbai, a report published by India's largest software exporter, Tata Consultancy Services in association with Confederation of Indian Industry, found that despite the evolution of patent laws, the increasing proliferation of artificial intelligence across the world necessitates new policies for the enforcement of intellectual property rights. Current patent laws treat AI software inventions as logical algorithms implemented on the computer.

There is not a single example where Indian patent office has granted patent to invention made AI. Patent law in India did not clarify whether it treat AI as inventor or not. According section 6 of the Indian Patents Act, 1970, requirement of being "person" (Natural or juridical) is the hindrance before grant of patent to AI because only "person" can file an application for patent.

### ***Copyright Office of India***

Copyright Office of India recognized AI as co-author. Raghav is an AI enabled painting app owned by Ankit Sahni. Ankit Sahni applied for copyright registration of an artistic work named "Suryast" and in the application form sole author was Raghav but Copyright Office refused to register the work with the sole authorship in the name of AI (Raghav). Ankit Sahni again applied for the copyright registration of the same painting under artistic work in the joint authorship; Raghav Artificial Intelligence Painting App (AI author) and Ankit Sahni (Human author) and the Copyright Office granted registration of the painting on 02 November 2020.

### ***Federal Court of Australia***

Federal Court of Australia became first court in the world which has recognized AI as inventor. On 30<sup>th</sup> July 2021, the Court has overturned the decision of the Delegate of Commissioner Patents of Australian Patent Office and said that AI (DABUS) can be inventor<sup>65</sup>. The following paragraphs are relevant here to convey the intention of Federal Court of Australia-

"At the time that the Act came into operation (in 1991) there would have been no doubt that inventors were natural persons, and machines were tools that could be used by inventors. However, it is now well known that machines can do far more than this, and it is reasonable to argue that artificial intelligence machines might be capable of being inventors."

"In this respect then, the word "inventor" is an agent noun. "Computer", "controller", "regulator", "distributor", "collector", "lawnmower" and "dishwasher" are all agent nouns. As each example demonstrates, the agent can be a person or a thing. Accordingly, if an artificial intelligence system is the agent which invents, it can be described as an "inventor"."

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<sup>64</sup> Tata Consultancy Services (TCS) report last visited at <https://economictimes.indiatimes.com/tech/ites/currentpatent-laws-are-inadequate-for-artificial-intelligence-related-intellectual-propertyreport/articleshow/72352323.cms?from=mdr> on 03.01.2020

<sup>65</sup> Thaler v. Commissioner of Patents (2021), FCA 879.

“Now whilst DABUS, as an artificial intelligence system, is not a legal person and cannot legally assign the invention, it does not follow that it is not possible to derive title from DABUS. The language of s 15(1)(c) recognises that the rights of a person who derives title to the invention from an inventor extend beyond assignments to encompass other means by which an interest may be conferred.”

### ***Examples of intellectual property to artificial intelligence*** **DABUS**

South Africa is the first country who recognized AI as inventor but not as patentee (not the owner of patent). DABUS is a device enabled with human like mind and it can develop ideas. This device was invented by Stephen Thaler, CEO of Imagination Engines.

### ***Dreamwriter66***

(A computer software works in robot). Tencent Technology (Beijing) Co. Ltd. developed Dreamwriter and licenced it to Shenzhen Tencent Copamny (Plaintiff). This computer programme generated one article<sup>67</sup> automatically on financial report and that was published in plaintiff’s website. One line has been mentioned at the bottom of the article that “This article was automatically written by Tencent's robot Dreamwriter”. The defendant copied the article and get it published in his own website on the same day. Here the court analyzed originality/creativity according to the Chinese law and concluded that the work created by the Dreamwriter is creative thus protected under the Chinese copyright law but here ownership was given to the team of the plaintiff not to AI as author. The following paragraph is relevant here to clear the court’s opinion-

“The question before the Court was two-fold, first, whether the involved article was ‘original’ as per Chinese law, and second, whether copyright of the article subsisted in the Plaintiff. On the first issue, the Court held that the article was reflective of the selection, analysis and judgment of the stock market information and data as available at that time, and to that extent, it possessed a certain degree of ‘originality’. The Court highlighted the detailed inputs of the Plaintiff’s creative team, based on which it concluded that if the software was to be the subject of creation, it would disregard the personalized arrangement and selection of the creative team. Accordingly, the Court declared the Plaintiff to be the author, based on an interpretation of Article 11 of the Chinese copyright law which grants authorship to the entity under whose supervision and direction the work is created.”

