

Legal Framework for the Application of Pancasila-Based Artificial Intelligence Technology to Minimize Risks and Optimize Benefits Towards Indonesia Emas 2045

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ABSTRACT:

Advances in artificial intelligence (AI) technology are increasingly rapid and have great potential to bring significant change in various sectors. However, the challenges faced are limited to technological development and the legal and ethical aspects of its implementation. This research aims to analyze the existing legal framework related to the application of Pancasila-based artificial intelligence technology to minimize risks and optimize benefits to achieve the vision of Indonesia Emas 2045. This research uses descriptive qualitative research methods, involving a comprehensive literature review of legal documents, scholarly articles, and case studies. The data collection technique in this research is literature study. The collected data is then analyzed through three stages: data reduction, data presentation, and conclusion drawing. The research results show that the legal framework for implementing AI technology based on Pancasila is an essential initiative in responding to challenges and opportunities in the era of digital transformation. By leveraging the demographic bonus, the vision of Indonesia Emas 2045 can be achieved. The legal framework that incorporates Pancasila values as a moral and ethical foundation aims to ensure that the use of AI not only positively impacts society but also minimizes potential risks. This study highlights the importance of aligning AI development with national values to foster sustainable and ethical technological advancement.

Keywords: Technology, Artificial Intelligence, Pancasila, Risks, Benefits, Golden Indonesia 20245

INTRODUCTION

Artificial intelligence (AI) refers to computer programs designed to imitate human intelligence, including decision-making abilities, logic, and other characteristics of intelligence. Professor of Computer Science John McCarthy is recognized as the figure who introduced the concept of AI in 1956. Nowadays, AI has become an integral part of various applications, such as search engines, virtual assistants such as Siri, Google Assistant, and Cortana. The development of

AI has reached extraordinary levels, including its use in autonomous vehicles that are capable of operating autonomously without human intervention. Apart from these applications, AI also has great potential to drive progress in various fields, including education, health, food security and bureaucratic reform (Putri et al., 2023).

In the midst of the demographic bonus that Indonesia will achieve in 2025-20230 and the vision of a Golden Indonesia 2045, the ethical and responsible application of AI technology is becoming increasingly crucial. In 2045, Indonesia will enter a historic moment, because at that time Indonesia will celebrate its 100th or century anniversary. This is one of the bases for the emergence of ideas, discussions and ideas regarding the Golden Generation 2045. In that year, Indonesia will experience a demographic bonus, where around 70% of its population will be in the productive age range (15-64 years), while The remaining 30% will consist of unproductive residents, namely under 14 years and over 65 years, in the 2025-2045 period. However, if this demographic bonus moment is not utilized optimally, it could have a negative impact, especially in terms of social problems such as poverty, poor health, unemployment and high crime rates (Finaka & Oktari, 2021).

The momentum of the demographic bonus and the vision of a golden Indonesia needs to be prepared as soon as possible through digital transformation in various sectors. One of the essential elements of digital transformation is AI technology which has double standards, bringing both good and bad. To minimize risks and maximize the benefits of AI, so that this technology can be used responsibly and sustainably. One way to achieve this goal is through a Pancasila-based legal framework. Pancasila is the basic ideology of the Indonesian state. Literally, "Pancasila" comes from Sanskrit, which consists of the words "panca" which means five, and "sila" which means principle or foundation. Therefore, "Pancasila" can be translated as "Five Principles" or "Five Foundations". For the Indonesian people, Pancasila has a very meaningful and deep meaning which functions as a guide in forming the values and norms that underlie national and state life (Umarhadi, 2022).

