

ARTIFICIAL INTELLIGENCE IN THE PERSPECTIVE OF INTELLECTUAL PROPERTY RIGHTS

Dhea Aulia Putri

Fakultas Hukum Universitas Lampung

dhea.auliaaputri@gmail.com

Abstract

The rapid development of artificial intelligence (AI) drives the birth of increasingly complex technological innovations and inventions, such as algorithms, machine learning models, and big data-based applications, which have great potential to be patented. However, the existing legal framework, especially in Indonesia, has not explicitly regulated the position of AI as an inventor or legal subject, thus creating uncertainty in the protection of inventions produced by AI. This research discusses the challenges that arise with inventions created using Artificial Intelligence. This research is a type of descriptive normative legal research, with a statutory approach. The results of the research show that one of the main challenges is that AI's status as an inventor or legal subject has not been regulated in patent regulations in Indonesia. In addition, regulatory disparities between countries are also a major obstacle, because patent protection is territorial and differences in protection standards in various jurisdictions hinder global protection of AI inventions. In Indonesia, AI inventions that meet the requirements of novelty, inventive step and industrial application can still be protected as product, process or process improvement patents, as long as they have clear technical effects.

Keywords: Patents, Legal Challenges, Artificial Intelligence

A. INTRODUCTION

The development of artificial intelligence (AI) in the Industrial Revolution 4.0 has changed the landscape of global technological innovation, including in the intellectual property rights (IPR) protection system. AI not only drives the efficiency of the discovery process but also creates complex inventions, such as machine learning algorithms and predictive models, which require adjustments to the patent legal framework. However, the conventional patent system designed for human inventions faces fundamental challenges in accommodating the autonomous and self-learning nature of AI.

The legal status of AI as an inventor in Indonesia is not specifically regulated by patent law No. 13 of 2016, however AI-based inventions can still be protected as product or process patents if they satisfy the standard of novelty, invention step, and the application industrially. The main challenges including the ambiguity of patent ownership for inventions produced by AI without human intervention, the difficulty in assessing the non-obviousness criterion (inventive step) due to AI's capabilities exceeding those of "a person of ordinary skill", and also global regulatory disparities that hamper cross-jurisdictional patent protection.

On the prospect side, regulatory adaptations are starting to be seen. The United States, through the USPTO 2024 Guidance, clarifies the patent eligibility criteria for AI inventions by emphasizing the significant contribution of humans in the invention process. Meanwhile, the European Union adopts a technical effect-based approach, where AI algorithms can be patented if they are applied in specific solutions such as medical diagnostics or autonomous vehicles. In Indonesia, although AI has not been recognized as a legal subject, the increase in AI-related patent applications (400 applications in the last 8 years) shows significant economic potential.

In efforts to protect copyrighted works, one important aspect is:used is a patent, although patents and copyrights have different scopes of protection. Patents focus on protecting inventions or

technical innovations that meet certain requirements, while copyrights protect works of art, literature, and other intellectual works produced by human creative processes.¹

Patents are a branch of intellectual property rights which fall into the category Industrial Property Rights. The term patent used in Indonesian is a loan word from English, namely Patent, which means open. But the term patent has been known since the Dutch era in Indonesia known as octrooi. Octrooi originates from Latin term auctor or auctorizare, meaning to be opened.² Rachmadi Usman describes patents as a privilege(exclusive) which is given to an inventor for the outcomes of their technological invention, whether in the shape of a product or a process.³ Besides that, Saidin also describes a patent as a unique legal right that is given by law to the inventor (uitvinder) or in the line with the law to the party who obtains it upon submitting a request to the authorities to the authorities, for new technological discoveries, advancement of the preexisting discoveries, new working methods, or finding new advancement in working methods that can be used in the industrial field for the specific amount of time.⁴

Copyright, as part of Intellectual Property Rights (IPR), aims to protect works produced through the creativity and efforts of their creators. However, advances in digital technology have opened up loopholes for easy misuse of works. Rapid access to download and distribute content such as images, photos, videos, and songs is often exploited by irresponsible parties without permission from the creator. This phenomenon creates the false view that works published on the internet automatically become public property, thus ignoring

¹Republic of Indonesia. (2014). Law of the Republic of Indonesia Number 28 of 2014 concerning Copyright. Ministry of State Secretariat of the Republic of Indonesia.

² Muhammad Djumhana and R. Djubaedillah, *Intellectual Property Rights: History, Theory and Practice in Indonesia* (Bandung: PT. Citra Aditya Bakti, 1997), P. 109.

