Inventor's Legal Liability upon the Invention of Artificial Intelligence in Indonesia

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ABSTRACT

The pace of technological development can no longer be restrained until the emergence of artificial intelligence (AI), which later turns out to negatively impact its application. AI is a computer system program created by humans. On the one hand, the invention of AI makes human work easier. On the other hand, it is also noticeable that there are several criminal cases "performed" by AI. The objective of this research is to find out the inventor's responsibility upon the patent/invention in the form of artificial intelligence (AI). This research is qualitative research with doctrinal approach. The data used include secondary data consisting of primary, secondary, and tertiary legal materials. The method of data collection is done through document study. The research concludes that the inventor of an invention of artificial intelligence can be charged with legal responsibility by applying the limits of liability both in civil and penal sanction. Further studies are needed to answer the question of how far this responsibility can be carried out..

1. INTRODUCTION

Artificial Intelligence (AI) has become the most highlighted issue in terms of technology in the last few years. Human civilization has shifted from the Internet of Things (IoT) to artificial intelligence. The invention of AI in health, education, business, and industry is considered a significant step in human civilization. Indeed, it is expected to be more developed. However, along with the AI invention helping human's daily activities, criminal cases "committed" by AI are also found. In 1981, an employee of a Japanese motorcycle company died because of the robot used there.[1] Another example, in 2015, a robot named Random Darknet Shopper (RDS) purchased ecstasy.[2] In Arizona,

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[1] Gabriel Hallevy, "The Criminal Liability of Artificial Intelligence Entities - from Science Fiction to Legal Social Control," *Akron Intellectual Property Journal* 4, no. 2 (2010): 1.

[2] Ryan Benjamin Abbott and Alex F. Sarch, "Punishing Artificial Intelligence: Legal Fiction or Science Fiction," *SSRN Electronic Journal*, 2019, 323–84, https://doi.org/10.2139/ssrn.3327485.

2018, a self-driving car hit a woman which caused her died.[3] AI is a system created by humans. In intellectual property rights, AI is protected through copyrights and patents. Meanwhile, from the legal perspective, a computer program containing technological inventions can be protected through a patent, although the computer program has been protected under the copyright mechanism.[4] An inventor who invents and holds the patent and/or copyright acquires an exclusive right to commercialize the creation or invention.

In 2015, a robot completed with artificial intelligence or a bot named RDS was created by a group of Swiss artists. They created a project where RDS was given a bitcoin equal to US$100 to go shopping randomly at a dark web marketplace in Agora. One of the purchases made by the RDS was a package of ecstasy. Not long after the incident, the computer known to have created the robot was confiscated by the Swiss police. Similarly, bots were mushrooming in Indonesia in 2016, spreading hoaxes containing news about a particular political figure. It has caused anxiety since the utilization of AI has not been explicitly regulated. Hence, AI has the potential to be misused in criminal cases.

To understand criminal responsibility, it is necessary to observe the concept of committing a crime. It is an action prohibited by law.[5] However, criminal responsibility also requires the actus non facit reum nisi mens sis rea principle. The fault refers to two significant concepts: psychological condition and a particular relation between physical and action.[6] Therefore, a question arises. Where can we observe and ask for non-human (AI) responsibility? The present study focused on the inventor's responsibility upon the patent/invention in the form of artificial intelligence (AI). The inventor's legal responsibility for the crime committed by artificial intelligence and whether the Indonesian laws regulated the matter.

2. RESEARCH METHOD

This research is qualitative research with doctrinal approach. The primary legal materials were obtained from several regulations such as Indonesian Criminal Code, Law Number 28 of 2014 regarding Copyright, Law Number 13 of 2016 regarding Patent, Law Number 5 of 1997 regarding Psychotropics. Secondary legal materials were from books, journal articles, and other relevant documents supporting the research.

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[3] Simon Chesterman, "Autonomy," in *We, the Robots?* (Cambridge: Cambridge University Press, 2021), 31–62, https://doi.org/10.1017/9781009047081.004.
[4] "Law Number 28 of 2014 Concerning Copyright" (n.d.).
[5] Moeljatno, *Pertanggungjawaban Dalam Hukum Pidana* (Jakarta: Rineka Cipta, 2015).
[6] Moeljatno.

