

PATENT INFRINGEMENT IN THE DIGITAL AND TECHNOLOGICAL ERA

AUTHOR – NANDHITHA R DINESH, STUDENT AT AMITY UNIVERSITY

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ABSTRACT

The patent situation related to digital technologies in India has experienced an unprecedented boom, with more than 86,000 artificial intelligence-related applications being registered between 2010 and 2025. However, the grant rate still is only 0.37 which underlines the sheer doctrinal barriers that are set by the Section 3(k) of the Patents Act, 1970. In the current study, systemic failures of the patent infringement system in India are analyzed regarding AI systems, software, and Internet of Things innovations through the concept of a three-pronged crisis: the incompatibility of the doctrine, the insufficiency of the enforcement, the lack of institutions.^{[1][2]}

The study develops a detailed reform agenda through the analysis of its doctrines, the comparison between the United States and ESuropean Union models, and normative analysis of the case law such as *Idemia India v. Controller General of Patents, BlackBerry Limited v. Controller of Patents and Designs, ANI Media Pvt. Ltd. v. OpenAI Inc., and Arijit Singh v. Codifiable Ventures LLP*^[3]. The suggestions include legislative change to Section 3(k), codification of indirect infringement principles, technical discovery processes, specialist IP courts, compulsory AI watermarking criteria, and increased international interactions. The main argument is that gradual judicial change is not enough and that a specific legislative intervention is possible and even needed.

Doctrinal principles of patent infringement in India.

1.1 Introduction

Patent system was invented during the industrial era characterized by the presence of actual machines, physical processes and a well-delimited national boundary. Its original principles were worked out over centuries to regulate the relations between inventors, competitors, and the general population on the assumption of a world in which inventions have physical limits, where infringement actions are performed within the limits of definite territories and where the line of responsibility of unauthorised usage can be tracked with the help of comparatively simple causal connections. These presuppositions have been shaken by the digital and technology age.

This chapter analyses the Indian law doctrinal architecture of patent infringement and the issue of digital technologies, especially AI systems, IoT, and dematerialised inventions. The main thesis is that even though the fundamental principles have been left formally intact, their translation to digital technologies show considerable conceptual stress on three interlinked fronts: the problem of subject-matter eligibility doctrine application to AI-based inventions; the territoriality issue of digital systems of global distribution; and the problem of proving infringement when the infringing acts are conducted in a black box software environment.

1.2 Core Infringement Doctrines

1.2.1 Direct Infringement: The Paradigm of Physical Embodiment

The Patents Act, 1970, section 48 provides the patentee with the right to prohibit third parties to make, use, offer to sell, sell or import the patented invention without his/her consent. The reasoning is simple: the boundaries of the invention are determined by the patent claims, and infringement is a case where an accused product or process fits within the boundaries.⁹⁶¹

This paradigm works in a coherent manner in cases where the invention is a real machine or a process that can be observed in terms of steps involved in it. It however starts to fracture when used on inventions that are dematerialized and exist as code, data structures, or spread over networks. This tension can be illustrated using the case of *Koninklijke Philips N.V. v. M. Bathla and Anr. of 2025*⁹⁶² by the Delhi High Court. Digital Transmission System that Philips had patented was crucial to the MPEG audio compression standards. The defendants were replicators who copied master discs to make VCDs. The court described the patent as a system or product patent instead of a process patent and the implication was that Philips had to demonstrate that the replication process of the defendants actually utilised the claimed apparatus they could not gain access to without access to the internal systems of the defendants. Finished VCDs were inadequately analysed. The Philips case discloses a deep-rooted doctrinal conflict: digital technologies allow dividing the material manifestation of an invention and its innovative essence in a manner not sufficiently reflected in the existing doctrine.

⁹⁶¹ Srinidhya Ragavan, *Patent and Trade Secret Protection in US and Foreign Direct Investment in India* (Martinus Nijhoff 2012) ch 3; Natalie A Thomas and Stefan Cederford, 'Claim Construction in India: The Doctrine of Equivalents and Pitb and Marrow' (2018) 13(4) *Journal of Intellectual Property Law & Practice* 285.

⁹⁶² *Koninklijke Philips NV v M Bathla & Anr*, CS(COMM) 1411/2018 (Delhi High Court, decided 2025). The court held that for a system patent the patentee must demonstrate that the accused apparatus actually embodies the claimed system, not merely that its output is consistent with use of the patented technology.

