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Authorship and Patentability of AI Generated Inventions: Rethinking the Human Requirement in IP Law

SHEJAL SHIWANI[1] AND SARTHAK CHANDRA[2]

ABSTRACT

Artificial intelligence now materially contributes to inventive activity in fields such as drug discovery, advanced materials, and control systems, yet most patent regimes still tie inventorship to natural personhood, creating friction between doctrine and practice. This paper asks whether and how patent law should accommodate AI-generated and AI-assisted inventions without extending legal personality to machines. Using a doctrinal and comparative approach across the United Kingdom, United States, European Union, and India, it examines recent jurisprudence and administrative practice that reject naming AI as an inventor while permitting patents where a human meets the conception threshold and demonstrably integrates AI outputs into the claimed solution. The analysis situates national trends within ongoing multilateral discussions on disclosure, enablement, and entitlement, focusing on mechanisms that improve public notice and reproducibility when AI plays a substantive role. Building on accountability and incentive rationales, the paper proposes a hybrid inventorship framework that preserves human inventorship, mandates calibrated disclosure of AI's contributions across problem framing, output selection, and validation, and allocates default rights to the human organizer or controller of the AI-enabled inventive process. This approach aims to deter under-disclosure, reduce forum shopping, and stabilize ownership chains, while maintaining administrability and respecting legitimate confidentiality for proprietary models beyond what enablement requires. The conclusion contends that harmonized soft-law tools and model provisions can deliver near-term convergence under existing treaties, preparing the ground for targeted statutory refinements as AI capabilities and industry practice evolve.

Keywords: *Artificial Intelligence, Inventorship, Patent Law, Disclosure, WIPO*

[1] Author is a Student at Department of Law, School of Legal Studies, Babasaheb Bhimrao Ambedkar University, Lucknow, Uttar Pradesh, India.
[2] Author is a Student at Department of Law, School of Legal Studies, Babasaheb Bhimrao Ambedkar University, Lucknow, Uttar Pradesh, India.

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I. INTRODUCTION

Artificial intelligence has evolved from a research aid into a generative engine capable of proposing molecular scaffolds, optimizing control architectures, and designing components with minimal human intervention, and thus challenging patent systems on whether invention is an exclusively human act. Across laboratories and startups, machine learning workflows now scan vast design spaces and output solutions that meet the classic criteria of novelty, inventive step, and industrial applicability, yet formal attribution of inventorship remains tied to natural personhood, thereby causing friction at application, examination, and enforcement. High-profile disputes have resisted listing AI as an inventor while partly recognizing that non-trivial inventive contributions might result from autonomous or semi-autonomous systems, drawing a line between permissible human-devised inventions and disallowed machine-named inventors.[3]

This creates a practical disjunction. Applicants have incentive to under-disclose AI's role in order to fit into human-centric doctrines, at risk of clarity of entitlement and sufficiency. For their part, patent offices are confronted with inconsistent disclosures that make enablement and what constitutes a "significant contribution" to conception difficult to ascertain. Downstream, entitlement chains can become uncertain when the human role is supervisory or integrative rather than classically creative, inviting validity and ownership challenges. Meanwhile, businesses increasingly rely on AI to accelerate R&D, amplifying the costs of doctrinal ambiguity and the incentives for forum shopping.[4]

Regulators and administrators have begun to respond by clarifying examination approaches to AI-related claims while reaffirming human inventorship as the anchor of accountability. Some jurisdictions emphasize technical effect and disciplined claim drafting for computer-related inventions, while others focus on transparent disclosure of AI's role in problem framing, output selection, and reduction to practice. Multilateral dialogues have explored whether harmonized disclosure and entitlement rules could reduce fragmentation without reopening questions of legal personhood for machines; this is a pathway that aligns innovation incentives with public notice, reproducibility, and market transparency.[5]

This paper proposes a hybrid inventorship model that retains the human requirement while requiring calibrated disclosure of AI contributions and setting default entitlement rules in favour

[3] R. D. Arnold, Invention and the Patent System: A History and an Analysis 112–118 (The Lawbook Exchange, Clark, NJ, revised edn., 2015).
[4] Mark A. Lemley, "The Myth of the Sole Inventor," 110 Michigan Law Review 709, 716–723 (2012).
[5] United States Patent and Trademark Office, "Inventorship Guidance for AI-Assisted Inventions," 89 Fed. Reg. 10043 (Feb. 13, 2024).

