

**TECHNOLOGY AS A PRODUCT OF SCIENCE  
BASED ON PHILOSOPHY****Muhammad Choerul Umam<sup>1</sup>, Siti Masitoh<sup>2</sup>, Mochamad Nursalim<sup>3</sup>**<sup>1</sup>Sebelas Maret University, <sup>2,3</sup>Surabaya State University[mc\\_umam07@staff.uns.ac.id](mailto:mc_umam07@staff.uns.ac.id), [sitimasitoh@unesa.ac.id](mailto:sitimasitoh@unesa.ac.id), [mochamadnursalim@unesa.ac.id](mailto:mochamadnursalim@unesa.ac.id)**Abstract**

Man defines science and philosophy as a genuine endeavor to comprehend a discipline's approach and notion. The periods' and developments' high needs have ushered philosophy into an arrangement by demonstrating how the "Mother of Science" develops effectively from each subject. Of course, being a human person, he will never be pleased with knowledge alone, but rather with knowledge and truth. Because truth is the state of something according to the real object, learning something through knowledge (philosophy) is a method of gaining objective and right knowledge. Furthermore, the job of philosophy in this context is to analyze and research human life from many perspectives. The goal of this research is to look at philosophy as the foundation for the development of scientific products in the form of technology, the function of which is to decide the path of human life itself. The job of technology is not only to solve issues encountered by humanity in certain locations and eras, but also to address many metaphysical concerns. The existence of philosophy and science is very necessary in the midst of the development of science and technology; its presence is demonstrated by the specialization of science, because scientists are expected to be able to realize their limitations by studying philosophy in order to avoid being trapped in an attitude of intellectual arrogance. The community is heterogeneous in this century, so the advancement of technology will produce complex difficulties and can transform the mindset of human life to a more sophisticated life pattern with technical power such as robots and the internet. Philosophy underpins science, which is employed as an axiological milestone in positively directing and controlling the development of science and technology for the benefit of mankind and the environment.

**Keywords** : Technology, Science, Philosophy

## **1. INTRODUCTION**

Human life in modern times is influenced by the mindset established by man himself. Furthermore, it can use, control, and even dominate technology with a human brain. Technology, like philosophy, is entirely the consequence of human intellect, and hence the relationship between philosophy and technology is quite tight (Habibie 2001). In the academic world, philosophy is the foothold or foundation of human thinking as reasoning in seeking and developing a science. Philosophy and science are always transforming in order to solve the problems of the times. The function of philosophy in this context is to investigate and research human life from diverse perspectives.

Of course, we've all heard the term philosophy. However, please keep in mind that there is some variation in how philosophy is defined. This is due to the fact that each philosopher, also known as a philosopher, has various notions and rationales from one another. The term philosophy is derived from the Greek word *Philosophia*, which combines the words *philos*, which means love or best friend, and *shopia*, which means wisdom and knowledge. As a result, *philosophia* might be defined as a love of wisdom and truth. Philosophy is a discipline of science that deals with life's fundamental issues. Philosophy is one of the oldest sciences and has a global perspective. The human-philosophical relationship began when people began to wonder what something meant and where it came from. Then there are the numerous human endeavors to achieve an answer that they believe corresponds to their soul, even if the solution is ultimately speculative and non-empirical (Wibisono, 2001).

Technological advancement in human life is inextricably linked to the role of philosophy, yet many scientists do not completely philosophize as an example in generating research that results in technological products. The function of technology is to direct the course of human life. The job of technology is not only to solve issues encountered by humanity in certain locations and eras, but also to address many metaphysical concerns. They want to advance science in the form of technology in order to maximize profits while ignoring the consequence or influence of their actions on other humans. This state necessitates the involvement of philosophy in the advancement of science in the form of technology in human life. By philosophizing, man can seek the key facts related to science and its progress in order to get an advantage in life without creating severe harm.

Based on the description above, it is necessary to have a clear understanding of the philosophy on which all sciences are based, one of which is technology, as well as its interrelationships, so that technological developments remain in their rightful place without causing losses, in accordance with the goal of facilitating the fulfillment of human needs. This study was centered on literacy studies or literature. This research also aims to gather varied perspectives on technology developments and scientific research.

