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Could Artificial Intelligence be the Subject of Criminal Law?

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Abstract

The use of artificial intelligence can increase productivity and efficiency in various sectors of life. However, it can also potentially cause legal problems especially criminal law if they result in losses. The subject of law in determining who should be responsible is a separate issue. This research examines whether technology using artificial intelligence can be used as the subject of criminal law so that criminal responsibility can be held. This research is normative juridical research with a statutory, conceptual approach and cases related to artificial intelligence and criminal law issues. The study shows that the ability to analyze and make decisions possesed by artificial intelligence can be indicated as "malicious intent". Yet, the concept of punishment for the artificial intelligence system requires a unique formula, as the personality of artificial intelligence cannot be equated with the personality of a human or legal entity. The granting of legal status through a criminal sanction mechanism in the form of machine deactivation, reprogramming, and the severity of destroying machines is expected to provide future solutions to minimize the risk of criminal acts by artificial intelligence.

I. Introduction

Artificial intelligence is a development of information and communication technology that has emerged in the last ten years. It is a technological term that refers to objects that are used in response to an identified context to detect or influence behavior. The main concept of artificial intelligence is to create tools or machines that can think like humans (Goralski & Tay, 2020).

Artificial intelligence techniques are divided into two. First, it is a hardware that is generally used in the manufacturing industry such as robots, airplane factories,

cars or self-driving vehicles. Second, it is a software such as artificial neural networks, evolutionary computing (e.g., genetic algorithms, evolutionary strategies, and genetic programming), fuzzy logic, intelligent systems, multi-agent systems, natural languages, expert systems, learning classifier systems, automatic learning, and deep learning (Valle-Cruz & Sandoval-Almazan, 2018). The development and utilization of artificial intelligence technology can increase productivity and efficiency in various sectors such as finance, health, education, transportation, agriculture, maritime affairs, and defense and security. Due to its sophistication, many people are interested and want to take its advantage.

Artificial intelligence has been implemented in various social practices. For instance, there is a developed transportation infrastructure facility designed for vehicle movement, which supports driverless vehicles where this typical vehicle creates legal uncertainty regarding its position in the structure of the legal relations (Hildebrandt, 2018). Artificial intelligence is considered to be the latest innovation in today's digital era. The use of machine learning concepts makes artificial intelligence products more capable of making decisions based on cases.

Although there are many conveniences obtained from the application of artificial intelligence, there is also great risks for damage and the resulting crime. Elon Musk, Stephen Hawking, Steve Wozniak (co-founder of Apple), and several well-known figures in the field of science and technology have paid serious attention to this (*Apple Co-Founder on Artificial Intelligence: 'The Future Is Scary and Very Bad for People,'* n.d.). In the wrong hands, artificial intelligence technology enables crimes that have never been imagined. As with the capabilities of artificial intelligence to independently take actions that qualify as crimes and its creation that ably signifies crimes, the regulation of criminal law governing the legal subjects of artificial intelligence is very necessary (Gaifutdinov et al., 2021). In 10 to 15 years later, the pace of development of artificial intelligence systems will lead to a total revision of all branches of law, especially intellectual property, tax, and other institutions whose needs lead to solving the conceptual problem of granting certain rights and obligations to artificial intelligence (Khisamova et al., 2019).

Artificial intelligence is also recognized by several countries as legal subjects with certain capacities. For example, in 2017, Saudi Arabia announced that the Sophia robot will be granted Saudi Arabian citizenship. In the same year, Japan granted a residence permit to the Shibuya Mirai robot based on special regulations. The Russian company Sberbank has launched a robotic lawyer that can file lawsuits against individuals, while Glavstrah Control has launched a robot to help resolve insurance disputes. In 2015, the Russian Parliament drafted the Grishin Act, which it amends the Civil Code of the Russian Federation that gives legal responsibility to robot developers, operators or manufacturers, and the new rules will cover the issue of robot representation in court (Kusumawardani, 2019).

In Indonesia, the application of technology with artificial intelligence has been very developed encompassing the chatbot feature (automated customer service), virtual reality, super-sophisticated smartphone cameras, and driverless vehicles (autopilot).

The issue of legal subjects is a void of norms that must be considered. It will determine who is responsible if technology using artificial intelligence causes a negative impact so that a person's legal interests are threatened or injured,. As we know, basically in the general provisions of the Indonesian Criminal Code an offense can only be committed by a human (Article 44 of the Indonesian Criminal Code, n.d.). In its development, a business entity or corporation are also the subject of criminal law even though it is still limited to several laws and regulations outside the Criminal Code (Setiyono, 2009).