³ Rachmadi Usman, *Intellectual Property Rights Law: Protection and Legal Dimensions in Indonesia* (Bandung: Alumni, 2003), P. 205.

⁴ OK. Saidin, *Legal Aspects of Intellectual Property Rights (IPR)* (Jakarta: PT Raja Grafindo Persada, 2004), P. 226.

respect for the efforts and rights of the creator. Therefore, it is necessary to increase awareness of the importance of Copyright protection in the digital world.⁵

This study is a component of descriptive normative legal research using a statute approach, with a statute approach. This method is used to describe and analyze the phenomenon of artificial intelligence in deep monopoly intellectual property law, including challenges, and patent prospects in the era of increasingly advanced artificial intelligence. Primary legal resources obtained from the 1945 Constitution contain the types and sources of data utilized, especially Article 28C paragraph (1) and Article 33, which are the constitutional basis for the protection of intellectual property rights in Indonesia, Law No. 13 of 2016 concerning Patents, the International Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs), a global standard in patent protection for new technologies, including AI. Data Collection Techniques Literature Study. Gathering information from secondary legal sources (books, journals, and scientific publications) as well as main legal sources (laws, government rules, and agreements). This writing aims to analyze the dynamics of patent law in responding to disruptive AI, with a focus on regulatory gaps, economic implications, and policy recommendations.

B. RESULTS AND DISCUSSION

Patents are a type of protection in Intellectual Property Rights (IPR) which gives exclusive rights to the inventor to exploit his invention for a predetermined amount of time. One of the main forms of Intellectual Property Rights (IPR) is a patent, which grants the inventor or holder exclusive rights to protect and exploit his/her invention for a certain period of time, often 20 years from the time of registration. The patents provide protection for products or processes that are new, innovative, and can be applied in industry.

The primary goals of patent protection are to supporting creativity and innovation, providing financial rewards for inventors

⁵ D. M. E. Renouw, *Legal Protection of E-Commerce* (Yogyakarta: Yayasan Taman Pustaka, 2017), P. 108.

or patent holders, and creating an ecosystem that supports the development of technology-based industries.⁶ as part of legal safeguard for technological intellectual property, patents serve as indicators of a nation's development . Patents are exclusive rights granted by the state to inventors for the results of discoveries in the field of technology. Patent protection is territorial, meaning that patents only provide protection for the region where the patent is obtained and what is claimed.⁷

Patent protection provides a variety of benefits at both the individual and industry levels. One of the main benefits of patents is that they provide an incentive for inventors to continue innovating. With a patent, inventors have exclusive control over the use of their invention, allowing them to monetize their invention either through licensing, technology collaboration, or commercialization of the invention. This economic benefit is very important, both for individuals and for companies that want to develop new products based on technology. For industry, patent protection also serves to increase competitiveness. With a patent, companies can prevent others from using their technology without permission, which helps businesses in making research and development (R&D) investment. This not only increases innovation, but also allows companies to create superior products that are difficult for competitors to copy, thereby strengthening their position in the market.

Patents cannot be separated from the two terms Invention and Inventor. Invention is the outcome of someone's intellectual invention, which can take the form of a product or process to produce something that meets the requirements that are useful for society, which can be protected or patented.⁸ Invention comes from an idea

⁶ Iona Febrina Simanjuntak and Janpatar Simamora, "Patent Rights in Intellectual Property Rights (IPR): Protection, Implementation, and Challenges," *Hukum Progresif* 8, no. 1 (2025), P. 166.

⁷ Direktorat Jenderal Kekayaan Intelektual (DJKI)., *Modul Kekayaan Intelektual Bidang Paten* (Jakarta: Direktorat Jenderal Kekayaan Intelektual, Kementerian Hukum dan HAM RI, 2019).

⁸ Ahmad Zen Umar Purba, *TRIPs Agreement and Several Strategic Issues* (Bandung: Alumni, 2011), P. 49.

that contains a solution to a problem.⁹ The subject of patents has been regulated in Article 10 until Article 13 of Law Number 13 of 2016 on Patents. In essence, the inventor is the focus of a patent. In addition to the inventor, the party who receives further inventor rights is also considered a patent subject. In addition to the inventor and the party who gets more inventor rights, there is also the term previous user who also receives legal protection as a patent subject, which is controlled in Article 14 to Article 18 of Law Number 13 of 2016 on Patents.

