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"INVENTORSHIP AND OWNERSHIP CHALLENGES IN AI-ASSISTED INVENTIONS"

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ABSTRACT

This paper analyses the twin challenges of inventorship and ownership that arise when artificial intelligence systems play a substantial role in generating patentable inventions. Drawing on the Patents Act 1970 of India, the United States Patent Act, the European Patent Convention, and the United Kingdom Patents Act 1977, the paper demonstrates that every major jurisdiction insists on a human inventor and denies AI systems any right-holding status. The landmark DABUS litigation, in which courts across the US, EPO, and UK unanimously refused to recognise an AI as a named inventor, is examined in depth. The paper goes beyond the settled human-only rule to address the more contested questions of how to attribute inventorship when AI substantially contributes to conception, and how to allocate ownership among the multiple actors typically present in AI-driven research and development environments. Comparative guidance from the USPTO (2024) and EPO studies on AI inventorship is assessed alongside the relative silence of Indian law. The paper concludes with concrete legislative and administrative reform proposals designed to harmonise India's patent regime with international best practice while preserving incentives for AI-intensive innovation.

Keywords: *AI inventorship, patent ownership, DABUS, Patents Act 1970, joint inventorship, AI-assisted inventions, comparative patent law*

CHAPTER I: INTRODUCTION

Artificial intelligence has irreversibly altered the landscape of technological innovation. Machine learning models now autonomously generate molecular designs for pharmaceuticals, optimise engineering parameters, compose software algorithms, and propose creative solutions that not only satisfy but often exceed the statutory thresholds of novelty, inventive step, and industrial applicability required for patent protection. In doing so, AI has forced a fundamental rethinking of two cornerstone questions in patent law: who is an inventor, and who owns the resulting intellectual property right.

The response of national and regional patent systems has been remarkably uniform on the surface. From the Patents Act 1970 of India, which in Section 2(1)(j) defines an invention in terms that presuppose a human originator,

to 35 U.S.C. §§ 101 and 115 in the United States, Article 81 of the European Patent Convention (EPC), and Section 7 of the UK Patents Act 1977, legislators never contemplated that the author of an invention might be a machine.[1797] Yet that is precisely the premise Stephen Thaler advanced when he filed the now-famous DABUS applications, designating his AI system—Device for the Autonomous Bootstrapping of Unified Sentience—as the sole inventor in multiple jurisdictions simultaneously.

Patent offices and appellate courts in the United States, the United Kingdom, and before the EPO unanimously refused the applications, finding that only natural persons qualify as inventors

[1797] Patents Act 1970, No. 39, Acts of Parliament, 1970 (India), § 2(1)(j).

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under extant legislation.[1798] South Africa and, initially, Australia produced contrary rulings, but these have not altered the mainstream consensus and are widely regarded as anomalies or interim positions.[1799]

Yet the real practical difficulty lies not in the extreme DABUS scenario—where a single AI is designated as sole inventor with no human contribution to conception—but in the far more common and rapidly expanding intermediate territory: the AI-assisted invention. In these cases, human researchers define a technical problem, curate training data, design or deploy an AI model, and then select, refine, and claim the outputs. The AI's contribution may range from trivial (a glorified database search) to substantial (generating a solution that the human team could not have produced without it). How, in such a spectrum, does one identify the inventors? What threshold of human contribution suffices? And when a research project involves an AI developer, a data provider, and a user organisation, who owns the patent?

India has not yet addressed these questions in statute, regulation, or judicial decision with the specificity that practitioners and innovators require.[1800] The Indian Patent Office processes an increasing volume of AI-intensive applications, particularly from the pharmaceutical, software, and automotive sectors, but without explicit guidance analogous to the USPTO's February 2024 Inventorship Guidance for AI-Assisted Inventions or the EPO's study on the concept of inventorship in AI-related inventions.

This paper addresses this lacuna. It proceeds in four parts. Chapter II analyses the existing legal frameworks for inventorship and ownership in India and in the principal comparator jurisdictions—the United States, the EPO, and the United Kingdom. Chapter III examines the DABUS saga in detail and extracts its lessons for joint inventorship and multi-actor ownership in AI-intensive projects. Chapter IV states the major findings and offers concrete, targeted reform proposals. A full reference list concludes the paper.