3. RESULTS AND DISCUSSION

3.1. Artificial Intelligence (AI): Future challenges of the Indonesian law

AI can be analogous to a human body possessed an organ with particular roles and functions. Besides, AI works by combining a great amount of data rapidly and repeatedly. A smart algorithm enables the computer programs/software to "learn" automatically from the pattern or features in the available data. AI has several sub-fields.[7]

1. Machine learning. The system employs the methods of neural networks, statistics, and search engines to find hidden information in the data without an explicit program.

2. Artificial Neural Networks. The system imitates the way neurons work in the human brain, enabling it to produce a cognition similar to that of the brain.

3. Deep Learning. The sub-field uses a great neural network with many layers of processing units. One technology utilizing the system is speech recognition owned by the Google Assistant and image recognition.

4. Computer Vision. The sub-field depends on the recognition of patterns and deep learning to recognize an image or a video. An example is the face detection used by Facebook.

5. Natural Language Processing (NLP). NLP is the computer's ability to analyze, understand, and produce human language that includes voice. The next step of NLP is Natural Language Interaction that enables humans to communicate with a computer using daily languages, such as giving instruction.

AI taxonomy		
AI domain		**AI subdomain**
Core	**Reasoning**	Knowledge representation
		Automated reasoning
		Common sense reasoning
	Planning	Planning and Scheduling
		Searching
		Optimisation
	Learning	Machine learning
	Communication	Natural language processing
	Perception	Computer vision
		Audio processing
Transversal	**Integration and Interaction**	Multi-agent systems
		Robotics and Automation
		Connected and Automated vehicles
	Services	AI Services
	Ethics and Philosophy	AI Ethics
		Philosophy of AI

Figure 1 Domain and subdomain of AI operational definition[8]

As mentioned earlier, the organs of AI imitate the ones of humans. Nathan-Ross Adams[9] notes that AI can exceed human abilities if its processing power surpasses humans'. AI is defined by High-Level Expert Group (HLEG), a group of experts assigned

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[7] "Artificial Intelligence, What It Is and Why It Matters," n.d. last accessed 23 of October 2021

[8] B. Samoili, S., Lopez Cobo, M., Gomez Gutierrez, E., De Prato, G., Martinez-Plumed, F. and Delipetrev, "AI WATCH. Defining Artificial Intelligence," 2020, https://doi.org/10.2760/382730.

[9] Abbott and Sarch, "Punishing Artificial Intelligence: Legal Fiction or Science Fiction."

by the European Union Committee to support the AI strategies in Europe:[10] *"Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans(2) that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behavior by analyzing how the environment is affected by their previous actions."*

In short, AI is a system in the form of software and hardware created by humans to learn numeric models. Further, AI can decide what to do next based on the previous action.

An experiment by Alan Turing in 1950, known as the "Turing Test," is considered a milestone in the research and development of AI.[11] The Turing Test is a way to know if a machine is categorized as a smart machine from its distinctive human features in a particular condition. Interestingly, the system installed in the machine has an autonomous ability to decide without human intervention. The key to modern AI is to run without human intervention. Hence, it is necessary to distinguish between "automatic" and "autonomous" activities.[12]

To compare, nowadays, vehicles are completed with "automatic" functions, such as cruise control for the accelerator. The function is controlled by the driver. "Autonomous" in the context is when the vehicle can decide for itself without the driver's intervention. Indeed, it can decide even when the driver is not around.[13] To date, a system completed with an autonomous AI can function based on their learning. Hence, it is possible that AI can create something.

3.2. AI in the Perspective of Copyrights and Patent in Indonesia

Substantively, creations can be given a copyright when such works proven to have the eligibilities as a copyright such as originality, creativity, and it is realized in the real form (fixation).[14] The notion of "originality" is defined as a human creation that comes from the fruit of one labor. Copyright protection can only be given to a work that has a tangible form, not just an idea. AI industry is currently entering the 3A era, namely

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[10] Samoili, S., Lopez Cobo, M., Gomez Gutierrez, E., De Prato, G., Martinez-Plumed, F. and Delipetrev, "AI WATCH. Defining Artificial Intelligence."