The issue of artificial intelligence as a legal subject can be exemplified in the case decided by the Australian Federal Court between Dr. Stephen Thaler against the Australian Patent Office on 30 July 2021. It has ruled that Dabus, an Artificial Intelligence created by Thaler, is designated as inventor or legal subject in accordance with the Australian Patent Act. Apart from Australia, Thaler has registered Dabus as an inventor in several other countries such as the United States, Britain, and the European Patent Office (EPO) but ended up being rejected. According to Thaler, Dabus is a system that can later produce something new, so Thaler considers that his position is equal to that of an inventor. Inventor is a person or several people who jointly implement an idea which then produces an invention (product) so this inventor is the person who has the right to hold a patent for the product. However, with the decision of the Australian Federal Court, Dabus is not registered as a patent object but as an inventor because Dabus can produce inventions that can be registered with new patents again. The Court is of the opinion that the investor is not only intended for individuals and legal entities but also for objects (kliklegal.com, 2021).

In Germany, a Munich court ordered Tesla to pay 112,000 Euros (1.7 billion Dollars) in damages to customers for its Model X SUV due to problems with its autopilot function. This stems from a report by the United States regulator that revealed at least 400 accidents occurred in cars with autopilot or driver assistance systems and 273 accidents were contributed by Tesla (kliklegal.com, 2021).

It will be interesting if we examine the case of the random darknet shopper robot that is an automated online shopping bot with a budget of $100 in bitcoins per week. Once a week, a shopping bot on the deep web randomly selects and buys an item and sends it directly to the showroom. Until January 2015, when a darknet shopper bought a number of ecstasy pills, the bot maker was threatened with prosecution and the bot was confiscated by Swiss police. Looking at the case, there is a fact that artificial intelligence can engage in criminal acts that are not committed by humans but have the appropriate mens rea, no human has planned, predicted, or directed such actions. Of course, this

raises the issue of how the legal system should respond to a vacuum in terms of criminal liability even though some forms of civil liability may apply (Lagioia & Sartor, 2019).

The formulation of the problem in this research shows whether it is possible for artificial intelligence to be the subject of criminal law. Thus, what will be studied in this research is the concept of the subject of criminal law along with the theory of criminal responsibility that will discuss in details on the fulfillment of the element of error related to artificial intelligence.

The idea presentation is structured as follows. Section 2 briefly describes the subject of criminal law and criminal liability in the Indonesian legal system. Section 3 analyzes whether artificial intelligence can be a subject of criminal law and proposes the concept of punishment for its systems in Indonesia. At last, section 4 covers concluding remarks.

II. The Subject of Criminal Law and Criminal Liability in Indonesian Legal System

A legal subject was something authorized to carry out legal actions and can bear rights and obligations (Soeroso, 1996). According to Mertokusumo, legal subjects were anything that could obtain rights and obligations from the law (Mertokusumo, 1988). Humans were supporters of rights and obligations; therefore, humans were legal subjects. The specialty of humans when compared to other creatures was the reason they had. Humans had reason and free will to carry out their rights and obligations. This awareness was perfection that was not possessed by other creatures.

In the Indonesian Criminal Code system, those who became subjects of criminal law were humans or individuals (*natuurlijk* person). This can be seen in each article of Book II and Book III of the Criminal Code, where most of the rules in criminal law began with the phrase "whoever" or "everyone" as a translation of the phrase "*Hij*" in Dutch. The establishment of article 59 of the Criminal Code stated "In cases where a criminal offense is determined against the management or commissioners, then the management, board members or commissioners who apparently do not interfere in committing the violation are not punished",. This provision indicated that the KUHP adhered to the principle of "*Societas Delinguere Non Potest*". This principle was a typical example of 19th century dogmatic thought, where errors according to criminal law were always implied as human errors.

In its development, the corporation was also accepted as a subject of criminal law. However, such acceptance was still limited to several laws and regulations outside the Criminal Code. This was used as a justification and reason for the corporation as the maker and at the same time responsible because the profits obtained by the corporation or the losses suffered by the community could be so large that it would not be possible to balance if the punishment was only imposed on the corporate management (Ali, 2008). So, it could be concluded that the human essence made humans as natural law subjects, while corporations were legal subjects given by the state, which had certain limitations and conditions in carrying out their authority as legal subjects (Prananingrum, 2014).