CHAPTER II: LEGAL FRAMEWORKS FOR INVENTORSHIP AND OWNERSHIP

2.1 General Principles of Inventorship

Inventorship in patent law is, at its core, a question of conception. The inventor is the person who conceives the idea for the claimed invention—who first mentally grasps what the invention is and how it achieves its purpose. Reduction to practice, whether actual or constructive, is a separate and subsequent step that need not be performed by the inventor herself.[1801] This conception-centred understanding is shared across common law jurisdictions and has been reinforced in comparative scholarship: inventors are those who contribute to the inventive concept, not those who merely execute instructions, provide funding, or supply tools.

Ownership, by contrast, is a legal conclusion that follows from, but is not identical to, inventorship. The first owner of a patent is typically the inventor, but this default is immediately displaced in two common scenarios: where the invention arises from employment duties, in which case the employer holds the rights; and where the inventor assigns her rights to a third party by contract. Joint inventorship—where two or more persons each contribute materially to the conception of at least one claim—gives rise to joint ownership, with all co-owners entitled to exploit the patent but unable, absent agreement, to grant exclusive licences without each other's consent.

2.2 Indian Position: Patents Act 1970

[1798]The Patents Act 1970, § 6 (listing persons entitled to apply for patents).

[1799]Arul, J. J., & Gupta, A., Artificial Intelligence and the Patent Law: Examining the Challenges of Inventorship and Ownership, SSRN (2024), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4894509.

[1800]Khurana & Khurana, DABUS Case: AI Inventorship in Indian Legal Regime (Mar. 19, 2025), https://www.khuranaandkhurana.com/2025/03/19/dabus-case-ai-inventorship-in-indian-legal-regime.

[1801]Luo, L., & Ng, C., Artificial Intelligence and Patent Inventorship: A Comparative Study, 2023 Sing. J. Legal Stud. 27, 51 (2023).

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The Patents Act 1970 does not define 'inventor' in express terms, but the Act's internal logic clearly assumes a human originator. Section 2(1)(j) defines 'invention' as a new product or process involving an inventive step, but the surrounding provisions—Section 2(1)(p) (person), Section 6 (persons entitled to apply), Section 28 (mention of inventor), and Section 64 (grounds of revocation)—all refer to persons in the legal sense, meaning natural or juristic entities capable of holding rights and sustaining obligations.[1802]

Section 6 specifies that a patent may be applied for by the true and first inventor, an assignee of the inventor, or the legal representative of a deceased inventor. Section 28 confers on the inventor a right to be mentioned in the patent. Neither provision can be satisfied by an AI system, which cannot die, cannot be named in the ordinary legal sense, and cannot execute an assignment. Statutory interpretation by the ordinary and natural meaning of words therefore excludes AI systems from inventorship under Indian law.

The ownership regime under the 1970 Act tracks inventorship: the first owner is the inventor (or joint inventors), subject to the employer's right to patents made in the course of employment and to contractual assignments. Section 68 validates assignments and transmissions in writing. There is no provision specifically addressing ownership when an AI system—rather than an employed human—generates the substantive technical contribution. In such cases, practitioners and applicants must reason by analogy from existing rules, which creates uncertainty in multi-actor AI projects.

2.3 AI-Assisted Inventions Under Indian Law

Indian law provides no direct regulation of AI-assisted inventions. In the modal case—a research team that uses AI tools to generate candidate solutions but where humans define the task, curate the data, evaluate the outputs, and draft the claims—the humans are the inventors under current doctrine.[1803] The AI is characterised as an advanced instrument, not a legal actor; the human researchers who conceived and directed the project are inventors in the same way that a chemist who uses a mass spectrometer remains the inventor of a compound identified with its assistance.