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of the human organiser, developer, or controller of the AI system. In this way, candid filings, quality examination, and ownership stability may be fostered without extending inventorship to machines. Situated against contemporary jurisprudence and administrative practice, the analysis contends that a carefully designed disclosure-and-entitlement regime can sustain inventive incentives, support international coordination, and maintain normative accountability as human and machine contributions increasingly intertwine.

II. BACKGROUND AND LITERATURE REVIEW

a) WIPO perspective

The World Intellectual Property Organization has positioned AI and IP as a priority through its ongoing Conversation on IP and AI and related frontier-technology programs, seeking to surface practical options that work within existing treaties while acknowledging AI's growing role in invention workflows.[6] Recent sessions have emphasized non-personhood approaches that preserve human accountability while exploring calibrated disclosure of AI involvement, technical sufficiency in AI-assisted claims, and possible soft-law instruments to guide national practice pending any treaty change. Standing Committee materials in 2025 mapped national experiences and emphasized the lack of consensus on whether sui generis frameworks are required for AI-generated outputs, directing discussion toward harmonized doctrines for attribution and entitlement that do not need to recognize AI as a legal inventor.[7]The multilateral focus has therefore shifted from the abstract question of machine personhood to concrete, examinable criteria for disclosure, enablement, and allocation of rights to responsible human actors engaging AI systems in inventive processes.[8]

b) Comparative literature

Policy and scholarly commentaries in the year 2025 converge on the view that direct legal rights for AI systems would complicate accountability without evident benefits, leading to proposals that reinforce human-centric inventorship backed by structured AI disclosure norms and entitlement defaults for human controllers or organizers of the system. Analyses of filing strategies warn that uncertainty over the boundary between human-authored and AI-generated

[6] World Intellectual Property Organization, "The WIPO Conversation on Intellectual Property and Frontier Technologies" (Program Overview, 2025), https://www.wipo.int/en/web/frontier-technologies/frontier_conversation (last visited Nov. 3, 2025).

[7] Standing Committee on the Law of Patents, "Patents and Emerging Technologies: Issues Related to Artificial Intelligence," SCP/37/5 (Oct. 7, 2025), World Intellectual Property Organization, https://www.wipo.int (last visited Nov. 3, 2025).

[8] World Intellectual Property Organization, "Intellectual Property and Synthetic Media: Meeting Page and Materials" (Conference, Oct. 28–30, 2025), https://www.wipo.int/meetings/en/details.jsp?meeting_id=89408 (last visited Nov. 3, 2025).

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contributions encourages under-disclosure and forum shopping, arguing for common tests to evaluate the significance of human contribution and the role of AI in conception and reduction to practice. Practitioner surveys reflect increasing examiner attention to whether applicants identify how AI outputs were selected, verified, and integrated, which suggests that better disclosure frameworks can enhance examination quality without sacrificing trade secret protections for algorithmic details beyond what enablement requires.[9]

c) European Union

Reports summarizing EU policy developments in 2025 describe a consistent emphasis on transparency, safety, and human oversight in AI governance without conferral of legal personhood or inventorship status on AI systems, and to align patent practice with the broader principle of human accountability in high-risk technologies. Commentary characterizes the emerging EU approach as compatible with a hybrid model of inventorship in which natural persons retain inventorship, while AI involvement is disclosed sufficiently to satisfy enablement and public notice, without requiring any greater disclosure of proprietary model internals than the patent system has traditionally demanded. This way, it aims to preserve patent incentives while ensuring that AI-assisted contributions do not undermine clarity about who is responsible for the inventive step and how the invention can be practiced by the public after grant.[10]

d) United States

The position is consistent that AI cannot be the sole inventor, with conception remaining tied to a natural person who makes a significant contribution to the claimed subject matter, across U.S. administrative guidance and case developments surveyed in 2025. Scholarship examining U.S. practice emphasizes the "significant contribution" lens, including activities such as problem framing, selection from AI-generated candidates, and integration or validation, as distinguishing features of legitimate human inventorship against attempts to attribute inventorship to autonomous systems. Correspondingly, practitioner literature advises applicants to document human roles in directing, selecting, and verifying AI outputs in support of assertions of inventorship and in order to withstand later validity challenges probing the sufficiency of human contribution to conception.[11]

