

Topic: Human Right Issues of Artificial Intelligence (AI) Gaps and Challenges, and Affected Future Legal Development in Various Countries

Analysis Of Patent Law and Islamic Law On The Ownership Status Of Artificial Intelligence (Ai) As An Inventor

Mujiono¹⁾, Jawade Hafidz²⁾, Andy muhammad Asrun³⁾ &, Yeheskiel Minggus Tiranda⁴⁾

¹⁾Faculty of Law, Universitas Islam Sultan Agung (UNISSULA) Semarang, Indonesia, E-mail: Mujiono12@gmail.com

²⁾Faculty of Law, Universitas Islam Sultan Agung (UNISSULA) Semarang, Indonesia, E-mail: jawade@unissula.ac.id

³⁾Faculty of Law, Universitas Islam Sultan Agung (UNISSULA) Semarang, Indonesia, E-mail: andymuhammadastrun@unissula.ac.id

⁴⁾Faculty of Law, Universitas Islam Sultan Agung (UNISSULA) Semarang, Indonesia, E-mail: yeheskielminggustiranda@unissula.ac.id

Abstract. *The recognition of AI as an inventor in the patent law and intellectual property rights system raises complex and intriguing issues. On one hand, acknowledging AI as an inventor can accelerate innovation in AI technology, but it also brings ethical, legal, and environmental considerations. Legal protection for AI as a creator needs to consider principles of fairness, sustainability, and balance between individual rights and public interests. Proposed regulatory steps include developing new standards, expanding the definition of inventor, protecting intellectual property rights, transparency obligations, and fostering collaboration among countries and relevant stakeholders. Continued discussions, research, and comprehensive legal frameworks are crucial to accommodate the changes and developments in AI technology fairly and sustainably. To address these issues, it is important to encourage dialogue among legal experts, technology specialists, stakeholders, and legal institutions, conduct further research to identify the impacts, challenges, and opportunities related to recognizing AI as an inventor, and formulate clear and comprehensive regulations based on ethical values, justice, sustainability, and balance. Collaboration at the international level to establish global standards regarding the recognition of AI as an inventor is essential. By taking these steps, we aim to create a legal framework that can accommodate the advancements in AI technology fairly, sustainably, and provide maximum benefits to society and the environment.*

Keywords: *AI inventor recognition; Intellectual Property Rights; Patent Law.*

Analysis Of Patent Law and Islamic Law On The Ownership Status ...
(Mujiono, Jawade Hafidz, Andy muhammad Asrun &, Yeheskiel Minggus Tiranda)

Topic: Human Right Issues of Artificial Intelligence (AI) Gaps and Challenges, and Affected Future Legal Development in Various Countries

1. Introduction

It has been recognized that legal subjects can be individuals or legal entities. Of course, legal subjects must be capable of performing legal acts. All legal acts carried out by legal subjects must not contradict the rules of law, public order, morality, decency, and religion. Assuming Artificial Intelligence (AI) acts as an artificial legal subject, it can take the form of a worker receiving work from the AI owner or as a work provider. If AI commits an act contrary to the law, the AI owner can be held legally accountable.

Human thought and innovation have pushed technological development to levels never before imagined. One of the technological products that has emerged and is increasingly dominant is Artificial Intelligence (AI). AI has the ability to learn, adapt, and even create something new. The advancement of AI has brought great benefits in various sectors, from healthcare and finance to transportation.

Artificial Intelligence (AI) has great potential in the digital world, including information processing. In the context of Indonesian law, AI can be categorized as an "Electronic Agent" based on Law No. 11 of 2006 concerning Electronic Information and Transactions (ITE Law) and its amendments. The ITE Law stipulates that an "Electronic Agent" is an electronic system device designed to perform various legal actions and/or legal acts automatically..¹

Although AI can function as an Electronic Agent, the ITE Law sets limitations on its implementation. The operation of AI as an Electronic Agent can only be carried out by: individual (person), State organizers, Businesses and the general public. This means that AI cannot act as an Electronic Agent independently without being associated with a responsible entity..²

In the context of intellectual property rights, patent law becomes an important instrument to protect intellectual property resulting from innovation. However, the question that arises is whether AI can be recognized as an inventor in the existing patent legal system? To what extent does AI have rights to its creations? What is the perspective of Islamic law in regulating AI

¹ Yogaswara, R. (2019). Artificial Intelligence as the Driver of Industry 4.0 and Its Challenges for the Government and Private Sectors. *Journal of Information and Communication Technology Research, MTI*. Vol.10 No.1 Year 2019. P.12.