Apart from legal and ethical issues in its implementation, the challenges faced also include a shortage of digital talent in Indonesia. This is consistent with a report published by Kompas which shows that Indonesia is still experiencing a shortage of competent digital experts. Even so, Indonesia has great potential in human resources and the economic sector in the digital realm. Digital experts refer to individuals with digital technology skills and abilities. Generally, these skills are aimed at positive and productive things (Wadipalapa et al., 2024)

Indonesia is currently facing a shortage of digital experts, even though there is huge economic growth potential in the digital economy sector which is projected to reach USD 303.4 billion in 2030. To overcome this gap, the Ministry of Communication and Informatics (Kominfo) is taking initiative steps to harness the country's digital potential and address the need for skilled digital professionals. According to Indonesian President Joko Widodo, developing talented and

competent human resources, especially in the digital sector, is the key to achieving Indonesia's Vision 2045. The President emphasized the importance of developing around 3 million professionals in the technology sector over the next five years, which is equivalent to 600,000 experts every year (Khaira et al., 2023). The shortage of digital talent in Indonesia adds to the urgency of creating regulations that support the development of human capacity in the field of artificial intelligence because Indonesia does not yet have laws that specifically regulate AI, even though the technology has experienced convergence.

Another research study by Saputra et al. (2024) found that the application of digital learning in project-based learning through a differentiation approach in Pancasila Education subjects in the industrial revolution 4.0 era has had a very positive impact on teachers and students. The adoption of digital technology in the educational context provides great opportunities for the learning process to become more innovative, creative, communicative, and collaborative and promotes problem-solving skills according to the needs of the times. The ability to utilize artificial intelligence (AI) technology also equips the next generation with the skills needed to compete and survive in the era of Industrial Revolution 4.0 while making them the guardians of the sovereignty and security of the Indonesian state in the face of global influences.

Other research by Ningsih et al. (2023) shows that students' interest in learning increases when AI or artificial intelligence-based learning media is applied to Pancasila Education subjects, especially in the Norms in My Life chapter. This increase in interest in learning is reflected in several things, including a better understanding of the material, more active student involvement during the learning process, the level of student activity in asking and answering questions, increased student focus and concentration when studying, as well as appreciation given by teachers to students to motivate them in learning (Nurjanah et al., 2024).

This research contributes to understanding how Pancasila values can be integrated into AI technology regulations. This shows the importance of having a holistic and values-based approach in developing technology policy, which considers both technical aspects and ethical, social, and cultural implications. So by including Pancasila values as a moral foundation in the legal framework, Indonesia can build a strong foundation for developing ethical, responsible and sustainable AI technology. This research aims to analyze the existing legal framework related to the application of Pancasila-based artificial intelligence technology to minimize risks and optimize benefits so that the Vision of a Golden Indonesia 2045 can be achieved.

RESEARCH METHODS

This research uses a qualitative descriptive research method. The qualitative descriptive research method is a method used by researchers to reveal knowledge or theories based on research at a certain time. In this research, the method used is a qualitative descriptive method

(Roosinda et al., 2021). The data collection technique in this research is by studying literature obtained from Google Scholar, with the inclusion criteria being Indonesian and English language journals. The data that has been collected is then analyzed in three stages, namely data reduction, data presentation and drawing conclusions.

RESULTS AND DISCUSSION

In the current era of digital society, there is significant digital transformation in all aspects of life. The development of information and communication technology (ICT) has changed the way we work, learn, interact and even carry out daily activities. This transformation covers various fields, including economics, education, health, entertainment, and public (Ningsih et al., 2023). Businesses are adopting digital models, leveraging the internet to expand reach and increase efficiency. Education is seeing a shift towards online learning and the use of digital platforms for remote teaching. In the healthcare sector, technology has enabled remote medical consultations, sensor-based health monitoring and the development of innovative medical solutions. Entertainment and lifestyle are also being impacted by digital transformation, with the rise in integrated streaming of music, films and social media platforms. In fact, public administration has not escaped its impact, with governments adopting online services, e-government, and big data to increase efficiency and openness (Gultom et al., 2024).