## **2. METHODS**

The literature review strategy was employed in this article. The library's source is in the form of books and articles that correspond to this subject. The type of analysis employed in this piece is content analysis. First, gather information from multiple sources relevant to the article's aim. Second, use content analysis algorithms to discover common threads between these disparate sources. Third, reach a conclusion.

### **3. RESULTS AND DISCUSSION**

#### **a. Technological Developments**

The term technology is derived from the latin words *techne* and *logos*. *Techne* refers to the art, aptitude, expertise, or methods and conduct used to do anything. While *logos* refers to a study that analyzes a problem. Technology is the result of human labor to nurture and adapt to the environment. Technology is also a tool for humans to achieve their basic needs, such as food, movement, communication, and defense, as well as the urge to improve their quality of life. Technology is an important subject for expertise (Sahari, 2008). The advancement of technology has had an impact on the field of education, particularly on the learning process. As a subset of science and technology in general, information and communication technology encompasses all technology concerned with the retrieval, gathering (acquisition), processing, storage, dissemination, and presentation of information. Because simple starting technologies like wood, stone, and bone technology are few in number and expand slowly, their impact on people did not manifest immediately. Cutting-edge technology is evolving rapidly and enormously, and its impact on humanity is far-reaching and profound. This influence can be direct or primary, or indirect, secondary, or tertiary.

According to Jacob, the following are seven detrimental effects of technology on humans: 1) Human substitution or replacement (displacement, substitution) For example, the functioning of huge human muscles, the task of which is replaced by technological results, causing humans to atrophy. For example, all human functions can be replaced by robots, displacing humans from their jobs. 2) Human freedom is confined, which means that there are fewer options available to them, albeit this may change as technology advances. More and more objects can be manufactured, yet only a few human aspirations can be fulfilled. In many aspects, man must adapt to the tools and systems. 3) Because of the constricted personality, humans are increasingly being forced into a homogenous mass human being with less and less privacy. He became a minor component of central planning and was required to participate in it. 4) Human objectivization (dehumanization) refers to the treatment of humans as objective entities that can be measured or calculated, while others are regarded peripheral and do not become developments in efforts to develop, educate, and improve. Technology is turning into a sophisticated and costly system that is becoming increasingly autonomous since no one can stop it. Technology also allows for itself, and humans are merely its efficient army or slaves. 5) The technological mentality indicates that this is expressed in an overreliance on tools (technocentric), as if technology can fix everything and that something will be more persuasive if done with equipment and accompanied by data. 6) Non-adaptive rebalancing implies that, in order to restore the balance disrupted by technology, people may resort to the use of drugs for adaptation such as narcotics, psychedelics, and others, as well as seeking strength through the accumulation of positional goods to compensate for the failed adaptation. 7) This technological crisis may be seen in the different crises that have hit the world in this century, which are mostly caused by the rapid development of technology, which does not allow for the process of adaptation and integration to take place. The individual suffers from technostress, urban sickness, and civilizational disease as a result of a lack of time to complete the process of adaptation and integration.

## **b. Philosophy and Science**

The name "philosophy" is derived from the words *philosophy* (Arabic) and *philosophy* (English), which are both derived from Greek (*philosophia*). The term *philosophia* is a composite word made up of the words (*philos*) and (*sophia*). The word *philos* can signify both lover and best friend. While *sophia* can imply wisdom or knowledge, it can also mean wisdom or knowledge (Rapar, 2001: 5). *Philosophia* literally means "the one who loves wisdom" or "the finest friend of knowledge." The term *philosophia* has been translated as "philosophy," using the adjective "philosophy" rather than "philosophical." When referring to the individual, the correct word is used, namely "philosopher," rather than "philosopher" (Suaedi, 2016). Unless the word "philosophy" and not "philosophy" is used, the suitable adjective is "philosophical," while the word *philosopher* refers to the individual. According to the Indonesian Great Dictionary, philosophy is "knowledge and investigation with common sense regarding the nature of all that exists, the source of its origin, and law." Philosophy is the theory that underpins metaphysics and epistemology, two fields of philosophical study.