The basic principle of IPR is the right that arises from a work produced using human intellectual ability that is beneficial to human life. In its technical implementation, IPR is classified based on the type of use of the object into two groups: industrial property right and copyright.¹⁰ Law Number 13 of 2016 related to Patents divides the scope of patent protection into two categories, called Patents and Simple Patents, each of which has certain criteria. Simple patents are awarded for innovations that are fresh improvements of pre-existing items or methods that can also be used in industry, whereas patents are awarded for ideas that are novel, incorporate creative steps, and have industrial application. Based on the definition in Article 1 paragraph (1) and Article 1 paragraph (2) of the Patent Law, the objects protected by patents are technological innovations, including items, processes, and improvements and developments of these products or processes.¹¹

Artificial intelligence inventions can be categorized as related Product Patents with software. The reason behind this is that artificial intelligence inventions are physical entities in the form of software that can be used on various available operating systems. As part of a computer program, artificial intelligence inventions meet the criteria as patent objects in accordance with the clauses of Article 1

⁹ Tomi Suryo Utomo, *IPR in the Global Era: A Contemporary Study* (Yogyakarta: Graha Ilmu, 2010), P. 114.

¹⁰ Ismail Saleh, *Economy Law* (Jakarta: PT Gramedia Pustaka Utama, 1999), P. 45.

¹¹ A. G Nugrahani, "The Influence of Technology on Intellectual Property Rights Ownership," *EJournal Trisakti* 11, no. 2 (2024), P. 200.

paragraph (1) and (2) of Law Number 13 of 2016 concerning Patents. Computer programs protected by patents must have certain characteristics, namely instructions that provide technical impacts and serving as both concrete and abstracts issues. This is in line with the provisions of Article 4 letter (d) of the Patent Law which stipulates that inventions that have technical effects and problem-solving functions can be granted patent protection.¹²

Patent objects, utility models, industrial designs, trademarks, service marks, trade names, indication of original sources, and the suppression of unfair competition are all considered forms of industrial property, according to the Paris Convention for the Protection of Industrial Property (Paris Convention), which established the international patents protection. Additionally, it is included the TRIPS and PCT related to international patent registration. Technological developments are the main key in providing various changes in a country, especially the industrial revolution. In its history, the industrial revolution itself has occurred four times since the early 17th century AD. All economic development, increasing productivity, and superior goods and services have all been impacted by industrial revolutions.¹³

The 4th Industrial Revolution brought major advances in artificial intelligence technology, which revolutionized the way computer programs work through sophisticated algorithms that allow computers to think, plan, and make decisions like humans.¹⁴ This technology is now widely used in virtual assistants, humanoid robots, and self-driving cars. Artificial intelligence is also starting to influence the law, because it has the potential to become a legal subject and produce objects protected by IPR, such as works of art or inventions created by AI. Artificial intelligence is a technology in the field of computer science that simulates human intelligence into

¹² (DJKI)., *Modul Kekayaan Intelektual Bidang Paten*.

¹³ Rabeh Morrar, "The Fourth Industrial Revolution (Industry 4.0): A Social Innovation Perspective," *Technology Innovation Management Review* 7, no. 11 (2017), P. 50.

¹⁴ A. R. Arwani, *Industry 4.0: How to Revolutionize Your Business* (Jakarta: PT Media Penerbit Indonesia, 2024), P. 100.

machines (computers) to solve various problems and jobs like and as well as humans or even better than humans. Where this technology is able to understand and analyze by studying data from algorithms that are specifically designed using programming languages.

Artificial Intelligence technology that mimics basic human abilities is an innovation in the field of computer programs. This computer program is protected by two legal aspects, namely copyright and patent law. In copyright, a set of instructions written in a language code, or scheme that cause a computer to carry out a specific task or produce a special outcome is called a computer program. In contrast, in patent law, a computer program refers to rules and methods that include instructions, technical effects, and problem solving, both tangible and intangible. In simple terms, a computer program that only performs one specific function is protected by copyright, while one that has technical effects and can solve problems by processing various data and has an impact on the industrial and economic fields is protected by a patent.¹⁵

Because of artificial intelligence technology (Artificial Intelligence) which can create a work of art or even create an invention protected by law, especially copyright or patents, can affect future IPR protection for a work created by artificial intelligence. So in this case, Artificial Intelligence Technology affects Intellectual Property Rights. In this case, Artificial Intelligence technology should be able to be part of the object protected by a Patent, because Artificial Intelligence is a product of technological developments, especially during the current 4th industrial revolution. However, artificial intelligence inventions are not covered by the current Indonesian Patent Law, which is included in Patent Law Number 13 of 2016 on Patents.

