International Journal of Latest Research in Humanities and Social Science (IJLRHSS)
Volume 06 - Issue 01, 2023
www.ijlrhss.com || PP. 86-94

Fundamental Problems of Artificial Intelligence Technology in the Critical Study of Indonesian Philosophy

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Abstract: The presence of artificial intelligence (AI) is an important marker for the occurrence of the digital revolution which has extensively framed human thought and behavior. This paper intends to analyze the fundamental problems of AI by using Indonesian philosophical system approach known as *Pancasila*, a perspective originating from the Indonesian nation's philosophical thought system. The method used in the analysis phase is historical and critical reflection. The results of the analysis show that conceptually, the intelligence inherent in the AI concept is different from non-reductionist human thinking. Mind as part of the constitutive element of the human psyche that is imitated by AI is not the only determinant factor in determining intelligent behavior. In the perspective of *Pancasila* philosophy, intelligent behavior is built from basic human nature which is monoplural in nature, that is based on its natural composition, humans are creatures composed of body and soul, based on their natural nature, humans are creatures that have individual and social characteristics, and based on their natural position, humans are independent beings and God's creatures.
Keywords:fundamental problems,artificial intelligence technology, critical study, Indonesian philosophy.

1. Introduction

The term artificial intelligence (AI) which was put forward at the Darthmouth Conference in 1956, has significantly influenced human behavior in transforming their lives. For now we can say that AI is no longer the technology of the future, but the technology of today. Now the use of AI is common in all aspects of life. Even in everyday life, we will encounter many uses of AI that help us more easily in complete various tasks.

A critical analysis of the relationship between humans and technology has been carried out by Don Ihde. Quoted by Mitcham (1994), Ihde stated; "human being are not able to lead a non-technological life in some garden state because on the earth they are inherently technological creatures" (Mitcham, 1994). In that quote, Ihde introduces technology not as a tool, but as a way for humans to confirm their being-in-the world. Human life, mostly constructed by technology. Meanwhile, a small part of human life or the non-technological world, it is only possible in theory and far apart from the existential facticity (Heidegger, 1977) of humans on earth.

One of the characteristics or components of technological sophistication is social machines or sophisticated machines like human societies that interact with each other through online social media and make the economic production process run more effectively and efficiently. Most information technology experts claim the rise of AI as a manifestation of the digital revolution. Their main proposition is that computing power must double every two years, but the cost burden remains constant. If the first processor power in the 1970s could perform around 92,000 instructions per second, then modern smartphone processors, for example, in the era of the digital revolution can perform billions of instructions per second (Accenture, 2017).

The sophistication of continuous technological miniaturization has also given birth to the era of micro and nano computing with greater power. The high-resolution data streams connected to machines and processed by system algorithms are growing at an astonishing rate despite being produced every day by humans. However, in addition to having a positive impact, the rapid advancement of AI poses a risk of increased misuse of hacking technology that has the potential to result in, for example, automated car crashes or the conversion of commercial airplanes into weapons of mass murder. Researchers state that the misuse of AI can threaten human digital, physical, and political security. In addition, it is assumed that AI can be used in the creation of fake audio and video for the propaganda purposes of public officials.

AI problems always arise along with the blurring of the meaning of human intelligence or natural intelligence in various scientific debates about the meaning of "intelligence", especially in the philosophy of mind. The philosophy of mind is a special branch of philosophy that elaborates the human mind from its nature, including the nature of the mind-body relationship or the relationship between the mind and the physical world outside the mind itself. If artificial intelligence is defined as an effort to model human thought processes and design machines so that they can mimic human behavior, as defined by John McCarthy in 1956, then artificial intelligence, according to the study of philosophy of mind, suffers from philosophical issues that need to be studied and resolved philosophically.

2. Methodology

The fundamental issues of AI in this paper are approached through a critical analysis of Indonesian philosophy known as *Pancasila*; a perspective originating from the Indonesian nation's philosophical thought system. Writing materials were obtained by browsing literature related to AI technology problems and systems of thought based on Indonesian philosophy. Materials from the literature search results were then compiled and analyzed using historical and critical reflection methods. In using the historical method, the historical roots of AI technology development and its influence in human life are revealed. The formulation of fundamental problems and the meaning of AI technology for Indonesian national life is carried out by means of critical reflection.