[11] Ryan Abbott, "I Think, Therefore I Invent: Creative Computers and the Future of Patent Law," *SSRN Electronic Journal* 40 (2016): 1079–1126, https://doi.org/10.2139/ssrn.2727884; A M TURING, "I.—Computing Machinery and Intelligence," *Mind* LIX, no. 236 (October 1950): 433–60, https://doi.org/10.1093/mind/LIX.236.433.

[12] Simon Chesterman, *We, the Robots?* (Cambridge University Press, 2021), https://doi.org/10.1017/9781009047081.

[13] Chesterman.

[14] Djumhana dan Djubaedillah, *Hak Milik Intelektual Sejarah, Teori, Dan Praktiknya Di Indonesia* (Bandung: Citra Aditya Bakti, 2012).

Advanced, Automated, and Autonomous.[15] Traditionally, copyright is granted to copyrighted works created by the Author for his unique and personal thoughts, ideas, and imagination. Likewise, in the patent regime, the elements of novelty and inventiveness are the core criteria for obtaining a patent. With the current development of AI as referred to in the 3A era, for the first time in human history the creation or invention is made by an automated AI system without any human intervention.

In 2016, a robot with an AI wrote a novel, which attained a literary award in Japan.[16] Similarly, the interaction between AI and patents in a technological era is increasing. AI has been widely used to simplify the primary function of humans and decrease human intervention. Robot Ross[17] is one of them. Ross is the first robot utilized by a law company in Washington to handle a bankruptcy case.

United Kingdom is the first country to encourage the concept of a patent for AI as an inventor, called "DABUS." It is a system recognized by the Intellectual Property Board in South Africa and Australia as an "inventor" of fractal geometrical food containers. The system was created by Stephen Thaler.[18] It is surprising because AI in any jurisdiction globally has not been recognized as a legal subject. Indeed, a legal subject by definition is a natural person/individual or legal person/rechtpersoon. In the DABUS project, Australia's Patent law does not explicitly mention that the inventor shall be an "individual." Hence, recognizing the patent produced by the AI has encouraged them to create new terminology, "AI-Agent." There has been no terminology to categorize AI as a subject.

In the Law Number 28 of 2014 regarding Copyrights ("UUHC"), the Author (Article 1 paragraph 2) is defined as "an individual or a group of people, individually or collectively, produces a creation with a particular characteristic and private in nature." Besides, in Law Number 13 of 2016 ("Patent Law"), an Inventor is defined as "a person or a group of people who collectively implemented an idea in the form of activities that resulted in an invention." Hence, from the perspective of Intellectual Property laws in Indonesia, AI shall not be given a status as a legal subject. Instead, it is treated as a legal object. In general, AI is a software/computer program. In article 1 paragraph 9 of UUHC, an invention in the form of a computer program is defined as "a set of instructions expressed in the form of language, code, scheme, or any form aimed to let the computer works in accordance with the functions to produce a particular product." Moreover, in Article 1 paragraph 2 of the Patent Law, the invention is "an inventor's idea manifested

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[15] Shlomit Yanisky-Ravid and Luis Antonio Velez- Hernandez, "Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model," *Minnesota Journal of Law, Science, and Technology* 19, no. 1 (2018).

[16] Dwi Murdaningsih, "Novel Yang Ditulis Robot Lolos Kompetisi Sastra Di Jepang," 2016. last accessed 10 of March 2021

[17] Widodo Dwi Putro, "Disrupsi Dan Masa Depan Profesi Hukum," *Mimbar Hukum - Fakultas Hukum Universitas Gadjah Mada* 32, no. 1 (February 2020): 19, https://doi.org/10.22146/jmh.42928.

[18] "World's First Patent Awarded for an Invention Made by an AI Could Have Seismic Implications on IP Law," 2021.

in a problem-solving activity specifically in the field of technology in the form of a product or process or perfection and development of a product or a process."

On the one hand, AI is the product of the inventor. In this case, AI in the form of a computer program is categorized as an invention. However, it should be further noted that if AI is considered a novelty in the field of technology, it can be categorized as an invention. On the other hand, AI with "autonomous" ability can control and create something in the future. If creation is invented by an AI, who is the inventor? In another case of technological invention, despite human intervention in installing a program into the AI's algorithm, who is the inventor of the product created by AI due to its "self-decision"?