Philosophy is closely identified with the Western philosophical tradition. Until recently, scientists assumed that philosophy originally appeared in Greece in the seventh century BC. Science was still an inherent aspect of philosophy from the outset of its growth. The term nature was used to describe the pattern of philosophical thought at the time of its formation. Thales and Anaximander were two influential figures during the time. Furthermore, various categorizations and philosophers who lived at different times are recorded in the history of philosophy. Classical philosophy, medieval philosophy, and contemporary philosophy are the three categories (Agriyanto & Rohman, 2015: 40).

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According to these experts, philosophical philosophical thinking is essentially a form of thinking that is broad or profound and refers to particular norms in a disciplined manner. Philosophical thinking necessitates continual practice and habituation so that in every idea, every problem or material is thoroughly examined in order to get at the truth of the solution in the proper manner as a type of love for the truth. In the case of philosophy, there are two objects of study: the material object and the formal object. A material object is one that can be used as study material in philosophical thinking, but a formal object in philosophy is one that concerns a point of view or explains the way and character of thinking in viewing material objects.

Understanding philosophy can be accomplished through a variety of ways and points of view. The basic intention is to consider philosophy as a process and philosophy as a product. Philosophy as a process represents a style or method of thinking in line with the standards of philosophical thinking, but philosophy as a product can be viewed as a collection of philosophers' thoughts and opinions. Understanding of true philosophy will be achieved through these two points

of view. Donny Gahral Adian (in Hamdani; 2011:71) defines four techniques to comprehending philosophy as follows: (1) Definition Approach: Philosophy is understood through expert or philosopher opinions. Because the word philosophy is essentially the crystallization of the notions contained in the definition, tracing its genesis becomes extremely significant. (2) Systematic Approach: Philosophy's material object is all that exists in diverse substances and levels. Material items can be studied from numerous angles according on the caption's desired or expected focus. The study of formal objects will give rise to several schools of study in philosophy that describe the systematics of philosophy. (3) The Character's Approach: Philosophers rarely explore all aspects of philosophy in depth. A philosopher will often address the central theme of his philosophical philosophy. A philosopher who takes this approach will investigate philosophy by studying the ideas advanced by philosophers, which may have their own idiosyncrasies, giving birth to a school of philosophy distinct from other philosophers. Based on these considerations, the character's method is sometimes referred to as the flow approach. (4) Historical Approach: This approach seeks to study philosophy by examining historical aspects and the evolution of philosophical thought over time by examining general tendencies according to the spirit of the times, followed by periodization to see the development of philosophical thought chronologically.

Before discussing what science is, it is necessary to first define science and knowledge. Science is derived from the Arabic word 'ilm, which means to comprehend, comprehend, or comprehend. Science is something that goes beyond knowing. Science is the use of reason to explain empirical reality using three fundamental criteria: rational, methodical, and systematic. The phrase rational refers to what a science says to be true because it makes sense, that is, it is logical, critical, and susceptible to improvement. So, rationality is not immune to criticism (Poespowardojo & Seran, 2015: 9).

Meanwhile, knowledge encompasses all activities, methods, and means employed, as well as all outcomes. To comprehend "knowledge," we must first comprehend the act of "knowing." Just as man's actions have repercussions or outcomes, the act of "knowing" must also generate something, namely "knowledge." Knowledge is the full result of actions to learn an object (it might be in the form of a thing or event experienced by the subject), such as knowledge of objects, plants, animals, humans, or military events (Wahana, 2016: 46). Knowledge is everything that is known as a result of the five senses' encounter with a specific object. Knowledge is essentially the consequence of the process through which humans respond and act based on what they see, hear, feel, and think (Makhmudah, 2018: 203).