3. Results and Discussions

3.1 Definition and Root of AI Technology Problems

The conceptual definition of AI is very broad, diverse, and does not yet have a standard definition. Essentialist philosophers define AI based on the category of ultimate goals to be achieved by a system; whether the system design can work in accordance with the objectives or not. Meanwhile, analytical philosophers formulate a definition of AI by using a list of abilities needed to create artificial intelligence (Morisse, 2017). As for the term "artificial intelligence" initiated by John McCarthy, in a Summer Workshop at Dartmouth in 1956, some experts responded by stating that the use of the term was simply to distinguish AI from field studies, such as automata theory and cybernetics. Definitions that have not been agreed upon globally have triggered AI to develop more rapidly.

The difficulty in defining the notion of AI is caused by the inability of science to standardize the definition of "intelligence". Experts have tried to formulate the concept of "intelligence" with different emphases; some emphasize logical thinking; and some others emphasize human behavior. Although they differ in the emphasis on the content of the AI concept, both views equally rely on an agent, namely a program that operates through a computer system that is assumed to have the ability to learn, adapt, and spread dynamically. Russel and Norvig (1995) carefully group these various definitions into four sections; *first*, thinking humanly, a cognitive model approach that is carried out through introspection and psychological experiments; *second*, acting humanly, an approach designed by Alan Turing in 1950 to test whether a computer can be called intelligent or not; *third*, thinking rationally, an approach that follows the laws of thinking; and *fourth*, acting rationally, an approach that uses a rational agent. The definition of AI that is most realistic and accepted by many experts today is acting rationally or the rational agent approach.

The tendency of experts to accept definitions with a rational agent approach stimulates the birth of a general understanding of AI as part of computer science which studies how to make machines (computers) able to do work, as humans do, or if possible, computers can work better than human capabilities. Nilsson (2010) shows this tendency by defining AI as follows:

> "Artificial intelligence is that activity devoted to making machines intelligent, and intelligence is that quality that enables an entity to function appropriately and with foresight in its environment".

One of the new innovations in building intelligent systems is soft computing, a system that has human-like skills in certain domains, able to adapt and learn to work better when environmental changes occur. The way of work that runs in soft computing are; fuzzy systems that use fuzzy logic can accommodate inaccuracies, neural networks using learning systems through artificial neural networks, probabilistic reasoning capable of accommodating uncertainty, and evolutionary computing which optimizes through genetic algorithms (Zadeh, 1992).

The fundamental concept of AI, thus rests on the ability to think intelligently. The question that arises then is; can machines think intelligently like human intelligence? Answering this question, apart from being conceptually difficult, is also factually difficult to prove. Chess game program as one case example. Throughout the 1960s and 1970s, a group of experts from Carnegie Mellon, Stanford, MIT, the Institute of Theoretical and Experimental Physics, Moscow, and Northwestern University successfully made improvements and brought the game of chess to progress through an IBM project known as "Deep Blue". The results of this experimentation on chess intelligence proved to be successful in defeating Garry Kasparov, who was then the world chess champion, with a score of 3.5-2.5 in 1997. Not long after AI developed rapidly, "Deep Blue" was considered as a brute force method, not a real form of actual intelligence. In fact, through IBM publications, the term "smart" is no longer attached to "Deep Blue" (Campbell, Hoane, and Hsu, 2002). "Deep Blue" lost its claim and experienced the acquisition of the sophistication of AI technology, as it is known as the "AI Effect" or "Odd Paradox" which led "Deep Blue" to stop being considered part of AI (McCorduck, 1979).

Careful philosophical reflection on the question has influenced the course of AI. Turing performed the Turing Test (TT) in the 1950s. In TT, there are two player contestants; one a human and the other a machine-computer. Additionally, an interrogator was assigned to determine which contestant was a human and a

machine-computer. The interrogator asked the two questions. If, based on the answers returned, the interrogator is unable to distinguish the answers coming from humans and machine-computers, then the machines must be declared as thinking machines (Turing, 1991). The leading figure of functionalism, Searle (1997) then sees that machines, in a certain sense have intelligence even though they are only particular and functional which are then referred to as weak AI. According to Searle, machines do not have consciousness as subjects like humans (strong AI). Through the "Chinese Room Argument", Searle (1997) made the following proposition: "semantics are not intrinsic in syntax, and so syntax is not intrinsic to the physical form".

