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| RESEARCH ARTICLE

Artificial Intelligence Crime within the Concept of Society 5.0: Challenges and Opportunities for Acknowledgment of Artificial Intelligence in Indonesian Criminal Legal System

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| ABSTRACT
This research explores the challenges and opportunities for the recognition of Artificial Intelligence (A.I.) as a new legal subject in the Indonesian Criminal Legal System within the concept of Society 5.0. There have been circulating debates concerning the possibility of approving A.I is a novel legal subject, as it does not possess independent consciousness; its existence and action are determined by another entity, that is, the programmer or developer of that A.I. Hence, an A.I cannot be imposed with legal responsibilities. However, due to the ever-growing nature of human civilization, it is probably safe to argue that the future of A.I. is still unclear. A.I. might execute an order which opposes that of its creator, for instance, a crime. A question then may arise following this theory: if an A.I. behaves in contrast to its creator's intention, can it be accepted that such A.I. has developed its own mind, fully separated from the human entity? Then, on that account, can the A.I. be inflicted with criminal responsibility? Consequently, if the answer is positive, what should be changed or adjusted in the Indonesian Criminal Legal System so as to incorporate such liability of A.I.? Finally, what would be the plausible sanction that can be imposed on an A.I. committing a crime? Will such kind of sanction be sufficient and suitable for society's standards? This paper will try to present elaborate discussions regarding these concerns.

| KEYWORDS

Society 5.0, artificial intelligence, criminal responsibility

| ARTICLE INFORMATION

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1. Introduction

Society 5.0. is not a new concept, as it was proposed in the 5th Science and Technology Basic Plan, released by the Japanese Government in January 2016 Fukuyama, 2018). In the same year, the Government also released the "Comprehensive Strategy on Science, Technology and Information for 2016", followed by the 2017 version of the strategy a year later (Deguchi et al., 2018). In this 2017 edition, the idea of Society 5.0 is defined as a "Human-centred society that, through the high degree of merging between cyberspace and physical space, will be able to balance economic advancement with the resolution of social problems by providing goods and services that granularly address latent manifold needs regardless of locale, age, sex, or language to ensure that all citizens can lead high-quality, lives full of comfort and vitality (Deguchi et al., 2018)."

Going by this definition, it can be interpreted that Society 5.0 is a concept emphasizing the aspect of people's lives, with the purpose of enabling them to settle various social problems through the fusion of both cyberspace and physical space (Rojas et al., 2021). This goal is achieved by the following mechanism: data from real-world or physical space are gathered in a location known as cyberspace (Crowther, 2017), where this accumulation of data is then analysed in order to present solutions for real-world problems. Subsequently, the result of the analysis will be evaluated and sent back to cyberspace for further adjustment to

continuously improve society as a whole (Deguchi et al., 2018). Society 5.0, in fact, is not an immediate existence. It is a phase in human civilization which has begun from phase 1, starting from the phase of Society 1.0, leading all the way up to the idea of Society 5. 0. The term "idea" is used here as Society 5.0. still resides in an imaginary or futuristic realm and is not fully manifested yet. The progression of the civilization is described hereunder.

To begin with, Society 1.0 is represented by the existence of Hunting Society, where the inhabitants live in a nomadic way. Then, society ceases to move from one place to another as they have developed a reliable method of irrigation, among other reasons. This stage of civilization is known as Society 2.0 or Agriculture Society. Moving forward, people started to build a technology-based instrument, which allowed them to produce and market agricultural goods. This marked the beginning of Industrial Society or Society 3.0. Society keeps advancing, and as a result, it leads to the emergence of Society 4.0, which is commonly known as Information Society. In Society 4.0, people are connected in a cyber community through communication and distribution of information provided by the development of computer networks and technology. Then, along with the rapid development of technology, the concept of Society 5.0. is presented (Bungin et al., 2021). Perhaps, the question which will follow naturally is then, what is the difference between Society 4.0 and 5.0? It is true that judging from the exposition above, both Society 4.0 and 5.0 resemble each other. In fact, Information Society already dealt with the mechanism of data accumulation, processing, analysis, and evaluation as those applied in Society 5.0, with the purpose of providing real world solutions for real world problems. However, it is important to note that in an Information Society, said system or mechanism only works in a limited area, while such a system within the concept of Society 5.0 is designed to be able to operate at the society level, universally, in regards with the initial aim of Society 5.0 itself (Deguchi et al., 2018).

