



iam

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An Indian patent law perspective**

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Are we ready for AI disruption? An Indian patent law perspective

By Pankaj Soni and Kartikay Vikrant Singh, Remfry & Sagar

The earliest foray into the realm of artificial intelligence (AI) arguably took place in 1956, during a summer workshop at Dartmouth College that studied “the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it”. More than 60 years later, that attempt to explore how machines could be made to use language and form abstractions and concepts in order to solve problems that so far were the sole preserve of humans has fructified into an area of technology which has entrepreneurs (and businesses) rushing to jump on the bandwagon. It is predicted that by 2020, AI will drive up to \$33 trillion of annual economic growth.

The creation of new technology is often followed by protection of intellectual property, and in the case of AI, patents seem to be the most obvious form of protection. However, what lies in store for this fascinating technology depends on how IP regimes handle AI and whether its implications, both societal and legal, are understood. As one theorist surmises: “By far, the greatest danger of AI is that people conclude too early that they understand it.”

AI in India

To understand the recent trends in AI, in 2017 India’s Ministry of Commerce and Industry set up the 18-member Task Force on AI for India’s Economic Transformation, with the mandate to advise on the creation of a framework to promote deployment of AI, taking all social factors into account. Further, in June 2018, government thinktank NITI Aayog released the discussion paper India’s National Strategy for Artificial

Intelligence, espousing a strategy to leverage AI for economic growth, social development and inclusive growth, while establishing AI as a ‘garage’ for emerging and developing economies under the proposed brand ‘#AIforAll’. These initiatives set out to study the full potential of AI in the Indian context. Several sectors – such as manufacturing, fintech, health, retail, education and infrastructure – have been identified as areas that can benefit the most from using AI to solve India’s societal needs. Thus, the first step on India’s journey from AI outlier to AI adopter – and, later, to AI creator – has begun.

However, there has been no discussion on the legal implications of AI. As each of the above industry sectors embraces AI, the potential of disruption lies not only in the adoption of AI, but also how it is created and protected; there is also the more fundamental question of who owns AI. It is therefore imperative that our laws are updated to deal with the implications of AI. This chapter looks at AI through the narrow lens of India’s patent regime, to understand the issues that need to be addressed if we are going to embrace it – and not collide with it.

What is AI?

Several definitions of AI exist, and one author has suggested that the definition changes based on the goals that are trying to be achieved with an AI system. India’s 18-member task force defines AI as “the science and engineering of making intelligent machines, especially intelligent computer programs”, with ‘intelligence’ being “the computational part of the ability to achieve goals in the world”. Further, the NITI Aayog discussion paper classifies AI as “a constellation



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of technologies that enable machines to act with higher levels of intelligence and emulate the human capabilities of sense, comprehen[sion] and act[ion]". Gartner Inc, a leading research and advisory company, has an instructive definition of AI, and states: "Artificial intelligence is technology that appears to emulate human performance typically by learning, coming to its own conclusions, appearing to understand complex content, engaging in natural dialogs with people, enhancing human cognitive performance... or replacing people on execution of nonroutine tasks."

From the above, AI can be simplistically classified as technology that is created by a human, improved by a machine and has the power to disrupt almost all aspects of human existence. Technology so developed can behave intelligently

by thinking as a human (ie, 'strong AI'), or even surpass humans (ie, 'superintelligence').

Relevant for this discussion is the understanding that currently we are in a state of 'weak AI' (ie, a system like a chatbot that behaves intelligently, but does not have any kind of consciousness about what it is doing). This technology is 'narrow'; it is limited to a single task and has direct human intervention in its creation. The next phase is 'strong AI', wherein the system thinks as humans do, with a conscious, subjective mind. The technology developed will be 'general', closer to human intelligence and capable of completing a wide range of tasks. Some believe that once capable of human intelligence, strong AI systems may evolve further to create improved AI systems, independent of human intervention, and thereby reach superintelligence.

Implications of AI on patent law in India

The legal implications of AI in India are unknown at present, and the patent regime is silent on the matter. Whether the present standard under the Indian Patents Act 1970 promotes or stifles innovative technologies in the electronics/computer space is a question that has been grappled with for many years in India in the context of Section 3 – specifically Section 3(k) – of the Patents Act. Whatever India's position may be, it is imperative that this disruptive phase is entered into in a planned manner and it is determined whether India's patent laws further the government's initiatives regarding the industry sectors that have been identified. It would be unproductive to hit stumbling blocks, as was the case with computer-related inventions (CRIs), and to start reacting to the situation rather than being proactive. For the uninitiated, the Indian Patent Office's stance on the patentability of CRIs lacks the clarity that can be credited, for example, to the European Patent Office (EPO). India's CRI guidelines have been debated extensively in recent years and the patent office has reacted to each debate with dramatic changes in its guidelines. From requiring CRIs to establish a technical effect, to requiring novel hardware, to currently requiring technical effects coupled with hardware, the reforms have left patentees speculating what the next update to the guidelines might be. The authorities seem to be reacting to outside pressures and opinions, rather than stating a policy and preparing guidelines to implement that policy. AI should not suffer the same fate.

Thus, three main issues stand out from a patent perspective:

- whether AI as an invention is eligible subject matter;
- who is the true and first inventor (ie, inventorship); and
- who owns, and is therefore liable for, the acts of the AI technology (ie, liability).

