International Journal of Web of Multidisciplinary Studies
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
website: https://ijwos.com OPEN ACCESS E-ISSN : 3049-2424
Volume 3 Issue 6 , June 2026
DOI: https://doi.org/10.71366/ijwos03062656548

Patentability of AI-Invented Inventions: A Global Legal Analysis

Karan Chaudhary[1], Himangshu Rathee[2], Mehul Rathee[3], Arjun Chaudhary[4]
[1,2,3,4] *Lawyer, Independent researcher.*

Article Info

Article History:

Published: 8 June 2026

Publication Issue:
Volume 3, Issue 6
June-2026

Page Number:
48-58

Corresponding Author:
Arjun Chaudhary

Abstract:

Since artificial intelligence (AI) technology is advancing at a rapid rate, a legal question has been raised: Should AI be allowed to be recognized as an inventor in patent laws? The study reviews how the law on AI invention applies around the globe, mostly looking at rules, case decisions and relevant policies from key countries like the United States, United Kingdom, European Union, South Africa, India, China, Japan and Australia. A study of case law and by reviewing the examples shows that most nations agree that inventorship must be assigned to humans only, based on the legal and philosophical concepts of accountability. South Africa stands out as the only country to include AI legally as an inventor which points to legal issues across the globe and puts questions about international coordination in focus. The study ends by urging for flexible laws that can keep up with the gap between innovation and regulation and lists ways to ensure fair and timely treatment of AI-driven inventions, suggesting legislative reform, changing who owns inventions or creating unique legal protections for them.

Keywords: AI inventorship, patent law, DABUS case, intellectual property, global legal analysis, artificial intelligence, patentability

1. Introduction

Emergence of artificial intelligence in invention processes

With the rise of AI, the way the world views invention and creativity has been greatly altered by experts in the field (Verganti, et al., 2020). Now, machine learning models, natural language tools and generative systems in AI can produce answers to technical questions, forms of art and even new discoveries in science (Hughes et al., 2021). As technologies get more advanced, they test the main laws that support intellectual property. The main issue in this legal discussion is whether an AI can be given inventor status in patents.

Traditional legal frameworks and human-centric inventorship

Patent systems in different locations have typically been designed from a human-focused perspective of who invents things. Laws in many nations and worldwide conventions such as TRIPS, EPC and the US Patent Act usually state that only a person (not a company) is an inventor (Ghanghas et al., 2021). It reflects the widespread belief in law and philosophy that creativity comes from humans alone. The main goal of patent laws is to recognize people who work on new inventions by giving them exclusive rights (Encaoua et al., 2006). Yet, AI made inventions make it clear that the traditional model is flawed when it is difficult to spot the human element in the invention.

Legal inconsistencies across jurisdictions

As courts and patent offices are confronted with AI-generated inventions, their responses have been fragmented and inconsistent (Koutras, 2024). The landmark DABUS cases—where the AI system "Device for the Autonomous Bootstrapping of Unified Sentience" was listed as the sole inventor—triggered legal proceedings in multiple countries. Courts in the United States, United Kingdom, and the European Union have ruled that only natural persons can be inventors under their respective laws. In contrast, South Africa and a few other jurisdictions have taken a more flexible stance, allowing patent applications that list an AI system as an inventor (Mukwevho & Oriakhogba, 2024), provided a natural person can be identified as the applicant or owner. These legal divergences underscore the lack of international consensus and have implications for patent harmonization efforts.

Challenges to patent eligibility and inventive step doctrine

A major legal challenge associated with AI-invented inventions lies in assessing patent eligibility and the inventive step (or non-obviousness) criterion (Helman & Parchomovsky, 2024). Since AI can process vast datasets and produce solutions through algorithmic trial-and-error or deep learning, questions arise as to whether such inventions are truly "non-obvious" to a person skilled in the art. If AI becomes a routine tool in invention processes, this could raise the threshold for inventive step, potentially narrowing the scope of patentable subject matter (Shemtov & Gabison, 2022). Legal scholars and policymakers are now re-evaluating whether traditional standards of inventiveness can be fairly applied to inventions generated through autonomous or semi-autonomous algorithms.