The operational scheme of the system in Society 5.0, as provided above, is made possible through the existence of the Internet of Things (IoT) (Langley et al., 2021), which then developed into the Internet of Everything (IoE), and Artificial Intelligence (A.I.) (Ghosh et al., 2018). IoE allows the data of physical materials in physical space, including humans, to be gathered and connected to cyberspace. Afterwards, A.I. will analyse the data to then devise a follow-up measure in accordance with the data collected. A.I. fulfilled this task by imitating human logic (Kithulwatta et al., 2022). In other words, A.I. can also be defined as an instrument which is designed to devise solutions for problems encountered by humans, influenced by humans' way of thinking. However, even though an A.I. may seem to be extremely valuable and beneficial for human civilization, it cannot be denied that it is also able to inflict harm on society and, to some extent, extremely serious harm, death. This theory, unfortunately, is not fictional, as there have been various accidents where an A.I., in the form of a robot, causes the death of a person. Some of the cases are (1) a case in Germany where a robot kills a contractor, (2) a case in Michigan where a worker is killed by a defective robot, and (3) a case in a company in North India where a robot kills an employee. These accidents then may evoke concerning questions: Who should be held accountable for the death of those people? Can the blame be shifted directly to the robots, or is it considered the fault of the operator of the robot? What kind of sanctions shall be imposed on the robot and/or the person controlling it?

As a matter of fact, research on the topic of A.I. criminal liability has been widely undertaken and published. Some of the notable writings are those published by: (1) Gabriel Hallevy(Hallevy, 2010), (2) Thomas C. King et al.(King et al., 2020), and (3) Muhammad Tan Abdul Rahman Haris and Tantimin(Haris and Tantimin, 2022). The first research presents extensive elaboration on the possible model of criminal liability along with the sanctions which may be imposed on an A.I. In fact, the theories proposed in this research become the basis for the construction of the current research. The goal of this current research is to test the possibility of applying those theories in the Indonesian Criminal Legal System. Next, the second research discusses the threats which may be generated by A.I. in various sectors of society, along with the available countermeasures. This paper also presents the analysis of types of criminal liability that can be pressed upon an A. I and the punishment following such liability. Even so, the research does not address the probability of incorporating A.I. as a legal subject in the Indonesian Criminal Legal System. Lastly, the third research emphasizes the possibility of imposing direct criminal responsibility on A.I. The research concludes that A.I. cannot bear criminal responsibility as it lacks the corresponding prerequisite conditions, and thus, it is not possible to acknowledge A.I. as a legal subject. The paper, however, does not delve further into the scenario where A.I. is recognized as a legal subject in criminal law. This current research will then fill that void space. This paper aims to explore the comprehensive discussions regarding the issues raised above to then consider whether A.I. can be considered a legal subject in the Indonesian Criminal Legal System. Consequently, this paper will also present possible adjustments toward the currently existing regulations in Indonesia to cope with the development of A.I. within the concept of Society 5.0.

This study is constructed within three parts in the following order: (1) the concept of crime and criminal responsibility, (2) the author's argument on the possibility of the recognition of A.I. as a legal subject in the Indonesian Criminal Legal System along with the corresponding change or adjustment which should be made to the existing regulations in Indonesia, and (3) solutions and recommendations directed to all relevant stakeholders to cope with the continuously-developing society to bring the concept of Society 5.0 into a realization.

2. Literature Review

Criminal responsibility is not a stand-alone concept. It is closely related to the concept of crime and the elements consisted within. In fact, it is impossible to comprehend the concept of criminal liability without understanding the basic concept of crime and the elements of crime beforehand. There are various definitions of crime or criminal act, as it may be interpreted distinctly depending on the law or regulation applied in a territory. In the context of the Indonesian Criminal Legal System, however, a definite meaning for the term is non-existent, as it is not stipulated in the prevailing Indonesian Penal Code (IPC). Hence, such a definition shall be taken from the ideas proposed by scholars. Blackstone, for instance, defines crime as "an act committed or omitted in violation of public law, either forbidding or commanding it." On the other hand, Marshall, in his book titled *Law of Crimes*, defines crime as "the commission or omission of an act which the law forbids or commands under pain of punishment to be imposed by the state by a proceeding in its own name. (Pollock, 2013)"