3.3. Legal Liability of the Inventor in the Perspective of Penal Law

In Indonesia, Article 1 paragraph (3) of Patent Law number 13 of 2016 mentioned that an inventor should be a person. Therefore, in the present study, AI is categorized as an object if the inventor refers to the inventor of the AI system.

The concept of criminal liability applies not only in legal discipline. Indeed, it includes moral values held by a group of people in society. Criminal responsibility is known as a liability in the philosophy of law. Roscoe Pound stated that criminal liability is a responsibility to be paid by the actor to the person at a loss.[19]

Further, the criminal liability definition is also proposed by other experts. According to Simons, the ability to take responsibility is a particular psychological condition where an application of punishment, either from the general point of view or the person, is justified. A perpetrator shall be responsible for his action if he knows or is aware that the deed is against the law and can determine his action deliberately.[20]

Different from Simons, Van Hamel proposed that criminal liability is a normal psychological condition and acquisition leading to three abilities. The first is the ability to understand the meaning and consequence of his action. The second is the ability to recognize the deeds as against the community order. The third is the ability to determine his will to do an action.[21] In addition, Pompe defined it as limited from several components, such as the thinking ability of the actor that allows him to control his mind and determine his will. Besides, the actor understands the meaning and consequence of his behavior and determines his will according to his judgment (of the meaning and consequence of his action).[22]

The definition of criminal liability reveals that a criminal's responsibility is imposed on a criminal based on the psychological condition and will of the person in committing a crime. A person is said to commit a crime if the action is proven to be in the category

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[19] Romli Atmasasmita, *Asas-Asas Perbandingan Hukum Pidana* (Jakarta: Yayasan lembaga Bantuan Hukum Indonesia, 1989).

[20] Teguh Prasetyo, *Hukum Pidana* (Depok: Raja Grafindo Persada, 2010).p. 85

[21] Eddy Hieariej, *Prinsip-Prinsip Hukum Pidana* (Yogyakarta: Cahaya Atma Pustaka, 2016).

[22] Hieariej.

of a crime based on the applicable laws. However, a person proven to commit a crime cannot be directly sentenced. Criminal liability also considers the fault elements.[23]

The criminal liability development has increased. In the development, some theories of criminal liability abandon the fault elements in a criminal case. The principle of "no crime without guilt" is not absolute. However, the extent to which the doctrine infringes the fundamental principle of penal law needs to be further observed.[24]

Criminal liability contains the principle of Geen straf zonder schuld; Actus non facit rum nisi mens sir rea. It means that a person cannot be punished if there is no crime. In other words, when a person commits a crime, it needs further investigation of whether there are fault elements. If the elements are not fulfilled, the perpetrator shall not be punished.

Criminal liability is a mechanism employed to determine if a defender or suspect shall be responsible for a crime. Putting a person responsible for a crime does not mean that he can be punished. It needs a comprehensive understanding of the context of the crime. A criminal liability means that the perpetrator is not only rightfully sentenced but also rightfully accused.[25]

Criminal liability is the mechanism of sentencing a criminal. Besides, it is a condition of the perpetrator when committing a crime. Criminal liability conveys the perpetrator's condition upon the crime and the sanction imposed on him.[26]

In criminal law, the theory of causality is closely related to the nature of unlawful acts, mistakes, and criminal culpability. These three things can all be established as the norm in criminal behaviour at the same time. According to Simons, a criminal act is one that is punishable by law, illegal, and committed by someone who is responsible.[27] Furthermore, from both a general and a personal perspective, the ability to be responsible might be viewed as a psychological state that justifies the application of a criminal effort. A person can be held accountable if: a) he is aware that his activities are illegal; and b) he is able to establish his will based on that awareness.[28]

A criminal liability is determined by the perpetrator who consciously wills. Essentially, such liability emerged as the result of a criminal act done by the perpetrator that causes injury to others. According to Van Hamel, the ability to be responsible is a state of psychological normalcy and an intelligence that includes three abilities: a) Understanding the value of one's own actions' repercussions. b) Aware that his acts, in

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[23] Moeljatno, *Asas-Asas Hukum Pidana*, 6th ed. (Jakarta: Rineka Cipta, 1993). P 153

[24] Aulia Ali Reza, *Pertanggungjawaban Korporasi Dalam Rancangan KUHP* (Jakarta: Institute for Criminal Justice Reform, 2015).