Global policy and ethical considerations

There are several considerations in global policies about recognizing or denying AI as an inventor such as encouraging invention, openness and fair sharing of technology (Lauterbach, 2019). Certain experts argue that acknowledging AI as an inventor would encourage more insights and ensure fairness in crediting ideas, while some people think this could make patenting less justified because AI removes the personal nature. WIPO and WTO have begun reviewing these issues and agreement among nations is proving difficult.

Need for legal reform and adaptive frameworks

Since AI keeps expanding the reach of innovation, the law has to change to stay current and clear. Either by changing legislation, giving new legal interpretations or introducing special rights, legal adjustments are important to meet today’s technological progress in AI. It examines the laws currently in effect, how different courts have dealt with similar issues and possible options for including AI-generated inventions in the international system of patents.

2. Methodology

Doctrinal legal research approach

The study follows a doctrinal legal approach, concentrating on the meaning, comparison and study of laws, cases and guidelines responsible for ruling on AI inventions. Using doctrinal research allows one to find out how patent laws currently apply to AI inventors and their creations. Data analysis centers on parent legislation, international accords,

guidelines by administrative bodies and verdicts of courts. In addition, other helpful sources, for example scholarly articles, law commission reports and policy briefs, have been reviewed to add more interpretation.

Comparative legal analysis across jurisdictions

A comparative legal analysis was undertaken to evaluate how different jurisdictions address the issue of AI inventorship. The study focused on major patent offices and legal systems including the United States (USPTO), European Union (EPO), United Kingdom (UKIPO), China (CNIPA), Japan (JPO), India, and South Africa. Each jurisdiction was examined for its statutory definition of "inventor," case law precedents, patent office rulings, and administrative guidelines relevant to AI-generated inventions. Particular attention was given to legal language, statutory interpretation, and the evolving jurisprudence surrounding non-human inventorship.

Case study: The DABUS litigation

To anchor the analysis in real-world developments, the study includes a detailed case study of the DABUS (Device for the Autonomous Bootstrapping of Unified Sentience) litigation, which serves as a pivotal example of how AI inventorship claims are handled across various legal systems. The DABUS patent applications were filed in more than a dozen countries, each listing the AI as the inventor and Dr. Stephen Thaler as the applicant. The study traces the judicial reasoning and administrative decisions in the United States (Thaler v. Vidal), United Kingdom (Thaler v. Comptroller-General of Patents), European Union, and South Africa. These cases provide a concrete lens through which to assess divergent legal interpretations and highlight the fault lines in global patent law concerning AI.

Legal content analysis and thematic coding

The legal content collected from statutes, rulings, and policy documents was subjected to thematic analysis to identify recurring patterns, principles, and conflicts. Key themes coded include: (1) the definition of "inventor," (2) the requirement of human agency, (3) the role of disclosure and ownership in AI inventions, and (4) the implications of recognizing AI as an inventor. This coding allowed the research to map doctrinal consistency and divergence across legal systems, providing a basis for analytical synthesis.

Policy and ethical review integration

In addition to legal doctrine, the study integrated a policy review to assess the ethical and innovation policy considerations linked to AI inventorship. Documents from international organizations such as WIPO, OECD, and WTO were analyzed for their positions on intellectual property reform and AI governance. The interplay between ethics, innovation incentives, and legal formalism was critically evaluated to recommend adaptive legal frameworks.

Limitations and scope of study

The study is limited to jurisdictions with active legal discourse on AI inventorship and patent filings related to autonomous systems. While the DABUS case provides a prominent example, there may be other less-publicized instances of AI-generated inventions that have not undergone litigation or media scrutiny. The research does not

empirically test patent office behavior but is confined to normative and case law analysis, which is appropriate given the doctrinal nature of the inquiry.

