

A LEGAL PERSPECTIVE ON THE TRANSFORMATION OF HEALTH SERVICES WITH ARTIFICIAL INTELLIGENCE

ROSPITA ADELINA SIREGAR

Dosen Fakultas Hukum Universitas Kristen Indonesia

rospita.siregar@uki.ac.id

Abstract

Artificial Intelligence (AI) is a branch of computer science that focuses on developing systems, information, and technology that can perform tasks that require human intelligence, such as natural language, making decisions, and learning from experience. The goal of AI is to create machines that can learn, think and adapt independently. In the last few decades, technological advances, especially in the field of artificial intelligence (AI), have brought significant changes in various fields. This has an impact on the world of life, including the world of health. The concept of AI was first introduced in 1956 by John McCarthy. This article was designed using quantitative methods. Data collection was carried out using observation techniques, documentary studies and data analysis. The results of this research will provide a broad understanding of AI which will help provide better diagnosis, disease prediction and patient data management. However, the use of AI technology will raise legal issues, including health data privacy, security and liability. Opportunities include providing better information to doctors and developing better medical care. So a review of health law must be able to ensure that the use of AI in health services can be beneficial and without causing undesirable harm to the parties.

Keywords: Health service , Artificial Intelligence, legal challenges and opportunities

INTRODUCTION

As time goes by, the emergence of Artificial Intelligence (AI) has increased in the transformation of health services since the COVID-19 era. This technology aims to make computers intelligent so that they can imitate daily human work. (Wirawan, 2017). This ranges from using chatbots to identify positive Covid-19 cases, contact tracing and self-isolation monitoring to social mental health monitoring which can be carried out using this technology, making it easier for medical workers to treat patients.

The presence in the healthcare field of Artificial Intelligence (AI) provides an excellent opportunity to improve the success rate of treatment. One way that artificial intelligence can make an important contribution is over the application of robotics in dissection surgery.

AI (Artificial Intelligence) is a rapidly developing technology that has applications in many areas of life and business (Rahman, 2023). One of them is in the Health sector which is related to data processing and interpretation. So, as a result, this computational intelligence includes various aspects of statistics and Medicine Learning, pattern recognition, grouping, similarity-based methods, logic and probability theory, as well as physiologically motivated approaches such as neural networks and fuzzy modeling (Rahman. 2023).

Even though Artificial Intelligence makes many contributions in the Economic, Business, Health and e-commerce sectors, there are those who think that Artificial Intelligence, especially those related to robots, is able to replace humans.

However, basically AI is not always perfect, returning to the essence of AI, namely that artificial intelligence made by humans can only carry out tasks what is programmed into it. Coordinating Minister for Human Development and Culture Muhadjir Effendy (2022) believes that "No matter how smart artificial intelligence is, it will not be able to beat human intelligence. Humans are God's creation who inherit the nature of their creator, while artificial intelligence is very dependent on programmers. Nothing, then he got creative and made it himself. That's the difference."

RESEARCH QUESTION

How does artificial intelligence work in health services, its challenges or opportunities?

RESEARCH METHODS

The type of research used in this research is normative juridical, namely examining law which is conceptualized as a norm or rule that applies in society and becomes a guide for everyone's behavior. The approach in this research is a statutory approach which is carried out by examining all laws and regulations related to this research. And a conceptual approach by studying the views and doctrines that have developed in legal science.

RESULTS AND DISCUSSIONS

Because AI-powered production efficiency is becoming increasingly popular worldwide. It is estimated that the production of companies implementing AI will increase by at least 40% by 2023 (Taarini Kaur Dang, 2019). In fact, up to 56% of industrial sectors in several countries have implemented AI. (Kirana R. Ririh et al., 2020.), however, although this intelligence is significantly increasingly popular and has a good impact in the health sector, there are still things that need to be considered in its implementation.