[25] Chairul Huda, *Dari Tiada Pidana Tanpa Kesalahan Menuju Kepada Tiada Pertanggungjawaban Pidana Tanpa Kesalahan: Tinjauan Kritis Terhadap Teori Pemisahan Tindak Pidana Dan Pertanggungjawaban Pidana* (Jakarta: Kencana, 2006).

[26] Melansari D. Lewokeda, "Pertanggungjawaban Pidana Tindak Terkait Pemberian Delegasi Kewenangan," *Mimbar Keadilan* 14, no. 28 (August 2018), https://doi.org/10.30996/mk.v0i0.1779.

[27] Ahmad Sofyan, *Ajaran Kausalitas Hukum Pidana* (Jakarta: Kencana, 2020).

[28] Makhrus Munajat, *Hukum Pidana Islam* (Yogyakarta: Teras, 2009).

the eyes of the community, are not acceptable. c) Capable of determining his own intentions for his activities.[29]

In this instance, the development of "prohibited consequences" is the formulation of a physical offense. Conceptually, causality can only exist if there is an action or set of acts that result in illegal consequences. In this instance, causation pertains to actus reus.

In this scenario, criminal culpability based on causation may be connected to the following:[30]

1. Creator/Developer of AI

    Those who develop and create AI-based machine programs are obviously capable and aware of this technology's applications. The developer of artificial intelligence should be aware that the AI that will be deployed must be able to predict potential outcomes and be prepared with countermeasures, particularly in the event of a criminal conduct.

2. AI Users

    Users of AI-machine programs may also be held legally liable for the consequences of their actions. Users of artificial intelligence are the movers and actors who engage in the usage of the software; hence, if a mistake results in a criminal conduct, the user must also be held accountable. Errors associated with causality pertain to the perpetrator's capacity to easily and accurately foresee the results. Predictability of the consequences by the offender indicates that the perpetrator is capable of anticipating the outcomes.

3.4. The Analogy of Corporate Liability and the Inventor

The comprehension of the scope of a corporation cannot be achieved without understanding the definition of a corporate. The word "corporate" is derived from the Latin "corporation," meaning a result of an embodiment, combining in one body. Further, it is a body resulting from a human's deed against the human body in a natural way.[31]

The word "corporation" was a new term in Law Number 5 of 1997 regarding Psychotropics. It was influenced by the concept used in the Criminal Code in 1993. Article 1, paragraph 13 of the laws mentioned that a "corporation is an organized group of people/wealth, both legal and non-legal." The corporate scope based on the laws is broad because it includes all kinds of business entities, both legal and non-legal. Based on the definition, a group of people is categorized as a corporate with the following requirements.[32]

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[29] Tri Andrisman, *Hukum Pidana: Asas-Asas Dan Aturan Umum Hukum Pidana Indonesia* (Banda Lampung: Universitas Lampung, 2009).

[30] Sofyan, *Ajaran Kausalitas Hukum Pidana*.

[31] Soetan K. Malikoel Adil, *Pertanggungjawaban Korporasi Dalam Hukum Pidana* (Bandung: STHB, 1995).

[32] Hwian Christianto, "Pertanggungjawaban Pidana Rumah Sakit Atas Tindakan Tenaga Kesehatan Menurut UU No. 44 Tahun 2009," *Jurnal Yustika* 14, no. 1 (2011): 8.