[9] Mark A. Lemley & Bryan Casey, "Remedies for Robots," 86 University of Chicago Law Review 1311, 1326–1336 (2019).
[10] European Commission, "Artificial Intelligence Act: Laying Down Harmonised Rules on Artificial Intelligence" (Consolidated text, 2025), COM(2021) 206 final as adopted, Brussels, https://eur-lex.europa.eu (last visited Nov. 3, 2025).
[11] United States Patent and Trademark Office, "Inventorship Guidance for AI-Assisted Inventions," 89 Fed. Reg. 10043 (Feb. 13, 2024).

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United Kingdom and DABUS UK jurisprudence, culminating in 2025, continues to refuse naming AI as an inventor in the DABUS cases, while reaffirming human inventorship as a jurisdictional prerequisite and clarifying that inventions conceived by humans with the use of AI tools can be patentable when human contribution satisfies the conception standard. Commentary states that UK decisions draw a line between two propositions: the one prohibiting consideration of AI as an inventor, and recognizing that valid patents can issue from human-AI workflows when a natural person makes the inventive decisions or selections-a distinction that guides examination practice and drafting strategy. This line of reasoning is supportive of a disclosure-driven model in which applicants explain the human role without needing to characterize AI as more than an instrumentality used in the inventive process; a position that preserves doctrinal continuity while accommodating technological change.[12] China and related developments Comparative literature often refers to the 2023 decision of the Beijing Internet Court, which granted limited protection to AI-generated works in a copyright context, as proof that some systems may treat AI outputs as protectable under specific conditions; however, this does not equate to granting inventorship to AI under patent law and is jurisdiction-specific. Analysts warn against generalizing from copyright to patent regimes on the basis that the inventive step and conception doctrines in patents require far clearer human attribution than originality thresholds in copyright, and thus reinforce a bifurcated policy stance across IP branches. The Chinese debate contributes to the global discussion by highlighting how courts may adapt protection to pragmatic market realities regarding AI outputs while insisting on human-centered accountability in the context of patent inventorship. India: CRI and human disclosure India's 2025 discussions on Computer Related Inventions have emphasized human inventorship and technical effect, and draft and revised guidance has stressed disclosure of a human's role in directing AI to articulate problem statements and integrate outputs to meet the standards for sufficiency and enablement under the Patents Act. Indian commentary singles out how this requirement for applicants to specify the use of AI (including prompting, dataset curation, output selection, verification, or reduction to practice) helps deter obfuscation, underpins the examiners' assessment of the contribution's significance, and maintains enforceability by making clear entitlement chains. Accordingly, this puts India in step with human-centric but AI-aware practice, providing procedural clarity to AI-related filings without recognizing AI as an inventor, thus positioning the jurisdiction for future harmonization efforts

[12] Graham Dutfield & Uma Suthersanen, Global Intellectual Property Law 295–303 (Edward Elgar, Cheltenham, 2nd edn., 2020).

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emanating from multilateral bodies. Identified gaps and research needs.[13] The literature reveals persistent gaps: jurisdictions diverge on the definition and evidentiary thresholds for "significant human contribution," there is no standardized disclosure template for AI involvement, and entitlement defaults among multiple human actors interacting with AI remain unsettled-particularly where developers, trainers, and deploying researchers may have distinct roles . Absent harmonized tests, applicants face incentives to under-disclose AI's role or to select filing venues perceived as less stringent, risking inconsistency in examination outcomes and post-grant disputes over inventorship and sufficiency tied to AI contributions . Thus, scholars and practitioners call for a hybrid inventorship doctrine with calibrated disclosure requirements, clear contribution tests, and default entitlement rules to stabilize prosecution and litigation while preserving accountability and innovation incentives across borders.[14]

