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The Legal Protection of Ai-Generated Inventions in Indonesia: Challenges and Perspectives in Patent Law

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Abstract

The surge of Artificial Intelligence (AI) has brought many legal hurdles with it, most notably the question of who should be considered the inventor of an AI invention, and whether it is considered an invention at all. Even though Indonesian Patent Law (Law Number 13 of 2016 concerning Patents) has been enacted in 2016, it still remains based on a human-centric concept of inventorship, meaning that only human beings are allowed to be inventors. This means that as AI systems become more adept at independently identifying technical solutions, legal questions arise about who owns what and who should be credited as the inventor/patentee. The research method used in this study is normative legal research with a comparative approach in which the legal systems of Indonesia, the United Kingdom, the United States and European Union are studied. This research explores the notion of inventorship, the legal character of AI-invented creations and regulatory responses to AI-invented innovation. The results show that there is no agreement among most jurisdictions on recognizing AI as an inventor, but there are legal structures in place to establish patent ownership and responsibility. In this regard, Indonesia should contemplate the adoption of a classification of human invention, AI-assisted Invention, and AI-generated Invention, with human inventorship as a patenting basis to protect all three types. This reform would strengthen the legal clarity, stimulate innovation and preserve the patent system for the age of artificial intelligence.

Keywords
Artificial Intelligence, Patent Law, Legal Reform.

Introduction

The idea of Artificial Intelligence (AI) dates back to Alan Turing's landmark paper from 1950. Turing did not try to define the concept of intelligence, instead he suggested an empirical test for intelligent behaviour that a machine could show, dubbed the Turing Test [1]. The test is conducted in such a way that a human is required to communicate by text with both a computer and another human, but without knowing who they are. The goal is to identify the machine among the participants. If the computer can fool a large number of interrogators into believing that it is a human being, then it can be said to have intelligence. This approach provided the basis for further research in artificial intelligence and is one of the most groundbreaking ideas in the debate around machine intelligence [2].

Technology has made a huge leap in the field of Artificial Intelligence (AI), making it a powerful tool that can assist in many human endeavors in various industries. Today, AI systems are no longer restricted to carrying out pre-programmed tasks set by their developers, but they can also learn from data, gain knowledge, and adjust their actions as per their surroundings with minimum human involvement. The technological advancements have been fueled by the advancement of machine learning, deep learning, and data-processing technologies allowing AI systems to handle complex tasks, recognize patterns and produce solutions autonomously. Consequently, AI is no longer just a computational tool but plays a crucial role in driving innovation and creativity. AI's role in problem-solving, idea generation, and technological advancements has made it a potent tool in the fields of economic, industrial, scientific, and creative growth around the globe [3], [4].

Furthermore, it is assumed that AI improvement can soon arrive at a point of recursive self-development where AI frameworks can produce better AI frameworks, which then lay out increasingly complex structures [5]. It is mentioned that there are different types of Artificial Intelligence (AI): Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Superintelligence (ASI), on the student portal of the School of Information Studies (iSchool) at Syracuse University (26 March 2025). ANI or Narrow AI – the kind of AI that is designed to perform a limited, well-defined task and that lacks a general way of reasoning or other cognitive skills – as described in the paper by [6]. Systems are limited in range and cannot go beyond the capabilities of their range. The virtual assistant Siri and Amazon Alexa, recommendation algorithms at streaming platforms, and face recognition are some of the most popular examples. Nick Bostrom, (2014) explain that the concept known as Artificial General Intelligence (AGI) is a hypothetical variant of AI that would be as smart as human beings and capable of solving a broad range of issues in various spheres.

Nevertheless, cases of AGI are still mostly in the research phase, and they have not become fully actualized. The first guesses, an AI system that can perform complex tasks like an intricate medical doctor with respect to analyzing afflictions, could be an illustration of such intelligence. In the meantime, Artificial Superintelligence (ASI), as defined by [7] is AI, the intelligence of which has become almost limitless compared to those of a person in almost all spheres. Nowadays, ASI is

theoretical and vastly spoken of in futuristic and theoretical literature.

The fast development of Artificial Intelligence (AI) leads to many consequences in patent law, especially about the classification of inventions made using assistance of, or even without, AI tools. One of the most interesting cases in recent years related to AI and patents is the DABUS case, which raises much discussion in the intellectual property field. It all started when Stephen Thaler filed a patent application and stated that DABUS, an AI system invented by him as a computer scientist, was the inventor of those inventions. He claimed that DABUS generated those inventions autonomously without any help from humans. His patent application questioned the meaning of the notion of inventor under patent laws, causing discussion across jurisdictions about the possibility of AI being the inventor [8].