Searle's statement indicates that the meaning of a word is mysterious. Computers can understand the form (syntax) and respond as if they understand the meaning (semantics). Dreyfus (1992) argues that AI will never have the ability to match human abilities in understanding contexts, situations, or goals on a regular basis because human intelligence and expertise depend primarily on unconscious instincts. Dreyfus' claim purports to show that the human mind is a non-reductionist phenomenon. The basis of human thinking is a subconscious instinct that allows people to instantly and directly arrive at a thought without going through a series of conscious logical steps or manipulating symbols. Computers on the other hand, operate using symbolic manipulation reduction programs. Harari (2005) admits that a world controlled by thinking machines is nothing to worry about. Humans should care more about the state of the world which is led by people who think like machines. In the same vein, Devlin (2015) claims that computers cannot think, but can only make decisions without thinking.

Philosophical debates over the mind-body relationship go back thousands of years. The problem of the mind-body relationship starts from a fact that seems simple, that is, the mind and body are two entities that are factually very different; the mind is of a non-material character, and the body is of a material character. But how do the two interact so that it can show that a person's mind influences his body, or vice versa, a person's body shows thinking activity.

The philosophy of Substance Dualism that was pioneered by Rene Descartes (1596-1650) understood the mind as a non-physical substance or *Res Cogitans* (a thinking substance). The mind is very different from the physical body or *Res Extensa* (substance that expands in space and time) (Descartes, 1983: 16). The mind-body linkage is mechanistic. The mind is the cause of the existence of a physical self-body, as expressed in Descartes' adage which wants to prove that the only certainty is existence which can be proven through the fact "man thinks"; *Cogito Ergosum*. Mechanistic understanding was also influenced by the flow of Aristotle's organism, leading adherents of Substance Dualism, especially Rene Descartes, to arrive at a conclusion that presupposes the human mind as a machine (Descartes, 1969). Therefore, humans with their minds and bodies are "the thinking machine" (Syamsuddin, 2014). This Descartian argument, on the one hand, has provided a positive foundation for Physicalism including Behaviorism to develop in dissecting fundamental problems of the existence of thoughts. On the other hand, the weakness of Physicalism lies in its inability to adequately reveal the origin or source of the existence of thought. This weakness of Physicalism triggers the emergence of *Zombie-based arguments*, namely bodies without awareness which in turn leads the mind's problems into a circle of problems where the end and beginning of the solution cannot be known.

3.2Intelligence Problem in AI Technology according to Eastern Philosophical Views

Substance Dualism is prevalent in several orthodox schools of Hindu thought, such as *Samkhya*, *Nyaya*, *Yoga*, and *Advaita Vedanta*. Matter and immaterial soul are two very different entities; the immaterial soul is immortal and passes through *Samsara* (the cycle of death and rebirth). According to the Nyaya School, cognition and desire are qualities that are inherent and not possessed by matter. Through a process of elimination, these qualities become part of the immaterial *atman* or soul (Matthew, 1998). In contrast to Cartesian Dualism, Buddhist Substance Dualism views the creation of the mind from non-material entities known as *citta* (Gowans, 2003). This term is usually translated by Cartesian Dualists as the soul identified separately with the mind. For Buddhism, citta generates all mental states although the type of mental *citta* depends on the state and condition of the human brain. A person whose brain has been severely damaged in certain areas will not be able to have conscious experiences. A brain lacking the capacity to store memories requires that the *citta* will no longer be able to generate mental states that contain memories. From this principle, AI for Buddhism does not have a *citta* and therefore AI cannot think (Kamran, K, Michelle, D. B. and Kirana, K., 2006).