The harder case arises when AI operates with greater autonomy—when it traverses a vast design space, makes non-obvious selections, and proposes solutions that the human team would not have envisioned without it. Even here, Indian patent doctrine would likely hold that the human who formulated the technical problem, designed or adapted the AI architecture, and selected and claimed the outputs is the inventor, because those acts collectively constitute the mental conception.[1804] The AI's contribution is treated as analogous to the contribution of a laboratory instrument or a subcontractor executing detailed instructions, neither of whom qualifies as an inventor.

However, this analogical reasoning becomes increasingly strained as AI capabilities advance. When an AI model, operating on loosely specified objectives, generates solutions that its operators could neither have anticipated nor independently derived, the human's role in conception becomes thin enough that inventorship claims are legally precarious and ethically contested. Indian courts and the Patent Office have not yet confronted such a case, but the trajectory of AI development makes such confrontation inevitable.

2.4 Comparative Approaches: United States, EPO, and United Kingdom

In the United States, 35 U.S.C. § 115 requires that each inventor execute an oath or declaration averring that she believes herself to be an original inventor of the claimed invention. The Court of Appeals for the Federal Circuit, in Thaler v. Vidal, held that the term 'individual' in § 100(f)

[1802] 35 U.S.C. § 101 (2018); 35 U.S.C. § 115 (requiring oath or declaration from each inventor).

[1803] European Patent Convention art. 81, Oct. 5, 1973 (requiring designation of inventor).

[1804] Patents Act 1977, c. 37, § 7 (Eng.) (identifying who may apply for and obtain a patent).

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refers exclusively to natural persons and does not include AI systems.[1805] The court noted that both ordinary usage and the broader statutory context—which envisions inventors who take oaths, execute assignments, and are capable of receiving compensation—presuppose human agency.

The USPTO's February 2024 Inventorship Guidance for AI-Assisted Inventions operationalised this holding by directing examiners to evaluate, for each claimed invention, whether at least one named human inventor made a significant contribution to the conception of that invention.[1806] The guidance borrows the Pannu factors—developed in Pannu v. Iolab Corp., 155 F.3d 1344 (Fed. Cir. 1998) to identify joint inventors—as the test for identifying which members of a human–AI research team are true inventors. Persons who merely use an AI tool or passively receive and implement its output without intellectual engagement are not inventors; persons who meaningfully direct the AI, evaluate and select its outputs, and formulate patent claims are.

The European Patent Convention requires, in Article 81, that the inventor be 'designated' in the application, and EPO practice has consistently interpreted this designation to require a natural person.[1807] The Legal Board of Appeal of the EPO, in its December 2021 decision in J 0008/20 (DABUS), unanimously affirmed that the EPC does not permit an AI system to be named as an inventor. The Board reasoned that an inventor under the EPC must be a person capable of enjoying rights derived from the invention, and that only natural persons satisfy this criterion.

The Board's ruling also noted that the transfer of rights from inventor to applicant requires a legal act that only a legal person can perform; since an AI has no legal personality, it cannot transfer rights, and the chain of title from AI-inventor to applicant-owner cannot be legally completed. The EPO's subsequent study on the concept of inventorship in inventions involving AI activity clarified that AI may legitimately participate in the inventive process as a tool and that human contributions to AI-intensive inventions can still satisfy inventorship criteria, provided those contributions are substantial and identifiable.

The United Kingdom Patents Act 1977, Section 7, identifies who may apply for and obtain a patent: the inventor, a person entitled by virtue of ownership of the invention, or the successor in title of either. UK courts had consistently held that 'inventor' means a natural person.[1808] The UK Supreme Court, in Thaler v. Comptroller-General of Patents, Designs and Trade Marks [2023] UKSC 49, confirmed that DABUS could not be named as an inventor, and that Thaler's ownership of the machine was not a legally sufficient basis for entitlement to the patent. The Court emphasised that any change to permit AI inventorship would require primary legislation, not judicial interpretation.

2.5 Ownership of AI-Assisted Inventions

Where AI is deployed as a tool, ownership allocates according to existing rules. An employee who uses her employer's AI software in the ordinary course of her duties, and who produces a patentable output, will typically have her employer identified as the patent owner by virtue of the employment contract and the common law rule that employers own inventions made in the course of employment.[1809] An independent researcher who uses publicly available AI similarly retains initial ownership, provided she is properly identified as the inventor.