The transformation of the industrial revolution into the era of society brought revolutionary changes by combining the virtual world and the real world, especially with the presence of artificial intelligence AI (Artificial Intelligence). The Industrial Revolution brought extraordinary technological advances, but the era of society accelerated the integration between digital technology and everyday life. The merging of the virtual and real worlds is increasingly felt, especially with the integration of AI in everyday applications such as machine learning services, virtual assistants and intelligent data analysis. This has had a major impact on the way we interact with technology and provides new opportunities for progress in various areas of human life (Dwipangestu et al., 2024).

The presence of artificial intelligence (AI) has great potential to support the vision of a Golden Indonesia 2045. AI is essential in realizing comprehensive digital transformation across various economic and social sectors. With AI, Indonesia can increase productivity, efficiency and innovation in various fields, including manufacturing, agriculture, health, education and public services (Alkhairi et al., 2024). The use of AI in big data processing and predictive analysis can help improve more precise and effective decision-making. In addition, AI can also be used to automate routine tasks, freeing up human resources to focus on work that requires human creativity and intelligence. So that by implementing AI wisely and ethically, Indonesia can utilize the potential of this technology to achieve sustainable economic growth, equitable development and broad societal welfare, in accordance with the vision of a Golden Indonesia 2045 (Suharyo et al., 2023).

Artificial intelligence (AI) is the newest technology with great potential to change human life significantly (Babys et al., 2024). The advent of artificial intelligence (AI) is bringing significant changes in the job market by replacing some human jobs. AI also creates new opportunities by creating new jobs related to the development, implementation, and maintenance of AI technology itself. There are also new opportunities emerging in the artificial intelligence-driven work ecosystem. So it is important for society to adapt to these changes by improving relevant skills and investing in education and training for a future driven by AI technology (Hapid & Jamaludin, 2024). Although it brings advances in efficiency and productivity, AI can replace routine and repetitive work that can be done automatically by machines or algorithms. This can affect various sectors, including manufacturing, financial services, health, and customer service (Yusuf & Rosyid, 2023).

As a legal country, Indonesia emphasizes that all activities, including those in the realm of technology, must comply with applicable law. This principle is based on Pancasila as a moral and ethical foundation that binds all citizens. Even though there is currently no law that specifically regulates artificial intelligence (AI) technology, the implementation of AI needs to be based on Pancasila values (Wigena et al., 2022). This is important to ensure that the development and use of AI technology does not only follow technical aspects, but also pays attention to justice, humanity and common interests. Thus, even though there are no explicit regulations yet, a Pancasila-based approach can be a strong foundation for ensuring that the development of AI technology in Indonesia runs in accordance with the values and principles upheld by this nation (Najicha, 2023).

The application of Pancasila values in developing and implementing artificial intelligence (AI) in Indonesia has great significance. Pancasila can function as a strong ethical framework in directing AI development that pays attention to aspects of humanity, justice and diversity. Pancasila values such as mutual cooperation, unity, social justice, democracy and belief in the one and only God, provide a solid moral foundation to ensure that AI development runs in line with the interests and values of Indonesian society (Haryanto et al., 2022). It is important for AI development to pay attention to ethical aspects in the use of this technology and ensure that decisions taken by AI are in line with shared human values. This involves considering the social impact, human rights, privacy and fairness of AI use. By paying attention to Pancasila values, AI development can be carried out in a responsible and sustainable manner, and provide maximum benefits for Indonesian society as a whole (Najicha, 2023).

The legal framework for the application of artificial intelligence (AI) technology based on Pancasila has the main objective of minimizing the impact of risks that may arise and making the most of the power of AI for the welfare of society. By adopting Pancasila values as a guide, the development and implementation of AI can be carried out by paying attention to aspects of

humanity, justice and diversity (I. Saputra et al., 2023). This means that in every step of AI development, the moral and ethical values reflected in Pancasila must be upheld so that AI technology can be used to advance social welfare without violating human rights, creating discrimination, or causing other negative impacts. Thus, the application of AI based on Pancasila is expected to produce technological solutions that are efficient and responsible and provide maximum benefits for society while still minimizing risks and ensuring sustainability.