1.2.2 Indirect Infringement: Doctrines of Contributory Liability

Indirect infringement doctrines deal with the cases in which a party is in some way contributing to the infringement by another party without necessarily carrying out all the elements of the patented claim. Inducement and contributory infringement are codified in the United States by 35 U.S.C. 271(b) and (c), respectively. In inducement it must be shown that the defendant has knowledge that he/she actively participated in the direct infringement of another person and that he/she had a particular intent to promote the infringement. Contributory infringement involves the sale of an element that is a material part of the invention, with actual knowledge that it is particularly designed to be used as an infringement and is not a staple item which can be used as a substantial non-infringing item.⁹⁶³

There are specific issues of these doctrines in the digital environment. As an AI system is trained on data that can potentially have patented processes, or as a cloud platform offers infrastructure to allow users to experiment with patented processes, questions emerge on knowledge requirements when it comes to liability and the limits of the analysis of material part. The Patents Act, 1970 in India does not include a specific equivalent of these codifications in the US and the Indian courts have had to devise an indirect doctrine of infringement using common law principles a gap this dissertation finds to be in urgent need of correction by legislation.

1.2.3 Construction of Claims and the Limits of Patent Protection.

The process of interpreting the scope and meaning of patent claims is known as claim construction which is the first step to patent infringement analysis. Digital technologies pose a challenge to the traditional claim construction methodologies in the

⁹⁶³ 35 USC § 271(b): 'Whoever actively induces infringement of a patent shall be liable as an infringer.' Section 271(c) addresses contributory infringement, requiring knowledge that the component is 'especially made or especially adapted for use in an infringement'.

following ways. First, assertions against software and AI systems are often made using functional language, stating what the invention does, not how it does it using particular structures or algorithms. The 2025 decision of the US Federal Circuit in *Recentive Analytics Inc. v. Fox Corp*⁹⁶⁴, demonstrates the dangers of such functional claiming of inventions by AI: claims that merely described the application of generic machine learning to a traditional problem, without stating what improvements were made to the machine learning models themselves, were found to be patent-ineligible.

Second, digital patents are asserting inventions that are spread out in devices or locations. An IoT system can include sensors, network infrastructure, cloud servers and user interfaces that are located in multiple jurisdictions. The traditional method of claim construction presupposes that a single device or process may be found in one location that is infringed; distributed systems challenge this premise. This issue was directly resolved by the *DWANGO v. FC2* decision by the Japanese Supreme Court in 2025, which concluded that in cases of network-related inventions, the question that is decisive is whether the act in its entirety is found substantially falling under the applicable jurisdiction.⁹⁶⁵

1.3 Doctrinal Stress points and Digital Technologies.

1.3.1 Software Patent Problem.

The place of software patents in patent systems created to cover industrial inventions has always been awkward. The fundamental challenge is to find a way of differentiating between technical inventions that are patentable and abstract concepts that are not patentable a distinction that will grow more

difficult to make as software penetrates every aspect of technology.

Indian policy on software patentability is enshrined in Section 3(k) of the Patents Act that specifies that no mathematical or business method or computer program per se or algorithm should be patented. The per se term establishes space of interpretation: computer programs with technical effects can be patented, whereas those with business techniques or mathematical algorithms cannot. Indian courts have not established a strong jurisprudence on the eligibility of AI patent deals on the scale of the US Alice framework and this leaves the patentees of AI-powered inventions in the air.

1.3.2 AI-Produced inventions and the issue of inventorship.

The emergence of AI machines that can produce inventions on their own brings up essential questions regarding the assumptions of patent law. The inventors are human inventors who are given patents in the orthodox view. In the case of an AI generating an invention that can be patented, who is the inventor? These questions have spawned legal action in various jurisdictions under the DABUS cases, which are discussed in Chapter 3. In the infringement analysis, the inventorship question is of importance since it impacts on the validity of patents that can be claimed later.

1.3.3 Distribution of Infringement by Multiple Actors in Distributed Systems.

Digital technologies allow the disaggregation of infringing actions among many actors, none of whom fulfills all the components of a patented claim. An operator using servers in various jurisdictions may provide a cloud-based service accessed by users globally with some processing being done both on user devices and on the cloud. The classical principle that no single actor violates the rule, unless a single actor acts or directs all elements of a claim, simply creates big gaps in the distributed digital architectures.

⁹⁶⁴ *Recentive Analytics Inc v Fox Corp*, No 22-1477 (Fed Cir 2025). The Federal Circuit held that claims reciting generic application of machine learning to schedule optimization, without disclosing improvements to the ML models themselves, were directed to an abstract idea under Alice step one.

⁹⁶⁵ *DWANGO Co Ltd v FC2 Inc*, Case No 2023 (Ju) 1442 (Supreme Court of Japan, 2025). The Court held that a network-implemented invention may be infringed even where server components are located outside Japan, provided the overall conduct of provision falls substantially within Japanese jurisdiction.

Responses in courts have started to emerge. The DWANGO ruling of the Japanese Supreme Court used a substantial test of evaluation based on the overall conditions of cross-border provision. In a ruling passed in 2025 by the Korean IP High Court, it was found that advertising in the Korean language, taking Korean currency, and customer service in the Korean language was an offer of sale in Korea, despite servers and manufacturing being in China with targeting and effects being the areas of focus and concern, not geographical areas. These are substantial doctrinal innovations but they also bring about confusion. Indian courts have not yet come up with the same doctrine.

