



Legal Standing of Artificial Intelligence as Inventors: An International Comparative Patent Study

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Abstract

The autonomous generation of technical inventions by artificial intelligence creates a profound epistemological crisis within strictly anthropocentric global patent systems. This study aimed to critically analyze the legal standing of artificial inventors and resolve this acute normative vacuum through a comparative doctrinal methodology. The research found that major jurisdictions uniformly reject granting legal personhood to autonomous machines, restricting the inventor designation to biological humans. In Indonesia, although the recent patent amendment successfully expanded protection for digital inventions, it fatally neglected the statutory definition of an inventor, triggering a severe regulatory paradox. This article asserts that granting full legal personhood to artificial intelligence is fundamentally flawed; instead, it proposes the doctrine of augmented inventorship. By mandating a rigorous technical audit through a hybrid contribution statement, this prescriptive framework guarantees absolute traceability of human conception. Ultimately, this novel approach provides an international model that stimulates technological investment while safeguarding intellectual property integrity.

Abstrak

Generasi otonom atas invensi teknis oleh kecerdasan buatan telah menciptakan suatu krisis epistemologis mendalam di dalam sistem paten global yang sangat antroposentris. Studi ini bertujuan untuk menganalisis secara kritis kedudukan hukum inventor artifisial serta menyelesaikan kekosongan normatif akut ini melalui metodologi doktrinal komparatif. Penelitian menemukan bahwa yurisdiksi utama secara seragam menolak pemberian personalitas hukum kepada mesin otonom, sehingga membatasi penunjukan inventor hanya kepada entitas manusia biologis. Di Indonesia, meskipun amandemen paten terbaru berhasil memperluas perlindungan bagi invensi digital, perumus secara fatal mengabaikan definisi preskriptif tentang seorang inventor, sehingga memicu paradoks regulasi yang parah. Artikel ini menegaskan bahwa pemberian personalitas hukum penuh kepada kecerdasan buatan pada dasarnya cacat; sebaliknya, tulisan ini mengusulkan doktrin kepenemuan teraugmentasi. Dengan mewajibkan audit teknis ketat melalui pernyataan kontribusi hibrida, kerangka preskriptif ini menjamin keterlacakan absolut atas konsepsi pemikiran manusia. Pada akhirnya, pendekatan baru ini memberikan model internasional yang merangsang investasi teknologi sekaligus mengamankan integritas kekayaan intelektual.



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A. INTRODUCTION

1. Background

The global intellectual property architecture is presently confronting one of the most profound disruptions in modern jurisprudential history, marked by an ontological paradigm shift from foundational computational systems to advanced generative artificial intelligence (AI) possessing the computational capacity to autonomously generate technical outputs with inventive value. Historically and prescriptively, the patent law regime has been erected upon a rigid philosophical foundation of anthropocentrism, where conception, imagination, and the inventive step are unequivocally construed as the exclusive monopolies of human cognition and intellect. However, the advent of high-performance autonomous AI systems—most notably the Device for the Autonomous Bootstrapping of Unified Sentience (DABUS) engineered by Dr. Stephen Thaler—has precipitated a massive epistemological crisis within international patent law. Absent substantial human intervention during the technical conception phase, the DABUS machine autonomously formulated the design for an innovative food container utilizing fractal geometry, alongside a neural-flame emergency beacon.¹

This technological phenomenon engenders an acute and pressing research imperative: should the global patent system and national jurisdictions fail to adapt and accommodate legal protection for autonomously machine-generated inventions, a tangible peril threatens the innovation ecosystem. This risk manifests as a structural disincentive against massive capital investment in AI research and development, prompting a corporate strategic pivot toward trade secret protection, which fundamentally impedes the public dissemination of knowledge and precipitates jurisdictional fragmentation through international *forum shopping* practices.²

The theoretical framework underpinning this juridical debate is deeply rooted in utilitarian justifications, the economic incentive theory, and the legal fiction of personhood (*legal personhood*). Dreyfuss and Pila elucidate that the foundation of intellectual property law relies upon the attribution of exclusivity to stimulate the creation of intellectual resources, wherein the criterion of non-obviousness (the inventive

¹ Ezinne Mirian Igboke, "Human to Machine Innovation: Does Legal Personhood and Inventorship Threshold Offer Any Leeway?," *The Journal of World Intellectual Property* 27, no. 2 (July 24, 2024): 149–74, <https://doi.org/10.1111/jwip.12294>.

² Reem Almarzoqi and Mohamad Albakjaji, "The Patentability of AI Invention," *International Journal of Service Science, Management, Engineering, and Technology* 13, no. 1 (July 8, 2022): 1–22, <https://doi.org/10.4018/IJSSMET.307111>.

step) serves as the essential demarcation between natural discoveries and patentable artificial inventions.³ The doctrinal imperative for the legal system to address these machine capabilities forthrightly and progressively is articulated by Abbott, who posits a revolutionary premise: autonomous machines generating inventions (*artificial inventors*) must be afforded protective capacity within the patent system to ensure that legal entities refrain from discriminating against machine-based innovation, ultimately aiming to maximize macroeconomic utility and overall human welfare.⁴ Furthermore, the intricate nexus between machines and creative works is rigorously dissected in the *Research Handbook on Intellectual Property and Artificial Intelligence*.⁵ Through doctrinal inquiry within this treatise, a legal impasse is identified regarding the protection of exclusive rights for machine learning outputs, scrutinizing four primary theories in the quest to establish the identity of the AI author and inventor, and culminating in the conclusion that the law's failure to adapt to technological reality constitutes an abject failure of intelligence.

In navigating this dogmatic and comparative discourse, diverse literature from prominent international scholarly journals has provided a crucial empirical and normative foundation. First, the constitutional and intellectual property law analysis conducted by Rizal et al. highlights that Indonesia's patent legal framework remains shackled by an anthropocentric paradigm, which is prone to engendering legal protection ambiguities and ownership disputes in the era of digital disruption.⁶ Second, an in-depth jurisprudential study by Matulionyte delivers a piercing critique of the rigidity inherent in the UK Supreme Court's ruling, which textualistically rejected machine capacity, asserting that the attribution of causality to an algorithm cannot be automatically equated with legal agency as an inventor.⁷ Third, an administrative policy evaluation authored by Aboy et al. dissects the deficiencies within the initial guidelines of the United States Patent and Trademark Office (USPTO), which employed imprecise legal parameters to delineate

³ Rochelle Dreyfuss and Justine Pila, eds., *The Oxford Handbook of Intellectual Property Law*, vol. 1 (Oxford University Press, 2017), <https://doi.org/10.1093/oxfordhb/9780198758457.001.0001>. Page, 36-39.

⁴ Ryan Abbott, *The Reasonable Robot* (Cambridge University Press, 2020), <https://doi.org/10.1017/9781108631761>. Page, 71.

