



Inside India's IP Market: a Guide

2024

**Navigating Patent Protection Within
the Context of AI**

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2024

The first edition of *Inside India's IP Market* provides invaluable on-the-ground intelligence and analysis on a range of trademark and patent topics, covering every stage of the IP lifecycle and the unique challenges and opportunities facing rights holders in India.

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Navigating Patent Protection Within the Context of AI

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Summary

[INTRODUCTION ON AI](#)

[INDIA AND THE DAWN OF THE AI ERA](#)

[SCOPE OF PROTECTION FOR AI INNOVATIONS](#)

[IP ISSUES FACING AI-BASED INNOVATION](#)

[PATENT LANDSCAPE FOR AI IN INDIA: UNCHARTED TERRITORY?](#)

[PATENT RIGHTS AND AI IN INDIA](#)

[SUBJECT MATTER ELIGIBILITY UNDER THE ACT](#)

[EPO AND UK APPROACHES TO AI-INVENTIONS](#)

[WRITTEN DESCRIPTION REQUIREMENTS UNDER THE ACT](#)

[OWNERSHIP OF AI-GENERATED INVENTIONS](#)

[THE WAY AHEAD](#)

[ENDNOTES](#)

INTRODUCTION ON AI

While the field of artificial intelligence (AI) has a history spanning more than 50 years, its significant impact has emerged as a relatively recent phenomenon, particularly within the past decade. From applications that are more often used, such as human face recognition and artificial face generation, to generating automated recommendations on online platforms, computer-aided diagnoses, game-playing programs and self-driving cars, the groundbreaking influence of AI is evident in our daily lives. Such innovations utilise machine learning (ML) techniques that implement a learning process that enables the AI-based tools to perform the aforesaid functions. ML techniques are capable of automatically detecting (and learning) meaningful patterns in large volumes of data (referred to as training data) and applying such patterns for accomplishing specific tasks. The determination or identification of such patterns, which would not have been possible through execution of automated instructions (ie, computer programs) or through manual intervention alone, leads to innovations for which protection may be sought.

INDIA AND THE DAWN OF THE AI ERA

A great deal of attention has been given to AI in India. The integration of AI into different sectors has brought about an operational ease, as well as an innovative push. Owing to its widespread applicability, we are currently witnessing a paradigm shift in the creation of novel and creative works. With a proliferation of use of AI, seminal concerns and issues over the interface between AI and intellectual property (IP) have gripped jurisdictions across the world and are now also bracing Indian shores. Resolving these concerns is of great significance for different stakeholders, considering that the AI industry is shaping up to add more than US\$900 billion to the Indian industry by 2035.¹

SCOPE OF PROTECTION FOR AI INNOVATIONS

Any innovation should be protected. IP protection for innovations provides a slew of benefits, including exclusivity, unique market advantages, revenue generation and strategic business positioning. Patents play a crucial role in fostering innovation while providing innovators and businesses with the necessary platform to capitalise on their inventive efforts. Although legal frameworks for the protection of technological innovation exist, no specific or dedicated legislation has been enacted for protecting AI innovations. This has become important considering certain specific challenges that AI as a technological paradigm itself poses when considered under the current IP framework.

IP ISSUES FACING AI-BASED INNOVATION

Although the current IP framework is generally sufficient for assessing IP in AI innovation, certain aspects have posed considerable issues. Principal among them are two issues that have been considered as central towards extending IP protection to AI-based innovation. First, improvements in the quality of output of generative AI models have resulted in creative works that may be eligible for IP protection. The issue herein lies in the controversy of whether generative AI models qualify as authors or inventors for the works created by them, especially when created without any human intervention. Secondly, a rather nuanced issue has emerged regarding the patentability of AI inventions. This includes scaling the statutory bars to patentability and also the mandate that requires that sufficient disclosure that would enable a person skilled in the art is present in the written description. This written disclosure

forms a part of the patent bargain, which justifies the grant of limited monopoly over the invention as an incentive for disclosing the same to the public.

AI challenges and raises fundamental questions involving IP protection. The present article, however, focuses on issues pertaining to patents in India and briefly touches upon certain issues pertaining to other fields of IP, such as copyright, trademarks and trade secrets.

PATENT LANDSCAPE FOR AI IN INDIA: UNCHARTED TERRITORY?