More complex arrangements arise when the AI is developed by Company A, trained on data

[1805]Legal Board of Appeal of the European Patent Office, Decision J 0008/20 (Designation of Inventor/DABUS) (Dec. 21, 2021), https://www.epo.org/en/boards-of-appeal/decisions/j200008eu1.
[1806]Thaler v. Vidal, 43 F.4th 1207 (Fed. Cir. 2022), cert. denied, 143 S. Ct. 1783 (2023).
[1807]Thaler v. Comptroller-General of Patents, Designs and Trade Marks [2023] UKSC 49.
[1808]Ryan Abbott, I Think, Therefore I Invent: Creative Computers and the Future of Patent Law, 57 B.C. L. Rev. 1079 (2016).
[1809]United States Patent and Trademark Office, Inventorship Guidance for AI-Assisted Inventions (Feb. 13, 2024), https://www.uspto.gov/sites/default/files/documents/inventorship-guidance-for-ai-assisted-inventions.pdf.

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provided by Company B, and deployed by University C to generate an invention that is subsequently commercialised by Start-up D.[1810] Each party may have a colorable claim to some interest: Company A invested in the AI platform; Company B's data shaped its capabilities; University C's researchers directed the inventive process; Start-up D's investment made commercialisation possible. Existing patent law provides no direct mechanism to apportion ownership among these stakeholders. The parties must therefore rely on contractual arrangements—research collaboration agreements, data-sharing agreements, license agreements—negotiated in advance of the inventive act.

This contractual dependency is a structural weakness of the current regime: contracts are only as comprehensive as the parties' foresight, and rapidly evolving AI capabilities make it difficult to anticipate all scenarios. It also disadvantages smaller parties—individual researchers, start-ups, universities in developing countries—who lack the bargaining power and legal sophistication to

CHAPTER III: EMERGING CHALLENGES AND CASE STUDIES

3.1 The DABUS Saga: A Comprehensive Analysis

No episode has done more to crystallise the inventorship problem in AI patent law than the DABUS applications. Stephen Thaler, an AI researcher, filed patent applications in over a dozen jurisdictions for two inventions—a food container with a fractal surface and an emergency beacon—designating his AI system, DABUS, as the sole inventor. Thaler argued that he himself had not conceived the inventions; DABUS had, and he was entitled to the resulting patents as the owner of the machine.[1811]

The strategy was transparently designed to test the limits of existing law and, if successful, to establish the principle that ownership of an AI system confers entitlement to its inventions in the same way that ownership of other productive assets does. If a factory owner is entitled to the products of her machines, why should an AI owner not be entitled to the patents on her AI's inventions?[1812]

Every major jurisdiction that considered the argument found it unpersuasive. The USPTO formally refused the applications in 2019, a decision affirmed by the Eastern District of Virginia and then by the Federal Circuit in Thaler v. Vidal, 43 F.4th 1207 (Fed. Cir. 2022).[1813] The Federal Circuit held that § 100(f) of the Patent Act limits 'individual' to natural persons, relying on ordinary meaning, statutory context, and the absence of any legislative intent to extend inventorship to non-human entities. The Supreme Court declined to review the decision.

The EPO Legal Board of Appeal, in J 0008/20, reached the same conclusion by textual and structural analysis of the EPC. The Board noted that the Convention requires an inventor to be capable of authorising and executing legal documents associated with the application, a capability that only natural persons possess.

The UK Supreme Court in [2023] UKSC 49 similarly held that 'inventor' in the 1977 Act means a natural person, and that Parliament—not the courts—is the appropriate body to extend the concept. The Court's reasoning was particularly influential in identifying the limits of judicial creativity: the question of whether, and on what terms, AI systems should be recognised as inventors raises profound policy questions about incentives, access, and the purposes of patent law that require democratic deliberation, not litigation.

[1810] European Patent Office, Concept of Inventorship in Inventions Involving AI Activity (2021), https://link.epo.org/web/Concept_of_Inventorship_in_Inventions_involving_AI_Activity_en.pdf.