Subject-matter eligibility

There is perpetual debate on whether awarding patent rights to CRIs can encourage investment in software-related research and thereby promote innovation. The naysayers passionately argue that granting patents on software stifles innovation. So, where would that leave AI? It is an over-simplistic approach to suggest that patents should not be awarded to AI-based inventions, which would essentially fall under CRIs (although they have far greater potential than general software).

The middle ground is a more sensible option and the Indian Patent Office should address this issue quickly. Open discussions are necessary for creating a solid framework for patenting AI inventions – that is, one that establishes predictability in the patent office's approach through updated and comprehensive examination guidelines. The EPO has already held its first conference on AI and patenting; if India wants to be one of the leaders in AI, it must adapt its patent regime to ensure that the country remains an opportunity for innovators. The government must ensure that AI's impact on patents is dealt with systematically and to the benefit of the technology community, especially if India is to become a creator of AI, and not a mere adopter.

Inventorship

There is no ambiguity as to who would count as the inventor for AI-based inventions that involve human intervention. But, as the transition is made from weak AI to strong AI (and, perhaps, towards superintelligence), the question arises: can AI technology be considered an 'inventor' when it is that technology (ie, not a human) that creates further inventions that are patentable?

At present, the answer is unclear. Section 6 of the Patents Act states that an application for a patent for any invention can be made only by the true and first 'inventor' of the invention or an assignee. Further, a 'patentee', according to

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“Does the legal responsibility arising through an AI’s illegal action lie with the AI, its owner or its user or operator?”

Section 2(1)(p), is the “person” entered on the patent office register as the grantee or owner of the patent. Intuitively, this suggests that an inventor and person must mean a natural person. However, Section 2(1)(s) defines ‘person’ to include the government, a non-natural entity. Moreover, ‘true and first inventor’ has an exclusionary definition and there is no mention of a natural person (Section 2(1)(y)). Thus, the Patents Act arguably does not require a particular threshold of human control or input in the invention process for granting patent rights *per se*, and frames the questions of inventiveness in terms of creation (ie, “new product or process” or “technical advance as compared to the existing knowledge”, in Sections 2(1)(j)-(ja)).

While these provisions do not expressly impose the requirement for an inventor to be a natural person, the predisposition appears to require human intervention for an invention to be considered patentable. The first order of business is to decide whether an inventor must be a natural person. Keep in mind that Saudi Arabia granted citizenship to Sophia, a social humanoid robot; so would Sophia be considered a ‘natural person’?

Liability

Liability will be an issue in cases of strong AI and superintelligence, where the inventor may not be human (assuming that this definition of ‘inventor’ is accepted). Section 48 of the Patents Act confers on the patentee “the exclusive right to prevent third parties, who do not have his consent, from the act of...” The pertinent question here is whether AI has the power to give consent. If it does, how would someone receive the requisite consent? The same issue lies with ownership through assignment or acquisition. If ownership of the invention is transferred to a business entity that can enforce the patent, does an AI have the power to assign (ie, give consent for change of ownership)?

Thereafter, once patent infringement is established, the infringer would have to pay damages to the patent owner in an amount adequate to compensate for the infringement

(usually in the form of lost profits or reasonable royalties), and in certain cases would be enjoined or prohibited from performing the infringing activity. How would the courts enforce this on an infringing AI? Does the legal responsibility arising through an AI’s illegal action lie with the AI, its owner or its user or operator? If the cause of the illegal act cannot be traced back to a specific human actor, who has liability? These and many similar concerns are now the subject of debates on the ambiguities of AI, not only in the IP context, but also in the context of criminal liability or civil tort liability.

Legal scholar Gabriel Hallevy has discussed three models of criminal liability that are instructive in understanding the issues at hand. The first is the ‘perpetration-via-another’ liability model, wherein *mens rea* is not attributable to an AI entity and the perpetrator would be either the programmer of the AI software or the end user. Second, the ‘natural-probable-consequence’ liability model assumes deep involvement of the programmers or users in the AI entity’s daily activity, but without intent to commit an offence. However, since ignorance of law is not a defence, this assumes that the programmers or users of an AI should have known about the probability of the commission of the specific offence, and hence holds them to be liable. Third, the ‘direct liability’ model focuses on the AI entity itself, and suggests that the AI entity would be liable as if it were a human.

The ultimate consequences of this are anyone’s guess; drawing a metaphor from a favourite childhood party game, the essence here is that we may have the tail, but no donkey to pin it on.

Conclusion

The current patent system is suited to adjudicating the patentability questions related to the current generation of AI technology only. However, the time has come for the Indian government to begin carefully considering how CRIs pertaining to the next generation of AI (ie, strong AI and superintelligence) should be treated in the patent ecosystem.

Fundamentally, we must address whether we believe that humans cannot replicate the grand design of evolution on a piece of paper coded into a machine – and therefore strong AI and superintelligence is beyond our capability – or whether we believe that basic knowledge, intelligence and cognitive thinking are programmable into a machine that will then be able to make independent decisions. It needs to be determined whether a machine with such capability can be an inventor. Once this question is answered, the other aspects will eventually fall into place.

While we ruminate on the policy issues, a fascinating practical point to ponder is that if artificial intelligence lives up to its hype and superintelligence in AI is achieved, then would not the AI then be able to decide whether it has created patentable subject matter, review the prior art and approve or reject its own application – and, if patented, find infringers with claim charts that

are indisputable? Will the very machines we create file, prosecute, defend, enforce and pay and receive damages – thus taking all our jobs away?

Needless to say, the road ahead is unknown and intimidating. **iam**



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