A patent gives the patentee a right to exclude others from making, using, selling, offering for sale and importing any product that embodies the claimed invention.² Subject to the exclusions specified under the Patents Act 1970 (the Act), a patent may be granted for all fields of technology.

AI-based or AI-related innovation would undoubtedly qualify as a technical field that may be protected under the Act. Broadly, AI inventions may be categorised under the following categories.

INVENTIONS PERTAINING TO AI TECHNOLOGIES

The present field would include innovation involving the development of one or more AI tools – for example, developing new AI algorithms or improving existing algorithms. Some of the popular machine learning algorithms include, but are not limited to, linear regression, gradient descent, logistic regression, support vector machines and decision trees.

AI-ASSISTED OR AI-BASED INVENTIONS

These include innovations that use AI tools for implementing certain specific applications. The innovation in such instances does not lie in the AI tools used, but in the use of the AI for achieving a technical objective. Examples include facial recognition, language processing and drug discovery.

AI-GENERATED INVENTIONS

This refers to innovation or solutions that may be determined or derived by the AI tool without any human intervention. One of the most famous examples of these inventions is the DABUS. DABUS (Device for the Autonomous Bootstrapping of Unified Sentience), is an artificial intelligence system created by Dr Stephen Thaler. DABUS gained attention in the context of patent law since it was designed to autonomously generate inventions, without direct human intervention.

PATENT RIGHTS AND AI IN INDIA

Although the Act was passed in 1970, the Indian patent framework is in a state of change. With the abolishment of the Intellectual Property Appellate Board (IPAB), the high courts have now been charged with handling a large proportion of IP-related issues. This has led to the evolution of the IN patent jurisprudence, with the high courts deciding on many fundamental issues pertaining to patent law in India. Although evolving (and in the right direction), the Act and jurisprudence has yet to specifically factor in certain issues that are unique to AI inventions. Despite the issue of ownership of inventions by AI stealing much of the attention, there are still certain aspects that may create issues that would have to be considered when entering into India. These include:

- subject matter eligibility;

- written description requirements; and
- ownership.

SUBJECT MATTER ELIGIBILITY UNDER THE ACT

Any invention (not only AI inventions) would be examined and assessed with respect to section 3 of the Act. Specifically in the context of AI inventions, the subject matter would be assessed with respect to section 3(k) of the Act. Section 3(k) of the Act is provided below:

The following are not inventions within the meaning of this Act,—

- (k) a mathematical or business method or a computer programme per se or algorithms

The legal basis for assessing patentability under section 3(k) of the Act has been established by the erstwhile IPAB and Delhi High Court in a number of decisions,³ determining that the presence of technical effect or contribution is the correct basis for assessing patentability under section 3(k). In the case of *Microsoft*,⁴ the Courts have held that the technical effect or contribution can be demonstrated by showing that the invention solves a technical problem, enhances a technical process, or has some other technical benefit.⁵ In the same paragraph the courts had proceeded to hold that:

The mere fact that an invention involves a mathematical or computer-based method does not automatically exclude it from being patentable. The invention can still satisfy the patentability requirements, including the requirement for a technical effect or contribution, to be eligible for patent protection. In other words, method claims in computer program patent may be patentable if it involves a technical advancement and provides a technical solution to a technical problem and has an improved technical effect on the underlying software.

Although the term 'technical effect' has not been defined, the IPAB's decision in the case of *Ferid Allani* had provided some exemplary indications that may be relied on to assess whether the claimed subject matter has a technical effect. AI inventions would be patentable as long as the subject matter is to provide a technical solution to a technical problem. The courts have clearly indicated that such subject matter cannot be held to be non-patentable only because it is implemented on a computing system.

In the context of AI-related/assisted inventions, where an AI tool may be used for an end application or for 'generating' a technical solution, it may be possible to establish the claimed subject matter as being patentable since either end result would be directed towards overcoming a technical problem. Generally in such cases, the claims may relate to a technical process that is implemented using the AI tool (but the claims may not relate to the AI tool itself).

EPO AND UK APPROACHES TO AI-INVENTIONS

Owing to the similarity in the provisions pertaining to subject matter eligibility for computer-related invention, the principles in the European Patent Office (EPO) and the United Kingdom have had persuasive value in India.