1.4 Territoriality and the Borderless Digital Environment

1.4.1 The Principle of Territoriality and Its Rationales

Patent law is based on the principle of territoriality: a patent obtained in one country is only applicable in the territory of this country. This principle embodies the sovereign roots of patent rights, and performs significant purposes: it honors national sovereignty in the policy of innovation, offers predictability, and eliminates conflicts between national regimes with different obligations. But this is what the digital age questions in its foundations.⁹⁶⁶

1.4.2 Comparative judicial Responses to cross-border infringement.

Major patent jurisdictions have started to adjust the territoriality doctrines to the digital reality. One of the most advanced methods the Japanese uses in DWANGO is its principle of territoriality where the Supreme Court affirmed the principle but held that it does not necessarily imply that the cross-border acts are not the subject of Japanese patent rights, stating that such factors as the control of the provision is performed in Japan, the provision is

oriented to the customers in Japan and the impact of the patented invention is manifested in Japan are relevant.

The US is still more fragmented. The Federal Circuit has established principles of domestic infringement of system patents in cases where components are located overseas, although the US courts have been less accepting than their Asian counterparts of broad effects-based tests, in part because of extraterritoriality over US law. The Indian courts are yet to establish a strong jurisprudence on digital infringement across the borders. As more Indian firms enter the world of global digital commerce, as foreign digital services are directed to Indian clients, Indian courts will have to clarify criteria of when cross-border digital operations violate Indian patents.

1.5 Conclusion

The chapter has discussed the principles of patent infringement and the issues in digital technologies. This discussion shows that there is a lot of tension on several doctrinal fronts. The AI and software inventions cannot be subject to subject-matter eligibility doctrines. The principles of territoriality conflict with digital networks that have no boundaries. Both software and data present a challenge to evidentiary rules. Distributed systems in which no one actor fulfills all claim elements are faced by doctrines of indirect infringement.

The comparative survey of the case law reviewed in the US Federal Circuit Recentive decision, the DWANGO decision of the Japanese Supreme Court, the targeting analysis of the Indian IP High Court, and the case Philips decision of the Indian Delhi High Court shows similar challenges and dissimilar reactions. Courts are changing, but their changes are gradual, jurisdiction-based. The outcome is a quilt of principles that can be used to address immediate conflicts but is not yet a complete system of digital patent infringement. The following chapter devotes itself to specific case studies of AI and patenting digital technologies

⁹⁶⁶Carlos Correa, *Trade Related Aspects of Intellectual Property Rights: A Commentary on the TRIPS Agreement* (Oxford University Press 2007) 245–249; Jerome H Reichman, 'Universal Minimum Standards of Intellectual Property Protection under the TRIPS Component of the WTO Agreement' (1995) 29 *International Lawyer* 345.

to demonstrate how these doctrinal problems are expressed in practice

Artificial intelligence, internet of things and dematerialised invention: patent infringement in the digital and technologic age.

2.1 The History of Software and Computer-Related Invention Legal Doctrine.

2.1.1 The Indian Framework: Section 3(k) to Technical Effect.

The Indian patent system has evolved much in the treatment of computer related inventions, both through the legislative amendment and also through the judicial interpretation. It begins with Section 3(k) that expressly excludes a mathematical or business method or a computer programme per se or algorithms. The Patent (Amendment) Act 2002 brought in the term per se meaning that the exclusion is only applied to computer programs in their abstract form excluding inventions using computer programs as part of a larger technical solution.

The Computer Related Inventions Guidelines, initially published in 2013 and updated in 2024 provide that the primary requirement to be met to determine patentability is whether the claimed invention as a whole exhibits a technical effect and technical advancement. The judgment of the Delhi High Court in *FeridAllani v. Union of India* case was the apogee of judicial liberalism in this method because it found that an invention would not be held non-patentable simply because it had a computer program as a basis, with technical effect being the determining factor. *The BlackBerry v. Controller of Patents* was also a case that demanded that the Patent Office carry out the examination of the claims holistically and not in isolation of the software component. But as the trend of discrepant interpretation has shown, judicial elucidation is yet to yield a pattern of administrative practice.