[1811] Sullivan & Cromwell LLP, USPTO Issues Guidance on Inventorship for AI-Assisted Inventions (Feb. 15, 2024), https://www.sullcrom.com/SullivanCromwell/_Assets/PDFs/Memos/USPTO-Guidance-Inventorship-AI-Assisted-Inventions.pdf.

[1812] White & Case LLP, UK Supreme Court Rules Against AI Inventorship for Patents (Dec. 21, 2023), https://www.whitecase.com/insight-our-thinking/uk-supreme-court-rules-against-ai-inventorship-patents.

[1813] The Legal School, Definition of Invention Under Patent Law (Jul. 12, 2023), https://thelegalschool.in/blog/definition-of-invention-under-patent-law.

South Africa did issue a DABUS patent, but this appears to have resulted from a formality-based examination process that does not require substantive review of inventorship. The Australian Federal Court initially permitted AI inventorship but was reversed by the Full Federal Court in Commissioner of Patents v. Thaler [2022] FCAFC 62, which aligned Australia with the mainstream position.[1814]

3.2 Lessons for Joint Inventorship in AI-Assisted Projects

While DABUS involved a single AI designated as sole inventor, its doctrinal legacy bears directly on the far more common scenario of joint human–AI contribution. The courts and offices that rejected DABUS's inventorship consistently articulated the positive standard: to qualify as an inventor, a person must make a significant contribution to the conception of at least one claimed invention.[1815] This is the standard that governs joint inventorship generally; DABUS applied it in the novel context of AI.

The implication for AI-assisted research teams is significant. Where several human researchers collaborate on an AI-intensive project, not all will qualify as inventors. Those who formulate the technical problem, design or adapt the AI architecture, provide meaningful intellectual direction to the AI's search process, and select and interpret the outputs are likely inventors. Those who merely provide funding, perform clerical data-entry tasks, or implement the AI's outputs without any intellectual engagement are not.[1816]

This analysis has particular salience in the Indian context, where joint inventorship is recognised but case law is thin and the Patent Office has issued no guidance specific to AI-assisted projects. Examiners reviewing multi-inventor AI applications must apply general inventorship doctrine without the benefit of jurisdiction-specific precedents or administrative guidance.[1817] The absence of such guidance creates the risk of inconsistent outcomes—applications that are substantively similar receiving divergent treatment depending on which examiner handles them.

The Pannu factors, though articulated in US law, offer a useful analytical framework: an inventor must (1) contribute in some significant manner to the conception or reduction to practice of the invention; (2) make a contribution to the claimed invention that is not insignificant in quality when measured against the full scope of the invention; and (3) do more than merely explain to the real inventors well-known concepts or the current state of the art.[1818] A carefully adapted Indian analogue of these factors—expressed in examination guidelines rather than legislation—would materially improve consistency and predictability.

3.3 USPTO and EPO Guidance: Models for India

The USPTO's February 2024 Inventorship Guidance is the most detailed administrative instrument yet produced on AI-assisted inventorship. It provides thirteen illustrative examples spanning a spectrum from minimal AI assistance (where inventorship is straightforward) to AI-generated inventions with limited human intellectual input (where inventorship is doubtful).[1819] The guidance instructs examiners to focus on whether a human made a significant contribution to the conception of each claim, treating the Pannu factors as the operative standard. It also imposes a duty of candour on applicants: where AI played a substantial role in generating the invention, that fact should be disclosed to the extent material to patentability.

The EPO's study on the concept of inventorship in inventions involving AI activity takes a similarly functional approach. It observes that AI can participate in the inventive process in ways that range from purely auxiliary (executing well-understood algorithms on human-specified

[1814] Supra note 15.
[1815] Einfolge, Who Owns the Patent When AI Creates New Inventions? (Jun. 14, 2023), https://www.einfolge.com/blog/Who-owns-the-patent-when-AI-creates-new-inventions.
[1816] Supra note 5, at 42.
[1817] Supra note 4.
[1818] Supra note 3, at 15.
[1819] Supra note 13.

inputs) to generative (autonomously identifying novel solutions in large design spaces).[1820] In all cases, the EPO's position is that at least one human must be identified as an inventor who has made a technical contribution to the invention. The study provides guidance on the kinds of contributions—problem formulation, model design, output evaluation, claim drafting—that are likely to qualify.