In the context of AI-assisted tools,⁶ the Guidelines for Examination in the EPO recognise that artificial intelligence and machine learning find applications in various fields of technology. The Guidelines indicate that where the AI and ML may be used for technical applications or for a technical purpose, the subject matter under consideration may be patentable. From the Guidelines, it may be gathered that only such subject matter (ie, the subject matter involving the AI-assisted invention) would be patentable if it serves a technical purpose.⁷ Where the subject matter does not involve a technical purpose, such subject matter would not be patentable. These principles would apply in a similar manner to both AI tools and for AI-generated inventions (the resulting output being either an AI-assisted invention or an AI tool).

The position in the United Kingdom is slightly different to the EPO approach for AI tools (ie, inventions that involve the development of one or more AI tools – for example, developing new AI algorithms or improving existing algorithms). The UK High Court in the case of *Emotional Perception AI Ltd v Comptroller-General of Patents, Designs, and Trade Marks*⁸ recently held that artificial neural networks (or ANN) (which is nothing but an AI tool) are patentable under UK patent law. The present judgment was handed down for appeal against a decision of the UK patent office that had rejected the patent application, citing that the claimed subject matter fell squarely within the scope of the exclusion defined under section 1(2) of the UK Patents Act 1977. The High Court had held that the ANN as such is not a program for a computer. The Court on the question of technical effect also held that the ANN provided sufficient technical effect outside the computer in providing the audio file determined to be semantically similar to a target audio file. It is pertinent to note that such subject matter was not assessed for want of a technical purpose (as per the EPO approach).

In the context of the Indian patent framework, it remains to be seen which approach is adopted by the Patent Office and the Courts. It may be gathered that the UK approach, if adopted, will make it easier for AI tools (and consequently other AI inventions) to overcome the statutory bar under section 3(k), as generally any AI invention would be affected onto data elements lending it the appropriate technical effect.

WRITTEN DESCRIPTION REQUIREMENTS UNDER THE ACT

The written description requirement is one of the fundamental principles within patent law that is common to many jurisdictions. Similar in principle, the wording of the corresponding provision may differ between different regions. In the United States, section 112 of the Patent Act mandates an 'enabling' written description, encompassing a comprehensive delineation of the invention and the methodological details for its realisation. Under the European Patent Convention (EPC), article 83 requires that detailed description discloses the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. Similar provisions also exist in India, with the Act providing that the complete specification shall fully and particularly describe the invention and its operation or use and the method by which it is to be performed.⁹ The present requirement is assessed during substantive examination and is available as a ground for opposition¹⁰ (both pre-grant as well as for post-grant oppositions) and for revoking a granted patent.¹¹ As may be gathered, the above provisions require that sufficient information pertaining to how the inventions work should be made available in the detailed description. The requirement of enabling disclosure is a widely followed standard that can be observed from article 29(1) of TRIPS Agreement as well, which requires member states to mandate disclosure of invention in a sufficiently clear and complete manner.

For most computer program inventions, meeting this standard is not controversial and, in many cases, may be considered less burdensome when compared to other technical fields (eg, pharmaceuticals and biotechnology). The nature and operation of the computer program may be described in considerable detail and the output of a computer program or software can be determined.

That is far from the case in relation to AI inventions. ML algorithms are trained on training data to identify patterns and generate predictions. The written description requirements are very relevant in the context of AI inventions. As may be understood, the functioning of the AI model may be so complex that it may not be possible to determine the decision-making process that the model implements. The inability to ascertain such a decision making process by AI models (eg, deep learning algorithms) is commonly referred to as a 'black box problem'. This may pose an issue since the patent description is required to explain how the invention works, which owing to the black box problem may not be possible.

As the number of patent applications (involving AI inventions) being examined increases, this issue may have to be addressed soon or else it may severely impact the grant of patent applications. Considering that it may not be possible to determine how the underlying AI makes decisions, this may pose a challenge when evaluating (or defending) patent applications pertaining to AI inventions.