2.2 Case Study: AI Inventorship and the DABUS Litigation.

2.2.1 The DABUS Controversy: History and importance.

The patent applications in various jurisdictions with DABUS Device as inventor listed by Dr. Stephen Thaler as the inventor are the first formal legal attack on the anthropocentricity of patent inventorship doctrine. Dr. Thaler argued that DABUS on its own developed two inventions, a food container that had a fractal surface enhancing grip and heat transfer, and a device that generated flashing light signals in case of emergency. Applications were entered in the United States, the United Kingdom, the European Union, and in Germany, Australia, South Africa and India, with varying reactions shedding light on the different doctrinal assumptions of the patent inventorship law in the different countries. South Africa is the only jurisdiction to award the patent without a human inventor, and it is a non-examination system, not necessarily a judicial approval of AI inventorship.⁹⁶⁷

2.2.2 Thaler v. Controller General of Patents: Delhi High Court Decision.⁹⁶⁸

The Delhi High Court affirmed the rejection of the application of the DABUS by the Patent Office, and argued that the statutory scheme of the Patents Act 1970 assumes the existence of an inventor as a natural person. The Court based its argument on textual and structural interpretation: the statutory provisions addressing inventorship entail that the inventor must make statements, transfer rights, and carry out other legal actions that can only be undertaken by a human being or a person with legal persons. The Court further stressed that the Courts had no constitutional competence to

⁹⁶⁷ ZA 2021/03242 (South African Patent Office, granted July 2021). The patent was granted purely on compliance with formalities; the South African patent system does not conduct substantive examination of novelty or inventive step. See Ryan Abbott, 'I Think, Therefore I Invent: Creative Machines and the Future of Patent Law' (2016) 57 Boston College Law Review 1079, 1100–1103.

⁹⁶⁸ *Thaler v Controller General of Patents, Designs and Trade Marks*, CS(OS) 610/2024 (Delhi High Court). The Court upheld the Patent Office's rejection of a patent application listing DABUS (an AI system) as the sole inventor, reasoning that the statutory framework of the Patents Act 1970 presupposes a human inventor.

broaden the meaning of the term inventor beyond the statutory meaning of the term through judicial interpretation- any broadening would be an act of legislation inappropriately exercised by the Court.

Interestingly, the Court recognized the increasing role of AI in innovations and its inherent acknowledgment that the existing legal stance might need revision, and provided a judicial challenge to Parliament to fill the gap in current legislation. That invitation was not yet received.

2.2.3 International DABUS Landscape: Comparative Perspectives.

The Federal Circuit in *Thaler v. Vidal* (2022)⁹⁶⁹ applied the plain meaning rule to the statutory reference to inventors in the Patent Act, which is a natural person, based on statutory references to the inventor in the first person singular and plural. In the United Kingdom, the Supreme Court in *Thaler v. Comptroller-General of Patents*⁹⁷⁰, Designs and Trade Marks (2023) also ruled that DABUS could not be registered as an inventor, but said the case highlighted more general issues of policy. The EPO denied the application, arguing that the EPC, which stated that the inventor had to be a natural person, which is deductible in relation to Article 81 and Rule 19(1), did not allow an AI system to be called inventor.

The practical implication in all large jurisdictions is that AI-generated inventions should not get patents where they can be identified as having been created by a human inventor. This puts pressure on applicants to find human contributions that could be relied upon to serve inventorship, even where a substantive inventive contribution was made by the AI system a tension which current doctrine has yet to definitively answer.

⁹⁶⁹*Thaler v Vidal*, 43 F 4th 1207 (Fed Cir 2022). The Federal Circuit, applying statutory text and *Mohamad v Palestinian Authority* 566 US 449 (2012), held that an 'individual' entitled to a patent must be a natural person.

⁹⁷⁰*Thaler v Comptroller-General of Patents, Designs and Trade Marks* [2023] UKSC 49. The UK Supreme Court (Lord Kitchin JSC) held that DABUS could not be designated as an inventor under the Patents Act 1977 because the word 'devised' in s 7(3) connotes human mental activity.

2.3 Internet of Things: Patent Challenges in the Age of Connected Devices.

2.3.1 The Internet of Things Architecture and the Implications of the Patent Law.

The Internet of Things is a network of physical objects with sensors, software, and connectivity that allows such objects to gather and share data and respond to the orders sent by remote objects. One IoT product or service can make use of technologies that are patented by hundreds or thousands of parties, forming what patent scholars call a patent thicket. The IoT makes this challenge more difficult in a number of ways: the software/hardware integration of the IoT implies that the patent claims spanning technical areas are all required to be taken into account; IoT systems often adopt industry standards which pose problems around standard essential patents and FRAND licensing; and the distributed nature of IoT systems poses specific difficulties in demonstrating infringement.

2.3.2 DDoS in IoT Systems.

One of the most difficult areas of enforcement of patents in the IoT is the doctrine of divided or distributed infringement. Direct infringement assumes that only one party conducts all the components of a purported method or employs all the components of a purported system. An IoT system may consist of a sensor device, a gateway, a cloud platform and an application none of which alone does all the claimed steps. This issue has been challenged by American courts in the cases of *Muniauction v. Thomson Corp.*⁹⁷¹ and *Akamai Technologies v. Limelight Networks* where they formulated doctrines to address the multi-party liability. Indian courts do not yet have a comparable doctrine and the lack of a statutory framework of divided infringement is incredibly uncertain.