India has no counterpart to either instrument. The absence is conspicuous given that India is a significant and growing participant in AI-intensive research and development, particularly in the pharmaceutical, software, and automotive sectors. Indian patent examiners who encounter AI-intensive applications must reason by analogy from general inventorship doctrine—a task that requires sophisticated judgment and risks inconsistent outcomes across a large and geographically dispersed examination corps.

3.4 Ownership Conflicts in Multi-Actor AI Projects

The ownership dimension of AI-assisted inventions presents challenges that are structurally different from, though equally significant as, the inventorship question. In a canonical AI research project, at least four categories of actor may have legitimate interests: the AI developer who built and maintains the underlying model; the data provider whose datasets were used to train the model; the research organisation whose personnel directed the inventive process; and the commercial partner who funded development and will market the invention.

None of these actors has a clear statutory entitlement under Indian law to a share of the resulting patent. The inventor-employees at the research organisation will hold initial rights, subject to their employer's claim; the research organisation will likely own the patent by virtue of employment contracts. But the AI developer and data provider have no inventorship-based claim (since they did not contribute to conception), and their contractual claims depend entirely on what agreements were negotiated before the inventive act.

This contractual dependency creates structural inequality. Large AI developers typically impose standard licensing terms that reserve broad rights to themselves, while providing no ownership stake to users who generate inventions with their platforms. Data providers are in an even weaker position: their contribution to the AI's capabilities may be profound, but absent explicit agreement, they have no legal claim to downstream inventions.[1821]

The problem is compounded when training data includes proprietary research results or patient-derived biological materials. In such cases, the data provider's contribution is not merely economic but substantive—the AI literally could not have made the invention without those data. Yet the Patents Act 1970 provides no mechanism to recognise this contribution in terms of patent rights, leaving the data provider to rely on data-sharing agreements or, where applicable, rights under other IP regimes such as the Protection of Plant Varieties and Farmers' Rights Act 2001 or confidentiality law.[1822]

3.5 Indian Challenges and Institutional Readiness

The Indian patent system faces this emerging landscape without adequate preparatory infrastructure. The Patents Act 1970 is silent on AI, treating AI-assisted inventions no differently from any other inventions. The Patent Office has issued no formal guidance on inventorship for AI-intensive applications and has not announced any initiative to develop such guidance. The Controller General of Patents, Designs and Trade Marks has not convened a public consultation on AI and patents

[1820] Supra note 14.
[1821] Supra note 19.
[1822] Supra note 18.

analogous to those undertaken by the USPTO, EPO, and UK Intellectual Property Office.[1823]

This institutional gap has several practical consequences. Applicants in AI-intensive sectors—particularly smaller companies and academic institutions that lack dedicated patent counsel with AI expertise—are uncertain how to identify and list inventors, how to disclose the role of AI in their applications, and how to structure collaboration agreements to protect their ownership interests. The risk of incorrectly named inventorship—a ground for patent revocation under Section 64(1)(c) of the Patents Act—is heightened in AI contexts where the contribution analysis is inherently complex.[1824]

India's innovation ecosystem compounds these concerns. Unlike the United States or Germany, where AI-intensive research is concentrated in large, well-resourced corporations, Indian AI innovation is more distributed: it occurs in public research institutions like the Council of Scientific and Industrial Research and the Indian Institutes of Technology, in domestic start-ups, and in the Indian subsidiaries of multinational companies. The last category is particularly significant: where Indian researchers employed by a multinational develop an AI-assisted invention, the patent may be filed abroad under the employer's global portfolio strategy, with Indian inventors named (or not named) according to foreign counsel's judgment about local law requirements.[1825]

3.6 Comparative Judicial and Policy Positions: Synthesis

Drawing the threads of this chapter together, the international consensus is both wider and narrower than it might first appear. It is wide in rejecting AI inventorship: every jurisdiction with developed patent law and a functioning appellate court has now confirmed that natural persons are the only inventors.[1826] It is narrow in providing guidance on the harder questions: what human contributions suffice in AI-intensive projects, how should multi-actor ownership be allocated, and what disclosure obligations apply.