CONCLUSION

The legal framework for implementing artificial intelligence (AI) technology based on Pancasila is an important initiative in responding to challenges and opportunities in the era of digital transformation, especially in the context of the demographic bonus and the vision of a Golden Indonesia 2045. So by accommodating Pancasila values as a moral and ethical foundation, This legal framework aims to ensure that the use of AI not only has a positive impact on society, but also minimizes the risks that may arise. One of the focuses is to maximize the potential of AI technology to support digital transformation in all economic and social sectors. However, the biggest challenge in realizing this vision is the lack of sufficient digital talent. Therefore, in addition to a solid legal framework, continuous efforts are also needed in developing human resources in the fields of information technology and artificial intelligence so that Indonesia can reach its full potential in the increasingly rapidly developing digital era.

Further research can conduct case studies on the implementation of Pancasila-based artificial intelligence technology in various sectors in Indonesia. This case study can provide insight into how AI technology can be applied effectively and ethically in accordance with Pancasila values in a real context. Apart from that, you can carry out a comparative legal analysis between the existing legal framework in Indonesia and the AI legal framework in other countries. This will provide a deeper understanding of the policies that can be implemented and the improvements that need to be made within the AI legal framework in Indonesia.

BIBLIOGRAPHY

- Alkhairi, P., Windarto, A. P., & Wanto, A. (2024). Sosialisasi Pemanfaatan Tool AI dalam Literasi Digital Untuk Pengembangan Kompetensi Siswa. *Jurnal Warta Pengabdian Masyarakat Nusantara*, 2(1), 10–17.
- Babys, R. A., Babys, S. A. M., & Benu, E. (2024). Filsafat Artificial Intelligence (AI) dan Kemanfaatan Untuk Mewujudkan Indonesia Yang Berperadaban. *Oratio Directa (Prodi Ilmu Komunikasi)*, 5(2).
- Dwipangestu, T., Bari, M. S. A., & Irawan, B. S. P. F. (2024). Implementasi Penggunaan Artificial Intelligence Sebagai Alat Bantu Hukum Di Indonesia Dalam Menuju Society 5.0. *Doktrin: Jurnal Dunia Ilmu Hukum Dan Politik*, 2(1), 314–323.