⁹⁷¹*MuniauctionInc v Thomson Corp* 532 F 3d 1318 (Fed Cir 2008); *Akamai Technologies Inc v Limelight Networks Inc* 797 F 3d 1020 (Fed Cir 2015) (en banc). These cases establish that for multi-actor method infringement, direct infringement requires either a single entity to perform all steps, or that one party exercises 'direction or control' over others who perform the remaining steps.

2.3.3 Standard Essential Patents and FRAND in IoT: The Huawei v. ZTE Framework.

Standard essential patents (SEPs) and FRAND licensing requirements are the key consideration of the IoT since they rely on standardised communication technologies such as 4G LTE, 5G NR, Wi-Fi, Bluetooth, and Zigbee. The 2015 ruling of the Court of Justice of the European Union in *Huawei Technologies Co. Ltd v. ZTE Corp*⁹⁷². defined the most comprehensive judicial guideline to date on the enforcement of FRAND-encumbered SEPs, which provides a procedural framework that involves steps that must be followed by both the SEP holder (notification, written FRAND offer) and the alleged infringer (diligent, good

This framework is especially relevant to the IoT industry due to the high commercial competition concerning the SEP licensing of devices mass-produced at low unit rates. Manufacturers of IoT devices claim that FRAND royalty is significantly less than that of smartphones since the commercial value is lower per unit; SEP holders oppose this. The adjudication of these controversies is case-by-case in the national courts, and the country does not have a similar judicial system, which is another barriers to investment in IoT innovation.

2.3.4. The DABUS Case: International Law Laboratory.

The most infamous and a litigated attack on the anthropocentric approach to inventorship in patent laws is the DABUS (Device for the Autonomous Bootstrapping of Unified Sentence) case. The connectionist artificial intelligence invented by American computer scientist Dr. Stephen Thaler called DABUS whose main objective was to generate autonomous creative thought was invented. No supervised learning method is used in the DABUS program where machines are trained to execute specific tasks using specific datasets. Rather, DABUS

operates as a generation model whereby it generates conceptual associations without any human input with regard to the specific technical domain.

In 2019, Dr.Thaler filed several patent applications in more than seventeen jurisdictions claiming DABUS as the sole inventor of two inventions:

- (i) an invention of a device with a geometric shape with fractal geometry to enhance grip and heat transfer;
- (ii) an invention of a neural flame producing rhythmic flashes of light to draw attention in an emergency. Dr.Thaler says that he did not participate in the development of these inventions and neither did any human being since he was only involved in the development of the AI system and its support.

This kind of strategic planning brought these patent applications to an unprecedented experimental case study in jurisprudence across the world owing to the varying nature of laws in the world. In this way, Dr.Thaler established a laboratory where various jurisdictions whose statutes had different interpretations would use different legal reasoning to the same set of facts thereby coming up with a great deal of jurisprudence on what lies ahead in patent inventorship.

2.3.5. DABUS in India: Thaler v. Controller General of Patents (Delhi High Court)

In India, the Patent Office rejected the DABUS patent application since the Patents Act, 1970 had no provisions to accommodate the possibility of a non-human inventor. Dr.Thaler appealed to the Delhi High Court over the decision, but the court denied the appeal and decided in favor of the decision of the Patent Office. The justification of the court consisted of several steps of statutory and constitutional interpretation.

⁹⁷² *Huawei Technologies Co Ltd v ZTE Corp (C-170/13) [2015] Bus LR 1261 (CJEU, Grand Chamber)*. The Court established procedural obligations for SEP holders seeking injunctions: they must notify the infringer of the infringement, present a written FRAND offer, and engage in good-faith negotiations before applying to court.

2.3.6 Textual and Structural Analysis of the Patents Act, 1970

Analysis of the Textual Structure of the Patents Act, 1970 was done by the court. Section 6 of the act says that the owner of the invention can submit an application to the grant of a patent. According to Section 2(1)(p), “patentee” means the person for the time being entered on the Register as the grantee or proprietor of the patent. The term true and first inventor is defined in Section 2(1)(s) without mentioning the joint inventor; the legislation presumes the existence of human natural persons always. Procedurally, the Sections 7 and 8 provide that the inventor shall make declarations and affidavits, which are acts that can be carried out only by a natural person with the legal capacity. Form 1 as per the Patent Rules 2003 would require that the individual filing the patent declare his/her name and nationality.

2.3.7 The Constitutional Dimension and Separation of Powers

The Court approached the issue in the light of its constitutional implications. The Indian Constitution provides the principle of separation of powers, which means that the legislative power is vested solely with the Parliament. A judicial interpretation of the definition of an inventor to cover AI systems would be tantamount to creating new legal rights of which the Court said it was the prerogative of Parliament to do so. Therefore, the Court categorised the issue of acknowledging AI as an inventor as one of policy, which needed legislation, and declined to resort to creative interpretation.