### ***Sophia68***

A humanoid the most advanced robot which is having human like mind and it is crafted like a human look (Female look “to look like British actress Audrey Hepburn<sup>69</sup>”). This robot was made by Dr. David Hanson (Hanson Robotics Hong Kong based company) in 2016. Sophia is first AI enabled robot to which legal citizenship of Saudi Arabia has been awarded. The following paragraph is relevant here about the Sophia-

“Sophia is a successful a-list artisan and craftsmanship pundit, in addition to being a mechanical technology symbol. One of his works was sold at closeout last April for about US\$690,000, or over 14.3 million Mexican pesos at the current exchange rate. Sophia, the world's first humanoid AI robot with citizenship, is currently in need of a robot child. Sophia's

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<sup>66</sup> Shenzhen Tencent v. Shanghai Yingxun Nanshan District Peoples Court 2019

<sup>67</sup> “Afternoon Comment: Shanghai Stock Index Rose Slightly by 0.11% to 2671.93 points, led by communications operations, oil exploration and other sectors”

<sup>68</sup> In Greek language “Sophia” means “Wisdom”.

<sup>69</sup> Available at <https://www.fairplanet.org/story/humanoid-sophia-has-more-rights-than-saudi-women-and-its-wrong/> visited on 26.01.2022.

AI is sensitive to the extent where she wants to start a family and be the "mother" of a robot kid named after her<sup>70</sup>.”

### ***Raghav Artificial Intelligence Painting App***

Copyright Office of India recognized AI as co-author. Raghav is an AI enabled painting app owned by Ankit Sahni. Ankit Sahni applied for copyright registration of an artistic work named “Suryast” and in the application form sole author was Raghav but Copyright Office refused to register the work with the sole authorship in the name of AI (Raghav). Ankit Sahni again applied for the copyright registration of the same painting under artistic work in the joint authorship; Raghav Artificial Intelligence Painting App (AI author) and Ankit Sahni (Human author) and the Copyright Office granted registration of the painting on 02 November 2020.

Although there are many examples of artificial intelligence which have capability of creations that may fulfill the requirements of IP laws for the purpose of getting IP rights like “Chat GPT”, “BARD”, “Ameca” etc. There is no dispute relating to creations of these AI and IPR and these AI have not been given any IP recognition by any of states or judiciary. Thus I did not discuss about these AI in detail. But in near future, probability cannot be denied that recognition under IP laws may be given to creations of these types of AI.

## **Conclusion**

At this stage it may be concluded that new technology cannot be stopped to be invented or created. As human being, we should welcome such new technologies. No doubt such technology may bring some challenges before the existing laws including IP Laws. But it does not mean that we should ban such technology or we should not recognise the creations/innovations by the technology. If there are some challenges before the IP laws regarding this, we should reform/make laws which should be able to meet such requirements/challenges of present and future needs either it is applicable on human being or technology. No doubt this has been seen that before the advancement in AI, only human being was the source of creation even animals (Naruto v. Slater case) were not treated as the source of intellectual creations even it meets the requirements of IP statute. But by the passes of time now we have many examples where copyright and patent laws recognised AI and AI creations/innovations. “DABUS” for patent and “Raghav” for copyright laws are the prime examples of that. It also has been noticed that many states still hesitate to recognise copyright and patent laws on AI created work or invention. But AI is at its baby stage and time is not far away when the world will not only recognise but also grant copyright and patent on AI created work and inventions. WIPO along with USPTO, EU and other states are talking about this and many talks already have been taken place. Such talks and negotiations will pave the path to AI in the field of IP laws including copyright and patent.

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<sup>70</sup> Available at <https://www.thehansindia.com/news/international/hong-kong-to-allow-residents-of-mainland-china-to-vote-in-election-716566?infinitescroll=1> visited on 26.01.2022.