3. Results

The global legal landscape surrounding the patentability of AI-generated inventions remains fragmented and inconsistent, as illustrated in Table 1. Most jurisdictions, including the United States, United Kingdom, European Union, China, Japan, and India, categorically reject the notion of AI as an inventor, adhering strictly to the definition of an inventor as a natural person. Only South Africa has officially granted a patent naming an AI—DABUS—as the inventor, making it an outlier in the global patent regime. Australia briefly recognized AI inventorship before the decision was overturned on appeal, while countries like India and China are currently engaged in policy-level discussions without formal reform.

Table 1: Legal Recognition of AI as Inventor – Jurisdictional Overview

Jurisdiction	Recognizes AI as Inventor?	Legal Position	Governing Law/Body	Notes
United States	No	Inventor must be a natural person	USPTO, U.S. Patent Act	Thaler v. Vidal – AI lacks legal personhood
United Kingdom	No	Only natural persons allowed	UKIPO, Patents Act 1977	Court of Appeal upheld rejection of DABUS
European Union	No	Human inventorship required	EPO, EPC	Emphasized "legal fiction" cannot apply to AI
South Africa	Yes	AI can be inventor	CIPC	No statutory bar found; patent granted
Australia	Initially Yes	Overturned by Full Court	IP Australia	Initial acceptance reversed on appeal

India	No	Silent, but follows human model	Indian Patents Act, 1970	Yet to address AI inventorship in litigation
China	No (under debate)	Inventor must be human	CNIPA	Policy studies ongoing
Japan	No	Natural person standard	JPO, Patent Act	Emphasizes role of human contribution

The comparative judicial outcomes of the high-profile DABUS litigation across multiple jurisdictions are summarized in Table 2. Courts and patent offices in the U.S., U.K., and the EU dismissed the applications on the basis that AI lacks legal personhood and thus cannot fulfill the statutory role of an inventor. South Africa, however, permitted the DABUS application, citing the absence of a legislative bar against non-human inventors. This variation in rulings underscores the absence of a harmonized legal interpretation and reveals the tensions between existing law and emerging technology.

Table 2: Summary of DABUS Case Outcomes by Country

Country	Court / Authority	Decision on AI Inventorship	Reasoning Summary
United States	Federal Circuit	Rejected	No legal framework for non-human inventors
UK	Court of Appeal	Rejected	Legal interpretation requires natural person
EU	European Patent Office	Rejected	EPC interprets inventor as a human
South Africa	Companies and IP Commission	Accepted	No express exclusion of AI in statute

Australia	Federal Court (Appeal)	Rejected (Reversed)	Only humans can be inventors under law

A thematic synthesis of key legal issues is presented in Table 3, where several cross-cutting themes emerge. The "natural person requirement" stands as a universal legal hurdle to AI inventorship. Additionally, the decoupling of inventorship from ownership is gaining traction, particularly in the context of assigning AI-generated patents to human applicants or institutions. The issue of moral and ethical responsibility also features prominently, especially in European and Japanese legal contexts, where human agency is tied to accountability for the invention's consequences.

Table 3: Key Legal Themes Identified Across Jurisdictions

Legal Theme	Jurisdictions Supporting Theme	Implications for AI Inventorship
Natural Person Requirement	US, UK, EU, Japan, China, India	Major barrier to recognizing AI as inventor
Need for Legislative Reform	All (esp. AU, UK, EU)	Legal uncertainty pushing demand for reform
Ownership vs. Inventorship	South Africa, WIPO discussions	Suggests bifurcation of rights could be explored
Ethical/Moral Concerns	EU, Japan	Legal subjectivity tied to human ethical agency
Disclosure and Accountability	All jurisdictions	Importance of human agent to fulfill obligations

Further, Table 4 provides a summary of the positions taken by major international organizations. WIPO and WTO have yet to release binding guidelines but continue to explore the implications of AI in intellectual property through consultations and position papers. The OECD, in particular, emphasizes the need for accountability and transparency, suggesting a broader policy framework beyond simple legislative amendments.