Science is the instinct of human reason that systematically produces new wants (theories) to satisfy curiosity (Selujeng, 2014: 104). Science (scientific knowledge) is a conceptual continuation of the human nature quality of "inquisitiveness." Human curiosity is considered to have no bounds. You're always looking for new ones. Man is constantly confronted with diverse environmental occurrences and symptoms, both natural and man-made. Man seeks the answer because he is curious. Scientists' research contributes to the advancement of science (Jalaludin, 2013: 91). Science is utilized by humans to search for new theories using certain methods and procedures in order to achieve predetermined aims. In order to attain the required scientific generalizations, science, on the other hand, must be systematic and orderly based on the methodology of its objectives.

Science results from a series of rational and cognitive human activities consisting of various methods in the form of various procedures and procedures so as to produce a systematic collection

of knowledge about the symptoms of experience, society or individuals for the purpose of achieving truth, gaining understanding, providing explanations, or applying (Kirom, 2011: 102). According to Surojiyo (2008: 57), the definition of science involves at least six kinds of components, namely problems, attitudes, methods, activities, conclusions, and effects.

According to the preceding statement, science, particularly science, seeks scientific truths about specific objects, which can be achieved by various orientations or views (approaches), methods, and systems. Man can create science because he is driven by his insatiable curiosity in objects, thoughts, or minds that contradict the testimony of the senses, which are deemed to be frequently deceiving. Science for humans has the potential to achieve knowledge that is more perfect than ordinary knowledge, to the extent that it seeks to deliver "insight" (deep understanding).

### **c. The Relevance of Philosophy and Technological Development**

A society that exists in the current era (the twenty-first century), often known as a postmodern society, is a diverse set of people that have numerous problematic beliefs that are unquestionably more complex than contemporary society in the previous century. Science and technology exist to provide a foothold from positivism, which has evolved into a huge issue in modern society. In the current setting, society is confronted with huge issues, and its development is much more massive and complicated, requiring efforts to convert its explanation of the numerous problems confronted to be explored more fully holistically and comprehensively (Tasnur & Sudrajat, 2020). The development of science and technology has become a clear evidence of the problems faced by society today or better known as disruption, where there are massive changes in various areas of people's lives. Superior society must be able to adapt and adapt to the synchronization of technology from all fields, because indirectly today's society will lead the way of the wheel of life, which will later control and hype other societies. If examined further, this era will make the process of domination and social distortions occur which causes a group of people to master technology, especially the internet, social media, and cyberspace.

The existence and development of Science and technology has always influenced each other. Nowadays, there are important leaps and bounds in the field of science and technology, there have been new innovations that can certainly have a positive and negative impact. Philosophy as the basis for the development of science and technology must also come down to its contextualization so that awareness of the use of technology remains on the corridor line of common interests (Ibda, 2019). The implications of the development and application of science and technology must be controlled on the basis of philosophy, the purpose of so that scientific ethics do not get further away from ethical, moral and religious values. The implications of philosophy on the development of science and technology are used as a basis as a means of testing scientific reasoning, so that humans become critical of their scientific activities. Efforts to reflect, test, criticize scientific assumptions and methods are from the scientific method that is in accordance with the structure of science, so that a scientist knows the nature and foundation of science itself, and provides a logical basis for certain scientific methods (Habibah, 2017). The application of science and technology in human life must be ethically accounted for, so that humans realize what should be done to strengthen the dignity of human beings, both in relation to the person, with the environment, and as beings responsible to the creator.

#### **4. CONCLUSION**

In this age of globalization, where multiple multidisciplinary studies always accompany scientific operations, a forum, namely a critical attitude and responsibility in confronting the multiplicity of mindsets of various sciences and their scientists, is required. Philosophy can view a subject from two perspectives, allowing it to focus on issues that other sciences have not addressed. Technology is researched and developed to enhance human living, not the other way around. Philosophy and technology are inextricably linked. Philosophy is the foundation of thought that gives birth to science, which will continue to develop and produce things, notably technology. Humans employ technology to help them attain their aims. There are numerous ways to apply philosophy to technology nowadays. Philosophy's existence can help the human intellect to be more critical in seeking the truth to address many difficulties. The application of science and technology unquestionably necessitates examination based on ethical elements that affect future technological growth.

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