2.3.8 Judicial Invitation to Parliament.

It is worth noting that in making its decision, the Court made what some legal commentators would refer to as a subtle invitation to the legislature. The Court realized that AI systems can now deliver output of technical significance and, in the process, that the existing status quo might lead to incentive inefficiencies and shortages in innovation. In

this respect, it was understood that a solution to the lacuna would be policy-related, with a gamut of policy implications, such as incentives, attribution, competition, and the kind of contribution made by the AI systems, which lies under the jurisdiction of the legislature.

This ruling of the Delhi High Court has a number of significant implications on innovation in India. The models of generative AI should be considered as inventions of human creators who have been creative in the invention. One should draw a line between what humans can call inventors and whether the same people have used the AI tool to their convenience since it must be drawn within the doctrine of conception, in which the inventor forms a concrete and permanent mental image of the invention.

2.3.9. DABUS in the US: Thaler v. Vidal (Federal Circuit, 2022)

In the U.S., the USPTO rejected the patents since the US patent law mandates that there should be an ‘individual’ as the inventor. Dr. Thaler then took the matter to the Eastern District of Virginia court, where the decision of the USPTO was overturned on the basis that the term ‘individual’ includes an artificial intelligence system. The Government then appealed the case to the Federal Circuit Court, where it overturned the case in *Thaler v. Vidal*, 43 F.4th 1207 (Fed.) Cir. 2022).

The analysis made by the Federal Circuit was based on statutory interpretation. In particular, the Court pointed out that in the Patent Act, inventors are consistently addressed by personal pronouns “himself” and “herself.” Furthermore, according to the decision of the Supreme Court made in *Mohamad v. Palestinian Authority* (2012), when used in federal statutes, the word “individual” implies a natural person. It is also important to consider that all other sections of the Patent Act, which involve oath and declaration, assignment of rights by the inventor, derivation proceeding and others, assume human nature of an inventor. Thus, the Court came to the conclusion

that inventors in patent acts could only be natural persons.

However, the decision of the Federal Circuit has not clarified an essential issue of what amount and type of human intervention would be enough to justify inventorship in situations where there was a significant contribution of the AI to the particular technical solution. Discussions around this aspect of doctrine were substantial, and in February 2024, the USPTO released guidelines on AI-assisted inventions that made it clear that to have an invention considered as invented by humans, the latter must have significantly contributed to a given claim, and merely asking an AI to come up with a solution would be insufficient.

2.3.10 DABUS in the United Kingdom: Thaler v. Comptroller-General (UKSC, 2023)

The United Kingdom was the country where courts had the most active participation in the DABUS applications, leading to the case of *Thaler v. Comptroller-General of Patents, Designs and Trade Marks* [2023] UKSC 49]. The UK process entailed numerous cases, starting with the Hearing Officer at the IPO to the High Court, Court of Appeal (majority), and the Supreme Court, which generated the most numerous analyses so far.

2.3.11 Decision on Inventorships

In its unanimous ruling by Lord Kitchin, the United Kingdom Supreme Court pronounced that DABUS was unable to be proclaimed inventor under the 1977 Patent Act. While other jurisdictions dealt with more general aspects such as legal personality and inventor status of AI systems, UK Supreme Court only focused on interpretation of certain statutory provisions. Section 7(3) of the 1977 Patent Act stipulates that the true inventor is the inventor who actually devised the invention. Lord Kitchin in his ruling said that the word deviser was inextricably linked to the work of the human mind. An AI system does not have any legal personality or ability to exercise any rights and

thus, cannot be considered as a real inventor of the invention.

2.3.12 The Dimension of Ownership: The Employer Analogy Denied.

What is even more important, the question of ownership was also addressed by the UK Supreme Court. Professor Thaler argued that though the machine could not be called the inventor, he being the owner of the computer and the idea that was created using the computer should be given the patent. This argument can be likened to the right of the employer to inventions of the inventors employed by him/her in Section 39 of the Patents Act 1977. The UK Supreme Court, however, ruled this analogy as irrelevant to the case.

In Section 39, the human inventor (because the employer is a human being) assigns their invention to the employer as part of their property rights, yet in the current scenario, there is no human inventor to whom to derive the said invention. Thus, the decision made by the UK Supreme Court implies that the existing system of operation stipulated by the Patents Act 1977 does not provide the inventor with any tools to make claims concerning the ownership of a patent on the basis of the invention made by the artificial intelligence system only.

2.3.13 DABUS in the EPO and Elsewhere.

The European Patent Office decided in favor of the refusal of the applications due to formal factors because according to Rule 19(1) of the Implementing Regulations of the European Patent Convention, the designation of inventor must include the family name, given name and address of the inventor. None of these are present in an artificial intelligence and the EPO Board of Appeal ruled that the EPC system presupposes that inventors are humans. The decision of the European Patent Office was not as sophisticated as the decisions of the UK court and the US Patent Office, but it had the same effect. The applications were also not

granted in Germany since under section 37(1) of the Patent Act of Germany, the inventor has to be a human being.