² *Ibid*. P.15.

Topic: Human Right Issues of Artificial Intelligence (AI) Gaps and Challenges, and Affected Future Legal Development in Various Countries

ownership of its work? In this paper, we will outline an in-depth analysis of the ownership status of AI as an inventor based on patent law and Islamic law.

By providing a more comprehensive understanding of this complex issue, it is hoped that this paper can make a meaningful contribution to the development of fair and sustainable legal policies related to AI as an inventor.

2. Research Methods

The problem raised in this study uses a normative legal research method, which uses secondary data types where the data is obtained indirectly, including primary legal materials. The obtained data is then collected through a documentary data collection technique or literature study by collecting data based on legal materials that have been used in this study and analyzed using a qualitative data analysis technique. As the purpose of the research is one of its predictions, to provide a description of the findings that are then obtained in this research and also to find conclusions that are correct and can be scientifically accounted for.³

3. Results and Discussion

3.1. Legal recognition of patents for Artificial Intelligence (AI) as inventors in new creations

The legal recognition of Artificial Intelligence (AI) as an inventor in the creation of new inventions is a complex and interesting issue for debate. Currently, patent law systems tend to recognize humans as the only entities that can be recognized as inventors. However, with the increasing sophistication of AI technology, the question arises whether AI can also be recognized as an inventor within the existing patent law system.

In the Indonesian Patent Law, as well as in laws around the world, the legal subject of a patent has always been a person as the inventor. The legal subject is the holder of rights and obligations, and of course, the legal subject has free will, without needing to be programmed by another party. The capacity of a legal subject must certainly be able to perform legal actions, such as fulfilling annual payment obligations, permitting or prohibiting other parties from using their inventions, and also how to make contracts or transactions. The question is whether AI is

³ Tan, D. (2021). Legal Research Methods: Exploring and Reviewing Methodologies in Conducting Legal Research. NUSANTARA: Journal of Social Sciences, 8(8), pp. 2463-2478.

Topic: Human Right Issues of Artificial Intelligence (AI) Gaps and Challenges, and Affected Future Legal Development in Various Countries

legally capable of fulfilling article 1320 of the Civil Code regarding the valid conditions of an agreement. In England, AI is still limited as an inventor, but the rights holder remains the company, including the payment of taxes and others. Patents as exclusive rights of the inventor become broadened because AI is considered a legal subject. So, what is its legal standing under patent law, and how is it ethical according to Islamic law.⁴

According to Ramli (2021), based on Law Number 13/2016 concerning Patents, especially Article 1 paragraph (1), a patent is explained as an exclusive right that can be granted by the state to inventors for their inventions in the field of IT within a certain period of time. The inventor can implement the invention themselves or grant the right to others for its implementation.

Article 1 paragraph (2) explains that an invention is an inventor's idea manifested in a specific activity in the field of technology in the form of a product. Furthermore, Article 1 paragraph (3) also explains that an inventor is a person, either individually or jointly, who discovers an idea in an invention that has never been discovered by previous inventors. An inventor can also be a legal entity, making it difficult to identify AI as an inventor or subject of a patent.

One argument that arises is that AI has the ability to make new discoveries or innovations independently, without human intervention. This raises the question of whether AI should have patent rights over its creations. On the other hand, there is also the opinion that patent rights should remain limited to humans as creators, as AI is merely a tool to assist humans and does not have the will or consciousness to create.

However, several countries and institutions have begun to consider recognizing patents for AI as inventors. For example, in countries such as Australia and the United States, there have been cases of patent applications for AI-generated works being recognized as inventors. This indicates a shift in perspective regarding patent ownership in the context of AI.