Table 4: International Organizations and Policy Stances on AI and IP

Organization	Policy Document	Position on AI Inventorship	Recommendation Type
WIPO	WIPO Tech Trends & IP Dialogues	Studying global positions; no unified policy	Ongoing consultations
WTO	TRIPS Agreement Analysis	No explicit mention of AI inventorship	Open to interpretation
OECD	AI Policy Observatory	Recommends human oversight and accountability	Ethical guidance
EU Commission	White Paper on AI Regulation	Emphasizes trust, liability, and transparency	Regulatory framework proposed

These legal trends are visually represented in Figure 1, a world map depicting the varying levels of legal acceptance of AI inventorship. Countries are color-coded: red for those rejecting AI inventorship, orange for those under review, and green for acceptance. South Africa is the only jurisdiction shaded green, illustrating its acceptance of AI as an inventor, while countries such as the U.S., U.K., and EU remain firmly in the red category. Australia, after initial acceptance, has reverted to red due to judicial reversal.

Figure 2 further deepens the analysis by showing a heatmap of legal challenges versus legislative reform interest across jurisdictions. The European Union and United Kingdom appear in the upper-right quadrant, reflecting both high legal resistance and strong momentum for reform. Conversely, South Africa and India are positioned in the lower-left quadrant, indicating minimal legal conflict and low-to-moderate reform urgency. The United States exhibits high legal rigidity with relatively low policy responsiveness, suggesting institutional reluctance to adapt existing frameworks.

Figure 1: Global map of legal recognition for AI as Inventor

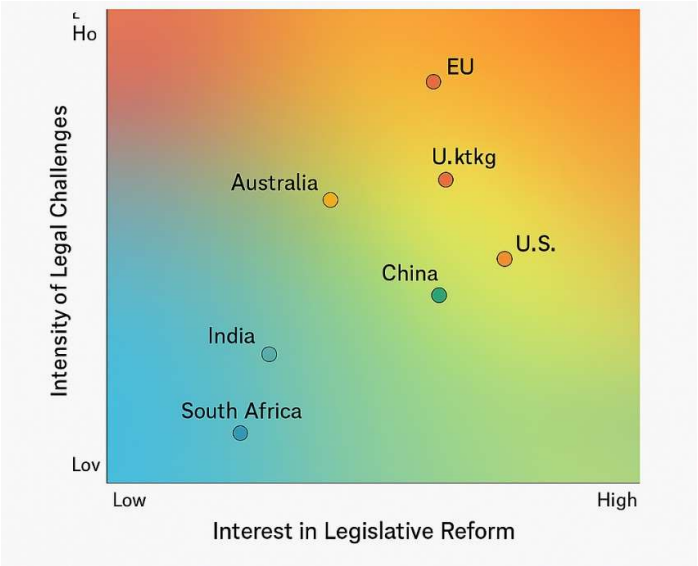

Figure 2: Heatmap of legal challenges vs. reform interest

Discussion

Fragmented legal interpretation and the centrality of human inventorship

The results reveal that most jurisdictions continue to uphold a rigid interpretation of inventorship as being exclusive to natural persons. As seen in Table 1 and demonstrated by the outcomes of the DABUS litigation summarized in Table 2, the core resistance stems from the requirement that inventors must possess legal personhood and cognitive agency traits not attributable to AI under current law (Igbokwe, 2024). The United States, European Union, and United Kingdom remain steadfast in this interpretation, citing statutory and doctrinal constraints. This reflects a deeper legal conservatism, where innovation in the technology space has not yet been matched by corresponding legal adaptation (Kazachanskaya & Mamychev, 2021).

South Africa as a legal outlier and the implications for global patent norms

South Africa's recognition of AI as an inventor marks a significant deviation from global norms. As indicated in Figure 1, it remains the only country to have granted a patent naming an AI entity without human co-inventorship. This decision, as discussed in Table 2, was not necessarily rooted in a progressive legal framework but rather in the absence of restrictive language in its patent law. This opens up important questions about the role of statutory silence versus statutory intent in determining eligibility (Busuioc et al., 2023). South Africa's position could encourage similar legal interpretations in jurisdictions lacking clear guidance, potentially setting the stage for precedent-based reform or conflict.