Buddhism's position on answering the question "can machines think" is not the same as the position of Cartesian Dualism. Buddhism believes that the body can act through *citta*, and therefore, the body can think and act wisely (Kamran, K, Michelle, D. B. and Kirana, K., 2006). Buddhism is then of the view that machines are matter incapable of thinking because machines have no emotions. The source of emotion does not come from the brain but from involuntary awareness. Anything that operates mechanically, as AI operates, will never have emotions. This understanding at the same time shows that in Buddhism, emotions and thoughts are not related to

each other. For Buddhism, the mind is to be understood in two ways; *first*, the mind which requires awareness (or conscious thought); and *secondly*, thoughts that do not require conscious awareness (or non-conscious thinking) (Gowans, 2003). The human heart organ can work intelligently but is not based on awareness. AI technology must be seen as merely a means of human life because the universe is impermanent and insubstantial. Everything in the universe, must be seen as a temporary phenomenon. In Buddhist texts, human life is often compared to a dewdrop; "life is formed during the night, and after the sun rises, life is annihilated into nothingness again" (Kyabgon, 2018). Humans are biological entities that naturally have instincts. A life driven entirely by instinct has only one goal, which is to survive and derive meaning from life. An unexamined life, to use Socrates' words, is a life not worth living because a person who does not think about his life will not be able to realize that his job is to eliminate suffering, as Buddhism teaches (Hanson, 2009).

Intelligent people, according to the Taoist tradition, have the ability to respond to situations differently, their actions do not depend on subjective standards, but on objective situations because intelligent people are able to adjust to "a moving body" (Graham, 1990: 4). By achieving this condition, intelligent people can protect themselves from danger, as written in the book of Chuang Tzu:

> ". . ., the Way makes them (opposite things) all into one. Their dividedness is their completeness; their completeness is their impairment. Nothing is either complete or impaired, but all are made into one again. Only the man of far-reaching vision knows how to make them into one. So, he has no use (for categories), but relegates all to the constant" (Graham, 1990).

Graham's quote above shows the intelligence possessed by people who understand and understand how to practice the Tao in life. Intelligent action takes place spontaneously as it occurs in the natural world. Therefore, intelligence requires perceptual perception and conceptual flexibility which is very unlikely to be possessed by AI. Some psychologists have indeed investigated personal conceptions called "the "implicit theory of intelligence" which led them to arrive at the assumption that everyone has a personal conception that can be used to adapt to the environment. However, most psychologists also disagree because implicit theory has a very dominant role and contains an organized knowledge structure that makes it difficult to decide on an assessment of a behavior that can be categorized as intelligent behavior (Sternberg, Robert J., & Detterman, Douglas K., eds., 1986).

In contrast, in the Confucian tradition, intelligence is associated with the ability to make correct moral judgments. Confucius (1979) said that "an intelligent person is a person without confusion" which means that intelligence determines a person in judging right and wrong behavior. Correct moral judgment always comes from virtue. The image of an intelligent person in a Confucian perspective, is manifested through the dedication of life for good and acting according to the truth. The four classical traditions of Confucianism; *Confucius Analects, Mencius, Great Learning,* and *Doctrine of the Mean,* principally teach that humans are born with the ability to be good, and that the ideal of truth has been programmed in the human mind (Confucius, 1963). The basic message of Confucius' teachings like this is worth pursuing in carrying out AI projects because epistemologically it can be emulated by program designers in strengthening "Knowledge Representation" as a method of coding knowledge in expert systems. Confucius' fundamental message can help "Knowledge Representation" control events that may occur in the future.

The equation of machine intelligence with human intelligence has led to conflicting claims such as the following statement by von Neumann (2013); "It is possible that the human brain becomes a digital computer." In principle, schools of thought in eastern philosophy, do not refute this view. According to Buddhism for example, the three main sources of intelligence are; *first*, individual intelligence; *second*, community intelligence; and *third*, world intelligence (Hanson, 2009). In individual intelligence, the human mind and brain are two different sources, even the intelligence of the mind sometimes conflicts with the intelligence of the brain. The intelligence of the individual mind directs humans to become something more than just biological robots. Meanwhile, community intelligence comes from collective wisdom that always lives and develops together as a social group. The human body has different parts, but can form a community and serve different functions to achieve well-being for all members of the community. The last type of intelligence is world intelligence which is more complex. The world encompasses the entire human community that is wider than any other social community. Buddhism recognizes the existence of a complex world intelligence, as can be discovered through observing the natural world around human life.