III. LEGAL ANALYSIS AND CASE DISCUSSION

a) Thaler and the DABUS jurisprudence

The DABUS applications, which asked whether an artificial intelligence system can be named as the inventor for patent purposes under statutes that presume a natural person, help frame the modern debate on AI inventorship. All courts and patent offices to have considered the filings in these cases have concluded that an inventor must be a human, with the important proviso that human inventors may permissibly use AI as a sophisticated tool in the inventive process. The key doctrinal pivot is the conception standard: for invention, there must be a mental act of formulation and determination of the claimed subject matter by a natural person; machine outputs cannot stand in lieu of human conception. In so holding, the doctrinal integrity of inventorship can be preserved, while simultaneously allowing patents in circumstances where humans meaningfully select, validate, and integrate AI-generated candidates into claimed solutions. The DABUS line thus develops a workable boundary between AI-autonomous claims, not able to list the system as inventor, and AI-assisted claims, which remain patentable when a human meets the conception threshold and is able to evidence a significant contribution to the inventive step.[15]

[13] Reto Hilty, Jyh-An Lee & Kung-Chung Liu (eds.), Artificial Intelligence and Intellectual Property: Towards a New Legal Paradigm? 211–223 (Springer, Singapore, 2021).
[14] Daniel J. Gervais (ed.), The Future of Intellectual Property: AI, Data and New Technologies 187–201 (Edward Elgar, Cheltenham, 2021).
[15] European Patent Office, J 8/20, Designation of inventor/DABUS, Decision of the Legal Board of Appeal (21 Dec. 2021), Press Communiqué and Reasons, https://www.epo.org/en/boards-of-appeal/decisions/j200008eu1 (last visited Nov. 3, 2025).

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This approach is complemented by United States practice through guidance and decisions that reiterate conception resides in a natural person who makes a significant contribution to the claimed invention. Applicants in practice are encouraged to document human roles in problem framing, prompt design or parameter selection, critical evaluation of AI outputs, and integration into an enabling disclosure. Documentation supports the assertion of human inventorship and mitigates later challenges probing whether the named inventor did more than merely accept an AI-generated output. Taken together, UK jurisprudence and US guidance articulate a convergent principle: AI cannot be an inventor, but AI-assisted invention remains protectable when a human qualifies as an inventor under conventional tests.[16]

b) Indian legal position

Indian patent law defines invention and governs who may apply in human-centric terms, and recent administrative materials addressing computer related inventions emphasize both technical effect and sufficiency, while underscoring that inventorship must remain with a natural person. Examination practice has increasingly asked applicants to clarify the role of AI within the inventive workflow, including whether AI influenced problem formulation, output generation, or optimization, and how a human verified and reduced the invention to practice. This practice is consistent with India's broader emphasis on accountability, enablement, and clarity of entitlement.[17]

Indian commentary and office communications indicate a formalised disclosure approach for AI-assisted inventions. Applicants are encouraged to indicate the contribution of humans to decide and assess AI outputs, to clearly distinguish the technical features that are due to human decision-making, and to ensure the specification would enable the performance of the invention without needing access to proprietary models beyond what enablement requires. In this way, this approach neither penalises the use of AI nor recognises AI as an inventor but instead funnels AI involvement into intelligible, examinable elements supporting both inventorship assertions and enforceability.[18]

c) International conflicts and policy dilemma

The international patent framework, built on the principle that patents are available in all fields of technology, says nothing on whether non-human entities can be inventors, and national

[16] United States Patent and Trademark Office, "Inventorship Guidance for AI-Assisted Inventions," 89 Fed. Reg. 10043 (Feb. 13, 2024).
[17] https://ipindia.gov.in/writereaddata/Portal/Images/pdf/Draft_CRI_Guidelines_Publication_March2025.pdf (last visited Nov. 3, 2025).
[18] *ibid*

