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Protection and Legal Enforcement of Inventions in the Field of Artificial Intelligence in Indonesia

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ABSTRACT

Artificial Intelligence (AI) is essentially software created and trained by data scientists and AI developers using very large amounts of data. This study aims to examine the regulation of legal protection for inventions produced by Artificial Intelligence and the Prospects for the Implementation of Patent Law Enforcement Against Artificial Intelligence in Indonesia . The method used in this study is normative legal research using a Conceptual approach, Legislation and comparative law. The results of the study are that legal protection for inventions produced by AI in Indonesia currently still have differences of opinion. AI can still be protected by a Patent mechanism if the AI can solve technical problems and is related to technology and there is already a Patent certificate protection from its country of origin. AI cannot be an object protected by the Patent Law in Indonesia, Based on Law (UU) No. 65 of 2024 concerning Patents, AI has not been specifically regulated, however in Article 4 letter d, there are regulations for computer programs that have technical effects that can be patented (Explanation in Article 4 letter d). In addition, regarding regulations on AI in Indonesia, the Ministry of Communication and Informatics has issued Circular Letter of the Minister of Communication and Informatics Number 9 of 2023 concerning the Ethics of Artificial Intelligence. One of the points in the contents of the circular states that the implementation of artificial intelligence is subject to the principles of Intellectual Property in accordance with statutory regulations. Patent law enforcement in the Artificial Intelligence Era has not been effective, because there is still no explicit regulation regarding the Qualification of Inventions produced by AI that can be used as Patent objects. Although Article 1 paragraph (2) of Law No. 65 of 2024, defines inventions very broadly with the addition of the words " system, method, and use" to adjust the Intellectual Property framework to the rapid development of AI technology. Article 4 letter d also states that Inventions do not include computer programs, except for computer-implemented Inventions, namely Inventions that utilize computers to achieve certain results. This is feared to be open to multiple interpretations resulting in a lack of legal certainty. Apart from that, there are

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other factors for the regulation to be effective, namely the law enforcement factor which has the most central position compared to other factors (legal culture).

***Keywords**: Protection, Law Enforcement, Invention, Artificial Intelligence.*

I. INTRODUCTION

Humans no longer play a significant role in AI development. IBM also reports that the next development will not be generative AI, but rather autonomous agentic AI, which includes corporeal elements in the form of synthetic matter. Generative AI is artificial intelligence that can generate more objects than the data it is trained on.

AI development must adhere to high ethical standards. This should include responsible system design to prevent algorithmic bias, transparency in AI decision-making so users can understand the basis for decisions, and the involvement of experts across disciplines, such as law, technology, and ethics, in the development process.

AI as an autonomous system is not recognized as a legal subject, so the results of its inventions cannot be considered human work according to the current legal framework (Elkin-Koren, N., & Perel, M., 2020). AI regulation in Indonesia aims to protect user data by ensuring companies maintain the confidentiality and security of information. Appropriate policies are needed to regulate the use of AI and protect individual privacy. AI can be optimally utilized without compromising the principles of justice and human rights. AI systems need to be designed with ethical and fair principles in mind. *From a normative perspective, the trustee must be held accountable for its actions, which AI cannot. However, reliable AI places the burden of responsibility on those developing, deploying, and using these technologies* (Mark Ryan, 2020).

As AI technology advances, patent protection for these innovative inventions is becoming increasingly important. Patents not only protect the intellectual property of AI developers but also encourage further research and development by providing legal certainty and financial incentives. Integrating artificial intelligence (AI) into national patent regulations is a crucial step to ensure that the development and use of AI take place within a clear and responsible patent legal framework.

Comprehensive AI regulations are needed to ensure that the development and implementation of AI in Indonesia takes place within a clear legal framework that supports innovation. AI plays a role as a catalyst in legal evolution. However, the importance of appropriate and adaptive regulations is key to ensuring that the development and implementation of AI in law proceeds ethically and responsibly. Therefore, the integration of AI into law will not only bring

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technological advancement but also ensure that such advancement is aligned with the values of justice and truth that underlie the law itself.