The tension between innovation and legal doctrine

The heatmap in Figure 2 clearly visualizes the growing tension between technological advancement and legal doctrine. Countries like the European Union, United Kingdom, and Australia experience high legal resistance coupled with a strong push for reform, indicating a systemic realization that existing laws may no longer serve the realities of AI-assisted innovation (Cohen et al., 2025). However, the slow pace of legislative change in these jurisdictions suggests a cautious approach. Legal systems are grappling not only with doctrinal rigidity but also with the ethical and socio-political implications of granting inventive credit to machines (Cohen et al., 2025).

Inventorship versus ownership: a pathway for reconciliation

One of the recurring themes in Table 3 is the distinction between inventorship and ownership. Even if an AI system cannot be listed as an inventor under current frameworks, assigning ownership of AI-generated inventions to human developers, operators, or institutions could provide a practical workaround (Maharjan, 2024). This model, which aligns with corporate ownership of employee-generated inventions, may offer legal continuity while accommodating technological novelty. It would also preserve accountability and provide a mechanism for enforcing patent rights, both of which are necessary for the functioning of the patent system.

International harmonization and the role of global institutions

As noted in Table 4, international organizations such as WIPO, WTO, and OECD have initiated discussions around the broader implications of AI in intellectual property law. However, there is a conspicuous absence of binding international standards. This lack of harmonization presents challenges for inventors, corporations, and governments alike, especially when seeking multi-jurisdictional patent protection (Abdullah et al., 2021). Diverging national practices, as depicted in the world map (Figure 1), threaten to fragment global innovation ecosystems, creating legal uncertainty and undermining the predictability that IP law is meant to provide.

The ethical and philosophical underpinnings of patent law

Beyond the legal mechanics, the results point to a fundamental philosophical debate (Shenker, 2017): Should inventive credit be tied to moral agency and intentionality, or can it be functionally attributed based on contribution alone? Jurisdictions like the EU and Japan, which emphasize ethical responsibility and human-centric design, lean heavily

toward the former (Keshmiry & Hassani, 2025). Others, like South Africa, appear open to decoupling inventorship from human intentionality. This divergence reflects deeper societal values and priorities, underscoring the complexity of reform in this domain.

Toward adaptive legal frameworks

The emerging consensus from this analysis is that while current legal systems may not be equipped to recognize AI as inventors, they must evolve to address the challenges posed by autonomous innovation (Selvadurai, 2025). Whether through legislative amendment, judicial reinterpretation, or the creation of sui generis protections for AI-generated works, reform is necessary. The data in Figure 2 underscore the urgency of such reform in high-stakes jurisdictions, while Table 3 offers a roadmap of thematic areas requiring legal clarification. The global legal community must now determine whether to resist, reform, or redefine the very foundations of intellectual property in the age of AI (Farhad & Zakir, 2024).

4. Conclusion

The evolving intersection of artificial intelligence and patent law presents one of the most pressing legal challenges of the 21st century. This study demonstrates that the current global patent frameworks are largely unprepared to accommodate AI-generated inventions, with most jurisdictions adhering to a human-centric definition of inventorship. While the case of South Africa illustrates the potential for alternative interpretations, the majority of legal systems continue to reject non-human inventorship on doctrinal, ethical, and procedural grounds. The divergence in judicial outcomes, policy directions, and legislative inertia—as highlighted in the DABUS litigation and international analyses—exposes the need for a coherent and forward-looking legal response. Moving forward, legal reform must strike a balance between preserving foundational principles of patent law and embracing the transformative capabilities of AI. This may involve redefining inventorship, establishing new ownership models, or creating sui generis protections for machine-generated innovations. A globally harmonized, adaptive legal framework is essential not only to ensure equitable innovation but also to maintain legal certainty and foster technological progress in the AI era.