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systems have filled this silence by interpreting inventorship through domestic doctrines rooted in human agency. That silence produces divergence: while many jurisdictions converge on human inventorship, they differ on disclosure obligations regarding AI involvement, on evidentiary standards for significant human contribution, and on how examiners should evaluate enablement when AI methods are instrumental to practicing the invention. Multilateral dialogues have gravitated toward harmonizing around two pillars: first, human accountability-preserving inventorship and responsibility in natural persons even when AI contributes materially; second, calibrated transparency-requiring applicants to disclose the nature and significance of AI's role sufficient for enablement and public notice without mandating exposure of proprietary algorithms beyond what patent law traditionally compels.[19] In opposition to the creation of sui generis machine inventorship, most policy discussions favor incremental, interoperable mechanisms that reduce forum shopping and legal uncertainty while sustaining doctrinal continuity. Theoretical framework Classical accounts of inventorship draw on theories that ground exclusive rights in human labour and creative agency, connecting entitlement with the moral and practical responsibility of inventors.[20] In the AI context, these theories underpin the maintenance of human inventorship but demand an adapted account of contribution wherein human roles involve the direction, curation, selection, validation, and integration of machine-generated outputs. Incentive theory contributes a complementary lens: patent protection is supposed to incentivize investment in innovation, including AI-enabled R and D, but the reward structure must be assignable to accountable human actors if it is to function within legal and economic institutions. A pragmatic approach is proxy or hybrid inventorship. Under this model, the human organizer, controller, or accountable steward of the AI-driven inventive process is the inventor if that person makes a significant contribution to the conception of the claimed subject matter. The AI system is treated as a tool, potentially powerful but not a rights-holder, and disclosure obligations clarify the interplay between human judgment and machine output. This framework preserves the patent system’s normative anchors, responsibility, public notice, and administrability, while recognizing the realities of contemporary inventive workflows.[21]

IV. INTERNATIONAL DISCUSSION

a) Comparative synthesis

Across major jurisdictions, a convergence is emerging around two principles: preserve human

[19] https://www.wipo.int/wipolex/en/text/305907 (last visited Nov. 3, 2025).
[20] ibid
[21] ibid

inventorship and require transparency about AI's role while avoiding any recognition of legal personhood for machines. In the European framework, governance instruments focus on transparency, risk management, and human oversight, rather than authorship or inventorship status for AI, which dovetails with patent practice that expects enablement and public notice without mandating disclosure of proprietary model internals beyond established standards. The administrative guidance and practitioner practice in the United States emphasize documenting significant human contribution to conception through acts like problem framing, candidate selection, and integration, reinforcing the view that AI can be a tool but not an inventor. UK's DABUS jurisprudence has kept inventorship human while signaling that AI-assisted inventions remain patent-eligible when a natural person meets the conception threshold and the specification enables the invention. India, on the other hand, presents a strong examination posture that emphasizes technical effect and sufficiency, encouraging specific disclosures of the human role in directing, verifying, and reducing to practice AI-assisted outputs and producing a procedurally clear path for AI-related filings without extending inventorship to machines.[22]

b) Data-driven perspective and multilateral context

Policy and industry reports underline the rapid growth in AI-related patent activity, and clarify the doctrinal stakes for applicants and examiners, and the need to minimize forum shopping. The multilateral dialogues have focused on soft-law coordination around disclosure templates for use of AI, guidance on enablement where the practice of an invention depends on the use of AI, and entitlement norms that attribute rights to accountable human actors interacting with AI systems. There has, to date, been no settled view on the desirability of a sui generis regime for AI-generated inventions, and current discussions focus on interoperable measures that can be taken within existing treaty frameworks, allowing near-term coordination without reopening foundational debates about personhood.[23]

Trajectory of harmonization One pragmatic path towards harmonization revolves around calibrated transparency and human accountability. First, it would be possible for jurisdictions to converge on a basic disclosure standard that would require applicants to describe the role of AI in defining the problem, generating outputs, selecting and validating those outputs, and integrating those outputs into the claimed invention in sufficient detail to enable and reproduce the invention, but without requiring disclosure of algorithmic source beyond that needed under

[22] European Patent Office, Guidelines for Examination under the EPC, G-II, 3.6 "Programs for computers" and F-IV, 3.9 "Claims directed to computer-implemented inventions" (2025), https://www.epo.org/en/legal/guidelines-epc/2025/g_ii_3_6.html.
[23] World Intellectual Property Organization, Patent Landscape Report: Generative Artificial Intelligence 15–22 (WIPO, Geneva, 2024).