According to Lawrence Meir Friedman, a legal system consists of three main components: legal structure, legal substance, and legal culture. These three components interact with each other and influence the effectiveness of law enforcement in a country. The legal structure is an institution created by the legal system with various functions to support the operation of the system. This component makes it possible to observe how the legal system provides services for the regular processing of legal materials. *Legal substance* is the output of the legal system, which consists of regulations and decisions used by both the regulator and the regulated. Legal culture *consists* of values and attitudes that influence the operation of the law, or what Friedman calls legal culture. This legal culture serves as a bridge connecting legal regulations with the legal behavior of all citizens. The application of AI technology in law enforcement in Indonesia can have both positive and negative impacts on the implementation of law enforcement in Indonesia. AI technology can support just law enforcement by increasing transparency, efficiency, and accuracy in the legal process. For example, it can enable faster and more accurate data collection and analysis, such as in case investigations or the monitoring of criminal activity. In making laws.

The use of artificial intelligence *in* drafting regulations is believed to save money. AI is considered to accelerate lawmaking with greater precision and efficiency. The existence of AI can actually assist every role, including law enforcement officers such as investigators, prosecutors, and advocates. With AI technology, administrative processes and case management can be improved, including scheduling hearings, assigning judges, and other matters. AI helps accelerate legal data analysis, facilitate access to legal information, and increase the efficiency of court proceedings. The use of AI has the potential to improve efficiency, accuracy, consistency, and accessibility in the criminal justice system. AI can assist in data analysis, decision-making, and bias reduction. However, challenges such as data bias, transparency, privacy, and human dependency need to be addressed (Linda Ikawati, 2024). The use of artificial intelligence (AI) in law enforcement offers great efficiency and analytical capabilities (Nurwati, 2024).

Patent Law in Indonesia is regulated by Law Number 13 of 2016 concerning Patents in conjunction with Law Number 65 of 2024. However, this regulation does not explicitly regulate inventions produced by AI. AI patents refer to legal protection for inventors involving artificial intelligence (AI) and for inventions based on AI technology. This study examines the regulation of legal protection for inventions produced by *Artificial Intelligence* and the Prospects for the

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Implementation of Patent Law Enforcement Against *Artificial Intelligence* in Indonesia.

(A) Research Methods

This study uses a normative legal research method that examines legal norms through legislation on a particular problem (Siyoto, 2015). The types of approaches used in this study are the statute approach, the conceptual approach , and the comparative legal approach . In supporting this study, primary legal materials are used in the form of legislation, namely Law No. 14 of 2001, No. 13 of 2016 concerning Patents and Law No. 65 of 2024 concerning the Third Amendment to Law No. 13 of 2016 concerning Patents; secondary legal materials are books and literature on Patents that support this research. The collection of legal materials uses library study techniques. After the legal materials are collected, it is necessary to analyze these legal materials for the purposes of this research using descriptive analysis techniques.

(B) Research results and discussion

Artificial intelligence (AI) is a cutting-edge, emerging technology, and competition to protect valuable intellectual property will continue to intensify. As more organizations use tools like machine learning and language processing to streamline their operations, proprietary AI will continue to be a valuable asset class in business vaults.

AI has 3 (three) levels of change or evolution, namely: (1) Artificial Narrow Intelligence (ANI) which is a form of Weak AI. (2) Artificial General Intelligence (AGI) or better known as Strong AI which has capabilities comparable to humans. (3) *Artificial Super Intelligence* (ASI) is a form of AI that is deliberately created to surpass human capabilities (Ashshidqi, 2019).

AI has indeed significantly assisted human creativity. In some cases, humans can be said to simply turn on a computer, allowing the computer and its artificial intelligence applications to work and innovate. If the law does not accommodate AI as an inventor, it is feared that companies will be confused about who the inventor of an invention is, leading to the listing of names that are less entitled to the invention. Ultimately, in this era of rapidly developing technology, AI-based works or inventions are inevitable, and legal certainty over them is a necessity.