The provision that specifically regulated AI inventions are absent from the current Indonesian patent law, which makes it difficult for innovators in the field of AI technology to determine

¹⁵ N Glenn, "Copyright Analysis of Artificial Intelligence-Generated Works in the Form of Text-To-Images Art in Indonesian Copyright Law" (Universitas Indonesia, 2022), P. 24.

whether or not, their creations qualify for patent protection.¹⁶ In the 1945 Constitution, there is no specific article that explicitly mentions the term "intellectual property rights". However, several articles in the 1945 Constitution can be used as a constitutional basis for the regulation and protection of intellectual property rights in Indonesia. Articles that are often used as references include:¹⁷

- a. Paragraph 1 of article 28C: Ensure that everyone has the right of development by fulfilling their fundamental needs, to education and to the advantages of science, technology, art, and culture. The foundation for intellectual property protection is part of this right.
- b. Article 32: Regulates that the state advances national culture and guarantees the autonomy of society to preserve and advance its cultural values, as well as respect and maintain regional languages as national cultural assets. This article is relevant to the protection of creative works and cultural expressions.
- c. Article 33: Regulates the management of natural resources and the national economy for the greatest prosperity of the people, which can also be linked to the management of intellectual property, especially that which is of a communal nature such as geographical indications and traditional knowledge.

Law Number 13 of 2016 does not yet regulate Patent Rights for artificial intelligence (AI) because it considers several factors that are still obstacles or challenges, such as:¹⁸

1. No Explicit Regulation Regarding AILaw No. 13 of 2016 concerning Patents in Indonesia does not explicitly regulate inventions produced by artificial intelligence (AI). Current regulations only regulate inventions produced by humans or

¹⁶ Galih Dwi Ramadhan, "Legal Protection of Artificial Intelligence Inventions in the Era of Industrial Revolution 4.0 & Society 5.0" (Universitas Islam Indonesia, 2022), P. 6.

¹⁷ Republic of Indonesia. 1945. Constitution of the Republic of Indonesia. Copy of the Constitutional Court of the Republic of Indonesia.

¹⁸ Endang Purwaningsih and Irfan Islami, "Analysis of Artificial Intelligence (AI) as an Inventor Based on Patent Law and Islamic Law," *Jurnal Ilmiah Galuh Justisi* 11, no. 1 (2023), P. 6.

- legal entities, not by AI systems or algorithms that work independently.
2. **Definition of Inventor Still Limited to Humans**In Law No. 13 of 2016, the term “inventor” is defined as a person, either alone or together, who finds an idea in the field of technology. Inventors can also be legal entities, but AI is not included in this category. AI is still positioned as a tool, not a legal subject that can have rights and obligations like humans or legal entities.
 3. **AI Not Yet Recognized as a Legal Subject**AI in Indonesia has not yet been recognized as a legal subject that can be held responsible or have rights over the inventions it produces. AI cannot be held accountable civilly or criminally and does not have the same rights and obligations as human inventors.
 4. **Protection Still Refers to the Role of Humans**Inventions produced with the help of AI can still be registered as patents, as long as humans are listed as inventors in the patent application. Thus, legal protection is still given to humans as users or developers of AI, not to AI itself.
 5. **Computer Program Provisions as a Regulatory Loophole**Although there are no specific regulations regarding AI, Article 4 letter d of Law No. 13 of 2016 stipulates that computer programs that have technical effects can be patented. However, this provision is still limited to computer programs, not to artificial intelligence that produces inventions autonomously.
 6. **Technology Development Faster Than Regulation**The rapid development of AI technology has not been matched by adequate regulatory updates. This creates a legal gap and demands a revision or adjustment of regulations to be more inclusive of AI-based innovations in the future.
 7. **Some journals that discuss patent rights on artificial intelligence include:** “Computers as Inventors – Legal and Policy Implications of Artificial Intelligence on Patent Law”. The journal discusses the implications of Artificial Intelligence on UK Patent Law. The final conclusion of the study is that the author argues that patent system rules must understand the consequences and be prepared to react to the technological world where human creativity is required, starting to be replaced by

Artificial Intelligence and the ratio of human contributions to machines will decrease with the presence of Artificial Intelligence.¹⁹