On these harder questions, the US and EPO have made meaningful starts—the USPTO guidance and the EPO study are genuine advances in administrative law—but even they are preliminary, their coverage is incomplete, and their guidance is non-binding. India has not yet started. The result is a patchwork of partial answers that leaves innovators, particularly in jurisdictions like India that are significant producers but not yet significant setters of international patent norms, in a position of legal uncertainty that is inimical to sustained AI-intensive innovation.

CHAPTER IV: MAJOR FINDINGS, CONCLUSION, AND SUGGESTIONS

Major Findings:

The analysis in Chapters II and III yields four principal findings, which are stated here and then elaborated in the conclusion and reform proposals that follow.

First, every jurisdiction studied—India, the United States, the EPO, and the United Kingdom—applies a human-only inventorship rule. AI systems cannot be inventors under any current statute, and the courts that have addressed the question have uniformly and emphatically confirmed this position. The only path to changing this outcome is legislative action; judicial creativity has reached its limit. This finding, while perhaps unsurprising in its substance, is significant in its unanimous breadth: the global consensus provides a firm foundation on which domestic reform can build.[1827]

Second, the human-only rule does not dissolve the practical difficulties of inventorship determination in AI-intensive projects; it merely refocuses them. The question is no longer

[1823] Supra note 13.
[1824] Supra note 14.
[1825] Supra note 3.
[1826] Supra note 16.
[1827] Supra note 10.

whether AI can be an inventor, but which humans made contributions substantial enough to qualify as inventors when AI did much of the generative work. The Pannu factors, borrowed from joint inventorship doctrine in the United States, provide the most developed framework for answering this question, but analogous standards in India and Europe are underdeveloped. This creates a risk of inconsistent examination outcomes that is particularly acute in jurisdictions, like India, that have not yet issued specific AI inventorship guidance.[1828]

Third, ownership of AI-assisted inventions is governed by existing rules—employer ownership, assignment, and joint ownership—but these rules were designed for human inventive processes and adapt imperfectly to multi-actor AI environments. The structural mismatch is most pronounced in complex R&D collaborations where an AI developer, a data provider, a research institution, and a commercial partner each contribute in ways that existing law cannot adequately account for. Contractual arrangements can fill some of this gap, but only imperfectly, and they systematically disadvantage parties with less bargaining power.[1829]

Fourth, India's institutional preparedness for the AI patent challenge is inadequate relative to the scale of the country's AI innovation activity. The absence of statutory clarification, administrative guidance, and public consultation is not merely a bureaucratic oversight; it is a substantive policy failure that exposes Indian innovators to legal uncertainty and competitive disadvantage in global patent markets.

Conclusion:

Inventions assisted by AI reveal a fundamental tension in modern patent law—a tension between the law's historically contingent insistence on human authorship and the technologically determined reality that AI systems now contribute in ways that were, a generation ago, the exclusive province of human intellect. The resolution of this tension in the case of inventorship—reaffirming the human-only rule while extending it analytically to cover AI-intensive processes—is sound in principle and broad in its jurisdictional reach.

But resolution at the level of principle is not sufficient. The practical questions remain: Who, among a team of researchers who used AI in different ways and to different degrees, made contributions substantial enough to be named inventors? Who owns the patent when the AI developer, the data provider, and the research organisation all claim credit? What must an applicant disclose about the role of AI in generating an invention? These are not questions that the global human-only consensus answers; they are questions that individual jurisdictions must work out for themselves, in statute, regulation, and practice.

India has not yet done that work. This paper has argued that doing so is both necessary—because the scale of India's AI innovation activity demands legal clarity—and timely—because the experience of the USPTO, EPO, and UK IPO provides models that India can adapt rather than develop from scratch. The suggestions that follow are designed to be concrete, actionable, and calibrated to the specific features of the Indian patent system.