Artificial Intelligence (AI) is a booming information technology breakthrough *and* a hot topic in various parts of the world. More and more technologists are incorporating AI into various applications that can interpret behavior and offer solutions that make things easier for humans. AI, or artificial intelligence, is the science and engineering of creating intelligent machines to perform tasks using computer technology. AI is a technology that enables computer systems, software, programs, and robots to "think" intelligently like humans.

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Artificial intelligence technology is like a machine capable of reasoning using logic to solve problems. However, early prototypes of AI itself were only realized in the last half century. AI is essentially a man-made system that lacks the natural reasoning power of humans. To execute commands or perform certain actions, AI relies on a set of algorithms and parameters created by programmers. The AI then compiles previous works using the algorithms to modify those works. Therefore, the works created by AI are not actually new creative processes but rather abstractions of previous works. However, while technological developments are intended to simplify human life, they also give rise to complexities, particularly when they intersect with the law. As has recently been widely discussed by the public, namely regarding copyright for works created by AI or artificial intelligence.

One of the key challenges in patenting artificial intelligence is the time and cost involved when technology becomes obsolete rapidly. A quick solution to this problem is copyright and trade secret protection. AI patents have high intrinsic value for businesses. The issue of inventorship in patent law for AI-generated inventions remains crucial for companies developing and using AI technology. The ability to obtain a patent for an invention is a crucial way for businesses to protect their intellectual property and maintain a competitive edge in the market. However, the requirement that an "inventor" must be an individual contradicts the current reality that inventions are not only produced by individuals or legal entities, but also by AI.

This human-like artificial intelligence (AI) created by humans is created using complex programming algorithms. There are two main components of AI development: *Big Data* and *Computing Power* . With AI, human work becomes more effective, and AI can become a tireless or painless human coworker. A newly developed generative AI tool "has the ability to draft technical specifications, generate responses to Office actions, write and respond to briefs, and even draft patent claims" with minimal human input. By reducing the amount of time and work required to draft these documents, IP practitioners should be able to reduce service costs, thereby increasing access to patents for inventors in general.

The United States has rejected recognition of AI as an inventor. The USPTO, in *Application No. 16/524,350* (Invention by DABUS AI), ruled that the inventor must be human. **The European Union,** like the EPO, states that inventors must be natural persons and **Australia,** the Federal Court initially accepted AI as an inventor (Thaler v Commissioner of Patents), but this decision was overturned on appeal.

In general, the legal framework in Vietnam does not grant inventory/authorship to AI and/or provide intellectual property protection to creative work made by AI. AI or AI contained

products are treated as properties. Loss to third parties resulting from AI or AI-contained products shall be the heavy burden of producers, sellers or any third parties. There is definitely a shortage of regulations covering the phenomenon where loss directly results from no legal parties or the ethical issues in the process of development and application of AI to various aspects of life (Nguyen Thi Bich Ngoc & Ho Thuy Ngoc, 2022).

Australia and African countries consider that AI can be declared as an inventor so that as an inventor he has the right to hold a patent. However, the logic of this statement according to the author's analysis is not correct. Apart from being contrary to Article 1 paragraph (3) of the Patent Law, we can explain logically that AI is the result of programming where the results of AI's work are not pure works of invention but rather the results of programming algorithms, so that it is contrary to the Patent Law where something that can be patented is a work that is purely the result of innovation or innovation and is not the result of something filled with a program algorithm that makes AI capable of creating product innovation. AI cannot be declared as an inventor of course because of this even though there is controversy from Australia.

In the Indonesian Patent Law it is stated that an inventor is a person or several people, which means that AI does not fulfill the legal subject described in Article 1 paragraph (3) that only people can be made inventors. Therefore, it is impossible for AI to hold Patent Rights but the Patent Rights Holder is a person or a person or a group of people who created the AI program itself. The logic is that AI is the result of programming where the work of AI is not a pure work of invention but rather the result of a programming algorithm. So it is contrary to the Patent Law where something that can be patented is a work that is purely the result of innovation or Invention and is not the result of something filled with a program algorithm that makes AI capable of creating product innovation. AI cannot be declared an Inventor.