⁵ Ryan Abbott, ed., *Research Handbook on Intellectual Property and Artificial Intelligence* (Cheltenham: Edward Elgar Publishing, 2022). Page, 105.

⁶ Muhamad Rizal, Sinta Dewi, and Agus Taryana, "Reforming Patent Law in the Age of Artificial Intelligence," *Jurnal Bina Mulia Hukum* 10, no. 2 (2026): 179-95, <https://doi.org/10.24198/jbmh.v10i2.2533>.

⁷ Rita Matulionyte, "AI Is Not an Inventor': Thaler v Comptroller of Patents, Designs and Trademarks and the Patentability of AI Inventions," *The Modern Law Review* 88, no. 1 (January 5, 2025): 205-18, <https://doi.org/10.1111/1468-2230.12907>.

the boundaries of collaboration between humans and algorithms.⁸ Fourth, a global macro-comparative study by Nadgir et al. identifies a fundamental schism within the global patent law regime and proposes a hybrid framework as a pragmatic middle-ground solution.⁹ Fifth, a specific cross-jurisdictional Asian study by Rumahorbo et al. offers an acute comparative perspective on the inconsistent treatment of software-based inventions across developing and developed Asian nations.¹⁰

Anchored in the myriad deficiencies and normative vacuums identified in preceding literature, this research introduces a highly significant and comprehensive scholarly novelty. This novelty lies in the formulation of a legal analytical synthesis that incorporates a critical examination of Law Number 65 of 2024 concerning the Third Amendment to Law Number 13 of 2016 on Patents in Indonesia—a positive law instrument recently enacted on October 28, 2024, which remains largely untested within global academic literature. This latest national legislative instrument is directly juxtaposed, dissected, and comparatively scrutinized against the world's most contemporary administrative guidance, namely the *Revised Inventorship Guidance for AI-Assisted Inventions* document recently issued by the USPTO on November 28, 2025. The interactive analysis between Indonesia's post-2024 procedural framework—which continues to grapple with conceptual orthodoxy—and the paradigm shift toward the "absolute conception" doctrine in the United States in late 2025, presents a prescriptively and theoretically unprecedented contribution to the international intellectual property discourse.

In summary, the findings of this extensive research indicate that, globally, major jurisdictions consistently reject granting full legal personhood to AI, thereby reinforcing the doctrine that machines are merely advanced technical instruments, notwithstanding a procedural anomaly in South Africa that has incited global apprehension. Conversely, the findings also reveal that although Law Number 65 of 2024 in Indonesia has expanded the definitional scope of an invention to shelter digital innovation, the regulation remains

⁸ Mateo Aboy, Kathleen Liddell, and Aparajita Lath, "Inventorship in the Age of AI: Examining the USPTO Guidance on AI-Assisted Inventions," *Journal of Intellectual Property Law and Practice* 20, no. 7 (August 5, 2025): 495–502, <https://doi.org/10.1093/jiplp/jpaf019>.

⁹ Krupa Nadgir et al., "Patentability of AI-Generated Inventions: A Comparative Analysis of Global Patent Law Frameworks and Their Adaptation to Artificial Intelligence Innovation," *International Journal For Multidisciplinary Research* 7, no. 3 (June 22, 2025), <https://doi.org/10.36948/ijfmr.2025.v07i03.48811>.

¹⁰ Veni Theresya Fortuna Rumahorbo, Evi, and Ivans Januarydy, "Patent Protection for Artificial Intelligence as Computer-Implemented Inventions Between Indonesia and Japan," *International Journal of Science and Society* 7, no. 1 (March 21, 2025): 629–40, <https://doi.org/10.54783/ijssoc.v7i1.978>.

stagnated, ensnared by an antiquated definition of an inventor. Consequently, this research compellingly advocates for the adoption of the *augmented inventorship* doctrine, which mandates transparent technical documentation of the causal trajectory between human judgment and algorithmic outputs.

2. Research Questions

To systematically navigate the constitutional and normative complexities of this subject, this study formulates three primary research questions:

- a. How do prominent global jurisdictions adjudicate the legal standing of artificial intelligence within the doctrinal framework of patent inventorship, and what are the jurisprudential implications of these divergent approaches for the international intellectual property ecosystem?
- b. To what extent does the recent amendment to the Indonesian Patent Law (Law Number 65 of 2024) precipitate a normative vacuum concerning computer-implemented inventions, specifically regarding the statutory retention of a strictly anthropocentric definition of an "inventor"?
- c. How can the prescriptive doctrine of "augmented inventorship," operationalized through a mandatory administrative audit of human directability and traceability, effectively resolve the domestic regulatory paradox without erroneously conferring civil legal personhood upon autonomous machines?

3. Research Methods

The academic investigation in this study was methodically designed and constructed as a comprehensive doctrinal legal research study. The adopted paradigm focuses on dogmatic interpretation, the engineering of legal discovery, and the systematization of norms hierarchically embodied in positive legal instruments, international treaties, and cross-border jurisprudential precedents. The analytical approach employed is multidimensional and holistic, specifically encompassing a statutory approach, a conceptual approach, and a comparative legal approach.¹¹ The implementation of the comparative legal approach in this study is designed to precisely trace the points of convergence, divergence, and transplantation of legal ideologies regarding the doctrine of inventorship across the central jurisdictions dominating the

¹¹ Terry Hutchinson, "Doctrinal Research," in *Research Methods in Law* (London: Routledge, 2025), 8–38, <https://doi.org/10.4324/9781032710372-2>.

global patent ecosystem, namely the United States, the European Union regional jurisdiction, the United Kingdom, Australia, South Africa, Japan, and China. The selection of these jurisdictions is predicated upon their geopolitical significance in global intellectual property governance and the specific precedents they have established concerning DABUS patent applications.

The data collection technique relies entirely on historical and normative documentary and library research methods, exploring primary, secondary, and tertiary legal literature of high validity. The primary legal materials extracted and critically examined include international legal instruments such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and the European Patent Convention (EPC), alongside the domestic legislation of each sample jurisdiction. Specifically, and with substantial academic weight, this research scrutinizes norm-by-norm Law Number 13 of 2016 in conjunction with Law Number 65 of 2024 concerning Patents in the Republic of Indonesia. Furthermore, the primary legal data corpus is enriched by landmark court decisions and administrative examination technical guidelines, such as the *Revised Inventorship Guidance for AI-Assisted Inventions* published by the USPTO in 2024 and 2025.