In India, there is yet to be a case that would define the bounds of the written description requirement for AI inventions. In the United States, patent applicants must provide sufficient implementation details for their AI inventions. Over the past five years, the Patent Trial and Appeal Board (PTAB) in various decisions has preferred specific implementation details over overtly broad or generic description for achieving the claimed result.¹² Where the description may be generic and insufficient (ie, the description does not explain how the AI inventions could be used to achieve the claimed functionality or objective), the patent application is liable to be rejected. The PTAB has also ruled in favour of patent applications where the detailed description omits adequate implementation details to train and use the generic machine learning algorithm to achieve the claimed result.¹³

The standard of scrutiny followed by the EPO is far stricter compared to that followed by the USPTO. For example, in one of the most seminal cases on this subject, *T0161/18 Äquivalenter Aortendruck/ARC SEIBERSDORF*,¹⁴ the Technical Board upheld the rejection by the Examining Division for lack of sufficient disclosure of training data under article 83 EPC. The Technical Board held that, when claiming specific applications of AI, the detailed description should specifically characterise training data (ie, describe the type of training data and other attributes of such training data) for the patent application to conform with the requirements laid down under article 83. Specifically, the Board held that the training data submitted by the applicant indicates only its broad range and doesn't specify the input data or data set suitable for the artificial neural network that is to be trained. This would inhibit a person skilled in the art from carrying out the invention and, therefore, the application was hit by insufficient disclosure. The USPTO did not find any insufficiency in disclosure and permitted the application to proceed for grant.

It remains to be seen as to whether India will adopt the EPO or the US approach. In any case, it is very likely that the present issue is likely to be settled by courts. In the absence of any specific guidance available for India, it is advisable to err on the side of caution and provide additional details wherever possible. Specifically, patent applications should recite

or characterise their training data and bear in mind that sufficiency as required under patent law should not end up being sacrificed for sake of generality.

OWNERSHIP OF AI-GENERATED INVENTIONS

Perhaps the biggest technological rush in the field of AI was observed with the proliferation of generative AI. These models allow their users to generate novel and original works through an input of a wide range of data, including text, images and 3D models. Concomitant with this have been the claims of inventors of the AI models requesting grant of IP rights over the works to them or the AI itself. This has stumped IP officials across the map. Primarily, the issue of extending IP protection to AI generated works is observed in claims of patent (and copyright). Traditionally, in both IPs, inventorship and authorship rights are granted to legally recognised persons.

Although not specifically argued before any legal forum, in India, the Patents Act does not define the term 'inventor'. Section 6 of the Act permits only 'persons' to apply for patents. In the absence of any clarity, it would appear that it is only natural persons or legal persons who would qualify as patent applicants. This would be in line with the approach of US courts. The US Patents Act defines an 'inventor' as an individual. This was interpreted to be limited to natural persons in the landmark case of [Thaler v Vidal](#). The Federal Court had refused to interfere with the District Court's decision under appeal that upheld the USPTO's decision of refusing grant of patent to Stephen Thaler's invention on account of lack of mentioning a natural person as the inventor. The application under scrutiny mentioned DABUS, an AI system, as the inventor of the patent. Thaler's applications for a patent in the name of DABUS have been refused in various other jurisdictions as well, including the United Kingdom, EPO and [Australia](#), with the only exception being [South Africa](#). Interestingly, the Australian Federal Court proposed that the following persons may be considered as inventors for autonomous AI inventions:

- the owner of the machine upon which the artificial intelligence software runs;
- the developer of the artificial intelligence software;
- the owner of the copyright in its source code; or
- the person who inputs the data used by the artificial intelligence to develop its output.

THE WAY AHEAD

AI is currently operating in a vacuum of dedicated legislative attention, and thus it is imperative to understand the implications of the Indian IP framework to several burgeoning issues, and work towards readiness so as to avoid any disruptions. Several IP offices have engaged in [public consultations](#) and have even launched [examination guidelines](#) for AI inventions. On its end, WIPO is pioneering an all-inclusive forum known as the [WIPO Conversation on IP and AI](#) to bring together member states to discuss, deliberate upon and adopt uniform solutions to address this interface. Despite these initiatives, there is still a lot that remains to be determined in the AI-IP space.

Similar initiatives should be undertaken by stakeholders in India as well.

In conclusion, the challenges and issues in AI inventions revolve around the intricate and evolving nature of AI algorithms itself, presenting a complex landscape for patent offices, inventors and policymakers to navigate. Addressing these challenges is crucial for

maintaining the balance between fostering innovation and upholding the principles of patent law.

Endnotes



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