Artificial Intelligence (AI) is essentially a data-driven technology that takes unique data sets as input to train AI computer models. Once trained, AI computer models can take new data as input to predict, classify, or produce results for use in various applications. AI cannot be equated with a legal subject that has authority and can be responsible for every legal act carried out. This includes producing a creation, innovative work, and its creations. AI cannot be declared an inventor and is not a patent owner) because "designing" an invention *is* a human activity that involves contributing to an inventive concept. Therefore, only humans (including legal entities) who create, design, operate, or control the AI are most likely to be legal subjects who own intellectual property protection for the AI they designed.

As for whether a human'inventor' could be credited for work done by such a system, there is no

equivalent of the work for hire doctrine. To be an inventor, the human must have actually conceived of the invention. Joint inventions are possible and contributions do not need to be identical, but in the absence of a natural person making a significant conceptual contribution an invention would be, at current law, ineligible for patent protection (Simon Chesterman, 2020). *The exploration of the complex landscape of AI and IP regulation, several key findings stand out. Firstly, the intersection of AI and IP poses unique legal and regulatory challenges, particularly concerning privacy, data protection, and liability* (Ubaydullayeva Anna, 2023). Currently, AI is generally considered a legal object, not a legal subject. This means that AI can be a Patent object, but cannot yet be an Inventor in the legal sense. AI can only assist in the Invention process. Inventors in the context of Patents are still humans, because AI is a tool used by humans. To obtain a Patent in Indonesia, an AI Invention must meet the general criteria for Patents, namely novelty, obviousness, usefulness, and patentability. Law No. 13 of 2016 concerning Patents and Law No. 28 of 2014 concerning Copyright have not specifically regulated AI, but computer programs that have technical effects can be protected under the Patent Law, and computer programs are also creations protected under the Copyright Law. Several countries are developing specific regulations related to AI Patents to address the challenges posed by the development of AI. Case Example: Thaler v. Vidal. In a Case where an applicant tried to file a Patent for an Invention created by AI, but was rejected because AI cannot be an Inventor. UK case: The UK court also ruled that AI cannot be an inventor in the context of a patent.

Regulations in Indonesia, the Ministry of Communication and Informatics has issued Circular Letter of the Minister of Communication and Informatics Number 9 of 2023 dated December 19, 2023 concerning the Ethics of Artificial Intelligence. One point in the circular states that the implementation of artificial intelligence is subject to the Kl principle in accordance with statutory regulations. AI patents provide legal protection for AI-based inventions, encouraging innovation and investment in this field. AI patents help ensure that AI innovations can be developed and used responsibly. AI patents can also be used to resolve disputes related to AI intellectual property rights. AI is not yet a subject of Patent law, AI-based innovations can still be protected through the existing Patent system, with an emphasis on the role of humans as Inventors. More specific regulations regarding AI Patents may be needed as this technology develops. In Indonesia, AI itself is not specifically regulated in the Patent Law, but computer programs with technical effects can be patented (Article 4 letter d of Law No. 65 of 2024). Patents for AI-based innovations, such as algorithms or hardware, can be protected as long as they meet administrative and substantive requirements (Patentability).

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The results of work/inventions produced by AI cannot obtain patent rights, or it means that an AI system cannot be called an inventor (patent holder). Patent rights are for all inventions involving AI. However, Patent Law provides room for humans to continue to use AI, in a product development process or process to be patented. The use of AI systems by individuals does not prevent individuals from qualifying as inventors. To be able to register a patent for their work/invention using AI assistance, a person must be able to prove that they have a significant contribution to the conception of the invention, more than what AI does. Someone who only asks an AI system to create something and supervise it, will not be allowed to apply for a patent or will not be recognized as an inventor.