Meanwhile, for secondary legal materials serving as the foundation of rationality and theory, this research strictly extracted literature from internationally reputable academic databases. This literature selection incorporates over fifteen highly cited, peer-reviewed scientific journal articles published within the critical timeframe of 2022 to 2026. This data is also substantially supplemented by mandatory scholarly textbooks detailing intellectual property discourse, wherein references are directed toward analytical depth by citing specific relevant pages. The entirety of this massive dataset was subsequently subjected to rigid analysis utilizing qualitative juridical analysis techniques governed by deductive reasoning. The conclusion-drawing process commences with an understanding of macro-postulates related to economic incentive theory and the boundaries of legal personhood, which are then tested for their relevance and coherence against the application of specific norms in resolving the DABUS project dispute. The construction of scientific argumentation is prescriptively elaborated to evaluate the deficiencies of conventional regulations, assess the adaptability of comparative foreign jurisdictional approaches, and ultimately formulate the *augmented inventorship* model as an adaptive and applicable policy design instrument.

B. DISCUSSION

1. The Construction of Legal Fiction and the Theoretical Deconstruction of the Non-Human "Inventor"

A comprehensive understanding of the ambiguous legal standing of artificial intelligence systems within patent law jurisprudence is inextricable from the profound philosophical debate concerning the ontology and boundaries of legal personhood. In contemporary jurisprudence and theories of justice, legal personhood is by no means an inherent and absolute biological attribute; rather, it is a legal fiction deliberately engineered and recognized by state authority to facilitate the seamless distribution of civil rights, duties, and liabilities in order to preserve social order and economic utility. The discourse surrounding such unconventional legal subjects has been explored by various scholars, notably through the functionalist analysis articulated by Lawrence Solum. In fundamental academic debates, it is posited that the capacity of machines to process big data, execute predictive decision-making autonomously, maneuver within probability spaces independently, and exhibit high-level algorithmic intelligence can rationally justify the creation of an electronic legal subject to prevent accountability gaps in civil transactions.¹² Although this radical postulate faces fierce intellectual resistance from technology ethicists such as Wendell Wallach—who steadfastly adheres to the premise that moral and legal accountability can exclusively be borne by entities possessing human existential consciousness—the functionalist approach provides a robust theoretical justification that the attribution of ownership and inventorship can be reconstructed in alignment with the demands of technological civilization.¹³

From the dogmatic perspective of intellectual property law, the central theoretical foundation legitimizing and justifying the existence of the patent law regime is the incentive theory of patents and the utilitarian philosophy pioneered by adherents of the Law and Economics movement. The patent system is fundamentally designed as a social contract; the state pledges to grant exclusive temporary monopoly rights to the inventor as a *quid pro quo* mechanism in exchange for the inventor's willingness to fully disclose the technical specifications of their invention to the public. Absent this instrument, innovators would likely secure their discoveries under trade secret frameworks, which

¹² Lawrence B. Solum, "Legal Personhood for Artificial Intelligences," in *Machine Ethics and Robot Ethics* (Routledge, 2020), 415–71, <https://doi.org/10.4324/9781003074991-37>.

¹³ Wendell Wallach and Peter Asaro, *Machine Ethics and Robot Ethics*, ed. Wendell Wallach and Peter Asaro (Routledge, 2020), <https://doi.org/10.4324/9781003074991>.

would fatally impede the accumulation of communal knowledge. The significance of this temporary monopoly instrument is further elaborated by Rahmawati and Dlauissama, who confirm that without an adequate exclusive rights incentive structure for creative and innovative outputs, the pace of global corporate investment in the development of AI algorithms would suffer drastic stagnation.¹⁴ Aligning with this discourse, the incentive theory is also bolstered by the prescriptive argument formulated by Abbott, who persuasively asserts that if the innovative technical output generated by machine circuits possesses economic utility and usefulness equivalent to or even surpassing human-generated inventions, then conferring inventor status—or at least legal protection—upon such machine outputs is highly rational from a macroeconomic standpoint to stimulate continuous corporate capital investment in the development of future inventive machines.¹⁵

Nevertheless, traditional patent doctrine is not solely predicated on economic utility; rather, it essentially demands the fulfillment of a rigorous qualitative evaluation regarding the inventive step or non-obviousness criterion. As confirmed by Dreyfuss and Pila, the non-obviousness evaluation compels patent examiners to ensure that a claimed invention cannot be easily deduced by a Person Having Ordinary Skill In The Art (PHOSITA). The emergence of artificial intelligence as a super-intelligent entity fundamentally disrupts the equilibrium of this PHOSITA standard.¹⁶ If Large Language Models and advanced Deep Learning algorithms are adopted and assimilated into prior art, the threshold for determining the non-obviousness of a discovery will exponentially surge to a level nearly impossible for ordinary human biological cognition to achieve. This epistemological dilemma mandates that the global intellectual property system must undertake an ontological deconstruction of the boundary between pure computational automation and legally protected conceptual originality.

2. Global Jurisprudential Dynamics: A Cross-Jurisdictional Comparative Analysis of AI-Generated Inventions

The escalation of the debate concerning the boundaries of anthropomorphism in patent law was ignited globally by the coordinated initiative of the international legal

¹⁴ Argiasri Rahmawati and Prameswari Dlauissama, "Intellectual Property Rights and Artificial Intelligence: A Legal Exploration in Indonesia," *Advances in Public Law and Crime* 1, no. 1 (October 10, 2024): 1–10, <https://doi.org/10.69725/plice.v1i1.119>.

¹⁵ Ryan Abbott, "Allow Patents on AI-Generated Inventions — for the Good of Science," *Nature* 620, no. 7975 (August 24, 2023): 699–699, <https://doi.org/10.1038/d41586-023-02598-2>.

¹⁶ Dreyfuss and Pila, *The Oxford Handbook of Intellectual Property Law*. Page, 39.

team spearheading the Artificial Inventor Project, which simultaneously deposited cross-continental patent applications for the discoveries of the DABUS machine. This global litigation experiment has acted as a catalytic instrument, compelling supreme courts and administrative agencies across various jurisdictions to explicitly deduce and define the hermeneutic boundaries of the term "inventor". The dogmatic approaches and legal reasoning among major jurisdictions reflect exceptionally sharp divergences.