- Finaka, A. W., & Oktari, R. (2021). Siapkah Kamu Jadi Generasi Emas 2045. Retrieved from Indonesiabaik. Id Website: [https://Indonesiabaik. Id/Infografis/Siapkah-Kamu-Jadi-Generasi-Emas-2045](https://Indonesiabaik.Id/Infografis/Siapkah-Kamu-Jadi-Generasi-Emas-2045).
- Gultom, E. M. B., Simanjuntak, H., Pasaribu, K. M. D., Nainggolan, J., Pardede, L., & Siahaan, M. M. (2024). PENGARUH APLIKASI WORDWALL ARTIFICIAL INTELLIGENCE (KECERDASAN BUATAN) TERHADAP MOTIVASI BELAJAR SISWA PADA MATA PELAJARAN PENDIDIKAN PANCASILA KELAS X DI SMA NEGERI 2 TANJUNG MORAWA. *Jurnal Review Pendidikan Dan Pengajaran (JRPP)*, 7(2), 6014–6019.
- Hapid, F. M., & Jamaludin, A. (2024). Analisis Kebijakan Hukum Terhadap Pengguna Autonomous Drive Pada Kecelakaan yang Mengakibatkan Kematian Dalam Perspektif Pembaharuan Hukum Pidana. *Humani (Hukum Dan Masyarakat Madani)*, 14(1), 54–69.
- Haryanto, D., Yehuda, M. C., Reinanda, M. A., Alfredo, R. B., & Sulu, V. N. (2022). Hubungan Manusia dengan AI dan Relevansinya dengan Nilai Ketuhanan, Kemanusiaan, dan Keadilan dalam Pancasila:(Studi Kasus Film “Her”). *Nusantara: Jurnal Pendidikan, Seni, Sains Dan Sosial Humaniora*, 1(01).
- Khaira, N., Triyonggo, Y., & Sukmawati, A. (2023). Examining the Mediating Role of Digital Culture on Digital Talent in the Telecommunication Sector. *Jurnal Aplikasi Manajemen*, 21(2), 439–454.
- Najicha, M. (2023). *Implementasi Perlindungan Hak Asasi Manusia dalam Pemanfaatan Teknologi Kecerdasan Buatan: Implementasi Hukum dan Prinsip-Prinsip Pancasila sebagai Panduan Moral dan Etika*. Diambil.
- Ningsih, M. A., Kusumawardani, S., Widodo, S. T., & Wahyuni, N. I. (2023). PENERAPAN MEDIA PEMBELAJARAN AI PENDIDIKAN PANCASILA UNTUK MENINGKATKAN MINAT BELAJAR KELAS V SDN 1 KARANGTENGAH. *Edutainment*, 11(2), 80–84.
- Nurjanah, A., Salsabila, I. N., Azzahra, A., Rahayu, R., & Marlina, N. (2024). Artificial Intelligence (AI) Usage In Today’s Teaching And Learning Process: A Review. *Syntax Idea*, 6(3), 1517–1523. <https://doi.org/10.46799/syntax-idea.v6i3.3126>
- Putri, V. A., Sotyawardani, K. C. A., & Rafael, R. A. (2023). Peran Artificial Intelligence dalam Proses Pembelajaran Mahasiswa di Universitas Negeri Surabaya. *Prosiding Seminar Nasional Ilmu Ilmu Sosial (SNIIS)*, 2, 615–630.
- Roosinda, F. W., Lestari, N. S., Utama, A. A. G. S., Anisah, H. U., Siahaan, A. L. S., Islamiati, S. H. D., Astiti, K. A., Hikmah, N., & Fasa, M. I. (2021). *Metode penelitian kualitatif*. Zahir Publishing.
- Saputra, H. N., Rahmat, R., & Komalasari, K. (2024). Pemanfaatan Artificial Intelligence Pada Pelajaran Pendidikan Pancasila Berbasis Projek Di Smp Daarut Tauhiid Boarding School. *Sanskara Pendidikan Dan Pengajaran*, 2(02), 115–125.

- Saputra, I., Ridho, A., & Hikmayani, D. (2023). Pemanfaatan Artificial Intelligence Dalam Pembelajaran Pancasila Di Perguruan Tinggi. *PROSIDING UNIVERSITAS KRISTEN INDONESIA TORAJA*, 3(3), 35–44.
- Suharyo, S., Subyantoro, S., & Pristiwati, R. (2023). Kecerdasan Buatan dalam Konteks Kurikulum Merdeka pada Jenjang Pendidikan Dasar dan Menengah: Membangun Keterampilan Menuju Indonesia Emas 2045. *HUMANIKA*, 30(2), 208–217.
- Umarhadi, Y. (2022). *Hakikat Manusia Pancasila Menurut Notonagoro dan Drijarkara: Aktualisasinya bagi Demokrasi Indonesia*. PT Kanisius.
- Wadipalapa, R. P., Katharina, R., Nainggolan, P. P., Aminah, S., Apriani, T., Ma'rifah, D., & Anisah, A. L. (2024). An Ambitious Artificial Intelligence Policy in a Decentralised Governance System: Evidence From Indonesia. *Journal of Current Southeast Asian Affairs*, 18681034231226390.
- Wigena, N. R., Alghifari, M. D., Kamilah, N. R., Nurhalimah, H., & Nugraha, R. G. (2022). Pengaruh era society 5.0 terhadap nilai-nilai pancasila yang menjadi tantangan masyarakat INDONESIA. *Jurnal Kewarganegaraan*, 6(1), 1982–1986.
- Yusuf, M. B., & Rosyid, H. A. (2023). Pengaruh Society 5.0 dalam Kehidupan Masyarakat. *Jurnal Inovasi Teknologi Dan Edukasi Teknik*, 3(2), 116–121.

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