Patent rights recognized by Australia can be granted to AI and consider AI to be an inventor. This case concerns the Allen company which states that Artificial Intelligence can be declared an inventor and AI can be a patent holder. A patent is a special right granted by the state to an inventor for his/her invention in the field of technology to implement his/her invention himself/herself within a certain period or grant permission to another party to implement it. Patent rights do not arise automatically but are granted by the state, for which there must be a registration application (with the Directorate General of Intellectual Property). There are 3 requirements for an invention in the field of technology to be granted a patent, namely:

1. The finding must be new.
2. Contains an inventive step . This means the discovery must be unexpected by a technical expert. Therefore, it is measured according to the average Q of a person, not the measure of a genius (*e.g., Einstein*). To determine the inventive step, the important thing is that there is a technical solution to the discovery.
3. Industrially applicable . This means the invention can be produced or used in the production process. Therefore, a patent can be a product or a production process (*product patent* or *process patent*). This requirement requires that the patent be applicable, meaning it can be applied in industry or manufactured into a product. If it is a process, the process must be usable to manufacture the product. Therefore, a patent must have a physical dimension, not just an idea, concept, or concept.

The provisions regarding exceptions to the granting of patents apply in the following cases:

1. Findings regarding production processes or results whose use is contrary to public order and morality laws;
2. Inventions concerning methods of examination, treatment, medication, surgery, applied to animals or humans;

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3. Invention of theories and methods in the fields of science and mathematics;
4. All living things except microorganisms;
5. Biological processes that are essential for producing plants or animals, except non-biological processes or microbiological processes.

According to the provisions of the Patent Law, the novelty of an invention is measured internationally *(International Novelty*) not nationally, so the discovery must be new for the whole world. However, for simple patents, currently only new criteria are used for local *novelty*. In practice, laboratory tests are rarely carried out to measure the novelty of an invention, but rather by comparing documents or *searching* various leading patent offices in other countries, for example, the JPO (*Japan Patent Office*), USPTO (*United States Patent and Trademark Office*), EUPO (*European Patent Office*).

In Article 1 paragraph (1) of Law Number 13 of 2016 it is stated that: A patent is an exclusive right granted by the state to an inventor for the results of his invention in the field of technology for a certain period of time to carry out the invention himself or give permission to another party to carry it out. Then it is explained regarding the Inventor in Article 1 paragraph (3), namely:

An inventor is a person or several people who jointly implement ideas that are expressed in activities that produce an invention. This means that in the Patent Law it is stated that an inventor is a person or several people, which means that AI does not fulfill the legal subject explained in Article 1 paragraph (3) that only people can be used as inventors. Therefore, it is not possible for AI to hold patent rights, but rather the patent holder is an individual or person or group of people who created the AI program itself.

Patents are exclusive rights granted to creators to protect their innovations from unauthorized use. In the context of the Fourth Industrial Revolution, patents play a crucial role because technological innovation often requires significant investment in research and development. Patent protection incentivizes individuals and companies to continue innovating without fear of their hard work being appropriated by others.

AI algorithms are at the heart of many applications in the Industrial Revolution 4.0 era. This technology is used to analyze big data and make predictions in various fields, such as healthcare, finance, and manufacturing. For example, AI algorithms can be used to predict market trends or diagnose diseases based on patient data. Developing AI algorithms requires significant investment in research and data collection. If not protected, these algorithms can easily be copied by competitors, harming their original creators.

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Patents can be granted for inventions in the field of technology that involve an inventive step and can be applied in industry, including AI algorithms. Patentability is regulated in Law Number 13 of 2016 concerning Patents, specifically in Articles 5, 20, and 33. This law regulates the third amendment to Law Number 13 of 2016 concerning Patents. Furthermore, Articles 52 and 53 of the Patent Law also relate to patentability and its exceptions. While patent protection is important, there are several challenges that need to be overcome, such as technological complexity, the speed of innovation, and regulatory differences between countries. AI and blockchain often involve many interrelated elements, making it difficult to determine which parts are patentable. Furthermore, the very rapid development of technology often lags the patent registration process. Different patent regulations in each country also make it difficult to obtain consistent global protection.

