



Artificial Intelligence and Inventorship: Modernizing India's Patent Law for the Innovation Era

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Abstract

Artificial Intelligence (AI) has shifted from being a supportive tool to an independent actor in creating novel technologies. AI systems can now autonomously generate inventions, raising questions about the suitability of traditional patent law frameworks, which assume human inventors. In India, the Patents Act, 1970 recognizes only natural persons as inventors, leaving AI-generated innovations outside the scope of protection. This legal gap risks discouraging AI research and weakening India's competitiveness in advanced technology sectors.

This paper examines the tension between AI-driven innovation and India's patent law, drawing on global precedents including the DABUS cases in the United States, European Union, and Australia. It explores challenges in inventorship and ownership, analyses comparative international approaches, and offers policy recommendations. The study argues that India should recognize AI as a co-inventor or attribute inventorship to controlling entities, develop AI-specific examination guidelines, and integrate ethical and public interest safeguards. Such measures would modernize India's patent system while maintaining accountability, transparency, and societal benefit.

Key words: Artificial Intelligence (AI), Inventorship, Innovation, Patent Law, India

I. Introduction

Artificial Intelligence has transformed innovation across industries, moving from human-assisted tools to autonomous inventors capable of producing complex solutions. This raises a fundamental legal question: *Can a machine be recognized as an inventor under existing patent laws?*

India's Patents Act of 1970 assumes that inventorship requires a human mind. While effective in the pre-AI era, this framework struggles to address inventions autonomously generated by machines. If AI-generated works remain unprotected, India risks discouraging investment in AI research, particularly in

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sectors like pharmaceuticals, biotechnology, and advanced computing. Reconciling patent law with AI's evolving role is essential to maintain both doctrinal coherence and economic competitiveness.

II. The Indian Patent Framework: Scope and Limitations

A patent grants exclusive rights to inventors, incentivizing innovation while ensuring that knowledge eventually enters the public domain. In India, an invention must satisfy three conditions: novelty, inventive step, and industrial applicability under Sec 2(1)(j) of the Patents Act, 1970. Certain categories, such as mathematical methods, business methods, computer programs per se, and algorithms, are excluded under Sec 3(k).

These provisions pose challenges for AI-generated inventions, which often rely on computational models. While AI outputs may demonstrate practical applications, India's patent system does not currently recognize inventions autonomously created by AI, leaving inventors uncertain about protection and ownership.

III. Global Jurisprudence on AI Inventorship

Internationally, AI inventorship remains a contested area. The DABUS case illustrates this debate. In Australia (*Thaler v. Commissioner of Patents*), DABUS was initially recognized as an inventor, but this was overturned on appeal. In the United States (*Thaler v. Vidal*), the Federal Circuit ruled that only natural persons qualify as inventors under federal law. Similarly, the European Patent Office rejected DABUS applications, citing the requirement for a human inventor under the European Patent Convention.

Conversely, South Africa granted a patent recognizing DABUS as the inventor, demonstrating that alternative frameworks are feasible. These divergent approaches highlight the absence of global consensus but also indicate that legislative reform is possible without undermining patent system integrity.

IV. Challenges of AI-Generated Inventions under Indian Law

AI-generated inventions present two interconnected legal challenges: inventorship and ownership.

1. **Inventorship:** Under Indian law (Sec 6, Patents Act), only humans can be inventors. Consequently, inventions autonomously created by AI cannot be directly patented, even if human involvement is minimal. Assigning inventorship to the human operator or AI developer may misrepresent the creative contribution.



2. **Ownership:** Traditional rules vest ownership with the inventor or their employer. If no human qualifies as an inventor, it is unclear whether ownership should rest with the AI's programmer, the organization operating the AI, or the public. This ambiguity could trigger disputes, particularly in high-value sectors like pharmaceuticals, engineering, and AI-driven diagnostics.

These challenges demonstrate that India's anthropocentric patent system is insufficient for the realities of modern innovation.

V. Towards Reform: Policy Options for India

To address these challenges, India can pursue four key reform strategies:

A. Recognizing AI as Co-Inventor

AI could be recognized as a co-inventor alongside human contributors, without granting it independent legal personhood. Human developers or operators would remain legally accountable, ensuring enforceability while acknowledging AI's role. This reflects the collaborative reality of AI-driven research, where human guidance and machine computation jointly produce inventive outcomes.

B. Attribution to Legal Entities

Another model is to assign inventorship or ownership to **legal entities** controlling AI systems. Similar principles already apply to employee-generated inventions. By attributing rights to the organization, disputes over inventorship are minimized, and corporate investment in AI is encouraged.

C. AI-Specific Examination Guidelines

The Indian Patent Office should develop AI-specific examination guidelines, clarifying:

- How "inventive step" is assessed when AI contributes autonomously;
- What constitutes sufficient disclosure of AI involvement;
- When § 3(k) exclusions do not preclude patentability for AI outputs demonstrating tangible technical effects. ¹⁰



The European Patent Office has used the “technical effect” approach to evaluate computer-implemented inventions. India can adopt a similar approach but adapt it to domestic innovation needs, particularly in healthcare, renewable energy, and advanced IT sectors.

D. Ethical Oversight and Public Interest

Patents must balance commercial incentives with social responsibility. Oversight mechanisms should prevent monopolization in critical sectors such as medicine. Transparency requirements and continued use of compulsory licensing (Sec 84–92, Patents Act) can ensure public access while safeguarding innovation.

These reforms collectively modernize India’s patent system while maintaining accountability and public interest.

VI. Future Outlook and Recommendations

India’s technology ecosystem is at a pivotal point. AI is projected to contribute over *\$500 billion* to the Indian economy by 2025, making effective IP regulation crucial.

A. Legislative Reform

Amendments to the Patents Act should clarify the status of AI-generated inventions, either recognizing AI as co-inventor or vesting rights in legal entities. These changes would provide clarity for innovators and examiners.

B. AI Examination Protocols

Formal examination guidelines should define:

- Inventive step and novelty standards for AI contributions;
- Disclosure requirements explaining AI’s role;
- Criteria for assessing “technical effect” in AI-driven inventions.

C. Alignment with International Norms



India should actively engage in WIPO and TRIPS discussions to harmonize its IP laws with global practices, minimizing conflicts and facilitating cross-border innovation.

D. Safeguarding Public Interest

Patent reforms must preserve access to essential goods. Compulsory licensing and public-interest exceptions should remain central, especially in pharmaceuticals. Ethical oversight bodies could monitor AI-generated patents, ensure responsible innovation and prevent monopolistic abuse.

E. Capacity Building

The Indian Patent Office must train examiners in AI technologies, possibly through partnerships with academic institutions and international IP offices. This ensures accurate and consistent evaluation of AI-generated inventions, strengthening India's innovation ecosystem.

VII. Conclusion

AI challenges the human-centred foundations of patent law. India's current framework, rooted in the Patents Act of 1970, is insufficient for AI-generated inventions. A forward-looking approach involves:

- Recognizing AI as co-inventor or attributing inventions to controlling entities;
- Developing AI-specific examination protocols;
- Embedding ethical and public-interest safeguards;
- Aligning domestic law with global practices.

Such reforms ensure India remains competitive in AI-driven innovation while maintaining accountability, transparency, and societal benefit.

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