In criminal law, the concept of responsibility or liability was known as the teaching of "*mens rea*". Talking about the concept of criminal responsibility, it must be preceded by a discussion of the concept of a criminal act, which was, in Latin, called "*actus reus*". The "*actus reus*" of an offence was the physical or external component of a crime that society did not want to occur (Dressler, 2005). Criminal liability could only be carried out by someone who committed a crime. "acting is a pervasive feature of criminal liability" that meant that criminal liability was a derivative of the nature of the crime committed by the perpetrator (Fletcher, 2000). In order to impose criminal liability upon a person, two main elements must exist. The first was the external on factual element (*actus reus*) while the other was the internal or mental element (*mens rea*). If one element was missing, no criminal liability could be imposed (Dressler, 2007). *Mens Rea* marked the main distinguishing feature of criminal law. *Actus reus* caused without *mens rea* was the basis for criminal liability. Criminal liability demanded not only causing the harm or crime that was prohibited "*actus reus*" of the offence but also a certain state of mind with respect to causing that loss or crime (Paul, 1999). This principle of error was a fundamental principle in criminal law so it permeated and resonated in almost all-important teachings in criminal law.

The elements of error in the broadest sense were as follows: a) the ability to be responsible for the maker, meaning that the maker's mental state must be normal; b) the mental relationship between the maker and his actions, which were in the form of intentional (*dolus*) or negligence (*culpa*) were called forms of wrongdoing; and, c) no excuses to erase mistakes. These three elements were a unity that could not be separated (Saleh, 1983).

III. Artificial Intelligence as A Subject of Criminal Law

Discussions about the subject of criminal law that was closely related to rights and obligations cannot be separated from the discussion of criminal responsibility. It could be said as a legal subject if it had the authority to carry out the rights and obligations given by law. Likewise, artificial intelligence had the authority to carry rights and obligations, which must be analyzed further. The first was to determine when a technology that used artificial intelligence was declared a perpetrator and had committed a crime. This must be clearly formulated in the Indonesian criminal law. Law enforcement officers in criminal proceedings must adhere to the principle of legality that was often described in the scene "it says that no act is punished without a regulation that precedes it". In its development, the principle of legality was defined in four basic principles, namely the criminal law that must be written, the formulation of the crime that must be clear, the criminal formulation that must be interpreted firmly without any analogy, and criminal law that cannot be applied retroactively.

The formulation that was not in accordance with the basic principles of legality would cause problems in law enforcement. Second, the criteria that can be used as a guide to account for artificial intelligence was essentials because accountability in criminal

law was closely related to the problem of error, namely the ability to be responsible, intentional, or negligent, and the element of lack of excuses and justifications. Third, kinds of punishment were more appropriate to be imposed on artificial intelligence.

The ability to be responsible was one of the elements of criminal responsibility. In the Criminal Code, there was no described provision but what was related was Article 44 that said: "Whoever commits an act that cannot be accounted for by him because his soul is disabled in growth or is disturbed due to disease, will not be punished". According to Simons, a person was capable of being responsible if his soul was healthy, that is, if he was able to know or realize that his actions were against the law and could determine his will in accordance with that awareness. Meanwhile, according to Moeljatno, the ability to be responsible was the first factor of reason (intellectual factor) that was able to distinguish between actions that were allowed and those that were not. The second was the feeling or will factor (volitional factor), which was being able to adjust his behavior with conviction on behalf of what was allowed and which was not (Moeljatno, 2008).

In addition, the second element of criminal liability was the inner relationship between the maker and his actions in the form of intentional and negligence. Memorie van Toelichting (M.v.T) defined intentional (*opzet*) as "wanting" and "knowing". This meant that the person doing the deed intentionally wanted the deed and knew about what was being done. Meanwhile, negligence (*culpa*) in MvT was explained that the person who performed the act was due to negligence because, if he sufficiently heeded the prohibition, he certainly was not negligent or careless so as not to cause something to happen that was forbidden.

Based on this description, it could be stated that the ability to be responsible as well as the factor of intention and negligence was determined by the factor of reason and mental character. Meanwhile, with regard to the ability to be responsible and how to determine intentional and omission in accountability according to criminal law for artificial intelligence, this did not seem easy to find a basis because artificial intelligence did not have mental or conscious characteristics like humans who were able to think and determine good actions. One model of criminal liability for artificial intelligence entities according to Gabriel Hallevy was possible direct liability model, an artificial intelligence entity as a creature same with human offender (Hallevy, 2016). However, to analyze this, let's study it from the technical perspective of the artificial intelligence system itself.