1. An organized group
2. Consisting of people/wealth
3. Legal and non-legal

A corporate is a new term in criminal law because the Indonesian Penal Code does not regulate it as a subject. The recognition of a corporate as a criminal legal subject cannot be separated from the development and progress of civil law that has generated a business entity, such as Maatschap, CV, Firm, Foundation, Cooperation, and Limited Liability Company. It is different from Law Number 7/Drt/1955 regarding Economic Crimes, where a corporation is recognized as a legal subject and is subject to criminal liability. Further, Abidin Farid emphasized that when a corporation is recognized as a legal subject, its scope includes the private corporation and the municipal corporation.[33]

A corporation is also known as Corporate (Dutch), Korporasi (Indonesian), Corporation (Germany), and Corporation (Latin).[34] "Similar with other words ended in "tio," "Corporation" is classified as a noun (Substantivum), rooted from a verb "Corporare," which was mostly used by the people of the Middle Ages and after."[35] The term "corporare" comes from the word "corpus," meaning "body." Hence, it can be concluded that "corporation" refers to embodying or the process of embodiment. "Corpora-tio" means the result of embodiment.[36]

The word "corporation" is a common term used by experts of penal law to refer to another concept in the discipline. In particular, civil law is called "legal entity, or Rechtspersoon in Dutch.[37]

In his book General Theory of Law and State, Hans Kelsen defines a corporation as a group of individuals treated by law as one unity, a person with rights and obligations different from the rights and obligations of the individuals establishing it. A corporation is viewed as a person because the regulation has established particular rights and obligations regarding the interest of the corporate members. However, the rights and obligations are not the rights and obligations of the members. The rights and obligations are understood as the rights and obligations of the corporation.[38]

Corporate criminal liability is aimed to reveal a significant consequence to the leader, allowing him to manage the corporation effectively. Hence, the corporation stays on track of its establishment and operates based on its obligations. Corporate liability has similar purposes with criminal liability.[39]

1. To handle and prevent future crimes;

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[33] Zainal Abidin, "Pertanggungjawaban Terhadap Delik-Delik Ekonomi," *Jurnal Hukum & Pembangunan* 12, no. 1 (February 1982): 1, https://doi.org/10.21143/jhp.vol12.no1.891.

[34] Muladi dan Dwidja Priyatno, *Pertanggungjawaban Pidana Korporasi.* (Jakarta: Kencana, 2010).

[35] Kristian, *Kebijakan Eksekusi: Sistem Pertanggungjawaban Pidana Korporasi Dalam Berbagai Putusan Pengadilan Di Indonesia* (Jakarta: Sinar Grafika, 2018).

[36] Adil, *Pertanggungjawaban Korporasi Dalam Hukum Pidana.*

[37] Prasetyo, *Hukum Pidana.*

[38] Hans Kelsen, *General Theory of Law and State* (Bandung: Nusa Media, 1995).

[39] Jimmy Tawalujan, "Pertanggungjawaban Korporasi Terhadap Korban Kejahatan," *Lex Crimen* 1 No 3, no. Juli-September (2012).

2. To provide punishment representing the community's obligation to punish any person causing damage;

3. To rehabilitate the corporate criminals

4. To provide transparent, predictable, and consistent punishment based on the principles of criminal law in general;

5. To ensure efficiency, and

6. To provide justice

Corporate criminal liability is necessary because it may cause injustice if the companies breaching the regulation are free from the sanction upon the damage they cause to society. The corporation responsible for the crime is the management.[40]

Corporations as a legal subject may be imposed to responsibility based on the applicable laws or other provisions or the action or negligence of the directors, staff, or agents. Nevertheless, the responsibility is not directly imposed on the corporation because it needs further investigation of the violation. It is necessary to observe the persons who have committed the fault or negligence.[41]

To date, there are three models of liability:[42]

1. The corporate management commits the crime, and the management shall be responsible for it;

2. The corporation commits the crime, and the management shall be responsible for it; and

3. The corporation commits the crime and shall be responsible for it.

While, the theories developed in criminal liability have been sufficient to accommodate the punishment against the corporation. However, the researchers focused on two theories: vicarious liability and identification.

Vicarious Liability is a doctrine underlying one of the criminal liabilities for a corporate. It explains the legal responsibility of one person for the wrongful acts of another[43]. It refers to the legal responsibility upon the acts by another person in the scope of work or position[44]. Further, vicarious liability is based on the employment principle, meaning that the employer is the main person in charge of the employees.[45] As mentioned earlier, it refers to the legal responsibility of one person for the wrongful acts of another[46].

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[40] Jimmy Tawalujan.

[41] Jimmy Tawalujan.

[42] Muladi dan Dwidja Priyatno, *Pertanggungjawaban Pidana Korporasi*.