Theoretically, it remains unclear whether humans are capable or incapable of building intelligent machines that are socially aware and care about human well-being. However, in the context of understanding Buddhism, where some consider that the universe as a whole has a mind, it is not impossible that humans can create machines that follow the intelligence of the universe. The aim of eastern philosophy is to form wise and happy human beings, in the sense that human life becomes peaceful and safe. Eastern philosophy is closer to religious teachings. In fact, philosophical thoughts and religious teachings in the eastern philosophical system, in general, are a unified system that builds distinctive characteristics. Japan for example, through the world

cultural mapping conducted by Inglehart-Welzel, is known as the most secular-rational country in the world (Inglehart and Welzel, 2005). However, despite this fact, Japanese society highly respects traditional-religious values. Most of Japan's population is Buddhist and Shinto's followers. For Shintoism, natural objects and events have spirits or gods. Natural or artificial objects have the same ontological status as living things. It was from these ideas that the employees of the "Tmusk" company performed rituals and prayed at the Munataka Taisha Shrine to ask for the safety and success of their new industrial robot named "Kiyomori." Shintoism considers robots to be sacred, as sacred as humans and animals have (Geraci, 2006).

3.3Critical Response of the Indonesian Philosophy System to the Fundamental Problems of AI Technology

The philosophical system of Indonesian people is known widely as *Pancasila*. It was defined scientifically as a critical and rational reflection about Indonesian state and nation's cultural reality in order to get the main points of the fundamental and comprehensive understanding of Indonesian philosophical system. In the other words, *Pancasila* is defined as a philosophy because it was a result of deep reflection of Indonesian people that poured it in a system. Constitutionally, the contents of *Pancasila* are listed in the Preamble to the 1945 Constitution of the Republic of Indonesia. Syamsuddin (2015) formulated the general understanding of *Pancasila* as a form of Indonesian deepest thinking about their self and then it is considered, trusted and believed as fact, norms and correct, fair, judicious, and best values suited to the life and personality of the Indonesian nation.

Pancasila contains five principles, they are; 1) Belief in one and only God; 2) Just and civilized humanity; 3) The unity of Indonesia; 4) Democracy guided by the inner wisdom in the unanimity arising out of deliberations amongst representatives; and 5) Social Justice for all Indonesian people. The five basics or principles contained in Pancasila are integral parts those are interconnected and work together for achieving a specific purpose. the principles values in *Pancasila* are interconnected to form an integrated system, which is in the process of operation they work together in achieving the goal. Although every precept has its own function but they have a same purpose in realizing the just and prosperous society (Syamsuddin, 2015).

As a philosophical system, *Pancasila* has three fundamental foundations, they are; ontological foundation, epistemological foundation, and axiological foundation. *First*, the ontological foundations of *Pancasila* demonstrate clearly that *Pancasila* is actually exists in reality with a clear identity and entity. Through a review of philosophy, the ontological foundations of *Pancasila* reveal the terminological status used in *Pancasila*, the content and composition of the precepts in *Pancasila*, the relationship of each precept as well as its position. In other words, this ontologically disclosure may clarify philosophically the identity and the entity of *Pancasila*. *Second*, *Pancasila* has correspondence truth in its epistemology as the principles or values in it are supported by the practical realities experienced by the Indonesian people. The knowledge of *Pancasila* originates in Indonesia people and its environment. *Pancasila* was built and rooted in Indonesian people life with the entire spiritual atmosphere it possessed. *Pancasila* is a guideline or basis for Indonesia in viewing the reality of the universe, human, society, nation and the state related to the meaning of life as well as a basis for people in solving problems they encountered in life and living. *Third*, Axiology is closely related to the critical review of value. From the aspect of axiology, *Pancasila* cannot be separated from the Indonesian people as its background, because *Pancasila* is not given value but the value created by the Indonesian people. *Pancasila* values can only be understood by understanding the Indonesian people with their background. The specific value that is inherently contained by *Pancasila* is an intrinsic value. It lies in the recognition of the values of divinity, humanity, unity, democracy, and social justice as a whole. This specific differentiates Indonesia from other countries. Values of divinity, humanity, unity, democracy, and justice have universal properties. Because it is universal, then the value is not only belonging to the Indonesian people, but people all over the world (Syamsuddin, 2015).

In the perspective of *Pancasila* philosophical system, human nature is called by Notonagoro (1975) to be "monoplural", that is, based on the composition of his nature, humans consist of body and soul; based on their nature, humans are individual and social beings; based on his natural position, humans are independent creatures and God's creatures. The unity of structure, nature, and position of human nature embodied in the *Pancasila* philosophy does not view technology solely as a tool, like the instrumentalists.