Generally, crime is constituted of two main elements; physical element (*actus reus*) and mental element (*mens rea*)(Beecher-Monas & Garcia-Rill, 2017.). *Actus reus,* in short, is defined as a prohibited conduct which must be committed with full awareness and freewill, while mens *rea* is the state of mind accompanying such conduct. In this sense, the state of mind refers to an evil mind. In a more extensive definition, *actus reus* is interpreted as "the conduct of an accused person, its results, and those relevant surrounding circumstances and consequences or states of affairs, i.e. the 'external elements', which are included in the definition of the offense and which must be proved." As for *mens rea*, in more comprehensive definition, is interpreted as "an intention to do an act which is an offence by statute or common law, or recklessness as to the consequences of that act." (Curzon, 1997)A crime cannot be established whenever one of the elements is missing; an act, even though prohibited by the law, will not be considered a crime if it is not committed with a wicked or evil mind, and the existence of a criminal mind alone cannot be deemed as a crime without its manifestation in the form of criminal conduct (Ghuman, 2018.).

Criminal responsibility, in principle, shall be imposed upon any legal subjects fulfilling those elements stipulated above in the sense that they commit prohibited conduct, and such commission (or omission in some cases) is preceded by the possession of criminal intention. However, it is important to note that aside from satisfying both elements of *actus reus* and *mens rea*, the accused should also own the capability to be held accountable for the act perpetrated(Melansari & Lewokeda, 2018). On the other hand, this criminal liability may also be neglected under Indonesian Criminal Law if there is sufficient basis in the form of justifying(Asmadi, 2022.) and/or forgiving reasons(Dewi, 2020) for the crime accomplished(Yanto et al., 2022). Criminal liability, or the punishments supposed to be imposed on a defendant, shall also be reduced in the event that the crime carried out is not fully completed.

This section also discusses the model of the imposition of criminal liability upon two different subjects in criminal law; a person (*natuurlijke person*) and a corporation or legal entity (*rechts persoon*). In regards to the subject of person, perhaps, it is safe to say that there is no complicated issue surrounding the measure for imposing criminal liability upon it. This argument is supported by the fact that, at the early time of criminal law, criminal liability was intended to be inflicted solely on a person(Chasani, 2017). The currently applied Indonesian Penal Code (IPC), however, is still embracing this idea(Aji et al., 2022.). This is because IPC, in its nature, is an inheritance from the Netherlands Penal Code (NPC), which at the beginning adopted the principle of "*universitas delinquiere non potest*"(Kurniawan & Hapsari, 2022). To impose criminal responsibility on a person, the same theory or principle concerning the imposition of criminal liability as stipulated above pertains. The person shall satisfy both elements of *actus reus* and *mens rea*, can be held accountable for the crime committed or omitted, and there is no external circumstance which may eliminate the conviction for such crime. On the other hand, to inflict criminal responsibility on a corporation, a different approach is necessary to be taken. As it has been previously addressed, criminal responsibility was aimed to be inflicted only on a single subject, a natural person. In other words, a corporation was initially not acknowledged as a legal subject. This non-recognition of the status of a corporation as a legal subject was influenced by Von Savigny's fiction theory. Savigny argued that a legal entity is an artificial object created by a human's mind and thus does not possess its own personality(Pratama & Januarsyah, 2020). In this sense, the identification of the corporate's *mens rea* in a crime became problematic(Maryono and Yuhelson, 2017). Then, as the corporation was not recognized as a subject in criminal law, it was also not possible to impose corporate criminal liability upon it. Later, development shifted the idea. It was agreed that a corporation might be regarded as a valid subject of criminal law, aside from a person. The consideration for this alteration was that even though corporations might positively influence the economic growth in a state by increasing revenues gained from tax, it could also affect the lives of the society negatively(Rahmadia, 2020). Environmental pollution, deceitful business practices, unfair market competition, and exploitation of workers are among the negative effects which may be contributed by corporations during their activities.