In this context, it is important to continue in-depth discussions and research to explore the legal and ethical implications of recognizing AI as inventors within the patent law system. A clear and fair framework is needed to accommodate the development of AI technology without neglecting the rights of human creators."

⁴ *Op.Cit.* Hal. 23.

Topic: Human Right Issues of Artificial Intelligence (AI) Gaps and Challenges, and Affected Future Legal Development in Various Countries

3.2. Ethical and Islamic Legal Considerations in Determining AI Ownership of Its Work

The ethical and Islamic legal considerations in determining AI ownership of its work are becoming increasingly relevant in the context of rapidly advancing AI technology. From an ethical perspective, several considerations need to be addressed in determining AI ownership of its work. One of these is the consideration of the principle of justice, where the right of ownership of AI's work should be fair and balanced, not only for the benefit of the AI owner or parties involved in AI development, but also for the benefit of society at large.

The government should now implement AI because AI can support the implementation of policies that can be implemented mechanically, such as PSBB. In the era of Covid-19, for example, AI can help treat patients and various dangerous activities. The government can implement AI, IoT, and big data as has been implemented in other countries that have proven effective, in the sense of being able to reduce the number of exposed health workers, and even reduce the number of deaths from the disease.

From the Islamic legal point of view, ethics are paramount. AI works on a system developed by reading new input and making decisions like humans at work. The increasingly sophisticated development of technology is expected not to erase the humanistic side of humans, or even eliminate the role of humans, because it is possible that AI in the future will become a means of instilling values that deviate from God's will. One verse that implies the importance of technology in life is the word of Allah in the Qur'an, Surah Ar-Rahman Verse 33, which means:⁵

"O' community of jinn and mankind, if you are able to pass beyond the boundaries of the heavens and the earth, then pass. You will not be able to pass except by [My] power. The above verse provides an understanding that humans can penetrate outer space with mastery of the knowledge and technology they possess.

Moreover, the aspects of freedom and responsibility also become important considerations in determining AI's ownership of its work. As AI is increasingly implemented in various aspects of life, clarity is needed in determining who is responsible for the results of AI's work and how ownership rights over such work are regulated fairly.

⁵ Hardiono. (2020). Sources of Ethics in Islam. Jurnal al Aqidah: Journal of Islamic Creed and Philosophy Vol. 12 edition 2 Year 2020

Topic: Human Right Issues of Artificial Intelligence (AI) Gaps and Challenges, and Affected Future Legal Development in Various Countries

From the perspective of Islamic law, the concept of ownership and intellectual property rights has a strong foundation in Islamic teachings. The principles of justice, sustainability, and balance between individual rights and public interest form an important basis for determining AI's ownership of its work in the context of Islamic law.

In the Islamic law perspective, AI's ownership of its work should be regulated by considering Sharia principles that emphasize the importance of justice, sustainability, and balance in determining ownership rights and the use of the work. This highlights the importance of considering ethical values and principles of Islamic law in regulating AI's ownership of its work to ensure that it benefits all parties involved fairly.

3.3. Implications of Recognizing AI as an Inventor in Patent Law and Intellectual Property Systems in General

Recognizing AI as an inventor in patent law and intellectual property systems in general has complex and profound implications. Some of the implications that need to be considered are as follows :⁶

- a. Recognizing AI as an inventor can drive innovation and accelerate technological development. By providing incentives for AI owners to develop new technologies, the patent system can become a catalyst for creating more advanced innovations.
- b. The implication of recognizing AI as an inventor is the need to rethink the concept of intellectual property. This could trigger changes in existing patent and intellectual property regulations to accommodate the role of AI as a creator.
- c. The existence of AI as an inventor can also pose challenges related to intellectual property management. A clear framework is needed to regulate the ownership, licensing, and use of AI-generated works in a fair and sustainable manner.