The second journal discusses whether inventions created by Artificial Intelligence should all be patented and if not what mechanisms can be used in patents for Artificial Intelligence with a study of IPR regulations in the US related to Artificial Intelligence. The final conclusion in this study is that the author provides suggestions for alternative models of patent regulations covering 3A (Advanced, Automated & Autonomous AI)System) and US Patents are no longer adequate and efficient and raise many questions regarding Artificial Intelligence regulations.²⁰ The invention of artificial intelligence, which is basically an invention of programming computers, can obtain patent protection if they fit the criteria for patentability, which are industrial applicability, inventive step, and novelty. If the invention meets these requirements, then it will fall within the confines of a 20-year patent protection period. However, if the artificial intelligence invention is only is a development or improvement of an existing invention, then it will be protected by a simple patent, which has a protection period of 10 year.²¹

Artificial intelligence, which is a program in computer that develop a particular programming language that contains codes, characters, technological effects, and problem-solving techniques using intricate algorithms can be patented in accordance with Article 4 paragraph (c) number 3 and paragraph (d) of Law Number 13 of 2016 concerning Patents. However, in order for an artificial

¹⁹ Erica Fraser, "Computers as Investors – Legal and Policy Implications of Artificial Intelligence on Patent Law," *Scripted: A Journal of Law, Technology & Society* 1, no. 2 (2016), P. 68.

²⁰ Shlomit Yanisky Ravid and Xiaoqiong (Jackie) Liu, "When Artificial Intelligence System Produce Inventions: An Alternative Model for Patent Law at The 3A Era," *Cardozo Law Review* 3, no. 1 (2018), P. 12.

²¹ Maurelisha Ayunidewi Rahadianputri, "Legal Analysis of Artificial Intelligence Inventions from the Perspective of Law Number 13 of 2016 Concerning Patents," *Jurnal Kajian Hukum Dan Pendidikan Kewarganegaraan* 3, no. 2 (2024), P. 108.

intelligence invention to be patented, it must meet substantive requirements, and an examination of Prior Art must be carried out. The substantive requirements that must be met include:²²

- a. Novelty: An invention is considered new if it has no similarities with pre-existing technology. To ensure novelty, an examination of previously disclosed technology. Article 5 paragraph (1) The Patent Law states that an invention is considered new if it is not the same as previously disclosed technologies, including products, processes, and information.
- b. Inventive Step: an inventive step is a feature of an innovation, and must be clear and unpredictable before. Inventive step is a requirement to prevent the granting of patents for inventions that are actually easily suspected by someone with specialized knowledge in engineering. Article 7 paragraph (1) According to the patent law, an invention is considered to have an innovative step if it could not have been foreseen by an engineer with knowledge in the specific field.
- c. Industrial Applicability (Can be Applied in Industry): Article 8 of the Patent Law states that if the invention can be used in industry, it can be patented, which means that the invention can be manufactured or applied in a variety of industries. If the creation is in the shape of product, it must be able to be produced repeatedly with the identical qualities, while if it is a process, the process must be able to be executed or applied in practice. Inventions that meet the requirements This will provide economic value that can be applied in industry.

C. CONCLUSION

The Artificial Intelligence's (AI) explosive growth throughout the Industrial Revolution 4.0 era has brought fundamental changes to the landscape of technological innovation and the intellectual property rights (IPR) protection system, especially patents. The absence of regulation is one of the primary issues of AI's status as an inventor or legal subject in patent regulations in Indonesia. Patent Law No. 13 of 2016 still limits the definition of an

²² Purba, *Perjanjian TRIPs Dan Beberapa Isu Strategis*, P. 33.

inventor to humans or legal entities, so that AI is only positioned as an aid, not as a party that can own patent rights. This creates legal uncertainty regarding who is entitled to inventions produced autonomously by AI, and complicates the patent registration process because there is no clear legal framework for assessing AI's contribution to the discovery of new technologies. In addition, the complexity of AI technology which often exceeds the capabilities of "people with ordinary skills" makes it difficult to assess the criteria for inventive steps (non-obviousness).

Disparities in regulations between countries are also a major obstacle, as patent protection is territorial and differences in protection standards across jurisdictions hamper global protection of AI inventions. The slow patent registration process and the low level of understanding of IPR by inventors further exacerbate the challenges of protecting AI-based inventions. However, the prospects for patent protection in the field of AI remain open. Several developed countries such as the United States and the European Union have begun to adapt regulations. Overall, the main challenges faced are unclear regulations, limited inventor definitions, and the need for global harmonization of patent protection standards. However, great opportunities are open if Indonesia is able to adjust regulations, increase inventor awareness, and strengthen the capacity of IPR institutions in dealing with the dynamics of AI technology. Thus, the patent system in Indonesia can provide legal certainty, encourage innovation, and provide added value for the development of AI technology in the future.

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