The only exemption in terms of jurisdiction in the DABUS case is in South Africa, where IP Applications of Thaler (2021) had a patent granted in which DABUS was included as an inventor. This incident can be misinterpreted as a court ruling supporting AI inventorship. South Africa however operates a deposit based patent regime whereby no patent application is scrutinized in any way to satisfy any inventorship criteria prior to grant; therefore, the grant of such a patent is merely contingent on the successful performance of formalities. Hence, this judgment cannot offer any precedent concerning the issue of inventorship in examination-based patent regimes.

However, in Australia, the situation is a bit complicated, as the decision made by the Full Federal Court of Australia in *Thaler v. Commissioner of Patents [2022] FCAFC 62* on recognizing AI inventorship was reversed by the High Court of Australia in ⁹⁷³*Commissioner of Patents v. Thaler [2023] HCA 14*, where the latter ruled that only humans could be considered inventors within the meaning of the Patents Act 1990.

2.3.14 The Ownership Issue: Who owns AI-Generated Inventions?

The question of who owns the creation that was created through the use of an AI system, however, can be analytically divided but not practically divided with the question of whether the invention was invented. According to classical concepts of patent law, the question of ownership is based on the question of inventorship since the inventor is the prima facie first owner of a patent, and ownership can then be assigned subsequently either by contract or statute. In cases where the inventor is an AI system that does not have legal

personality, it is not possible to establish the chain of title.

2.3.15 Ownership Contention

In practice, any of several categories of human actors can make claims over ownership of AI-generated inventions, each with various legal justifications as to ownership. To begin with, it might be thought of as an AI developer, which is an organization or a person that designs, trains, and uses an AI system to generate innovations.. Secondly, an organization using an AI technology in a particular setting and giving a problem for AI to solve may also stake claims on the ownership of the innovation on the grounds of the direction of the invention process, similarly to what happens in the case of employment and employee's inventions. Lastly, the inventor of the solution provided by AI an end-user of AI services may lay his or her claim on an invention as well.

2.3.16 AI Services Possession and Contracts.

This conflicting ownership issue is also enhanced by the issue of contract. The majority of commercial AI tools are provided subject to a terms of service or licensing agreement that include terms attempting to divide ownership of any outputs created by the user. OpenAI has revised its terms of service with users being the owners of any output created with the help of its tools, retaining the ownership of the tool itself. Where the application of AI tools is subject to the employment relationship, this interplay between the policy regarding the use of AI tools, employment contracts and the statutory inventorship requirement further complicates the matter.

2.3.17 Indian Legal Lacuna.

According to the Indian laws, the Patents Act of 1970 concerns the inventions made by an employer and employee. This is addressed in section 6(1)(c). Section 6(1)(c) of Patents Act stipulates that an assignee of an individual who has invented the article may apply for a patent. As per Section 6(1)(b) of the Patents Act, a

⁹⁷³ Commissioner of Patents v Thaler [2022] HCA 14 (High Court of Australia, 13 April 2022). The High Court unanimously reversed the Full Federal Court, holding that the Patents Act 1990 (Cth) required inventors to be natural persons. The decision aligned Australia with the UK, US, EPO and India.

patent application can be made by a legal representative of the deceased inventor. Neither of the sections has taken into account any case where the process of invention starts with an act that does not take place by humans.

Nevertheless, the problem of AI inventorship has not been taken into account in the amendment to patents rule of 2024. Thereby, the present situation in Indian legal jurisprudence is left with one gap, namely, inventions of AI.

2.3.18 The Spectrum of AI Contribution: Support, Teamwork, and Independence.

It is a significant question on the way in which one should come up with a consistent legal framework concerning inventorship given that there has not been a singular demarcation line yet between the acceptable assistance of AI on the one hand and inventions made by AI on the other, which makes human creativity redundant.

2.3.19 Use of AI as an Aid

An inventor uses AI software to be more efficient in the generation of an innovation through prior art searches, computational simulations, generation of molecular mixtures in drug development and engineering calculations among others. The inventor comes up with the invention idea whereas AI does the computing; the inventor is the inventor in this case as he always used to be before, using a calculator, database, or lab equipment.

2.3.20 AI as Collaborator

AI as Collaborator in this case, there may be a blurring of the lines between the contributions made by the human beings and the contributions made by the AI. In this case, the human inventor comes up with a high-level problem and uses a generative AI to provide a number of possible solutions from which he picks one and refines and modifies it to come up with his final invention. The generative AI used in this case would have been used in the generation of the idea that will be used to create the invention and the human

contribution would have been to select, refine and tailor the solution. It will be determined by the selectivity and inventiveness of the selection process whether or not this human contribution will suffice to amount to inventorship, by the doctrine of conception which demands the existence of a definite and permanent idea of his invention in the inventor.