The characteristics of AI in automating information processing make it comparable to an "Electronic Agent" in Indonesian regulations. In Article 1 of the ITE Law, "Electronic Agent" is

defined as "a device from an electronic system created to carry out an action on certain Electronic Information automatically organized by a person"¹

The word "automatic" in the definition of "Electronic Agent" is then used as a bridge to construct AI as an "Electronic Agent." If we use this construction, actually the regulations governing "Electronic Agents" also apply to AI. (Pratidina, 2017)² Advantages and disadvantages of Artificial Intelligence:

a. Excess

The benefits of using AI in healthcare include improved diagnosis through rapid data analysis, efficient management of patient information, prediction of disease spread, and development of prescribed treatments. AI can also improve hospital management and support medical research.

b. Lack

Some of the drawbacks or disadvantages of using AI in healthcare include concerns about patient privacy, interpretation of data in the system, and security risks related to attacks. There are also ethical concerns regarding automated health decision making, which may not take into account moral aspects and human values.

Ethics and law in AI-based health services according to (Sara gerke, 2020), (Timo Minssen 2020), (Glen Cohen, 2020) namely 1) approval of use, (2) security and transparency, (3) fairness and algorithmic bias, and (4) data privacy. Section 4 will then analyze five legal challenges in the US and Europe: (1) safety and effectiveness, (2) liability, (3) data protection and privacy, (4) cybersecurity, and (5) intellectual property law. Ethics and Law of AI-based health services, here's the explanation:

a. Consent to Use

AI health applications are increasingly being used in modern times, from diet guidance to health assessments. These applications raise questions for bioethicists about use agreements and their relationship to informed consent. The ethics and laws of AI-based healthcare are critical.

¹ Zahrashafa PM & Angga Priancha, Pengaturan Hukum Artifical Intelligence Indonesia Saat Ini: FH UI. <https://www.hukumonline.com/berita/baca/lt608b740fb22b7/pengaturan-hukum-artifical-intelligence-indonesia-saat-ini-oleh-zahrashafa-pm-angga-priancha?page=4>

² Pratidina, 2017, Pengaturan Hukum Artifical Intelligence Indonesia Saat Ini

Such as personal data protection, information security, transparency and compliance with health requirements are the most important aspects of user consent. Ensure AI service providers comply with applicable ethical and regulatory standards to maintain the integrity and security of health information. User agreements are contracts that individuals agree to without meeting face to face.

b. Security and transparency

The ethics of AI-based healthcare includes considerations of patient privacy, data security, and clarity of use of the technology. Applicable laws should regulate the protection of personal data and clarify the obligations of AI developers. Transparency of AI algorithms and decisions is also important to ensure the trust of patients and healthcare professionals.

Safety is the biggest challenge for AI to serve health, for example currently IBM Watson for Oncology uses an AI algorithm system whose task is to assess information from patient medical records and to assist doctors in cancer treatment for their patients. However, they received criticism because they were reported as providing unsafe and inappropriate recommendations for cancer treatment.

Because in training Watson for Oncology, instead of using real patient data, the software was trained with just a few “synthetic” cancer cases, meaning that the software was designed by doctors at Memorial Sloan Kettering (MSK) Cancer Center. MSK stated that the error was part of the system testing and therefore there were no incorrect treatment recommendations to be given to its patients. To ensure AI is safe, two main rights are needed, namely: (1) reliability and validity of data sets and (2) transparency.

First, the data set used must be valid. Second, in terms of patient safety and trust, transparency must also be considered. Although all data and algorithms will be open for public inspection, there may be some problems. In AI development there must be transparency. IBM kept Watson's unsafe and incorrect treatment recommendations secret for more than a year. Transparency creates trust between stakeholders, especially doctors and patients, which is the key to the successful use of AI in clinical practice.

c. Fairness and algorithmic bias

Ethics and law in AI-based healthcare are important to ensure fairness and address potential algorithmic bias. It is important to develop policies that protect patient privacy, ensure data security, and prevent algorithm-based discrimination in diagnosis and healthcare.