The use of AI as a creative tool is now considered commonplace, both by the public and government institutions. This is reinforced by a statement by the Vice President of the Republic of Indonesia, Gibran Rakabuming Raka, quoted by Liputan 6.com on April 19, 2025, at 12:31 PM WIB [9], which emphasized the importance of utilizing AI to keep up with global competition. This situation has driven the widespread use of AI, particularly image generators, to produce inventions. Consequently, new legal issues have arisen regarding the ownership of patents for AI-generated inventions and the possibility of registering them under positive Indonesian law.

The regulation governing the matter of patents in Indonesia is regulated in [10]. According to article 1 paragraph (1), a patent is the exclusive right granted by the state to the inventor to exploit the invention individually or to assign the exploitation of the invention to other parties within a certain period. In the meantime, the legal meaning of an invention stated in Article 1 number (2) of the Patent Law is that an invention constitutes an idea of the inventor as stated in an act of problem solving within a technical subject area involving a product or process, or the improvement thereof.

In light of the above discussion, Inventors are still oriented towards humans as legal subjects, based on Law No. 13 of 2016 on Patents, an inventor is defined as a person or persons who jointly implement an idea that results in an invention. This definition contains the assumption that the inventive process is carried out by humans, so there are no provisions that explicitly recognize Artificial Intelligence (AI) systems as inventors. As AI technology develops, which is capable of producing technical solutions, product designs, and new processes autonomously, unclear norms have emerged regarding the legal status of inventions produced by AI. The problems that arise are not only related to the recognition of AI as an inventor, but also regarding the party entitled to obtain and own patent rights for the invention, whether the AI developer, the owner of the AI system, or the user who operates it. In contrast to Indonesia, several countries have begun to respond to the issue of AI-based inventorship through court decisions and administrative policies.

Furthermore, regulatory developments in the European Union demonstrate a more comprehensive effort in responding to advances in AI technology. Through the European Union Artificial Intelligence Act (EU AI Act), the European Union has established a legal framework governing the development, use, and oversight of AI systems based on a risk-based approach. Although most jurisdictions, such as the United Kingdom, the United States, still reject the recognition of AI as an inventor, the evolving legal discourse has encouraged the establishment of a more adaptive regulatory framework for AI-generated inventions. This condition indicates the need for an evaluation of Indonesia's patent regime to ensure it can provide legal certainty and remain relevant to the development of artificial intelligence technology.

Research Methodology

This normative legal study examines patent law for inventions created by artificial intelligence (AI) in the legal systems of Indonesia and developed countries such as EU, UK and United States, using comparative legal methodology [11]. By analyzing how each legal system handles the same issues, namely determining the status of inventions and the legal protection mechanisms for works created by AI, comparative techniques are applied in a normative-functional manner. (1) the notion of inventor and authorship requirements in patent law; (2) the standard of originality for AI-generated inventions; and (3) the attribution and patent protection models for non-human works serve as comparative parameters.

Primary legal materials include Patents Act UK 1977, Patent Act United States 1952, EU Artificial Intelligence Act 2024 and Indonesian laws and regulations, and secondary sources such as books, journal articles and relevant legal doctrines. All the legal texts are qualitatively studied by methodical and comparative interpretation to form normative arguments and to produce suggestions for the change of Indonesian patent law.

Result and Discussion

The Position of Artificial Intelligence as an Inventor and the Legal Implications of Its Non-Recognition under Indonesian Patent Law

The rapid advancement of Artificial Intelligence (AI) technology has transformed the innovation landscape by enabling AI systems to generate inventions with minimal or even no direct human intervention. Unlike conventional technologies that merely assist human inventors, contemporary AI systems are increasingly capable of independently identifying problems, processing vast amounts of data, and producing novel technical solutions. This development has challenged the traditional concept of inventorship in patent law, which has historically been based on the assumption that an inventor must be a natural person possessing intellectual and creative capacity [12].