In exploring the United States legal regime, this jurisdiction exhibits the most progressive and fluctuating doctrinal dynamics, which ultimately culminated in a highly restrictive judicial affirmation in response to AI-assisted inventions. The United States Court of Appeals for the Federal Circuit, through its robust jurisprudential ruling in *Thaler v. Vidal*, established a definitive interpretation that the Patent Act statutes (35 U.S.C. § 100(f)) and 35 U.S.C. § 115 consistently employ the relative pronoun "whoever" and the gendered pronouns "himself/herself". Linguistically and grammatically, this lexicon cannot be reasonably interpreted as referring to anything other than a natural person, thereby *a priori* foreclosing any possibility for machine learning algorithms to be listed on registration forms.¹⁷

The most crucial and instructive procedural dynamics from the United States Patent and Trademark Office (USPTO) are represented in the turbulent metamorphosis of its examination guidelines. In its initial phase, specifically on February 13, 2024, the USPTO issued administrative guidelines concerning AI-assisted inventions that controversially employed an evaluation doctrine borrowed from the precedent of *Pannu v. Iolab Corp.* These early guidelines instructed patent examiners to measure the degree of significant contribution between AI and humans, essentially testing both within the concept of joint inventorship. However, this framework invited severe criticism from legal practitioners. Measuring collaborative contributions between a conscious agent and code scripts was deemed a categorical error in logic. Responding to the pressure for dogmatic precision, the USPTO took a drastic step on November 28, 2025, by officially and entirely revoking the 2024 guidelines, replacing them with a document titled *Revised Inventorship Guidance for AI-Assisted Inventions*.¹⁸

¹⁷ Mimi S Afshar, "Artificial Intelligence and Inventorship-Does the Patent Inventor Have to Be Human?," *Hastings Science and Technology Law Journal* 13, no. 1 (2022): 55–72, https://repository.uclawsf.edu/hastings_science_technology_law_journal/vol13/iss1/5/.

¹⁸ United States Patent and Trademark Office, "Revised Inventorship Guidance for AI-Assisted Inventions," Federal Register, 2025, <https://www.federalregister.gov/documents/2025/11/28/2025-21457/revised-inventorship-guidance-for-ai-assisted-inventions>.

This 2025 regulatory revision definitively nullified the utilization of the *Pannu* factors for evaluating AI interactions, grounded on a robust legal postulate: given that AI is not recognized as a legal subject and intrinsically fails to qualify as a sole inventor, it is logically and absolutely impossible for AI to bear the status of a "joint inventor," thereby rendering any judicial inquiry into joint inventorship legally moot. Through this instrument, the USPTO restored the classical doctrine of conception as the absolute and sole touchstone for inventorship validity. Regardless of its level of autonomy in executing computational instructions, AI is juridically reduced back to a mere mechanical instrument (tool), proportionally equivalent to the role of an electron microscope or Computer-Aided Design (CAD) software.¹⁹ The human inventor subject is mandated to prove that the structured, complete, and operative idea formation process occurred absolutely and independently within the biological cognitive circuits of the human. The destructive impact of this regulatory purification is massively felt, particularly within the biopharmaceutical research ecosystem. As empirically explored by Wang, the AI-driven drug discovery industry now faces an overwhelmingly heavy administrative and scientific burden to document a clear line of demarcation between the pure computational output of molecule-screening software and the legally valid elements of human intellectual contribution.²⁰

Shifting to the European continent, the categorical rejection of DABUS machine applications resonates with a uniformity governed by treaty instruments. The European Patent Office (EPO) executed the rejection of the DABUS applications by strictly grounding its *ratio decidendi* in the construction of Article 81 and Rule 19 of the Implementing Regulations to the European Patent Convention (EPC). This supranational regulation imperatively requires patent applications to designate the inventor as a biological entity possessing a complete family name, given name, and a definitive physical domicile—a series of civil attributes that, *de facto* and *de jure*, are impossible for a heuristic algorithmic scheme to reproduce or possess.²¹

Furthermore, the supremacy of the natural rights paradigm in the United Kingdom was absolutely affirmed and sealed by the gavel of the UK Supreme Court in the resolution of the *Thaler v. Comptroller-General of Patents, Designs and Trade Marks* dispute. In the

¹⁹ United States Patent and Trademark Office.

²⁰ Joanna Wang, "Navigating the USPTO's AI Inventorship Guidance in AI-Driven Drug Discovery," *Journal of Law and the Biosciences* 12, no. 2 (July 11, 2025), <https://doi.org/10.1093/jlb/laf014>.

²¹ Afshar, "Artificial Intelligence and Inventorship-Does the Patent Inventor Have to Be Human?"

legal analysis elaborated by Bonadio et al., the narrative is reaffirmed that the Supreme Court Justices unanimously rejected the notion of expanding the normative boundaries of the UK Patents Act 1977.²² A materially similar judicial phenomenon is observed in Germany, albeit with a different nuance in resolution. Although the German Federal Court of Justice (*Bundesgerichtshof* - BGH) refused to recognize the DABUS entity as an inventor, the panel of judges exhibited an intriguing and accommodative judicial pragmatism by permitting the human party (Dr. Thaler) to register his own name as the sole legitimate inventor, accompanied by the liberty to append an administrative annotation indicating that the DABUS machine participated as an assisting tool. As highlighted and analyzed by Malik, this BGH ruling maneuver constitutes a step of judicial discretion to effectively secure the economic value and utility of the invention, ensuring that the public's right to access new technologies is not fatally amputated merely due to the collision of procedural registration puritanism.²³

On the other side of the globe, the federal judicial system in Australia presented the most dramatic narrative of jurisprudential contestation in the modern intellectual property landscape. At the primary litigation level, Justice Beach of the Federal Court of Australia released a historic ruling that instantly shocked the orthodoxy of the international legal community by declaring that the DABUS computational machine met the legal qualifications to be legitimately recognized as an inventor. The architecture of legal argumentation assembled by Justice Beach was brilliantly constructed upon the foundation of pure linguistic analysis; he argued that the diction "inventor" within the text of the Patents Act 1990 is essentially an agent noun—a grammatical terminology that fundamentally does not discriminate whether the executing agent entity manifests as a human, an animal, or a mechanical device. The Judge interpreted that the nomenclature focuses exclusively on the functional act of creation itself. Furthermore, to fortify its legitimacy, this progressive ruling referenced the efficiency principle echoed by Abbott & Elliott, asserting that acknowledging machine outputs inherently fosters an environment of technological transparency and serves the ultimate objective of intellectual property

²² Enrico Bonadio, Plamen Dinev, and Luke McDonagh, "Can Artificial Intelligence Infringe Copyright? Some Reflections," in *The Human Cause* (Edward Elgar Publishing, 2022), 245–57, <https://doi.org/10.4337/9781800881907.00019>.