Applying the principles of openness and responsibility in the development and use of artificial intelligence technology in the health sector is also important for solving ethical and legal problems.

AI has the ability to improve health services not only to high-income countries, but also to remote areas. ML systems or algorithms trained by humans that are trustworthy, effective and fair. But AI also has the potential for bias and discrimination. So it's important for AI creators to be aware of these risks.

They should consider the risk of bias when deciding (1) which ML technology/procedure to use to train the algorithm and (2) the data sets they want to use for programming. In health, which involves information related to phenotype and genotype, for example, causing wrong diagnosis and making treatment ineffective, thus endangering their safety.

d. Data privacy

Health services and AI-based regulations are important to maintain data protection. It is important to implement policies that protect individual health information and ensure that AI algorithms comply with applicable medical ethical standards and privacy laws. This helps maintain patient trust and prevents potential misuse of health information.

In July 2017, the UK Information Commissioner's Office (ICO) ruled that the Royal Free NHS Foundation Trust breached the UK data protection Act 1998 when it provided the personal data of around 1.6 million patients to Google DeepMind. This data sharing is carried out for clinical safety testing, the application is Streams, where this application aims to help diagnose and detect acute kidney injury. But patients were not informed about the processing of their data as part of the test. From this example, although the Streams application does not use AI, the harm caused to privacy rights when developing technological solutions.³

The use of Artificial Intelligence Data in the health sector certainly raises the risk of data leakage. Data leak refers to a situation where confidential or sensitive information that should not be available to unauthorized persons becomes available or is leaked to unauthorized persons. This can happen through a variety of means, including security breaches, hacker attacks, or internal anomalies. Although data protection personal matters have been regulated in the Law. Furthermore, as stated by the President of the Republic of Indonesia Joko Widodo at the opening

³ Sara gerke dkk, 2020 "Ethical and legal challenges of artificial intelligence-driven healthcare", pg 301-305

of the Indonesia Science Expo (ISE) which was held on 1-4 November 2018, the development of artificial intelligence faces challenges because of its diverse impacts.⁴

So from the challenges above, the current urgency is that there is no specific law that regulates the use of AI in health services. This is a problem point that has not yet been answered. In this case there should be fast and appropriate steps and actions taken by the government. What if the use of AI causes losses in the health sector, what steps will be a guide in overcoming these losses? Moreover, the use of AI is not only developing in the health sector but is also developing rapidly in the economic, business and other sectors.

So, legal reviews and regulations are needed that regulate the rights and obligations of AI users and providers. Who is responsible when the use of AI causes harm to these strategic sectors? Therefore, the use of AI in the health sector that uses artificial intelligence will have well-organized guidelines based on statutory regulations. A concrete example is the continent of the European Union, which has the first history of formulating a Law on the Use of AI.⁵ Therefore, other countries must also be able to use the European Union as a guide in making regulations on the use of AI.

Advantages of AI

AI is part of the results of the industrial revolution. The industrial revolution first began in 1784 which enriched water and steam power for production systems. The second revolution began in 1870 which used electrical power to carry out mass production. The third industrial revolution began in 1969 which was marked by the use of electronic power and information technology. And now the world has entered the fourth revolution where by combining several technologies, we can see a new area consisting of three independent scientific fields, namely physics, digital and biology⁶

Research by Rajkomar et al. (2019) stated the use of AI to improve medical diagnosis and health care. AI has the ability to analyze large and complex medical data, and helps doctors make more accurate and timely decisions. An example is in diagnosis in the interpretation of medical images. AI is trained to analyze radiological images such as CT scans, MRI, and mammography and identify abnormalities and diseases. AI can provide accurate data or even exceed human

⁴ <https://www.brin.go.id/presiden-jokowi-membuka-ise-2018>

⁵ Berita "liputan 6"

⁶ Raymond R. Tjandrawinata, 2016 "Industri 4.0: revolusi industri abad ini dan pengaruhnya pada bidang kesehatan dan bioteknologi, pg 1.

doctors and differentiate and classify lesions or tumors. This accuracy can help to detect existing diseases early, and allow for faster and more precise treatment, to reduce the possibility of errors in interpretation.