Patent protection is not only for the final result (product), but also for the manufacturing process that involves knowledge and costs. Intellectual property refers to the results of human creativity, such as inventions. Based on Law Number 13 of 2016, Article 1 paragraph (2) defines invention as follows:

"An invention is an inventor's idea that is expressed in a specific problem-solving activity in the field of technology in the form of a product or process, or the improvement and development of a product or process."

The above definition provides a basis for Patent protection, however, this definition is considered less capable of covering broader technological developments and innovations in various industries. If we refer to Article 1 paragraph (2) of Law No. 65 of 2024, it now defines an invention as: *"An invention is an Inventor's idea that is expressed in a specific problem-solving activity in the field of technology in the form of products and/or processes, improvements, and/or development of products and/or processes, as well as systems, methods, and uses."*

The addition of "systems, methods, and uses" significantly expands the scope of patentable matters. This amendment recognizes the importance of protecting technological advances that may not fit into the previous category of "products or processes." By adding the term "and/or" between products, processes, improvements, and developments, the law ensures greater flexibility in interpretation, making it more inclusive of various types of innovation. This new definition is more aligned with international patent law, making Indonesia a more attractive jurisdiction for innovators and businesses seeking to protect their intellectual property globally. This revision not only responds to domestic technological advancements but also aims to

encourage innovation and competitiveness in the international market. By expanding the definition, Indonesia demonstrates its readiness to embrace new industries and future innovations.

There are many obstacles to overcome before AI can be safely integrated into Patent law, Reliability on AI without human verification and ethical issues regarding the use of AI due to future changes in Patent law. AI systems cannot be considered inventors in Patent applications. The use of AI by a natural person in the Patent process does not preclude the possibility of obtaining a Patent "if the natural person contributes significantly to the Invention. Inventions by AI or Inventions that do not involve " *joint inventors* " or that do not involve humans are not eligible for Patent protection. Because AI is not a subject of Patent law. Valuable and potentially revolutionary inventions created solely by AI systems, without significant human contribution, cannot be patented . *It is the person working behind the algorithms that would be deemed an inventor or joint inventor when the employment of the algorithms results in an inventive contribution* (Pheh Hoon Lim and PhoebeLi, 2022).

AI is a tool that will change the face of the legal world, but it won't change anything about the legal status of artificial intelligence. Humans are the sole owners of rights and obligations. Generative AI is artificial intelligence that can generate more objects than the data it is trained on. Humans need machines that are as intelligent as themselves as equal assistants (partners).

The use of AI technology in law enforcement in Indonesia can improve efficiency, accuracy, and legal accountability, as well as provide better support for law enforcement officers in carrying out their duties. However, ethical and privacy aspects must be considered when implementing this technology. Nevertheless, the use of AI in law enforcement, particularly by the police, does not mean eliminating the entire role of humans in the law enforcement process. This further emphasizes that AI is actually only intended to support the law enforcement process, while in practice, the role of humans as law enforcers remains necessary even though AI-based technology has begun to be implemented.

Generative AI steps into this arena as the creative partner, capable of replicating and mimicking human creativity. It crafts content, designs, and art that closely mirrors human-generated work while offering itself as an ally to human professionals. By automating repetitive tasks, suggesting novel ideas, and accelerating the creative process, generative AI empowers creative professionals to soar to new heights (Joseph Amankwah-Amoah, at all, 2024).

AI has enormous potential to improve efficiency and accuracy in various aspects of law enforcement, such as criminal investigations, digital evidence analysis, and judicial decision-

making. AI, or artificial intelligence, is increasingly being used in the legal field. From data analysis to assisting with court proceedings, AI offers previously unattainable efficiencies. However, this technology also poses ethical challenges that cannot be ignored. AI helps analyze legal data more quickly and accurately. There is a risk of bias in algorithms that could impact fairness. The legal profession needs to adapt to AI technology to remain relevant. Clear regulations are needed to ensure the responsible use of AI, and AI can expedite the resolution of legal cases through mediation and arbitration.