References

1. Abdullah, N., Hanafi, H., & Nawang, N. I. (2021). Digital Era and Intellectual Property Challenges in Malaysia. *Pertanika Journal of Social Sciences & Humanities*, *29*.
2. Busuioc, M., Curtin, D., & Almada, M. (2023). Reclaiming transparency: contesting the logics of secrecy within the AI Act. *European Law Open*, *2*(1), 79-105.
3. Cohen, J., Silvestri, G., Paredes, O., Martin-Alcala, H. E., Chavez-Badiola, A., Alikani, M., & Palmer, G. A. (2025). Artificial intelligence in assisted reproductive technology: separating the dream from reality. *Reproductive BioMedicine Online*, *50*(4), 104855.

4. Encaoua, D., Guellec, D., & Martínez, C. (2006). Patent systems for encouraging innovation: Lessons from economic analysis. *Research policy*, *35*(9), 1423-1440.
5. Farhad, M. A., & Zakir, M. H. (2024). Adapting legal horizons in reshaping intellectual property law for the artificial intelligence revolution. *AI and Ethics*, 1-15.
6. Ghanghas, A., Gahlawat, S., Gahlawat, N., & Poonia, A. (2021). Global rules, regulations and intellectual property rights on diagnostic methods. In *Advances in Animal Disease Diagnosis* (pp. 299-315). CRC Press.
7. Helman, L., & Parchomovsky, G. (2024). Artificial Inventorship. *Available at SSRN 4811815*.
8. Hughes, R. T., Zhu, L., & Bednarz, T. (2021). Generative adversarial networks–enabled human–artificial intelligence collaborative applications for creative and design industries: A systematic review of current approaches and trends. *Frontiers in artificial intelligence*, *4*, 604234.
9. Igbokwe, E. M. (2024). Human to machine innovation: Does legal personhood and inventorship threshold offer any leeway?. *The Journal of World Intellectual Property*, *27*(2), 149-174.
10. Kazachanskaya, E., & Mamychev, A. Y. (2021). Conservatism And Conservative Legal Thinking: The Era Of Public Systems' Digital Transformation. *European Proceedings of Social and Behavioural Sciences*.
11. Keshmiry, A., & Hassani, S. (2025). Human-Centric Design Principles in Industry 4.0 and Industry 5.0. In *Computational Intelligence for Analysis of Trends in Industry 4.0 and 5.0* (pp. 275-290). Auerbach Publications.
12. Koutras, N. (2024). Exploring the Landscape of AI-Generated Output: Challenges and Regulatory Insights. In *Comparative Law: Unraveling Global Legal Systems* (pp. 413-425). Singapore: Springer Nature Singapore.
13. Lauterbach, A. (2019). Artificial intelligence and policy: quo vadis?. *Digital Policy, Regulation and Governance*, *21*(3), 238-263.
14. Maharjan, B. (2024). Can AI Generated work own Intellectual property Rights. *Available at SSRN 4746014*.
15. Mukwevho, T. D., & Oriakhogba, D. O. (2024). Situating Liability for Patent Infringement by Artificial Intelligence Systems in South Africa. *SA Mercantile Law Journal*, *36*(1), 41-58.
16. Selvadurai, N. (2025). Inventions Without Inventors: The Need to Recognize AI Systems as Inventors. *Journal of Law, Technology, & the Internet*, *16*(1), 37.
17. Shemtov, N., & Gabison, G. A. (2022). The inventive step requirement and the rise of the AI machines. In *Research Handbook on Intellectual Property and Artificial Intelligence* (pp. 423-442). Edward Elgar Publishing.
18. Shenker, O. (2017). Foundation of statistical mechanics: Mechanics by itself. *Philosophy Compass*, *12*(12), e12465.
19. Verganti, R., Vendraminelli, L., & Iansiti, M. (2020). Innovation and design in the age of artificial intelligence. *Journal of product innovation management*, *37*(3), 212-227.