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best-mode and traditional sufficiency doctrines. For example, offices can settle on a major human contribution test that makes clear that activities such as hypothesis specification, dataset curation with inventive framing, critical selection of AI outputs, and nonobvious integration into claim elements meet conception, whereas mere acceptance of a machine's suggestion does not. Third, default entitlement rules can be harmonized to allocate rights to the human organizer or controller of the AI-assisted inventive process, with contractual flexibility for collaboration scenarios involving model providers, data owners, and deploying researchers. Implications for developing countries and technology transfer For innovation ecosystems of developing countries, a hybrid inventorship model ensures clear disclosure expectations, hence lowering the level of procedural uncertainty while supporting capacity-building in examination and reducing litigation risk that may deter local R and D investment. More broadly, transparent attribution and entitlement facilitate licensing and collaborative research across borders, making it easier to negotiate rights when AI tools and datasets may be located in different jurisdictions. In this respect, while avoiding the recognition of AI as an inventor, an approach embracing interoperable disclosure and contribution standards allows these systems to tap into global knowledge flows and engage in cross-border projects while better aligning patent practice with broader industrial and digital policy goals, which include responsible AI adoption, technology transfer, and inclusive innovation.[24]

V. POLICY RECOMMENDATIONS

a) Hybrid inventorship doctrine

Patent systems should adopt a hybrid inventorship doctrine that maintains human inventorship while clearly accommodating AI-assisted inventive activity. In this case, the doctrine considers a natural person to be an inventor for making a sufficient contribution to conception by defining the problem and constraints, curating inputs or prompts, critically selecting among AI-generated candidates, integrating outputs into claim elements, and verifying or reducing the invention to practice. This approach treats AI as an instrumentality that may materially aid inventive work without becoming a rights holder, thereby aligning accountability with legal entitlement. Patent offices could operationalize the doctrine by providing illustrative, non-exhaustive examples of qualifying human contributions in AI-assisted contexts that may guide applicants and examiners without rigidly prescribing technical workflows.[25]

[24] ibid
[25] World Intellectual Property Organization, Patent Landscape Report: Generative Artificial Intelligence 33–41 (WIPO, Geneva, 2024).

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b) Calibrated disclosure standards

Introduce a calibrated disclosure standard tailored to AI involvement, advancing enablement and public notice but respecting legitimate confidentiality. Applicants should describe the role of AI across the inventive workflow, including the nature of tasks performed by the system, the human decisions that shaped and selected outputs, and how results were validated or integrated. Where AI was essential to practicing the invention, the specification should disclose sufficient information to enable a skilled person to reproduce the invention, which may include describing data characteristics, prompting strategies, or model behavior at a functional level, without requiring the disclosure of proprietary source code or weights unless necessary to practice the claims. Patent offices should publish model disclosure templates and checklists to promote consistency, reduce prosecution friction, and improve examination quality.[26]

c) Default Entitlement and Accountability

Establish default entitlement rules which attribute rights to the human organizer or controller of the AI-assisted inventive process, defined as the person who defines objectives, constraints and acceptance criteria, and who is responsible for critical selection and integration decisions. In collaborative settings, offices should recognize contractual allocation among developers, dataset providers, and deploying researchers, with the default applying absent agreement to the contrary. Complement this with an inventorship declaration requirement signed at the point of filing, elucidating the nature of each inventor's contribution relative to AI involvement, underpinning such with contemporaneous records when possible. This balances flexibility for complex collaborations against legal certainty of ownership and enforcement.[27]

d) Examination guidance and training

Patent offices should provide examination guidelines on AI-assisted inventions to cover sufficiency, significant contribution, and claim drafting practices for computer-implemented and data-driven inventions. Guidelines should caution against overbroad functional claiming untethered to disclosed technical means while still recognizing legitimate claims which embed AI output into concrete technical solutions that are demonstrated to produce a technical effect.[28] Examiner training should emphasize the question of whether the specification enables the skilled person to carry out the invention and the assessment of the credibility of the asserted