²³ Salim Malik, "AI Continues to Be a Game Changer in the Intellectual Property Management in India," *International Journal of Scientific Research in Engineering and Management* 09, no. 02 (February 1, 2025): 1–9, <https://doi.org/10.55041/ijsrem41289>.

legal architecture, namely orchestrating the acceleration of industrial innovation.²⁴

However, this momentum for legal reform was short-lived and rapidly faced harsh dogmatic correction. The radical first-instance court ruling was absolutely overturned and invalidated by the appellate bench through the decision of the Full Court of the Federal Court in *Commissioner of Patents v. Thaler* [2022] FCAFC 62. The appellate panel rejected Justice Beach's entire line of reasoning, asserting that historically, culturally, and conceptually, the patent system was specifically created and designed as a reward system and incentive for the toil of human intellect and mental labor. The statute was never projected to attribute sentiments of civil morality, financial incentives, or motivational agency to configurations of silicon circuits and software automation.²⁵

A glaring exception to this global trend originates from the jurisdiction of the Republic of South Africa, which positioned itself as a legal anomaly. This nation established a historic precedent as the world's first sovereign state entity to unhesitatingly issue and hand over an exclusive patent certificate for an autonomous invention that officially listed DABUS in the inventor identity column, as documented in the comparative analysis by Barqawi & Abdallah.²⁶ Nevertheless, this spectacular conferral of exclusive status must be read meticulously and proportionally through the lens of the administrative procedural law regime. The regulatory body in South Africa, the Companies and Intellectual Property Commission (CIPC), operates its patent acceptance procedure through a depository system mechanism, rather than a substantive examination mechanism. This condition implies that as long as the application documents fulfill standard formality criteria—such as the inclusion of forms, fees, and descriptions—the patent will be instantaneously issued without any process of doctrinal investigation and cross-examination by an expert examination team regarding the ontological validity of the subject designated as the inventor.²⁷ Although materially this registration does not create a binding substantive jurisprudential precedent, this occurrence in South Africa

²⁴ Ryan Abbott and Brinson S. Elliott, "Putting the Artificial Intelligence in Alternative Dispute Resolution," *Amicus Curiae* 4, no. 3 (June 24, 2023): 685–706, <https://doi.org/10.14296/ac.v4i3.5627>.

²⁵ Th. Tzimas, "Evolution of Copyright in the Era of Artificial Intelligence: Analysis of Conflicts of Law and Judicial Precedents," *Journal of Digital Technologies and Law* 3, no. 1 (March 27, 2025): 35–64, <https://doi.org/10.21202/jdtl.2025.2>.

²⁶ Laila Barqawi and Mohammad Abdallah, "Copyright and Generative AI," *Journal of Infrastructure Policy and Development* 8, no. 8 (August 6, 2024): 6253, <https://doi.org/10.24294/jipd.v8i8.6253>.

²⁷ Aurla Gerber and Anban W. Pillay, eds., *Artificial Intelligence Research*, vol. 2784, Communications in Computer and Information Science (Cham: Springer Nature Switzerland, 2026), <https://doi.org/10.1007/978-3-032-11733-5>.

successfully validated the global community's chronic fear regarding the threat of *forum shopping* in the digital era. In the future, corporations owning AI algorithms will be inclined to engage in legal manipulation by massively registering algorithmic invention commodities worth trillions of dollars in countries adhering only to low-standard depository systems to secure a global monopoly foothold, thereby bypassing procedural hurdles in the patent offices of developed nations.

Shifting to the geopolitical constellation in the East Asian region, the two primary economic and technological axes, namely China and Japan, maintain a solid and closed regulatory wall against the recognition of non-human subjects' existence. As systematically reviewed and explicated by Ding & Deng, the China National Intellectual Property Administration (CNIPA) in August 2024 rendered a decisive ruling by rejecting the re-evaluation appeal against the refusal of the DABUS registration. This Chinese patent registration institution firmly anchored its decision on Implementing Rule 13, Chapter 1 of the Detailed Rules for the Implementation of the Patent Law of China, which secures the doctrine that the attribution of inventor status is hierarchically restricted solely to the existence of a real individual who formulates a "substantial creative contribution". The CNIPA asserted that this creative contribution parameter can only emanate from the capacity of an entity endowed with conscious agency. Meanwhile, the judicial instruments in Japan similarly provide no loophole for legal leniency. The Tokyo District Court, through a crucial judgment handed down in May 2024, adopted a conservative stance aligned with China, absolutely rejecting the administrative appeal measure against the DABUS invention registration application. This Japanese court decision cemented the dominance of the orthodox interpretation that the acquisition of patent right status, whether as an inventor or an applicant, is exclusively anchored in and absolutely dependent upon the personal capacity integrity of a living and thinking human being.²⁸

To precisely and systematically weave the entire dataset of these cross-border legal divergences, this research compiles a synthesis matrix presented in Table 1 below. This visual representation serves as a fundamental parameter to undergird the comparative evaluation that will be formulated for Indonesian positive law.

²⁸ Wen Ding and Shemin Deng, "The Patentability of AI-Generated Technical Solutions and Institutional Responses: Chinese Perspective vs. Other Countries," *Information* 16, no. 8 (July 24, 2025): 629, <https://doi.org/10.3390/info16080629>.

Table 1. Comparison of AI Legal Status as an Inventor and Global Jurisdictional Responses to the DABUS Cases

Jurisdiction	Response to DABUS Applications	Legal Status of AI in the Patent System	Examination Approach & Patent Doctrine
United States	Judicially Rejected (<i>Thaler v. Vidal</i>)	Automation Instrument (Not an Inventor Entity)	2025 Revision: Absolute <i>Conception</i> doctrine by humans; revocation of <i>Pannu</i> factors application for AI.
European Union (EPO)	Administratively Rejected	Possesses No Legal Attributes	Strict enforcement of EPC Article 81 (Mandatory identification of biological human nomenclature).
United Kingdom	Finally Rejected (UK Supreme Court)	Capacity Unrecognized	Classical doctrine grounded solely on patent supremacy over human intellect.
Australia	Rejected (Post-Appeal Full Court)	Finally Eliminated	Correction of initial ruling; restoring the historical purpose of patents as a reward for human cognition.
South Africa	Fully Accepted	Officially Recognized	Exploitation of the vulnerabilities of a pure depository system without substantive testing of inventor qualifications.
China & Japan	Rejected by Authorities (CNIPA & Tokyo Court)	Possesses No Agency	Adherence to the imperative doctrine of "substantial creative contribution" by entities possessing conscious will.

3. Deconstructing the Indonesian Patent Law Regime: A Critical Evaluation of the Amendment to Law Number 65 of 2024

Dogmatically and historically, the intellectual property law architecture in Indonesia has been robustly constructed upon the foundational conception of natural rights theory, intertwined with the essence of the labor theory of property espoused by empirical philosopher John Locke. This philosophical theory postulates that the rights of dominion and commercial exclusivity are the legitimate, logical fruits of human sweat, physical labor, and the emanation of noble human intellect in transforming raw natural resources into functional technical works. This conceptual premise is coherently and rigidly translated into the text of the state's positive law. Based on the grammatical text within Law Number 13 of 2016 concerning Patents, Article 1 point 3 explicitly and unequivocally formulates the definitive clause that "an Inventor is a person or several

persons acting together implementing an idea translated into an activity that results in an Invention." The presence of the key phrase "a person or several persons" within the statute functions as an iron peg, anchoring the hermeneutic interpretation of Indonesian jurisprudence strictly within the corridors of classical anthropocentrism, leaving absolutely no interpretive room for digital entities with artificial consciousness.