There was no universal standard definition of artificial intelligence. Artificial intelligence referred to the ability of machines to imitate intelligent human behavior. This might involve performing various cognitive tasks, such as perceiving, processing spoken language, reasoning, learning, making decisions, and demonstrating the ability to manipulate objects (OECD, 2016). Artificial intelligence was just like humans who needed experience and data so their intelligence could be better. Learning, reasoning, and self-correction were important points of artificial intelligence. The ideal characteristic of artificial intelligence was its ability to rationalize and take actions that had the best chance of achieving goals (Rich & Knight, 1991).

It was further explained in the OECD on the theory of technological singularities that a computer, computer network, or robot would theoretically be able to improve itself recursively (e.g., designing itself) or design and build a computer or robot better than itself that was likely to produce increasingly more powerful machines to create an intelligence that far exceeded human intellectual capacity and control. Intelligent systems combined big data cloud computing analytics, machine-to-machine (M2M) communication, and IoT to operate and learn so that technologies with artificial intelligence software could behave more independently without human creators and operators. In general, artificial intelligence could be grouped into four categories, namely: 1) systems that could think like humans; 2) systems that could act like humans; 3) a system capable of thinking rationally; and, 4) a system capable of acting rationally.

Sensory reception of factual data and understanding of that data could be defined as knowledge, and artificial intelligence systems are well equipped for such acceptance (Padhy, 2005). Sensory receptors of sight, sound, physical contact, and touch were common in artificial intelligence systems. These receptors transferred the received factual data to a central processing unit that analyzed the data (Boden, 2006). The analysis process in artificial intelligence systems was parallel to human understanding. The human brain understood the data received by the eyes, ears, hands, and others by analyzing the data. Advanced artificial intelligence algorithms tried to mimic human cognitive processes, which was not so different (Dennett, 2006).

In another article, Arend Hintze, a Professor of integrative biology and computer science and engineering from Michigan State University, categorized current artificial intelligence into systems that did not yet exist into 4 types, namely 1) reactive Machines, a technology that was able to identify parts on a chess board and was able to make predictions and analyze the possible moves of his opponent and himself and chose the most strategic moves, but had no memory and could not use past experience to inform his next move. This could be seen in the IBM chess program that was able to beat Garry Kasparov, the defending champion in the world chess competition in 1997; 2) limited memory, this system was able to use past experiences to inform future decisions as in a driverless car designed this way; 3) theory of Mind, this psychological term refered to the sense that other people had beliefs, their own desires, and the intention of influencing the decisions they made, artificial intelligence did not exist until now; and, 4) self-Awareness, this type of artificial intelligence system had self-awareness and confidence to understand the situation and was able to use information to be able to conclude what other people felt, but this type of artificial intelligence did not exist until now (Awangga et al., 2020). It could be concluded that artificial intelligence was indeed capable of acting autonomously but the action was carried out without self-awareness and self-confidence like humans.

Of the several theories discussed, there were different views to ably present an artificial intelligence before the court table. If one accepted the concept that artificial intelligence had the ability to accumulate knowledge and analyze it and determine

appropriate decision making, the ability to be responsible and the elements of "*actus reus*" and "*mens rea*" still applied to account for artificial intelligence in criminal law. The ability to analyze and determine the right decisions possessed by a technology with artificial intelligence could then be indicated as "*mens rea*" or malicious intent.

Cartolovni et al. presented the application of AI in the health sector not only rose ethical and legal but also social implications (ELSI) that had been ignored. The ELSIs identified reflected how AI decision-making tools would impact the future of healthcare. Above all were patient safety, algorithmic transparency, lack of proper regulation, responsibility & accountability, and impact on patient-physician relationships, and AI-based healthcare governance. The scope of the review was very broad, covering all the ethical, legal, and social implications in the area of AI-based decision-making tools (Čartolovni et al., 2022).

In order to support this research, Chatterjee et al presented the impact of applying artificial intelligence (AI) on human rights not only on civil but also criminal grounds. The research results could be used as input for policy makers and government authorities to formulate comprehensive policies that were urgently needed to regulate AI in the context of protecting citizens' human rights (Affrique, 2022).

For example, in the case of a car accident occurred in Redwood City, Northern California, police had difficulty stopping a Tesla Model S that was driven on autopilot. The problem was that the driver was drunk and then fell asleep while using the car. The car was moving on its own at high speed. Seeing the description of the case, the element of "*actus reus*" or a criminal act had been fulfilled. Furthermore, from this case, the issue of legal subjects who were responsible for the rising legal problems would arise. Scientists were having a hard time pinpointing the subjects responsible for artificial intelligence failures and the resulting damage. Those who could potentially be held accountable were the technology owner, vehicle brand holder, vehicle owner, or even the vehicle itself because in that case the vehicle moved without a driver, whose the operation used artificial intelligence technology.