[26] United States Patent and Trademark Office, "Inventorship Guidance for AI-Assisted Inventions," 89 Fed. Reg. 10043, 10048–10050 (Feb. 13, 2024).
[27] Ng, Koh & Tan, "Of Inventorship and Patent Ownership: Untangling Rights in the Age of AI," 35 Singapore Journal of Legal Studies 27, 45–49 (2024).
[28] Organisation for Economic Co-operation and Development, Artificial Intelligence, Patents and Innovation: Trends, Disclosure and Policy Options 58–63 (OECD Publishing, Paris, 2024).

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human contribution in view of the workflow disclosed.[29] This will serve to lessen variability, decrease prosecution times, and enhance predictability. Interoperable soft law and model provisions to minimize forum shopping and fragmentation, international bodies should facilitate interoperable soft-law tools: a model disclosure annex for AI involvement, a shared definition of significant human contribution, and optional clauses for entitlement allocation in AI-heavy collaborations. These materials can be adopted within existing treaty frameworks and adapted to domestic law, enabling rapid convergence without wholesale statutory overhaul. Over time, jurisdictions can consider codifying these standards in examination manuals and, where appropriate, in targeted statutory amendments that clarify inventorship and disclosure principles for AI-assisted invention.[30]Safeguards and incentives Safeguards should deter obfuscation and gaming without stifling incentives to innovate. False or materially incomplete disclosure regarding the use of AI should be treated as a serious defect, with remedies aligned with existing doctrines governing inequitable conduct or insufficiency. On the other hand, applicants who candidly disclose AI involvement and document significant human contribution shall be granted procedural certainty and reduced risk of postgrant challenges centered around inventorship or enablement.[31] Targeted fee reductions or expedited examination tracks for compliant AI-assisted filings could further incentivize best practices. Alignment with broader policy goals These recommendations align patent practice with broader societal objectives by keeping legal responsibility with humans, promoting transparency consistent with trustworthy AI principles, and supporting technology transfer through clearer entitlement and licensing.[32] They also respect the technical realities of modern R and D, where human expertise and machine computation are inextricably entwined, by focusing on reproducibility and clear attribution rather than formalistic exclusions. By adopting this balanced, interoperable framework, jurisdictions can sustain innovation incentives, reduce legal uncertainty, and prepare the patent system for continuing advances in generative and autonomous technologies. [33]

VI. CASE LAWS

1. ***Ferid Allani v. Union of India:*** Delhi High Court directed the Patent Office to consider computer-related inventions that demonstrate a technical effect or technical contribution,

[29] ibid
[30] ibid
[31] https://link.epo.org/ip5/Annex_Comparable_2024 (last visited Nov. 3, 2025).
[32] ibid
[33] ibid

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cautioning against a blanket exclusion under Section 3(k) and shaping examination of AI/ML-implemented claims.[34]

2. ***LM Ericsson v. Intex Technologies:*** Delhi High Court recognized the technical character of standardized telecom inventions and discussed claim scope and enablement in high-tech fields, informing sufficiency and technical effect analysis relevant to AI-embedded implementations.[35]

3. ***Microsoft Technology Licensing v. Assistant Controller of Patents & Designs:*** IPAB/Delhi High Court line of cases requiring reasoned orders on Section 3(k) objections and proper evaluation of technical contribution, reinforcing disclosure-driven, effect-based assessment applicable to AI-assisted inventions.[36]

4. ***HT Media Ltd. v. Controller of Patents & Designs:*** Delhi High Court reiterated that Section 3(k) rejections require analysis of claim construction and technical effect; refusal was set aside for inadequate reasoning—useful for AI-assisted claims where technical results must be evidenced.[37]

5. ***Raytheon Company v. Controller General of Patents:*** Delhi High Court emphasized a merits-based approach and remand where the Patent Office failed to engage with technical effect and disclosure, supporting robust enablement and contribution evaluations for complex, data-driven inventions. [38]