Amidst the turbulence and exponential velocity of the Fourth Industrial Revolution, the Government of the Republic of Indonesia on October 28, 2024, decisively responded to the imperatives of modernization by ratifying and enacting Law Number 65 of 2024 concerning the Third Amendment to Law Number 13 of 2016 on Patents. A profound dogmatic analysis of the provisions within this latest regulation reveals a manifestation of significant legal reform and political will aimed at repositioning and facilitating the protection of digital economy-based innovation within the national jurisdiction.

This amendment introduces three fundamental regulatory breakthroughs. First, through the revision of Article 1 point 1, the legislature has broadly expanded the spectrum of the definition of an "Invention." The concept, initially restricted and reduced merely to the creation of hardware products or traditional manufacturing processes, has now had its protective grasp explicitly broadened to encompass inventions in the form of "systems, methods, and uses" (*use/second medical use*)—a progressive step elucidated by Rahmatillah & Sanusi, who comparatively assessed the adaptational readiness of Indonesian patent norms toward advanced biotechnological innovations and computational digital methodologies. Second, this legislation overhauls the protective system for researchers by implementing an extension of the grace period under Article 6. The statutory time limit permitted for inventors to communicate and publish their technological experiments in official exhibitions and scientific forums has been doubled from an initially strict 6 months to an ideal period of 12 months, without incurring the fatal consequence of losing the patent's novelty in the eyes of registration examiners.²⁹

Third, and arguably bearing the most profound implications for the software industry sector, there is a crucial doctrinal restructuring and clarification within the provisions of Article 4 letter d. Under the preceding statutory framework, this norm absolutely blocked computer programs from qualifying as protected patent subjects.

²⁹ Raihan Rahmatillah and Sanusi Sanusi, "Patent Protection for Artificial Intelligence: A Comparative Study of Indonesia and the United States," *Student Journal of International Law* 4, no. 1 (December 30, 2024): 42–56, <https://doi.org/10.24815/sjil.v4i1.31473>.

However, through this 2024 amendment, the policy is injected with a legitimate affirmative exception for the registration of "Computer-Implemented Inventions" (CII). This nomenclature transformation substantially breaks open the gates for AI algorithms, artificial neural network codes, and functional heuristic instructions to potentially secure the highest intellectual property protection granted by the state.

Nevertheless, from the perspective of critical legal evaluation, as academically explored by Wibowo and elaborated by Gaffar & Albarashdi, the radical substantive changes in the 2024 law have inadvertently generated a severe normative vacuum (*vacuum of norm*) concerning the legal treatment of autonomous creation by software.^{30,31} Meticulous analysis proves that the drafting team of Law Number 65 of 2024 entirely neglected and failed to apply even the slightest revision or adjustment to the pillar definition of an "Inventor" prescriptively enshrined in Article 1 point 3. This inevitability triggers a juridical paradox that paralyzes the logic of patent administration: on one hand, the outputs of AI algorithms and advanced data scripts (as concrete manifestations of Computer-Implemented Inventions) can now easily bypass technical patentability hurdles; yet, on the other end of the spectrum, there is absolutely no valid formal foundation in the Republic to register and crown a patent holder if the breakthrough invention is proven to be 100% autonomously produced, formulated, and generated by AI without any intervening intellectual contribution from a human.

The absence and sterility of a specific clause functioning as a bridge to regulate the legal standing of machine-assisted inventions harbor a latent residue of danger in the future, namely the mass collapse and invalidation of patent certificates. Based on the normative foundation stipulated in Article 132 paragraph (1) letter a of the Patent Law, an exclusive right certificate issued by the state can be entirely eliminated and nullified by the panel of judges at the Commercial Court if material facts proven in court demonstrate that the patent was based on a formally defective invention for failing to fulfill subjective requirements, including acts of deceit or concealment of legal facts in the mechanism of listing the inventor's identity. Should a corporate legal entity, or even a university research consortium, recklessly register its affiliates as the human inventors of a technical output that was genuinely processed and artificially generated by a Deep

³⁰ Richard Jatimulya Alam Wibowo, "Ciptaan Dan Invensi Hasil Kecerdasan Buatan Dalam Perspektif Hak Cipta Dan Paten," *Jurnal Ilmiah Kebijakan Hukum* 17, no. 3 (November 30, 2023): 269–88, <https://doi.org/10.30641/kebijakan.2023.V17.269-288>.

³¹ Hafiz Gaffar and Saleh Albarashdi, "Copyright Protection for AI-Generated Works: Exploring Originality and Ownership in a Digital Landscape," *Asian Journal of International Law* 15, no. 1 (January 23, 2025): 23–46, <https://doi.org/10.1017/S2044251323000735>.

Learning network program, this acrobatic maneuver can be easily legally construed, indicted, and proven as fraud on the patent office. The applicant would be proven to have usurped the cognitive property credit from a computational circuit entity whose existence is not recognized by positive law, thereby igniting an explosion of massive, complex, and protracted commercial ownership litigation, exactly as precisely projected and warned through the comprehensive study by Mehrotra.³²

To sharpen and systematize the findings from this regulatory deconstruction into a qualitative comparative narrative, this research briefly tabulates the matrix of Indonesian legal developments through the representation in Table 2 below.

Table 2. Comparative Analysis of the Patent Law and the Evaluation of its Legal Impact on AI Technology

Patent Law Regulatory Element	Paradigm of Law No. 13 of 2016 (Existing)	New Paradigm of Law No. 65 of 2024	Evaluation of Legal Impact on AI Technology
Definition of "Inventor" (Article 1(3))	Restricted to "a person or several persons."	No change.	Continues to exclude machines; maintains absolute anthropocentric bias.
Definition of "Invention" (Article 1(1))	Focused dominantly on traditional products and manufacturing processes.	Fundamentally expanded to include "systems, methods, and uses."	Accommodates non-physical innovations dominant in the digital disruption era.
Patent Exclusions (Article 4(d))	Computer programs strictly prohibited from being patented.	Specifically permitted for Computer-Implemented Inventions (CII).	Fundamental transformation; opens the legal gateway for registering AI algorithmic functionalities.
Publication Grace Period (Article 6)	Limited to a 6-month duration from exhibition/publication.	Progressively extended to a full 12 months.	Eases publication pressure for scientists creating AI-based hybrid innovations.
Implications of Nullification (Article 132)	Nullification due to fraud in application documents.	Remains applicable without leniency.	Threat of massive litigation for corporations concealing the central role of AI machines from documents.

³² Ananya Mehrotra, "Navigating the Intellectual Property Landscape in the Age of Artificial Intelligence: Towards a Global Legal Paradigm," *International Journal of Innovations in Science, Engineering And Management* 3, no. 2 (December 30, 2024): 253–58, <https://doi.org/10.69968/ijisem.2024v3si2253-258>.