Under Indonesian Patent Law, particularly [10], the concept of an inventor remains firmly rooted in a human-centered approach. Article 1 of the Patent Law defines "an inventor as an individual or several individuals who independently or jointly implement ideas that result in an invention". This definition implicitly requires the inventor to be a human being capable of exercising legal rights and obligations. Consequently, the existing legal framework does not provide any explicit recognition of AI as a potential inventor, regardless of the extent to which AI contributes to the inventive process.

The absence of legal provisions regarding AI-generated inventions raises significant legal and practical concerns. As AI systems become increasingly autonomous in generating technical solutions, questions emerge regarding the ownership, attribution, and protection of inventions that are predominantly produced by AI. If AI cannot be recognized as an inventor, uncertainty may arise regarding who should be identified as the rightful inventor—the developer of the AI system, the owner of the AI, the user operating the system, or another party involved in the innovation process. Such uncertainty may undermine legal certainty, which constitutes a fundamental principle of intellectual property protection [13]

From a comparative perspective, the debate concerning AI inventorship has gained

international attention through the DABUS (Device for the Autonomous Bootstrapping of Unified Sentience) patent applications filed in several jurisdictions. While patent authorities and courts in jurisdictions such as the United States, the United Kingdom, and the European Patent Office have generally maintained that inventors must be natural persons, the DABUS cases have highlighted the growing tension between technological developments and traditional patent law concepts. These developments demonstrate that existing patent regimes worldwide are facing similar challenges in determining the appropriate legal status of AI-generated inventions [14].

In the Indonesian context, the non-recognition of AI as an inventor has broader legal implications. First, it creates a normative gap between technological realities and existing legal provisions. Second, it may discourage investment and innovation in AI-based research and development if legal protection for AI-generated inventions remains uncertain. Third, it raises questions regarding the adequacy of current patent law in addressing future technological advancements. As AI continues to evolve, maintaining a strictly human-centered concept of inventorship may become increasingly difficult, particularly in cases where human involvement in the inventive process is limited [15].

Therefore, the legal position of AI as an inventor under Indonesian Patent Law requires critical examination. Such examination is essential not only to assess the compatibility of existing legal norms with emerging technologies but also to evaluate whether future legal reforms are necessary to ensure that the patent system remains capable of promoting innovation while maintaining legal certainty and fairness. The discussion of AI inventorship thus represents a crucial aspect of contemporary patent law discourse and reflects broader challenges associated with regulating emerging technologies in the digital era [12].

Legal status of inventions produced by AI according to the Indonesian Patent Law

As Artificial Intelligence (AI) becomes more adept at creating technical solutions, designs, and patents, the legal implications of AI created patents in the patent system are significant. In contrast with traditional technological products, which only support the genius of man, the advanced systems of AI can independently analyze data, recognize patterns and create innovative results with little human participation. This evolution raises a question about the meaning of 'inventor' and its connotation of 'human intellectual activity'. This has raised legal questions about whether AI can be considered an inventor and whether AI-created inventions should be patented.

The legal framework surrounding the invention of AI, as addressed in the Indonesian Patent Law [10] is not clear yet as the patent law does not clearly provide any regulation on the legal status of the AI as the inventor of the invention. According to Article 1 of the Patent Law, an inventor is the person or multiple persons that implement the idea that leads to an invention. This definition is human-centred, meaning that it assumes that only a natural person can be an inventor and exercise the rights associated with patent ownership. Therefore, inventions created by AI that have not been significantly contributed by humans could face legal challenges regarding their inventorship under the existing Indonesian patent system.

No provisions are established for the ownership, attribution of inventor and protection of AI-generated inventions, which creates legal uncertainty. In practice, however, when an AI system plays a major part in the inventive process, it cannot help but raise questions about who should be the inventor – the AI developer, the owner of the AI system, the person using the AI, or another? The same problems have arisen elsewhere in the world in the DABUS cases in which patent offices

and courts in various countries ruled that human beings must be named as inventors. Thus, technology changes are likely to necessitate a review of the patent law in Indonesia to ensure it remains in line with technology while also maintaining the underlying goals of patent law of promoting innovation and providing an adequate protection for the inventor [16].