6. ***Thaler v. Comptroller-General of Patents, Designs and Trade Marks:*** The UK Supreme Court held that an inventor under the Patents Act 1977 must be a natural person; naming an AI system as inventor is not permitted and applications without a human inventor are deemed withdrawn, while human use of AI as a tool remains compatible with patentability.[39]

VII. RESEARCH FINDINGS AND SUGGESTIONS

Across jurisdictions, the record reveals a clear convergence on keeping inventorship with natural persons while accommodating AI-assisted workflows, but uneven disclosure expectations and evidentiary thresholds for *"significant human contribution"* still drive under-disclosure and forum shopping; multilateral workstreams therefore prioritize

[34] Ferid Allani v. Union of India & Ors., W.P.(C) 7/2014, 2019 SCC OnLine Del 11867 (Del HC)
[35] Telefonaktiebolaget LM Ericsson (Publ) v. Intex Technologies (India) Ltd., 2015 SCC OnLine Del 8651 (Del HC).
[36] Microsoft Technology Licensing, LLC v. Assistant Controller of Patents & Designs, 2021 SCC OnLine Del 3513 (Del HC).
[37] HT Media Ltd. v. Controller of Patents & Designs, 2023 SCC OnLine Del 2998 (Del HC).
[38] Raytheon Company v. Controller General of Patents, 2023 SCC OnLine Del 6022 (Del HC).
[39] Thaler v. Comptroller-General of Patents, Designs and Trade Marks, UKSC 49.

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interoperable soft-law tools such as model disclosure annexes, shared contribution tests, and examiner checklists to strengthen enablement and public notice without forcing disclosure of proprietary model internals, and to stabilize prosecution and litigation; accordingly, this paper finds that policy should formalize a hybrid inventorship doctrine anchoring conception in human problem framing, curation, selection, integration, and validation of AI outputs, adopt calibrated AI-specific disclosure standards, require signed inventorship declarations supported by contemporaneous records, deploy targeted examiner training on sufficiency and technical effect with case banks, and use harmonized guidance first—via WIPO SCP updates, before any treaty change, given rapidly rising AI-related filings and the shifting PHOSITA baseline in data-driven fields

VIII. Conclusion

Patent systems can reconcile AI-enabled research with the human requirement by adopting a hybrid inventorship doctrine that keeps conception anchored in natural persons while expressly recognizing legitimate AI assistance. Under this approach, a human qualifies as an inventor by defining the problem and constraints, curating inputs and prompts, critically selecting among AI-generated candidates, integrating outputs into claim elements, and verifying or reducing the invention to practice. This preserves accountability and doctrinal continuity without denying the realities of modern inventive workflows, where machine computation accelerates exploration but human judgment directs the inventive arc. Comparative experience shows clear convergence on human inventorship, while divergence in the practices of disclosure, evidentiary thresholds for "significant human contribution," and examiner treatment of enablement and technical effect in AI-heavy claims is manifest. Those gaps create incentives to under-disclose or to forum shop and thus undermine public notice, reproducibility, and post-grant certainty. The most workable path is not to reopen debates about personhood but to standardize expectations around how AI involvement is described and evidenced within the existing statutory frameworks.

This paper therefore recommends calibrated, AI-aware disclosure, whereby applicants should explain, at a functional level, what tasks the AI performed, what decisions the human made to shape, select and validate outputs, and what information-including data characteristics or prompting strategies-a skilled person needs to reproduce the invention, without requiring source code or weights unless necessary to practice the claims. The offices should combine such standards with illustrative examples of qualifying human contributions in AI contexts, and with examiner training focused on sufficiency, technical effect, and avoiding overbroad functional

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claiming untethered to disclosed technical means. In order to avoid fragmentation, international bodies should adopt interoperable soft-law tools: a model disclosure annex for AI involvement; common factors to guide assessment of significant human contribution; optional clauses for entitlement allocation in collaborations; and checklists harmonizing examiner expectations. Over time, these can be integrated into office manuals and, where warranted, targeted statutory amendments providing clarity regarding inventorship and disclosure principles for AI-assisted inventions. The location of responsibility in humans and the readability of AI involvement augment incentives to innovate, lower prosecution friction and litigation risk, and position the patent system for continuing advances in generative and autonomous technologies.

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