Criminal liability may be inflicted upon a corporation on the basis of 3 types of corporate criminal liability doctrine or theory: (1) identification theory, (2) vicarious liability doctrine, and (3) doctrine of strict liability. Identification theory, also known as organ theory, stipulates that a corporation can be held accountable for a crime if the such crime is carried out by the person controlling the company or the company's directing mind. In other literature, it is argued that this corporate liability is not only applicable to the crime committed by the directing mind (which, in a general sense, is the superior personnel of the corporation) but also to the

agents with lower positions (Rahmadia, 2020). The next theory, which is vicarious liability theory, adopts the employment principle, in the sense that the blame which is supposed to be attributed to an employee can be shifted to the employer. In the context of corporate crime, the criminal responsibility which is supposed to be addressed to an agent of the corporation may be transferred to the corporation, though the responsibility of the agent will not be abolished. As for the last doctrine, the strict liability or that commonly recognized as absolute liability doctrine, emphasizes that a corporation can be held responsible for an offense without the need to prove the element of error within such offense; only the offense itself shall be proven (Chasani, 2017)

3. Methodology

This research is classified as normative legal research, as the materials used for the references are taken from the substance of laws and academic journals. In other words, this research also embraces statutory and conceptual approaches in presenting its analysis. The statutory approach is conducted by reviewing regulations in Indonesia to analyse the status of Artificial Intelligence (A.I.) to then determine whether it can be treated the same as the already existing legal subjects, which are persons and corporations. On the other hand, the conceptual approach is undertaken by gathering data from relevant journals and literature to get a comprehensive and thorough understanding of the concept of crime, criminal liability, and A.I.-related crime.

4. Result and Discussion

4.1 Imposition of Criminal Liability Upon Artificial Intelligence (A.I.)

The imposition of criminal responsibility on A.I., however, raises an issue, as currently, per the writing of this research, not a single law in Indonesia recognizes A.I. as a legal subject, criminal law included. Can A.I. be regarded the same as a person or corporation and thus be inflicted with the same liabilities as those applicable to a human or company, or shall A.I. be treated as an entirely new subject of criminal law? Perhaps the best course of action which shall be taken to provide answers to these questions is to revisit the concept of A.I. to identify its differences from the other legal subjects.

As has been slightly addressed previously, Artificial Intelligence or A.I. is an essential element in the concept of Society 5.0. A.I., along with the Internet of Things (IoT), shape the whole system of Society 5.0. According to World Intellectual Property Organization Revised Issues Paper on Intellectual Property Policy and Artificial Intelligence 2020, A.I. is defined as "a discipline of computer science that is aimed at developing machines and systems that can carry out tasks considered to require human intelligence, with limited or no human intervention (Talimonchik, 2021)." An A.I. can be created by using 3 different models of approach: expert system, machine learning, and deep learning (Dupont et al., 2018). In the context of an expert system, a programmer transfers or inputs their knowledge regarding a problem they want to settle to a computer, and the computer will then devise a solution towards the problem by mirroring a human problem-solving process of thoughts (Mijwil et al., 2022). This is a different case when the machine learning approach is used, as in this method, the programmer does not transfer their minds to the computer; instead, they present a large set of data of various problems for the computer to determine their similarities. Using this "experience" of analysing numerous samples of data, a computer can solve various issues by delivering a set of possible solutions for each of those issues. A deep learning system, on the other hand, is a more advanced model of the machine learning system in which the structure of DL is constructed from several layers, which enables the computer to observe a more complicated level of abstraction or reality than that of machine learning (Dupont et al., 2018).

Based on the above elaboration, one fixed conclusion can be reached. An A.I. is not a stand-alone entity; at least currently, it needs a programmer or user behind it to allow the A.I. to operate. The same case applies when an A.I. commits an act, including a crime. As such, A.I. cannot be treated equally as a natural person, as it does not have its own individual personality. A.I., by itself, cannot possess rights and obligations. Hence, it suffers the problem like a corporation in the early phase of the development of criminal law. However, even though A.I. faces an identical problem as that faced by corporations, it still needs to be identified whether an A.I. itself is the same being as a company. This identification will be started by comparing the concept of corporation and A.I, which the latter has been provided above. In the context of the Indonesian Legal System, the corporation can be defined in two ways, in narrow and extensive definition. Indonesian Private Law adopts the narrow definition of corporation, which classifies a corporation as a legal entity (Rodliyah et al., 2020.). On the other hand, Indonesian Criminal Law incorporates a wider interpretation of corporations, in which it is not only a limited legal entity but also a non-legal one. The reflection of this idea can be found in laws or regulations outside of the Indonesian Penal Code (IPC), as the current IPC does not acknowledge corporations as a legal subject. In Article 1 point 1 of Law on Eradication of Corruption Crime, a corporation is defined as "an organized group of people and/or wealth, either in the form of a legal or non-legal body."