AI can also be used to analyze patient clinical data such as medical history, laboratory records, and genomic data. AI can also be used to improve management optimization and resource allocation, such as surgery schedules, patient visit scheduling, and drug stock management.⁷

Developed AI-based surgical robot. This robotic machine is able to develop surgical methods that are more accurate and carry minimal risk. This robotic machine is widely used to assist in surgical operations that require high precision and accuracy on vital organs, for example heart surgery.

Apart from surgical robots there are also virtual nursing assistants who can perform all kinds of tasks from talking to helping patients to the treatment unit. These nurses can work 24 hours to respond to questions and provide instant health solutions for patients.⁸

CONCLUSIONS AND RECOMMENDATIONS

Artificial Intelligence (AI) is a branch of computer science that focuses on developing systems, information, and technology that can perform tasks that require human intelligence, such as natural language, making decisions, and learning from experience. The goal of AI is to create machines that can learn, think and adapt independently. In the last few decades, technological advances, especially in the field of artificial intelligence (AI), have brought significant changes in various fields. This has an impact on the world of life, including the world of health.

AI-powered production efficiencies are becoming increasingly popular worldwide. It is estimated that the production of companies implementing AI will increase by at least 40% by 2023. In fact, up to 56% of industrial sectors in some countries have implemented AI. So with the development of the use of AI there should be significant steps taken by the government in reviewing the law in parallel with existing technological developments.

⁷ Siti Masrichah, 2023 “Ancaman Dan Peluang Artificial Intelligence (AI), pg 94-95

⁸ Gerson Feoh, dkk, 2020, “Information Technology: Konsep dan Implementasinya”, CV. Media Sains Indonesia, Bandung, pg 44.

BIBLIOGRAPHY

Books

- Gerson Feoh, dkk, 2020, Information Technology: Konsep dan Implementasinya,
I Made Agus wirawan. Teknologi ini bertujuan untuk membuat komputer menjadi cerdas sehingga dapat menirukan manusia sehari-hari
- Rahman, AI (Artificial Intelligence) merupakan teknologi yang berkembang pesat yang memiliki aplikasi di banyak bidang kehidupan dan bisnis

Journals

- Kirana R. Ririh dkk, 2020. Studi komparasi dan analisis SWOT pada implementasi kecerdasan buatan (Artificial Intelligence) di Indonesia
- Mutiara, P. (2021). Hadapi Era Kecerdasan Buatan (AI), Menko PMK: Pembangunan SDM Tetap Paling Utama. Kemenko PMK. <https://www.kemenkopmk.go.id/hadapi-era-kecerdasan-buatan-ai-menko-pmk-pembangunan-sdm-tetap-paling-utama>
- Pratidina, 2017, Pengaturan Hukum Artificial Intelligence Indonesia Saat Ini
- Raymond R. Tjandrawinata, 2016, Industri 4.0: Revolusi industri abad ini dan pengaruhnya pada bidang kesehatan dan bioteknologi
- Sara gerke dkk, 2020, Ethical and legal challenges of artificial intelligence-driven healthcare.
- Siti Masrichah, 2023, Ancaman Dan Peluang Artificial Intelligence (AI),
- Taarini Kaur Dang, 2019, AI Transforming The World
- Zahrashafa PM & Angga Priancha” Pengaturan Hukum Artificial Intelligence Indonesia Saat Ini:

Websites

- <https://www.brin.go.id/presiden-jokowi-membuka-ise-2018>
- <https://www.liputan6.com/tekno/read/5477361/eropa-jadi-benua-pertama-yang-rumuskan-uu-penggunaan-ai>