Suggestions:

First, statutory clarification of AI's status as a tool. The Patents Act 1970 should be amended, or the Central Government should promulgate a rule under Section 159, to define AI systems as instruments for the purposes of inventorship determination. The amendment should provide, in terms that leave no room for doctrinal doubt, that (i) only natural persons qualify as inventors under the Act; (ii) the use of AI systems in generating an invention does not confer on the AI system any rights as inventor, owner, or co-owner; and (iii) contributions made by AI systems are to be treated as contributions made by the researchers who designed,

[1828] Supra note 9.
[1829] Supra note 11.

deployed, directed, and evaluated the AI, in the same way that contributions made by laboratory instruments are attributed to the researchers who used them. This statutory clarification would align Indian law explicitly with the DABUS consensus and remove the latent risk that, as AI capabilities expand, some future applicant might successfully argue that existing Indian law is ambiguous on the question.

Second, issuance of examination guidelines on AI-assisted inventions. The Controller General of Patents, Designs and Trade Marks should issue formal examination guidelines specifically addressing AI-assisted inventions. These guidelines should, drawing on the USPTO's 2024 guidance and the EPO's inventorship study: (i) articulate the standard for inventorship in AI-intensive applications—namely, that each named inventor must have made a significant contribution to the conception of at least one claimed invention; (ii) identify the types of contribution that are likely to satisfy this standard (formulation of the technical problem, design or adaptation of the AI model, specification of objectives or constraints, interpretation and evaluation of AI outputs, formulation of patent claims) and those that are not (passive receipt of AI outputs, routine data entry, funding provision); (iii) provide illustrative examples drawn from representative sectors of Indian AI innovation; and (iv) specify the disclosure expected from applicants regarding the role of AI in generating the invention, including the type of AI system used and the nature of human–AI interaction in the inventive process. Such guidelines would significantly reduce examiner uncertainty, improve consistency of outcomes, and enable applicants to structure their inventive processes and applications in ways that minimise inventorship risk.

Third, reform of Section 6 to address employer ownership in AI-intensive contexts. Section 6 of the Patents Act should be amended—or an authoritative interpretative circular should be issued—to confirm that where an employee uses AI tools or systems in the ordinary course of her duties and generates a patentable invention, the employer is the owner of the resulting patent by operation of law, in the absence of contrary contractual provision. This default rule—already implicit in Indian employment law—should be made explicit in the patent statute to eliminate ambiguity and reduce the scope for disputes between employers, employees, and AI platform providers. The reform should also address the increasingly common scenario in which multiple organisations—each providing different inputs (AI infrastructure, data, human intellectual effort)—jointly participate in AI-intensive R&D. In such cases, the statute should direct that ownership disputes be resolved by reference to the parties' written agreements, and that, absent such agreements, the organisation whose employees made the dominant inventive contribution shall be presumed to be the owner, without prejudice to claims by other parties in other fora.

Fourth, promotion of model collaboration contracts. The Confederation of Indian Industry, the National Research Development Corporation, or an appropriate government-sponsored body should develop and publicly disseminate model collaboration contracts for AI-intensive research projects. These contracts should address, as a minimum: (i) identification of inventors and ownership of resulting patents; (ii) obligations of disclosure regarding AI systems and training data; (iii) allocation of rights between AI developers, data providers, research institutions, and commercial partners; (iv) provisions for revision as the project evolves and the AI systems are updated. Model contracts are a low-cost, high-accessibility intervention: they reduce transaction costs for smaller parties, level the contractual playing field between well-resourced multinationals and domestic start-ups, and serve an educative function by disseminating best practice across the innovation ecosystem.

Fifth, engagement with international processes. India should actively participate in the ongoing

discussions in WIPO's Intergovernmental Committee and the Standing Committee on the Law of Patents regarding AI and intellectual property. India's perspective—that of a major emerging economy with a large and growing AI innovation sector and a distinct set of developmental interests—should be represented in the development of any international instrument or soft-law guidance on AI inventorship and ownership. Active participation will also enable the Indian Patent Office to stay abreast of developments in comparator jurisdictions and to update its domestic guidelines in a timely and internationally coherent manner.

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