The legal entity itself means "an entity which is able to possess its own rights and obligations to carry out a legal act." To obtain the status of a legal entity, a body has to fulfil at least some of the following criteria: (1) possessing separate wealth from that of the founder's, (2) having a certain collective purpose, and (3) having well-established organization(Santosa, 2019). These requirements apply to most of the legal entities in Indonesia, except for an Individual Limited Liability Company (Individual LLC),

which can be established by only one person (Putri and Tan, 2022). This Individual LLC is also classified as a legal entity, and like an ordinary LLC, it needs to possess capital. One of the main differences between a legal body and a non-legal body lies in the status of the assets of the corporation; the wealth or assets of a non-legal entity is not separated from the founder's assets. Nevertheless, both legal entities and non-legal entities have a common characteristic; they need to own a specific amount of assets to be acknowledged as a corporation (Khairandy, 2013).

Going by this elaborated concept of the corporation, the writer argues that an A.I. cannot be treated equally as a corporation, or in short, an A.I. is not the same as a corporation, as their concepts are different from the very beginning. A.I. cannot be classified both as a legal entity and a non-legal one, as it does not have its own wealth, and the developer or the deployer of the A.I. also does not necessarily have to possess a specific percentage of assets. In this regard, if an A.I. is to be recognized as a legal subject, it must be regarded as a novel one. In this regard, if an A.I. becomes a legal subject, the next question which will follow naturally is the model of criminal liability, which is possible to be applied when an A.I.-supported crime takes place. Hallevy, in his past research, proposed 3 kinds of criminal responsibility for this matter, which depends on the role of the A.I. in the commission of a crime: (1) perpetration via another, (2) natural probable consequence, and (3) direct liability model. The elaboration of those 3 models of liability is presented hereunder. In the first type of liability, the status of an A.I. is only as an innocent agent used by a programmer or a user to commit a crime. An A.I. may be programmed to commit a crime or be utilized to commit one, even though the A.I. was not originally developed to do so. In this context, the A.I. cannot be inflicted with criminal liability, as the conduct or the act committed by such A.I. is deemed as the act of that user or programmer(Hallevy, 2010). A theoretical example can be seen in the case where an A.I. is used to injure a person intentionally. In this case, even though the physical act is committed by the A.I, the criminal liability will be imposed upon the user or the programmer of that A.I. In other words, the *mens rea* within the crime originated from the person behind that A.I., and the *actus reus* manifested by the A.I. is considered as that of such person. The role or position of A.I. in the context of this first model of liability is no different than that of any other tool, for instance, a knife, in a case of homicide.

The concept of the second model of liability, the natural probable consequence liability, differs from the first. This liability applies when an A.I. commits a crime; however, this commission is beyond the will or intention of the person controlling it. Nevertheless, the *actus reus* or the act of such A.I. is attributed to that person on the ground of the person's negligence to foresee or to predict the naturally possible, harmful consequence resulting from the A.I.'s behaviour, in the sense that they fail to prevent a such consequence from transpiring. In other words, the programmer or the deployer of the A.I. does not intend or expect that the A.I. operated will conduct an offense. The case of the robot which unintentionally kills a worker in a factory, which has been addressed in the early part of this research, can be shown as an adequate example. The guilt in this event is deemed as the guilt of the operator of the robot on the basis that the operator fails to predict that the robot, in its course of activity, may inflict harm to another person. In addition, this natural probable consequence liability may also be applied in the event where a programmer or user intends to carry out an offense via an A.I., but instead of realising the initial crime, the A.I. causes another crime, which is not initially planned by such programmer or user(Hallevy, 2010).