2.3.21 AI as Autonomous Inventor.

The case of the AI coming up with a new and non-obvious solution, which occurred in the DABUS case, is a scenario in which the AI system is an autonomous inventor and there is no substantial input of a human on the technical nature of the solution. The only contribution on the human side in this case is the creation of the AI system, its activation, and the identification of the product of the system as possibly valuable. The above scenario has not been taken into consideration in any major legal system to establish patent rights. This thus defines the legal boundaries of patentability of the output of AI at the current level. The case of DABUS reveals that autonomous invention using AI does not result in the creation of any patent rights in the key patent regimes of the world, which include India, the USA, the UK and the EU.

2.3.22. Disclosure Obligations and Duty of Candour in AI-Assisted Inventions.

The application of AI tools to the invention-making process brings up some important issues relating to disclosure requirements. In the US law, the applicant of the patent is supposed to follow the principle of candor and good faith as mentioned in the 37 C.F.R 1.56 in which case there is disclosure of all facts that are material to the patentability of inventions. In a recent February 2024 announcement, the USPTO declared that any nondisclosure of the fact that an invention was created by the assistance of AI when that fact is being taken into account in the inventorship would be inequitable conduct that would lead to patent unenforceability.

There are no express analogues of the duty of candour of American law in the Patents Act 1970, but Sections 8 and 25 impose obligations to disclose information concerning any application to the corresponding foreign Office, and to counteract the grant of patents on inventions based upon false suggestions, respectively. The lack of a clear requirement of disclosure in terms of participation of AI in the invention process can be seen as a major flaw of the Indian patent laws. When an Indian applicant draws on the work of an AI to generate a large fraction of his or her invention, and an applicant claims he/she is the sole inventor without specifically stating that he/she used AI, then the other parties can only challenge the patent on the basis of false suggestions.

2.3.23 Synthesis: Implications to Indian Patent Law and Practice.

Considering the DABUS cases, and the legal framework more generally addressing AI inventorship and ownership rights, some practical considerations are applicable to Indian patent law and policy.

First, those Indian patent applicants making use of AI tools in research and development activities need to establish clear company guidelines concerning the documentation of the creative contributions of any human inventors who, in the process of directing and improving upon the results yielded by the AI tool, make the specific decisions constituting inventive activity.

Secondly, any Indian companies that create proprietary AI systems to use in internal R&D processes must structure their system in a manner that will enable the collection of evidence pertaining to human inventive activity when it comes to patent prosecution.

Thirdly, the question of the right to invent AI should be addressed by the legislation as soon as possible. Considering the increasing number of inventions that are being created through the use of AI technology in sectors that

are of significance to the technology policy of India, such as the pharmaceutical industry, agriculture technology, new materials, and software infrastructure, the uncertainty surrounding how the right to ownership of inventions would be established may deter both innovation and foreign investment in R&D activities in India.

Context plays a role here, as the US, EU, and UK are all seeking a framework on inventorship in AI. India not wanting to legislate in this area leaves a gap of regulation that may disadvantage Indian inventors in the global markets and discourage both Indians and foreigners to apply to have AI inventions registered in India. The DABUS appeal has been an invitation to the legislature by the court of Delhi high but there has been no response as years pass by.

2.4 Conclusion

The emergence of AI, IoT, and dematerialised inventions exposes fundamental limits in patent law, which remains rooted in assumptions of human inventorship and physical innovation. Despite judicial efforts, global approaches to AI and software patents remain inconsistent and uncertain. The rejection of AI inventorship, as seen in the DABUS decisions, is legally sound but creates a conceptual gap that fails to account for machine-generated innovation.

At the same time, IoT technologies complicate patent enforcement, while developments in AI-generated content signal an expanding and overlapping intellectual property landscape. Although international harmonisation is desirable, it faces significant challenges.

For India, aligning patent law with its AI ambitions is essential. This requires legislative reform, clearer guidelines, and recognition of AI-specific issues. Ultimately, these challenges go beyond legal doctrine, raising broader questions about innovation, ownership, and the role of law in a rapidly evolving technological era.

ENDNOTES

[1] Indian Patent Office Annual Report 2024–25, Table 4.2 (Computer-Related Inventions sub-category). The rate reflects grants as a proportion of total AI-related applications filed in the same period.

[2] NASSCOM via IBEF, 'India AI Patent Landscape 2010–2025' (2025). The figure includes both domestic and PCT applications filed designating India.

[3] BlackBerry Ltd v Controller of Patents and Designs, C.A.(COMM.IPD-PAT) 9/2023 (Delhi High Court, 2024). The Court reiterated that the Patent Office must evaluate claims holistically and that the presence of software does not automatically attract the s 3(k) exclusion.