⁶ Duan, Y., Edwards, J.S., & Dwivedi, Y.K. (2019). Artificial intelligence for decision making in the era of Big Data—evolution, challenges and research agenda. *Int. J. Inf. Manage.* (48) 63–71

Topic: Human Right Issues of Artificial Intelligence (AI) Gaps and Challenges, and Affected Future Legal Development in Various Countries

d. Recognizing AI as an inventor also has implications for legal responsibility. Who is responsible for the results of AI work and the impact it has? This requires clear regulations to determine rights and obligations in the context of AI ownership of its work.

Therefore, recognizing AI as an inventor in the patent system and intellectual property law in general can significantly change the landscape of law and technological innovation. A careful and balanced framework is needed to accommodate the role of AI as a creator without neglecting the rights of human creators and the interests of society at large.

3.4. The Legal Status and Protection of AI as a Creator in the Context of Sustainability and Technological Innovation

The legal status and protection of AI as a creator in the context of sustainability and the utilization of technological innovation is of paramount importance to ensure that the development of AI technology can provide sustainable benefits for society and the environment. Several considerations need to be taken into account in this regard, as follows:⁷

- a. Legal protection for AI as a creator needs to consider the aspect of sustainability, which means ensuring that the use of AI does not harm the environment and ecosystem sustainability. Strict regulations are needed to oversee the use of AI technology in the context of environmental sustainability.
- b. The legal status of AI as a creator needs to accommodate the principles of fairness and equality. In this context, fair legal protection is needed for both the owner of the AI and the owner of the AI's work, so that technological innovation can develop in a balanced and sustainable manner.
- c. Legal protection for AI as a creator also needs to consider the aspect of utilizing technological innovation for the benefit of the wider community. A framework is needed that ensures fair and equitable access to AI technological innovation so that it can provide benefits for social and economic progress in an inclusive manner.

⁷ Mubaroq, S & Insyiroh. I.M., (2020) Artificial intelligence technology, big data analysis, and internet of things: potential and roles in handling covid-19 in Indonesia, p.24.

Topic: Human Right Issues of Artificial Intelligence (AI) Gaps and Challenges, and Affected Future Legal Development in Various Countries

d. The law also needs to provide protection for the interests of the AI owner and its work from misuse and infringement of intellectual property rights. By providing strong legal protection, AI owners will feel more secure in continuing to develop innovative technology.

Therefore, the legal status and protection of AI as a creator in the context of sustainability and the utilization of technological innovation are key to ensuring that the development of AI technology can take place sustainably and provide maximum benefit to society and the environment. A comprehensive and sustainable legal framework is needed to accommodate the dynamics of the rapidly developing AI technology.

4. Conclusion

From the previous discussion, it can be concluded that the recognition of AI as an inventor in the patent and intellectual property law system is a complex and interesting issue to discuss. Several important points that need to be considered are : The recognition of AI as an inventor can encourage faster and more advanced innovation in AI technology, but it also raises a number of ethical, legal, and environmental sustainability considerations. Legal protection for AI as a creator needs to consider the principles of justice, sustainability, and balance between individual rights and the public interest. Regulations governing the ownership, licensing, and use of AI-generated works need to be clarified and updated to accommodate the role of AI as an inventor fairly and sustainably. Proposed regulatory measures include the development of new standards, the expansion of the definition of inventor, the protection of intellectual property rights, transparency obligations, and cooperation between states and relevant stakeholders.

Based on the conclusions above, the author provides the following suggestions:

1. Promote dialogue between legal experts, technology specialists, stakeholders, and relevant legal institutions to discuss this issue comprehensively.
2. Conduct further research to identify the impacts, challenges, and opportunities related to the recognition of AI as an inventor in patent law and intellectual property rights.
3. Develop clear and comprehensive regulations governing the ownership, licensing, and use of AI-generated works in a fair and sustainable manner.
4. Consider the values of ethics, fairness, sustainability, and balance when formulating regulations concerning AI as an inventor.
5. Encourage cooperation among countries and international organizations to develop global standards regarding the recognition of AI as an inventor..

Analysis Of Patent Law and Islamic Law On The Ownership Status ...
(**Mujiono, Jawade Hafidz, Andy muhammad Asrun &, Yeheskiel Minggus Tiranda**)

Topic: Human Right Issues of Artificial Intelligence (AI) Gaps and Challenges, and Affected Future Legal Development in Various Countries

By taking these steps, it is hoped that a legal framework can be created that can accommodate the development of AI technology in a fair, sustainable manner, and provide maximum benefits for society and the environment.