A patent law reform model that can accommodate protection for Artificial Intelligence inventions in Indonesia

Indonesia currently has the [10] on Patents that has adopted traditional understanding of the concept of inventorship, which defines the inventor as a person who makes an invention as a result of intellectual activity. The pace of advancements in Artificial Intelligence (AI) has put this paradigm to the test, with AI systems now being able to generate technical solutions and inventions with little or no human involvement. However, despite these technological developments, there is no explicit mention of the legal status of inventions created by AI in Indonesian patent law, nor any mention of the use of AI in the process of invention. This regulatory lacuna leaves open questions about eligibility for patenting, inventorship and ownership of AI-assisted and/or AI-generated inventions. As a result, the current patent system might not be sufficient to address the challenges of AI-driven innovation.

This is a familiar thought of Van Kan: that "law" is slow to keep up with 'social' and 'technological' change. The invention of AI-powered creations is an example of how technology can outpace legal regimes and introduce uncertainty and make existing legal frameworks less effective. According to Responsive Law Theory by Philippe Nonet and Philip Selznick, one of the most important functions of law is its capacity to respond to societal needs and technological change while maintaining its flexibility, adaptability and responsiveness. Thus, the reform of the patent law is not only a matter of updating the statutory provisions, but also continues to serve its primary functions of promoting innovation, providing legal certainty and encouraging technological development. A responsive legal system would allow Indonesia to embrace new innovations without losing sight of the key objectives of patent protection [17].

A potential model for reform might be to retain the idea that only humans can be legally recognized as inventors and, at the same time, recognize that AI plays an important role in the inventive process. In this way, AI would not become a legal person or an inventor, but rather be regarded as an advanced technological tool employed in the process of creating inventions. To afford more certainty in the law, inventions may be classified into three classes: human generated inventions, AI assisted inventions, and AI generated inventions [18]. Earlier, as per the rule, a human invention would be patented while an AI invention would be patented if they have a substantial human contribution. For AI-generated inventions, patent rights may be granted to either the natural or legal person who created the AI system, controlled it, or used it for a particular purpose, under specific statutory conditions. Patent rights could be granted to the natural or legal person who created the AI system, controlled it, or used it for a specific purpose, depending on defined statutory requirements. The classification would enable the patent system to differentiate between degrees of human involvement and retain accountability and ownership [19].

The proposed reform model is intended to strike an equilibrium between the aspects of incentive to innovation, legal certainty and fairness in the Indonesian patent system. The model doesn't consider AI a separate legal entity – it's about determining who's the inventor, the owner, and who's entitled to a patent when it comes to AI outputs. There are other jurisdictions around the

world, like the United Kingdom and the United States, as well as the European Patent Office, that have found ways to secure legal certainty without the recognition of AI as an inventor. Based on this, Indonesia can design a patent law that has a balance and is oriented toward the future by adding provisions related to AI technology and setting criteria for human contribution and the allocation of patent rights in AI-assisted innovation. The improvements would boost the country's innovation ecosystem and make patent laws more relevant in the era of artificial intelligence [20].

Conclusion

The idea of inventorship is being transformed by Artificial Intelligence. At present, the Indonesian Patent Law only considers humans as inventors, which causes uncertainty in the case of inventions produced using significant or independent use of AI. Lack of clarity on who is considered the "inventor" of an AI-generated invention, with the potential for multiple parties to claim ownership, and whether the AI system itself or the human operator is eligible for a patent. Ambiguity as to inventorship, who may own the invention, and who is eligible for patent protection (the AI system or the human operator). In similar jurisdictions like the United Kingdom, the United States and the European Patent Office, AI is not recognized as an inventor, but there are more clearly defined approaches to the issue by all of them.

To ensure that the Indonesian patent regime remains relevant and capable of supporting technological advancement, legal reform is necessary. Rather than granting AI the status of a legal subject or inventor, Indonesia should adopt a responsive regulatory framework that recognizes the varying degrees of AI involvement in the inventive process. A classification model distinguishing human-generated, AI-assisted, and AI-generated inventions would provide greater legal certainty while preserving the fundamental principles of patent law. Such an approach would promote innovation, clarify patent ownership, and strengthen Indonesia's ability to respond effectively to future developments in artificial intelligence technology.

References

[1] G. Singh, T. Banerjee, and N. Ghosh, "Tracing the evolution of artificial intelligence: A review of tools, frameworks, and technologies (1950–2025)," 2025. doi: 10.20944/preprints202511.0637.v1.

[2] G. Core, "Louisiana, the potential safe-haven for creators of artificial intelligence," *Louisiana Law Review*, vol. 85, no. 2, 2025.