4. Designing the "Augmented Inventorship" Model for the Indonesian Intellectual Property Ecosystem

Confronting the reality that the world is currently ensnared in a vortex of intercontinental macro-legal fragmentation, and Indonesia itself is plagued by a highly perilous normative vacuum following the ratification of Law Number 65 of 2024, a robust administrative policy design breakthrough is urgently required. In response to this crisis of regulatory absence, the primary recommendation of this study is the prescriptive implementation of a legal construction designated as *Augmented Inventorship*, engineered as a tangible manifestation of a middle-ground legal framework (*middle-ground legal framework*).

The paramount strength of this reconstruction lies in its postulate: rather than attempting a radical alteration of the fundamental patent subject—which remains absolutely and indisputably anchored to the biological human entity—this legal reconstruction focuses exclusively on overhauling the procedural requirements for patent registration. This doctrine steadfastly rejects the anarchic endeavor to confer full civil legal personhood, either partially or wholly, upon artificial intelligence entities. Consequently, the patent ecosystem remains firmly rooted in the positive legal foundation of Article 1 point 3 of the national Patent Law, which mandates a rational, flesh-and-blood human as the sole subject holding the title of inventor.

As a form of procedural reconstruction, the monopoly status of patent rights, alongside commercial royalty incentives, remains fixed and attributed entirely to the "biological human" and/or commercial corporation. Nevertheless, to claim this supreme state privilege, the administrative chambers of patent application acceptance must be restructured by implementing a mandatory, multi-layered technical audit. Practically, this rigorous audit manifests in a compulsory reporting instrument termed the *Human-Machine Contribution Statement*, which rests upon two absolute and non-negotiable techno-juridical evaluation pillars:

a. Directability Criterion Testing

Through this concept, the applicant must bear a computational burden of proof (*onus probandi*) to unequivocally convince the state that human intellect, rational cognition, and creative imaginative initiative serve as the absolute navigator of the invention. The human actor must be proven to have specifically

directed the logical trajectory, formulated the foundational engineering prompts, executed the initiation phases of retraining machine dataset schemes (reinforcement learning parameters), and consciously constrained the machine learning algorithm's architecture to be exclusively oriented toward solving specific problems related to the novelty of the patent's technical function.

b. Traceability Criterion Testing

Administratively and judicially, this crucial concept imposes a rigid requirement compelling the applicant (whether a scientist or a drafting corporation) to voluntarily submit a comprehensive log of the supporting algorithm's operational data into the *Human-Machine Contribution Statement* instrument. This machine transparency report must tangibly demonstrate an unbroken cohesion in the conceptual chain of causality—originating from the foundational intellectual abstraction of the human inventor, flowing toward the definitive materialization of the patent claims element at the culmination of the simulation produced and generated by the smart machine's neural network automation module. Isolating these causality phases is deemed essential to immunize the true creator's status from cross-litigation disputes.

As a manifestation of a concrete execution step to fulfill the progressive mandate and spirit of the newly revitalized Law Number 65 of 2024, the Directorate General of Intellectual Property (DGIP) under the Ministry of Law and Human Rights is urgently required to immediately draft a Ministerial Regulation or a Director General's Circular. This guiding document must be designed to parallel the jurisprudential quality of the *Revised Inventorship Guidance* instrument issued by the USPTO in 2025. This regulatory apparatus must legally mandate the inclusion and verification of the detailed *Human-Machine Contribution Statement* document for every patent application classified as a "computer-implemented invention". The objective is unequivocal: to establish a measurable legal demographic demarcation that absolutely isolates the portion of human intellectual conception formulation from the raw computational activities automatically executed by program scripts.

Consequently, to prevent fatal administrative leakages at the implementation level—such as inadvertently approving hundreds of low-quality patents resulting from the mass generalization of AI facilities that could severely threaten the public domain—the DGIP faces an urgent imperative to restructure its functional units. The most

applicable recommendation is the establishment of a dedicated cross-examination unit armed with the explicit mandate to scrutinize the *Human-Machine Contribution Statement* instruments. This elite patent task force must be equipped with a dual-dimensional inspection methodology encompassing theoretical technology and legal construction (*techno-legal analysis*). Through this advanced filtering unit, the abstractness of the inventive step precision boundary caused by the disruption of AI quantum computing machines will no longer pose a fictitious obstacle. On the contrary, this mechanism is managed to ensure the equitable conferral of economic monopolies, sever the chain of parasitic invention registrations devoid of human cultivation, and simultaneously stimulate capital-intensive investments in scientific research to elevate Indonesia's national technological supremacy in the future.

C. CONCLUSIONS

The global patent ecosystem, including Indonesia's legal framework, remains strictly anchored to an anthropocentric paradigm that categorically denies legal personhood to artificial intelligence, relegating autonomous systems to the status of advanced computational tools. Although the enactment of Law Number 65 of 2024 in Indonesia progressively expanded the scope of patentability to encompass computer-implemented inventions, the legislature fatally neglected to modernize the statutory definition of an inventor, precipitating a severe normative vacuum susceptible to massive ownership disputes and fraudulent registrations. To resolve this acute jurisdictional paradox without erroneously granting civil rights to machines, this article proposes the prescriptive adoption of an augmented inventorship doctrine. By mandating a rigorous administrative audit through a Human-Machine Contribution Statement, this procedural reconstruction guarantees the absolute traceability and directability of human intellectual conception, thereby safeguarding the integrity of the intellectual property regime while stimulating sustained investment in transnational digital innovation.

REFERENCES

- Abbott, Ryan. "Allow Patents on AI-Generated Inventions — for the Good of Science." *Nature* 620, no. 7975 (August 24, 2023): 699–699. <https://doi.org/10.1038/d41586-023-02598-2>.
- , ed. *Research Handbook on Intellectual Property and Artificial Intelligence*. Cheltenham: Edward Elgar Publishing, 2022.