5. References

Journals:

- Anggraini, D. et al. (2020). Artificial intelligence (AI) and co-creation value in B2B sales. Jurnal Sistem Informasi, Teknologi Informasi, dan Edukasi Sistem Informasi (JUST-SI), Vol. 1, No. 2, 2020.
- Dahria, M. (2021). Artificial Intelligence. [https://prpm.trigunadharma.ac.id/public/fileJurnal/160B2-OK-Jurnal9-MD Kecerdasan%20Buatan.pdf](https://prpm.trigunadharma.ac.id/public/fileJurnal/160B2-OK-Jurnal9-MD%20Kecerdasan%20Buatan.pdf) (accessed October 14, 2021).
- Febri Jaya & Wilton Goh. (2021). Legal analysis of the position of artificial intelligence as a legal subject in Indonesian positive law. Jurnal Supremasi Hukum, Vol. 17, No. 2, 2021. <http://ejournal.unis.ac.id/index.php/JSH/article/view/1287/1106>.
- Hardiono. (2020). Sources of Ethics in Islam. Jurnal al Aqidah: Jurnal Ilmu Aqidah Filsafat, Vol. 12, No. 2, 2020. <http://eprints.umpo.ac.id/980/2/BAB%20I.pdf> (accessed October 14, 2021).
- Jaya, F., & Goh, W. (2021). Legal analysis of the position of artificial intelligence as a legal subject in Indonesian positive law. Jurnal Kependudukan Indonesia, Special Edition on Demography and COVID-19, July 2020.
- Yogaswara, R. (2019). Artificial Intelligence as the Driver of Industry 4.0 and Its Challenges for the Government and Private Sectors. Jurnal Penelitian Teknologi Informasi dan Komunikasi, MTI, Vol. 10, No. 1, 2019.

Books:

- Al-Quran and its Translation Shihab, M.Q. (1998). Wawasan al-Qur'an. Bandung: Mizan.
- Duan, Y., Edwards, J.S., & Dwivedi, Y.K. (2019). Artificial intelligence for decision making in the era of Big Data—evolution, challenges and research agenda. Int. J. Inf. Manage., 48, 63–71.

Topic: Human Right Issues of Artificial Intelligence (AI) Gaps and Challenges, and Affected Future Legal Development in Various Countries

Mubaroq, S., & Insiyroh, I.M. (2020). Artificial intelligence technology, big data analysis, and the internet of things: potential and roles in handling COVID-19 in Indonesia.

Ramli, A.M. (2021). Artificial intelligence & Intellectual Property. Seminar "Artificial Intelligence and Its Challenges to the Regulation of IPR in Indonesia", organized by FH UGM and APHKI online, October 14, 2021.

Internet:

<https://bahasan.id/mempertimbangkan-pertanggungjawaban-perdata-terhadapsubyek-hukum-artificial-intelligence-bagian-kedua/dia> accessed 15 October 2021

[https://law.ui.ac.id/v3/pengaturan-hukum-artificial-intelligence-indonesia-saat-inioleh-zahrashafa-pm-angga-priancha/AI as an Electronic Agent](https://law.ui.ac.id/v3/pengaturan-hukum-artificial-intelligence-indonesia-saat-inioleh-zahrashafa-pm-angga-priancha/AI%20as%20an%20Electronic%20Agent) accessed October 15, 2021

<https://www.firstmedia.com/article/artificial-intelligence-impact-challenges-and-benefits-in-business>

<https://www.gestalt.law> (accessed October 12, 2021)

<https://www.judgements.fedcourt.gov.au> (accessed October 12, 2021)

Regulation:

Law No. 13 of 2016 concerning Patents.

Law of the Republic of Indonesia Number 11 of 2008 as amended by Law of the Republic of Indonesia Number 19 of 2016 concerning Amendments to Law Number 11 of 2008 concerning Information and Electronic Transactions.