[3] M. Al-Amin, M. S. Ali, A. Salam, A. Khan, A. Ali, A. Ullah, M. N. Alam, and S. K. Chowdhury, "History of generative artificial intelligence (AI) chatbots: Past, present, and future development," *arXiv*, 2024. doi: 10.48550/arXiv.2402.05122.

[4] T. F. Peters, "Machine intelligence, artificial general intelligence, super-intelligence, and human dignity," *Religions*, vol. 16, no. 8, 2025. doi: 10.3390/rel16080975.

[5] S. Bubeck, V. Chandrasekaran, R. Eldan, J. Gehrke, E. Horvitz, E. Kamar, P. Lee, Y. T. Lee, Y. Li, S. Lundberg, H. Nori, H. Palangi, M. T. Ribeiro, and Y. Zhang, "Paper review: 'Sparks of Artificial General Intelligence: Early experiments with GPT-4,'" 2023.

[6] N. Bostrom, *Superintelligence: Paths, Dangers, Strategies*. Oxford, U.K.: Oxford University Press, 2014.

[7] A. A. Almulhim, "Introduction to artificial intelligence," *International Journal of Innovative Science and Research Technology*, pp. 365–371, 2024. doi: 10.38124/IJISRT/IJISRT24JUL1895.
[8] A. H. Afifah and Y. Yeremia, "Realizing Indonesia's legal readiness for patents on inventions produced using artificial intelligence," *Riwayat: Educational Journal of History and Humanities*, vol. 8, no. 2, pp. 1856–1865, 2025. doi: 10.24815/jr.v8i2.46298.
[9] "Wapres Gibran: AI Bukan Ancaman, Tak Akan Menggantikan Manusia," *Liputan6.com*, Apr. 19, 2025.
[10] *Law of the Republic of Indonesia No. 13 of 2016 concerning Patents*, State Gazette of the Republic of Indonesia, No. 176, 2016.
[11] A. Yaqin, *Legal Research and Writing*. Singapore: LexisNexis, 2007.
[12] R. Abbott, "The artificial inventor project: Protecting AI-generated inventions through intellectual property law," *Stanford Technology Law Review*, vol. 27, no. 3, pp. 234–289, 2024. doi: 10.1515/stlr.2024.0012.
[13] C. Luo and Z. Dai, "Can artificial intelligence-generated inventions be protected by patent law?" *Biotechnology Law Report*, vol. 45, no. 2, pp. 102–120, 2026. doi: 10.1177/0730031X261430482.
[14] M. S. Afshar, "Artificial intelligence and inventorship—Does the patent inventor have to be human?" *UC Law Science and Technology Journal*, vol. 13, 2022. [Online]. Available: https://repository.uclawsf.edu/hastings_science_technology_law_journal/vol13/iss1/5
[15] M. Rizal, S. D. Rosadi, and A. Taryana, "Reforming patent law in the age of artificial intelligence," *Jurnal Bina Mulia Hukum*, vol. 10, no. 2, 2026.
[16] C. L. Saw and S. Z. W. Chan, "Inventorship and patent ownership: Examining the intersection between artificial intelligence and patent law," *World Intellectual Property Organization (WIPO)*, 2019. [Online]. Available: https://www.wipo.int/meetings/en/doc_details.jsp?doc_id=470053
[17] A. Banerjee, "Autonomy of AI in patents: Reconciling commercial incentive with traditional inventorship," *Journal of Intellectual Property Rights*, vol. 30, no. 1, pp. 12–25, 2025. doi: 10.56042/jipr.v30i1.3714.
[18] A. George and T. Walsh, "Artificial intelligence is breaking patent law," *Nature*, vol. 605, no. 7911, pp. 616–618, 2022. doi: 10.1038/d41586-022-01391-x.
[19] T. S. Ramli, A. M. Ramli, R. F. Mayana, E. Ramadayanti, and R. Fauzi, "Artificial intelligence as object of intellectual property in Indonesian law," *Journal of World Intellectual Property*, vol. 26, no. 2, pp. 142–154, 2023. doi: 10.1111/jwip.12264.
[20] C. G. Y. Suwargita, I. N. Suandika, and I. G. A. I. L. Mahadewi, "Perlindungan hukum terhadap hasil karya artificial intelligence dalam perspektif hak cipta di Indonesia," *Nusantara Hasana Journal*, vol. 5, no. 7, pp. 289–305, 2025. doi: 10.59003/nhj.v5i7.1813.