Based on the second model of responsibility, it is not enough if the blame is only pressed upon the person behind the A.I.; the A.I. itself must be imposed with criminal responsibility to some degree. This argument is based on the idea that it is not fair for the developer or the user of the A.I. if such liability is only imposed on them and not on the A.I, as the offense committed by the A.I. is not fully their fault. Furthermore, the determination of the kind of event whose consequence must be able to be predicted will become an issue. How far shall the programmer of an A.I. predict the behaviour of their creation? Then, suppose that the programmer can foresee the negative impact which may be generated by the A.I. In this case, can they fully prevent such consequences from manifesting? Then, if a developer is burdened with the task of foreseeing every possible outcome that may be caused by the A.I. they create, it may affect them psychologically to the point that it can limit their willingness to invent more designs, in fear of the criminal sanction that awaits when they fail to prevent the A.I.'s deviant behaviour. Lemley and Casey, in fact, have presented elaboration on various models of harm related to crimes or offences involving robots, which can be considered as A.I, which include: (1) unavoidable harm, (2) deliberate least-cost harm, (3) defect driven harm, (4) misuse harm, (5) unforeseen harm, and (6) systemic harm. However, even with this classification of different types of harm, there is no actual or clear criterion on how to determine which harm falls to which area, as a situation or event may fall within more than one type of harm. For instance, it is argued that a robot, in the form of a self-driving vehicle, may cause unavoidable harm due to the law of physics, in the sense that it may collide with another object, such as a person, when there is not enough distance or time for the vehicle to prevent a such accident(Lemley & Casey, 2019).

The occurrence of this situation is also supported by the idea of Robert Peterson, which stated that "virtually, no product or service is perfectly safe, whether it is a jar of peanuts or a tea cozy – much less a complex robotic application." This theory applied for unavoidable harm, to some extent, may apply as well for unforeseen harm. In the research, Lemley and Casey argued that it is indeed possible for a robot to carry out an unpredictable action, particularly a robot operated with a machine learning system. A

machine learning system allows the robot to behave with only limited influence from humans and thus generates an attitude contrary to its initial purpose designed by the programmer, even when several sufficient preventive measures have already been undertaken prior to the robot's operation. Defect driven harm, on the contrary, is based on a different rationale. This model of harm transpired when a robot experiences a bug in its system or no adequate safety measure was presented by a programmer prior to the deployment of such a robot, causing it to realize unintended harm. The reflection of this type of harm can be seen in a case of a malfunctioning robot which ends up killing a person (Lemley & Casey, 2019).

Based on the elaboration above, it becomes more challenging to determine which model of harm the previous case of the robot that kills a worker falls into. Can it be deemed as a situation of unavoidable harm following the idea of Peterson that there is no "perfectly safe" product? Shall it be considered as an event of unforeseeable harm due to the unpredictability nature of a machine-learning automaton, assuming that the robot, in such case, is developed with a machine learning system? Or rather, shall it still be considered as a case where the developer or the deployer of the robot should have been able to predict or foresee the danger posable by such a robot and thus impose criminal liability upon them based on the natural probable consequence model of liability? Nevertheless, the more important issue which shall be addressed in this paper is, then, how to inflict criminal responsibility on the A.I. based on the second type of responsibility. How to proof the elements of crime, or the *actus reus* and *mens rea* possessed by the A.I.? These issues will be consulted in the discussion of the third model of criminal responsibility below, the direct liability model.

The most confusing model of criminal responsibility to be applied to an A.I. is the direct liability one due to the issue of determining whether the A.I. can fulfil both factual and mental elements in the commission (or omission) of a crime. There are indeed dissenting opinions regarding the answer to this problem. On one side, it is believed that in the future context, an A.I., or robot, may possess its own consciousness and a certain level of intelligence, which surpass those owned by humans (Osmani, 2020). This argument, though seems hypothetical, still holds water, as currently, Society 5.0, as it has been addressed previously, is still an imaginary concept; hence no one can really predict how it will manifest in reality. This scenario seems to make more sense when the A.I. is programmed using machine learning or deep learning scheme, in the sense that the A.I. may behave in a more unpredictable course the more experience it gets from the environment. Based on this argument, it serves no harm to pin criminal liability on an A.I. going forward. On the other side, the idea of imposing criminal liability upon an A.I. is rejected, as it may have also been elaborated before; an A.I. does not have its own consciousness and, thus, will not have any understanding of the effect of its conduct. Hallevy argued that it is not impossible for an A.I. to be pinned with criminal responsibility, as is the case with natural persons and corporations (Hallevy, 2010). The rationale can be described as follow. The factual requirement, the *actus reus*, can be satisfied with no issue in the event where an A.I. operates its body parts to commit an act, including assault towards a person. On the other hand, the mental element or the *mens rea* can be fulfilled by treating the systems of A.I. the same as the human brain; both A.I. and the human brain process and analyse information and data obtained through receptors. This theory is indeed plausible considering the basic concept of the A.I. itself, in which it is devised to solve simple to complex problems by mimicking human problem-solving mechanisms.