In the legal world, data analysis often requires a great deal of time and effort. By using *AI tools* in law, such as document analysis software, can help lawyers and judges quickly identify legal precedents, understand case patterns, and craft stronger legal arguments. AI enables faster and more accurate analysis than conventional methods**.** For example, AI can scan thousands of legal documents in minutes, a process that previously took days.

AI also plays a significant role in improving the efficiency of court processes. From document management systems to predicting case outcomes, *AI-driven legal solutions* help reduce bureaucratic red tape that often slows down court proceedings. Some of the benefits include: 1) Automating administrative tasks, such as scheduling hearings; 2) Applying algorithms to assess evidence more objectively; and 3) Using legal *chatbots* to answer basic questions about the legal process.

Many people struggle to access relevant legal information, especially in developing countries. With AI, this information becomes more accessible and understandable. For example, AI-based applications can provide basic legal guidance to laypeople in simple language. This not only helps individuals but also supports social justice advocacy. AI technology is paving the way for the transformation of the legal system, creating unprecedented efficiency and accessibility.*"*

Strict regulation is fundamental to ensuring the fair use of AI. Governments need to establish clear standards regarding data collection, processing, and storage. This includes: 1) Protecting individual privacy by restricting data access to legitimate purposes; 2) Implementing regular audits to assess AI systems' compliance with applicable standards; and 3) Strict law enforcement against violations, especially those related to data misuse.

AI development must adhere to high ethical standards. This includes: 1) *Responsible system design* to prevent algorithmic bias; 2) Transparency in AI decision-making, so users can understand the basis for the decisions made; and 3) Involving experts across disciplines, such as law, technology, and ethics, in the development process. *AI regulations in Indonesia aim to protect user data by ensuring companies maintain the confidentiality and security of*

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information. Appropriate policies are needed to regulate the use of AI and protect individual privacy.

AI can be utilized optimally without sacrificing the principles of justice and human rights. AI in law is capable of processing large amounts of data quickly. Using algorithms designed to analyze patterns, AI systems can help identify potential solutions in legal disputes. This is particularly useful in resolving cases that would typically take years. For example, manual analysis of legal documents can now be completed in a matter of hours. Administrative tasks such as document management, scheduling hearings, and searching for legal precedents are often time-consuming. With AI, these tasks can be automated, freeing legal professionals to focus on the strategic aspects of the case. This *efficiency not only saves time but also reduces operational costs.*

AI can also be used in mediation and arbitration to provide impartial recommendations. These systems work by analyzing data from similar cases and providing fair resolution options for both parties. However, it's crucial to ensure that AI-generated decisions are subject to human oversight to ensure fairness. The use of AI opens up significant opportunities to expedite legal processes while reducing workloads, but it still requires human oversight to ensure unbiased outcomes.

AI systems need to be designed with ethical and fair principles in mind. In Europe, AI is being used to assist in the analysis of complex legal documents. For example, an AI-based platform can analyze thousands of pages of legal contracts in minutes. This significantly reduces lawyers' work time.

Developing countries like India and Brazil are beginning to adopt AI to address the backlog of cases in courts. With a mounting caseload, AI is being used to prioritize cases based on their urgency. The perceived benefits include: 1) Reducing the administrative burden on court staff; 2) Faster resolution of small cases through AI-based mediation; and 3) Improving access to justice for people who previously had difficulty reaching the courts. By using AI, courts in developing countries can begin to address significant challenges in their legal systems, despite ongoing technological infrastructure constraints.

AI in the legal field brings both opportunities and challenges. On the one hand, this technology can expedite legal processes and facilitate more in-depth analysis. However, on the other hand, there are risks of bias, lack of transparency, and privacy concerns that need to be addressed. All parties, from governments and technology developers to the public, must work together to ensure AI is used fairly and responsibly. With the right approach, AI can be a tool that supports

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justice, not exacerbates existing injustices.