The most appropriate science development strategy in Indonesia is to formulate its vision and philosophical orientation to *Pancasila* values. Objective data or facts are viewed in an integrative whole. Therefore, the vision and operational orientation of *Pancasila* values are placed in the following dimensions; *first*, teleological, in the sense that science is seen as merely a means that must be used to achieve a *telos* (goal), namely as the idealism of Indonesian people in realizing ideals, as stated in the Preamble of the Republic of Indonesia's constitution; *second*, ethical, in the sense that science must be operationalized to increase human dignity. Humans must be in a central place. This ethical nature demands the responsible application of science;

third, integral or integrative, in the sense that the application of science is to improve the quality of human life, as well as to improve the quality of the structure of society, because humans always live in good relations with each other and with the society in which they live. Improving human quality must be integrated into society which also must improve the quality of its structure.

The monopluralist unity of human nature shows that in responding the problem of AI, *Pancasila* philosophy views the human mind as a constitutive element that is not only intended to meet the demands of science (computer and neuroscience), but also to follow religious teachings. Mori, a Japanese robot expert, after writing a paper in 1970 with the title "Bukimi No Tani" or "The Uncanny Valley", published a book entitled "The Buddha in the Robot: A Robot Engineer's Thoughts on Science and Religion" in 1974. This book discusses how to use Buddhist approach to robotics. In the first sections of the book, Mori expresses the belief that robots have Buddhist nature, namely the potential to attain *Buddhahood* (Mori, 1974). Mori's argument is based on the premise that the contents of all the universes are related to each other, so that the whole can be seen from any direction. The power of the basics of life called *Ku* in the classical tradition of Japanese society is believed to be the force that shapes and moves the universe (Mori, 1974).

In the classical Japanese tradition, animist power is present in inanimate objects known as *Kami*, the most fundamental and sacred element in the Shinto religion. This power is believed to inhabit animals, humans, rocks, trees, rivers and mountains. All material forms are believed to have Buddha nature. According to Mori (1974), the nature of the Buddha is also shared by machines or robots made by roboticists. The Dalai Lama responded to Mori's idea by stating that human consciousness can flow into a computer and a scientist who has been involved all his life in computer research can be reborn in the form of a computer (Hayward and Varela, 2001). The stream of consciousness, according to the Dalai Lama, moves through the process of reincarnation so that it can positively build a life that unites the mind with the robot. For Mori, humans and machines are interdependent, or humans and machines are reciprocally related. The consequence is that to feel closer to machines, Japanese robotics do not need to build robots using human bodies, because humans and robots share the same Buddhist nature, namely through the *Kami* in Shintoism.

In 1970 Mori founded "Jizai Kenkyujo", a research institute on buddhism and robotics. Members of this group of research institutions promote the fusion of Japanese technology with human creative thinking (Pope and Metzler, 2008). Mori also found the intersection between the concept of cybernetics created by Wiener in 1948, and the concept of self-control initiated by Buddhism. For Mori, machines are a reflection of the will and extension of the human body which are basically free from considerations about good or bad values, because the existence of machines is neutral. Therefore, Japanese people have no fear of interacting with robots. This is proven through the compounding of the *SAYA* robot with the social environment of Japanese society (Pope and Metzler, 2008). With an embedded multi-language program, the *SAYA* robot can manage assigned tasks to serve elementary school students in Tokyo. *SAYA* is just one example that shows the determination of the Japanese people in integrating robotics with people's lives.

The same thing also happened in Korea. In 2007 Korea established the "Robot Ethics Charter" (REC), a world's first robot development regulatory system. The reasons underlying REC are; *first*, to prepare for the formation of future ethical guidelines that enable the establishment of partnerships between humans and robots; *second*, making Korea a test country for the development of robots in the world. Another more important reason is that Korean people love robots and therefore robots are seen not as competitors (Kwon, 2016).

Even though the life of robots in people's lives in Japan and Korea has been integrated, that does not mean that this integration does not leave social problems. Consumer demand for robots in Korea is very high because in fact, the number of elderly people is increasing, while the birth rate has decreased. The successful integration of robots into people's lives has led the Korean Government to face difficult future problems to ensure the welfare of the elderly population, while the working population is decreasing (Valverdu, 2011).