The authors agree that an A.I. shall be deemed guilty and imposed with criminal liability when it satisfies both factual and mental elements necessary to constitute a crime. Additionally, the writer supports such an idea by following the logic of the imposition of criminal responsibility upon a corporation. Notwithstanding the distinct characteristic between a corporation and an A.I, they both possess adequate resemblance in the sense that both do not have their own mind or consciousness. Hence, if a corporation can be inflicted with criminal liability, the same case shall also be applied for an A.I. In other words, even though an A.I. is not the same as a corporation, the doctrine embraced within the scope of corporate criminal liability, for instance, the strict liability doctrine, may as well be utilized as a ground to administer criminal liability upon an A.I.

4.2 Challenges and Prospects Related to the Acknowledgement of A.I. in the Indonesian Criminal Legal System

This section discusses the challenges and prospects related to the recognition of A.I. as a new legal subject in the Indonesian Criminal Legal System. The writer already concluded and supported the idea that it is indeed possible to acknowledge A.I. as a legal subject aside from humans (natural persons) and corporations (rechtspersoon). Hence, the next issue which shall become a concern is, then, whether it is *needed* to recognize A.I. as such in the Indonesian Criminal Legal System. In this context, there are two possible models of the answer which can be delivered to address this issue. The first model is based on the current situation of the society in Indonesia, while the second is based on the possible development which may be experienced by such a society in the future.

It is undeniably unnecessary to add A.I. as a new subject of law in the legal system, as Indonesia itself currently can hardly be considered to embrace the concept of Society 5.0. It can be argued that the role of A.I. in the existing society is not truly relevant, and there is no major accident involving A.I. occurred to the point that the imposition of criminal responsibility upon A.I. shall be

considered. However, if the second model answer is to be consulted, the case may differ. In the future context, when the idea of Society 5.0 has been fully realized and the influence of A.I. has been proven to be more dominant, it becomes an urgency and duty for stakeholders in Indonesia, particularly the legislators, to approve A.I. as a new subject in criminal law. This idea is supported by the argument that, as it has been slightly conveyed previously, it is not impossible that going forward, the A.I. may develop its own consciousness, which may surpasses that possessed by humans, and thus, enables the A.I. to commit crime independently, free from human's influence. In this context, the law is in the position of *ius constituendum* or the law which is aspired by society (Wijaya, 2020).

Following the second model answer elaborated above, it then becomes a necessity to adjust or change several substances consisted in the laws or regulations in Indonesia to incorporate the existence of A.I. as a novel legal subject. Perhaps the most basic measure that can be taken to realize this idea is by including A.I. as the third legal subject aside from humans and corporations in the Draft of the Indonesian Penal Code (the prevailing Indonesian Criminal Law is not put into this discussion as it is extremely outdated, in the sense that it does not even recognize the corporation as a legal subject). Another possible option is for the legislators to devise a new law concerning A.I., including all its relevant aspects, such as the matter concerning the applicable model of criminal liability and the sanction suitable to be imposed upon the A.I. in the event that such A.I. conducts an offense. The sanction which is suitable to be pinned on A.I., however, may not be that easy to be determined.

To provide an example regarding the issue above, the classification of (penal) sanction consisted within the Draft of the Indonesian Penal Code (Draft of IPC) is provided below. Article 65 of the draft stipulates the types of core sanction, which include: (1) imprisonment, (2) undisclosed penitentiary, (3) supervision, (4) fines, and (5) community service. On the other hand, Article 66 describes the models of additional sanction, which are in the form of (1) revocation of certain rights, (2) confiscation of certain property and/or bills, (3) declaration of judge's verdict, (4) payment of compensation, (5) revocation of certain permits and (6) fulfilment of a local customary obligation. Article 67 provides elaboration on a special type of penal sanction, which is in the form of capital punishment. From the models of penal sanction presented above, it can be seen that some of those sanctions are only intended to be imposed upon a natural person, as they are impossible to be inflicted on other legal subjects such as a corporation. What about A.I. in this context? Can it be bestowed with the types of punishment as stipulated above?