According to Soerjono Soekanto, law enforcement can be influenced by legal factors, law enforcers, means or facilities, society, and culture (Soekanto, 2004). Legal factors refer to laws and regulations governing specific issues. Regarding information technology, the ITE Law is one legal product that regulates electronic transactions and those related to cyberspace. Law enforcement factors include police, prosecutors, and judges who possess integrity and capabilities regarding issues related to legal actions, for example those related to the virtual world or what can be called the cyber world. Societal factors, namely related to the community's need for regulation and law enforcement for actions related to the virtual world. Cultural factors, namely related to the culture of society in influencing a law. Facilities and infrastructure factors, namely related to the tools or devices used to support law enforcement. This factor is the most important factor in the implementation of law enforcement related to AI. AI is a device or tool that can assist law enforcement in enforcing the law. A successful example of law enforcement using AI is the implementation of e-ticketing, where e-ticketing prevents other crimes such as bribery of a law enforcer (Denico Doly, 2023).

Artificial intelligence can be used as a tool to assist law enforcement in carrying out their duties, but it should not be used to decide a case, as it requires emotion, will, and conscience. Artificial intelligence can be used as a means to support law enforcement and crime prevention efforts. Law enforcement carried out by a device or tool will differ from law enforcement carried out by humans. In law enforcement, AI cannot provide benefits because it cannot make judgments, cannot provide justice even if it uses algorithms, and AI also cannot consider the benefits in a case. Artificial intelligence will never be able to replace the role of a judge, because AI cannot think like a human being who has feelings, desires, and a conscience. The justice delivered by AI is rigid and does not care whether the justice is in accordance with the principles of humanity or conscience. The existence of AI is not to replace the role of judges, but to complement it.

The transformation of legal culture in the digital era is an inevitable phenomenon, coupled with the development of information and communication technology. One important aspect of this transformation is the use of artificial intelligence (AI) in the development of legal culture. The use of AI in the legal field has significant implications for how the legal system operates and interacts with society, social relations, and the status of applicable legal rules in the technological era (Cahya, ET.AL, 2024). *AI is here to stay, evolve and develop further as a result of the capabilities of the human mind. AI was created by humans and it is now up to humans to determine how to exploit the many opportunities of AI while minimizing the threats to our existence* (Hossein Hassani, et.all,, 2020).

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II. CONCLUSION

AI is essentially software created and trained by data scientists and AI developers using vast amounts of data. The effective implementation of legal protection regulations for inventions in the field of Artificial Intelligence is very important because through Patents, a system capable of protecting inventions in the field of AI will be created. AI is a type of software, requiring the use of various tools and software applications to deliver its capabilities. There are currently differences of opinion regarding AI protection in Indonesia. AI can still be protected by a Patent mechanism if the AI can solve technical problems and is related to technology and has a Patent certificate protection from its country of origin. AI cannot be an object protected by the Patent Law in Indonesia. Based on Law No. 13 of 2016 concerning Patents, AI has not been specifically regulated , however, in Article 4 letter d, there are regulations on computer programs that have technical effects that can be patented (Explanation in Article 4 letter d).

For regulations on AI in Indonesia, the Ministry of Communication and Informatics has issued Circular Letter of the Minister of Communication and Informatics Number 9 of 2023 dated December 19, 2023 concerning the Ethics of Artificial Intelligence. One of the points in the contents of the circular states that the implementation of artificial intelligence is subject to the Kl principle in accordance with statutory regulations. Violations of piracy assisted by/perpetrated by AI are currently common, so that inventors' rights cannot be protected by the Patent Law, because the existing Patent Law does not explicitly regulate Inventions by AI. Patent law enforcement in the Artificial Intelligence Era is not yet effective, because it is still not explicitly regulated regarding the qualifications of Inventions produced by AI that can be used as Patent objects. Article 1 paragraph (2) of Law No. 65 of 2024, defines inventions very broadly by adding the words " system, method, and use" which reflects Indonesia's commitment to adapt its Intellectual Property framework to the rapid development of AI technology. Article 4, letter d, also states that inventions do not include computer programs, except for computer-implemented inventions, namely inventions that utilize computers to achieve certain results. However, there are other factors for the regulation to be effective, namely the law enforcement factor, which is the most central factor compared to other factors.

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