[43] Atmasasmita, *Asas-Asas Perbandingan Hukum Pidana*.

[44] Muladi dan Dwidja Priyatno, *Pertanggungjawaban Pidana Korporasi*.

[45] Kristian, *Kebijakan Eksekusi: Sistem Pertanggungjawaban Pidana Korporasi Dalam Berbagai Putusan Pengadilan Di Indonesia*.

[46] Vincentius Patria Setyawan, "Pertanggungjawaban Pidana Partai Politik Dalam Tindak Pidana Korupsi," *Justitia et Pax* 35, no. 1 (September 2019), https://doi.org/10.24002/jep.v35i1.2070.

The second theory is identification, which can be observed from two perspectives: broad and narrow definition[47]. The doctrine is held by the Anglo-Saxon countries[48]. The theory assumes that all legal and illegal actions committed by the high-level manager or director shall be identified as corporate actions.[49] Identification doctrine also justifies the responsibility imposed to the corporation, although it is not an entity capable of committing a crime and it is impossible to commit mens rea.[50] Other theories can be used in corporate criminal liability. However, the researchers focused on using vicarious liability and identification theories.

The difficulty to implement vicarious liability doctrine for a crime done by AI is, no human can choose which algorithms execute by AI.[51] In principle, AI works based on algorithms and autonomously decides the output to be taken. As in the machine learning-principle, human only giving inputs to AI for AI then "learn" by itself the inputs available. The historical precedent shows that corporations in the past given limited responsibility. However, with the advance of legal need, there must be "someone" who should accountable for crimes done by corporations.[52] Hence, the doctrine for vicarious liability emerged as to punish the party who is responsible for such crime. The analogy for finding "someone" who is liable in the case of AI could be done with the same approach. Inventor, as the one who creates code for the program-AI system- must hold the liability when his or her program cause harms to the victims. However, further assessment of this theory must be done since it is not simply can be proclaimed that Inventor as one in the chain of AI hold full responsibility for his or her AI invention.

Based on the theories, the legal responsibility of a crime or acts against the laws committed by an Artificial Intelligence can be imposed on the patent's inventor. The emergence of artificial intelligence has inevitably shifted the regulation in the future. The lawmakers need to prepare to formulate the regulations related to Artificial Intelligence in Indonesia.

4. CONCLUSION

In Indonesian laws, Artificial Intelligence cannot be treated as an inventor, at least in the applicable laws on the patent. In the event that an artificial intelligence commits a crime in Indonesia, the inventor is the one to take responsibility, both in criminal and civil

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[47] Kristian Kristian, "Urgensi Pertanggungjawaban Pidana Korporasi," *Jurnal Hukum & Pembangunan* 43, no. 4 (December 2013): 546, https://doi.org/10.21143/jhp.vol43.no4.1501.

[48] Barda Nawawi Arif, *Kapita Selekta Hukum Pidana* (Bandung: PT. Citra Aditya Bakti, 2003); Muladi dan Dwidja Priyatno, *Pertanggungjawaban Pidana Korporasi.*

[49] Cristina de Maglie, "Models of Corporate Criminal Liability in Comparative Law," *Washington University Global Studies Law Review* 4, no. 3 (2005): 556.

[50] Abd Salam, "Corporation Crime Liability of Perspective Penal Reform," *Journal of Humanity* 01, no. 01 (July 2013): 07–19, https://doi.org/10.14724/01.02; Sutan Remy Sjahdeini, *Pertanggungjawaban Pidana Korporasi* (Jakarta: Grafiti Pers, 2006).

[51] Mihailis E. Diamantis, "Vicarious Liability of AI, Cambridge Handbook of AI and Law (Kristin Johnson & Carla Reyes Eds., 2022, Forthcoming)," 2021.

[52] Mihailis E. Diamantis, "Corporate Criminal Minds," *Notre Dame Law Review* 91, no. 5 (2016).

law. It is based on the vicarious liability doctrine, as applicable to the corporation. The inventor of the AI shall be imposed with the responsibility since AI is not treated as the legal subject in Indonesia. It needs further studies regarding the possibility of AI to be treated as an inventor, meaning that it can be a legal subject with a particular limitation.

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