Chatterjee et al presented the impact of applying artificial intelligence (AI) on human rights not only on civil but also criminal grounds. The research results could be used as input for policy makers and government authorities to formulate comprehensive policies that are urgently needed to regulate AI in the context of protecting citizens' human rights (Chatterjee & Sreenivasulu, 2022).

We can analogize a different view with the theory of criminal liability on the legal subject of legal entities/corporations (*rechtpersoon*), where Roeslan Saleh argued that there was a tendency to apply the principle of error that did not absolutely apply in accountability for corporations, because this was based on the reality that lost and dangered incurred caused by a very large corporation (Saleh, 1983). So, the strict liability theory emerged in accountability for corporations where many losses and victims as a result of criminal acts occurred made corporations to be held accountably regardless of whether there was an element of error in them (Priyatno, 2004).

If we made an analogy face to face between corporations and artificial intelligence, there would be two views where the first theory required "*mens rea*" and the second theory did not require "*mens rea*" but emphasized the facts or "*actus reus*". If "*mens rea*" became the main requirement in being responsible for criminal acts, again with the creation of an artificial intelligence technology that was created to achieve certain goals, then it could not be separated from the role of the creator of artificial intelligence itself, namely humans. The element of intention and negligence was seen from the actions of the technology creator whether there was an error in the modeling process that caused the technology to be wrong in accumulating and analyzing so it was incapable of making decisions which in this case rose legal problems with criminal liability consequences.

In the science of criminal law, the reason for eliminating the crime (*strafuitsluitings grand*) was divided into forgiving reasons (*schuld uitsluitings grand*) and justifying reasons (*rechtvaardigings*). The justification reason was the reason that erased the unlawful nature of the criminal act so the defendant's actions became proper and correct. Regarding the criminal code, the reasons for justification were contained in the provisions for forced defense (article 49 paragraph 1), implementing the provisions of the law (article 50), and carrying out office orders (article 51 paragraph 1). While the excuse for forgiveness was the reason that eliminated the defendant's guilt, so the defendant's actions were still criminal acts but could not be punished because there was no mistake. In the criminal code, there were provisions regarding being unable to take responsibility (article 44), forced defense that exceeded the limit (article 49 paragraph 2), and good faith to carry out an illegal position order (article 51 paragraph 2).

To be able to bring an artificial intelligence robot to court, it must first be analyzed whether the misinformation was caused by an initial modeling error made by its creator or the robot's error in accumulating and analyzing orders or information that caused losses. If the fault lied with the creator, the burden of responsibility lied with the creator of the artificial intelligence itself and the robot could be analogous to being given a forgiving excuse for carrying out orders from its creator. However, what if this forgiving excuse was given to information technology threats created using artificial intelligence such as malware attacks, which if not disabled can damage a computer system. Will the burden of responsibility only be on the creator? Therefore, the construction of punishment was also a matter that must be considered in bringing an artificial intelligence that was a non-human entity into the subject of criminal law.

The legal personality of artificial intelligence could not be equated with the legal personality of a human or legal entity (Nevjans, 2016). The establishment of an independent and unique legal institution, as well as the formulation of the types of responsibilities and granting artificial intelligence status were needed to provide solutions in the future so as to minimize the risk of criminal acts by artificial intelligence.

Because artificial intelligence was a new entity in criminal law with special characteristics, the formulation of punishment for artificial intelligence was also a special type of crime, for example the deactivation of subjects or machines, reprogramming, or

the determination of criminal status and the most severe was discarding or destroying artificial intelligence machine or subject.

IV. Conclusion

Artificial intelligence is considered to be the latest innovation in today's digital era. Not only does it provide convenience for human life, but artificial intelligence can also have a negative impact in the form of damage that has the potential to cause various legal problems, especially criminal law. The issue of legal subjects who are responsible for the damage caused by the artificial intelligence system has the potential to many parties involved, one of which is the artificial intelligence system itself.

The ability to analyze and make precise decisions possessed by technology with artificial intelligence can be indicated as "*mens rea*" or malicious intent. However, the personality of artificial intelligence cannot be equated with the personality of a human or legal entity, so a special formula is needed in determining the concept of punishment for the artificial intelligence system. For example, the establishment of an independent and unique legal institution as well as the formulation of the types of responsibilities and granting the legal status of artificial intelligence can determine the punishments. The punishments encompass the deactivation of the subject or machines, reprogramming, or assigning criminal status and the most severe of which was removing or destroying machines or artificial intelligence subjects. This is very necessary to provide solutions in the future to minimize the risk of criminal acts by artificial intelligence.

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