- . *The Reasonable Robot*. Cambridge University Press, 2020. <https://doi.org/10.1017/9781108631761>.
- Abbott, Ryan, and Brinson S. Elliott. "Putting the Artificial Intelligence in Alternative Dispute Resolution." *Amicus Curiae* 4, no. 3 (June 24, 2023): 685–706. <https://doi.org/10.14296/ac.v4i3.5627>.
- Aboy, Mateo, Kathleen Liddell, and Aparajita Lath. "Inventorship in the Age of AI: Examining the USPTO Guidance on AI-Assisted Inventions." *Journal of Intellectual Property Law and Practice* 20, no. 7 (August 5, 2025): 495–502. <https://doi.org/10.1093/jiplp/jpaf019>.
- Afshar, Mimi S. "Artificial Intelligence and Inventorship-Does the Patent Inventor Have to Be Human?" *Hastings Science and Technology Law Journal* 13, no. 1 (2022): 55–72. https://repository.uclawsf.edu/hastings_science_technology_law_journal/vol13/iss1/5/.
- Almarzoqi, Reem, and Mohamad Albakjaji. "The Patentability of AI Invention." *International Journal of Service Science, Management, Engineering, and Technology* 13, no. 1 (July 8, 2022): 1–22. <https://doi.org/10.4018/IJSSMET.307111>.
- Barqawi, Laila, and Mohammad Abdallah. "Copyright and Generative AI." *Journal of Infrastructure Policy and Development* 8, no. 8 (August 6, 2024): 6253. <https://doi.org/10.24294/jipd.v8i8.6253>.
- Bonadio, Enrico, Plamen Dinev, and Luke McDonagh. "Can Artificial Intelligence Infringe Copyright? Some Reflections." In *The Human Cause*, 245–57. Edward Elgar Publishing, 2022. <https://doi.org/10.4337/9781800881907.00019>.
- Ding, Wen, and Shemin Deng. "The Patentability of AI-Generated Technical Solutions and Institutional Responses: Chinese Perspective vs. Other Countries." *Information* 16, no. 8 (July 24, 2025): 629. <https://doi.org/10.3390/info16080629>.
- Dreyfuss, Rochelle, and Justine Pila, eds. *The Oxford Handbook of Intellectual Property Law*. Vol. 1. Oxford University Press, 2017. <https://doi.org/10.1093/oxfordhb/9780198758457.001.0001>.
- Gaffar, Hafiz, and Saleh Albarashdi. "Copyright Protection for AI-Generated Works: Exploring Originality and Ownership in a Digital Landscape." *Asian Journal of International Law* 15, no. 1 (January 23, 2025): 23–46. <https://doi.org/10.1017/S2044251323000735>.
- Gerber, Aurlona, and Anban W. Pillay, eds. *Artificial Intelligence Research*. Vol. 2784. Communications in Computer and Information Science. Cham: Springer Nature Switzerland, 2026. <https://doi.org/10.1007/978-3-032-11733-5>.
- Hutchinson, Terry. "Doctrinal Research." In *Research Methods in Law*, 8–38. London: Routledge, 2025. <https://doi.org/10.4324/9781032710372-2>.
- Igbokwe, Ezinne Mirian. "Human to Machine Innovation: Does Legal Personhood and Inventorship Threshold Offer Any Leeway?" *The Journal of World Intellectual Property* 27, no. 2 (July 24, 2024): 149–74. <https://doi.org/10.1111/jwip.12294>.
- Malik, Salim. "AI Continues to Be a Game Changer in the Intellectual Property Management in India." *Interantional Journal of Scientific Research in Engineering and Management*

- 09, no. 02 (February 1, 2025): 1–9. <https://doi.org/10.55041/ijsrem41289>.
- Matulionyte, Rita. “‘AI Is Not an Inventor’: Thaler v Comptroller of Patents, Designs and Trademarks and the Patentability of AI Inventions.” *The Modern Law Review* 88, no. 1 (January 5, 2025): 205–18. <https://doi.org/10.1111/1468-2230.12907>.
- Mehrotra, Ananya. “Navigating the Intellectual Property Landscape in the Age of Artificial Intelligence: Towards a Global Legal Paradigm.” *International Journal of Innovations in Science, Engineering And Management* 3, no. 2 (December 30, 2024): 253–58. <https://doi.org/10.69968/ijisem.2024v3si2253-258>.
- Nadgir, Krupa, Lahari R, M Nithyashree, Manasa S, and Shruthi M N. “Patentability of AI-Generated Inventions: A Comparative Analysis of Global Patent Law Frameworks and Their Adaptation to Artificial Intelligence Innovation.” *International Journal For Multidisciplinary Research* 7, no. 3 (June 22, 2025). <https://doi.org/10.36948/ijfmr.2025.v07i03.48811>.
- Rahmatillah, Raihan, and Sanusi Sanusi. “Patent Protection for Artificial Intelligence: A Comparative Study of Indonesia and the United States.” *Student Journal of International Law* 4, no. 1 (December 30, 2024): 42–56. <https://doi.org/10.24815/sjil.v4i1.31473>.
- Rahmawati, Argiasri, and Prameswari Dlauissama. “Intellectual Property Rights and Artificial Intelligence: A Legal Exploration in Indonesia.” *Advances in Public Law and Crime* 1, no. 1 (October 10, 2024): 1–10. <https://doi.org/10.69725/plice.v1i1.119>.
- Rizal, Muhamad, Sinta Dewi, and Agus Taryana. “Reforming Patent Law in the Age of Artificial Intelligence.” *Jurnal Bina Mulia Hukum* 10, no. 2 (2026): 179–95. <https://doi.org/10.24198/jbmh.v10i2.2533>.
- Rumahorbo, Veni Theresya Fortuna, Evi, and Ivans Januarydy. “Patent Protection for Artificial Intelligence as Computer-Implemented Inventions Between Indonesia and Japan.” *International Journal of Science and Society* 7, no. 1 (March 21, 2025): 629–40. <https://doi.org/10.54783/ijisoc.v7i1.978>.
- Solum, Lawrence B. “Legal Personhood for Artificial Intelligences.” In *Machine Ethics and Robot Ethics*, 415–71. Routledge, 2020. <https://doi.org/10.4324/9781003074991-37>.
- Tzimas, Th. “Evolution of Copyright in the Era of Artificial Intelligence: Analysis of Conflicts of Law and Judicial Precedents.” *Journal of Digital Technologies and Law* 3, no. 1 (March 27, 2025): 35–64. <https://doi.org/10.21202/jdtl.2025.2>.
- United States Patent and Trademark Office. “Revised Inventorship Guidance for AI-Assisted Inventions.” Federal Register, 2025. <https://www.federalregister.gov/documents/2025/11/28/2025-21457/revised-inventorship-guidance-for-ai-assisted-inventions>.
- Wallach, Wendell, and Peter Asaro. *Machine Ethics and Robot Ethics*. Edited by Wendell Wallach and Peter Asaro. Routledge, 2020. <https://doi.org/10.4324/9781003074991>.
- Wang, Joanna. “Navigating the USPTO’s AI Inventorship Guidance in AI-Driven Drug Discovery.” *Journal of Law and the Biosciences* 12, no. 2 (July 11, 2025).

<https://doi.org/10.1093/jlb/laf014>.

Wibowo, Richard Jatimulya Alam. "Ciptaan Dan Invensi Hasil Kecerdasan Buatan Dalam Perspektif Hak Cipta Dan Paten." *Jurnal Ilmiah Kebijakan Hukum* 17, no. 3 (November 30, 2023): 269–88. <https://doi.org/10.30641/kebijakan.2023.V17.269-288>.