Can an A.I. be imprisoned? The authors argue that, unlike the corporation, an A.I. can be imprisoned as it is as its physical body, particularly the body of a robot, fits the size of the room of a prison. However, perhaps the more appropriate question to be asked here is not whether an A.I. *can* be jailed or not, but whether it is *relevant* or not to imprison an A.I. It has been agreed that an A.I. differs from humans, and as such, not all of the attributes which may be experienced by humans by serving their time in prison, for instance, the feelings of pain and fear, can be experienced by A.I. as well(Osmani, 2020). The only effect which may be experienced by A.I., in this case, is the limitation of its liberty or freedom of movement. Indeed, it can be argued that the purpose of imprisonment is to deprive humans of their liberty or freedom, to deter them from committing further crimes. (Vos & Gilbert, 2017) This principle, in theory, can also be applied to an A.I. to prevent them from generating another crime. Despite the applicability of this theory to A.I., it will arguably create another issue, in which a prison specially tailored for A.I. must be built, as it would not be proper to put A.I. in the same place as a human offender; human and A.I. criminal need different treatment. On the other hand, establishing such special prison will arguably take too much time and will cost a vast sum of the state's budget. Hence, to settle this confusion, another form of sanction, which has the same effect as imprisonment, which is to restrict the freedom of an entity, shall be imposed. Regarding A.I., the writer suggests that the temporary deletion of the A.I. program or data for a certain period of time may be sufficient to apply the limitation of liberty upon that A.I., as the A.I. cannot move normally as intended when there is missing data in its system. This data shall then be restored when the period of punishment is over. In addition, this concept applied in the context of imprisonment can also be applied to the case of capital punishment. The difference is that, in the context of capital punishment, the deletion of the A.I. software or data shall be carried out permanently and temporarily(Hallevy, 2010).

Then, what about the obligation to pay fines? It has been conveyed before that A.I. differs from a corporation in the aspect of the possession of capital, in the sense that an A.I., or even its developer or user, does not necessarily have to own a certain amount of capital for such A.I. to be operated. In this case, how can the A.I. pay the fines? In this event, Hallevy argued that this sanction in the form of duty to pay a certain number of fines for A.I. is closely related to the punishment in the form of community or social service. The idea of social service is to put the A.I. to work in a public space for the benefit of the community. The A.I., which is supposed to give personal benefit to its owner, in this case, is forced to give benefit to society. The result of this work or labour done by the A.I. is then delivered to the state as a replacement for its obligation to pay fines(Hallevy, 2010).

The authors argue that these two models of sanction reflecting the sanctions in the form of imprisonment and the obligation to pay fines absolutely makes sense, and they (the sanctions) can be incorporated in the Draft of the Indonesian Penal Code in the future. However, the challenge which may be raised is that no matter how logical a rule is set up, it holds no water if it is not approved or accepted by society. Unfortunately, it cannot be determined yet whether these models of punishment intended to be

imposed upon A.I. will suit the needs of the society or not, as again, Indonesia is not in the realm of Society 5.0 yet, and thus the theory regarding the imposition of criminal responsibility, along with the types of sanction which may be pressed upon it, is still hypothetical, but at least, they are not that impossible to be applied.

5. Conclusion and Recommendation

There will be the possibility to acknowledge A.I. as a novel legal subject in the Indonesian Criminal Legal System by utilizing models of criminal responsibility proposed by Hallevy. It can be argued that this research may not have any significant impact on the current legal environment in Indonesia as the role of A.I. is still not dominant. However, as society keeps advancing and the role of A.I. may become more significant in the future, it is possible that at a certain point, the A.I. may possess its own mind, which surpasses human intelligence. By then, it will be justified to impose criminal liability on A.I., and this study shall be referred to as one of the relevant literature which provides a legal argument for such justification. As a final note, this research is limited to the discussion regarding the prospects and challenges of the acknowledgement of A.I. as a legal subject in the Indonesian Criminal Legal System: the research does not concern other fields of law. Therefore, it is recommended that future researchers analyse the possibility and the challenges of the acknowledgement of A.I. in other scopes of the law, for instance, Civil Law, to examine whether an A.I. can be held liable for a dispute involving a transaction, along with the model of civil liabilities and the corresponding sanctions which may be granted for that A.I.

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