Social dislocation due to the rapid advancement of AI, especially robotics, is also very significant in understanding social change in Japan. Fukuyama (2018: 47) introduced that "Society 5.0" is a Japanese growth strategy that is not only carried out in Japan, but throughout the world because the goal is the same as The Sustainable Development Goals (SDGs). The challenges faced by Japan are the same as those faced by the Korean government, namely an aging population, declining birth rates, declining population and aging infrastructure. Fukuyama, further claimed that Japan was one of the first country to face the challenge, and therefore, through the initial resolution of "Society 5.0", Japan could contribute to solving similar challenges around the world. The goal of "Society 5.0" is to realize the prosperity of society as a whole, not for the prosperity of a few people. Therefore, the framework and technology developed in "Society 5.0" will contribute to solving social problems around the world (Fukuyama, 2018).

Strategic thinking based on *Pancasila* philosophy that needs to be developed in responding the impact caused by the development of AI technology is; *first*, it begins with the indigenization of the values of the life of the Indonesian people which are based on the five universal values of *Pancasila*. The philosophical and

ideological basis of the Indonesian state must be open, as is the tradition of Indonesia as an "archipelago", which precisely because of its openness, has become a great tradition that dares to have dialogue and absorbs various great civilizations in the world (Vlekke, 2008). This historical reference to the "archipelago" shows that any values, theories, concepts and philosophical views need to be indigenized in order to determine their suitability with the need to strengthen the foundations of Indonesian nationality. The positive impacts of AI may be accepted by the Indonesian people, while the negative impacts must be removed as residues that are not needed by the Indonesian people. Why is that? Because, as stated by Kuhn (1996), theories are born from anomalies and crises in a society's life. Therefore, not all theories can be used to build the "archipelago". The collective intelligence of the Indonesian people needs to sort and choose theories, including the basic concepts needed to utilize AI technology that is in line with the *Pancasila* philosophy. *Second*, the steps to nationalizing political and economic institutional arrangements were carried out by making the interpretation of the value of social justice in the *Pancasila* philosophy as guiding compass in achieving the Indonesian nation's political and economic systems. Effort to achieve the SDGs goals will suffer a tragic fate if the nationalization of political and economic institutional arrangements is not based on the interpretation of the social justice values of the *Pancasila* philosophy. In this case, the efforts made do not start from zero, but need to adapt to the latest developments in economics and politics that do not subvert the political-economic values of *Pancasila* philosophy. *Third*, at the civil society level (Hefner, 1998), the behavior of Indonesian citizens in responding the impact of AI technology must be bound by social ethics based on the values of the *Pancasila* philosophy. The basic assumption that drives this step is that the process of technological secularization will occur in social development that is driven not solely by AI, because AI does not touch the most basic values, but also divine values.

4. Conclusion

Artificial intelligence (AI) is a relatively new field of study in the discourse of philosophy of technology in Indonesia. The philosophy of *Pancasila* recognizes that humans cannot live life in non-technological spaces because humans who inhabit this earth are basically technological beings. Therefore, in a more operational manner, the strategic steps needed to respond the development and impact of AI technology in Indonesia are to instill and revive social ethical values through the educational process in the midst of people's lives, especially in the micro-level areas of government, namely in the rural areas in Indonesia.

Instilling these social ethical values has been commonly practiced by Asian people in general. The Japanese did this by promoting the social ethics of *Bushido* at the village government level several centuries ago. Since the Shogun Era (around the 16th century AD), Japanese society which was homogeneous and untouched by colonialization had a mechanism for processing foreign values or influences brought from liberal and capitalist ideologies by using social ethics. This step significantly strengthened family and community ties which led to the strengthening of Japanese national identity in carrying out its political economy system.

Indonesia is not Japan. The structure of Indonesian society was formed on the heterogeneity of religion, ethnicity and culture, and for a long period of time (over 350 years) was under the grip of Dutch colonialism, so of course the appropriate social ethic is applied to the philosophy of *Pancasila*, as conceptualized by the founders of the country, namely as the soul and personality of the Indonesian nation. Therefore, the orientation of the development of AI technology in Indonesia must not be trapped by illusionist justifications which then lead to the social problems.

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