

Implementation of Pancasila in the Development of Science & Technology

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Abstract – Entering an increasingly modern era, life now refers to the digital world, as well as science and technology (IPTEK). The development of science & technology has made big changes to the lives of everyone in the world, including the people of Indonesia, every individual strives to continue to develop technological literacy abilities. The development of science and technology that exists today, apart from being able to have a positive impact and various conveniences for human life, we cannot deny that the development of science & technology can also bring about various negative things. Therefore, science & technology needs to adjust and consider the ideological values of the nation in its development, both from the aspect of religious and cultural values, all must be relevant and always refer to the noble values of the nation so as not to harm humans and damage the joints of the nation's life. Pancasila, which is the basis of the state and the nation's view of life, contains noble values that are believed to be the nation's protective shield, of course, must also play a role in facing technological progress. This article aims to explain that Pancasila plays an important role in technological progress and towards a more modern Indonesian human. Although the younger generations are technologically literate, if they do not have the character of Pancasila and the spirit of nationalism, then everything will be in vain. So that the implementation of Pancasila as a whole is really needed to continue to direct the nation's young generation to stick to the Pancasila path with character.

Keywords: Pancasila values, Technology, The times

I. INTRODUCTION

Indonesia has now entered the modern era where rapid progress has occurred in science and technology, this has caused human civilization to undergo very significant changes. Currently all countries in the world feel like they are in a very close radius, this is due to the development of technology that makes it easier for everyone in the world to be able to communicate even though hindered by a great distance. This technological progress certainly aims to facilitate the various affairs and jobs of humans, various sophisticated tools were created to be used by the wider community. Nowadays, of course, we can all see and feel the development of this technology in our daily lives and it has become an inseparable part of our lives.

The development of science and technology that exists today, apart from being able to have a positive impact and various conveniences for human life, we cannot deny that this technological development can also bring about various negative things. Therefore technology needs to adjust and consider the ideological values of the nation in its development, both from the aspect of religious and cultural values, all must be relevant and always refer to the noble values of the nation so as not to harm humans and damage the joints of the nation's life.

Pancasila was sequentially conveyed for the first time by the Proclaimer, Ir. Sukarno before the BPUPKI Session on June 1, 1945. He said that Pancasila is a philosophy grondslag, a fundamental, deep philosophy, thought, is the foundation or basis for an independent state. The diversity of the Indonesian people and the

common experience of this nation in the colonial period are also one of the main factors why Pancasila is used as the common foundation for the foundation and ideals of the establishment of an independent Indonesian state. This plurality in taste and experience as a child of the colony found its common ground in Pancasila, replacing the various subjective desires of several groups of Indonesians who wanted a state basis based on religious understanding as well as certain regional ideologies and spirit. The desires of these groups find their meeting point in this Pancasila, where this Pancasila is used as a meeting point and peace where Pancasila does not take sides with one side or side, and tends to embrace all obstacles.

Technological advances that occur are caused by one of them the Industrial Revolution 4.0. digitization that occurred at the same time helped erode the character of the younger generations to have a westernized character. So, the implementation of Pancasila must be in line with the development of Indonesian technology (Novianti, et al, 2021). There are various understandings regarding this implementation. First, every science and technology developed must not contradict the five precepts contained in Pancasila. Second, every science and technology that is developed must implement the values of Pancasila as an internal factor in the development of the technology. Third, the values contained in Pancasila act as a normative sign for technological improvement, meaning being able to control technology so that it does not go out and escape the character of Indonesia. Fourth, every technological development must lead and be principled from the culture and ideology of the Indonesian nation itself or better known as the indigenization of science (localizing knowledge). (Dikti, 2016).

Pancasila is a scientific paradigm for scientific activity in Indonesia, therefore scientists must develop their knowledge by considering whether the objectives are appropriate and do not harm humans, and must also be balanced with the preservation of nature and culture. The Indonesian nation itself has had very strong cultural and religious roots since time immemorial, so that if science and technology were allowed to develop without being rooted in ideology, it would be the same as making science and technology without a clear direction and orientation which could lead to destruction for the people of Indonesia. the life of the Indonesian people and nation.

Pancasila is thus the value of a single unified precept that forms a source of value, a framework for thinking and character principles in technology development. Character is also referred to as character that grows and radiates in the character, behavior and work patterns of an individual that will distinguish one individual from another (Nabila, 2019).

II. RESULT AND DISCUSSION

1. Pancasila Amid the Development of Science and Technology

Along with the times, science and technology are also developing rapidly. Starting with the introduction of internet technology. The development of the internet has changed the pattern of community interaction which has contributed greatly to the community, company or industry and the government in it. If we talk about the impact of the development of science and technology, it can be seen that almost all aspects of life in this world have been affected. The resulting impact is like two sides of a coin. On the one hand it has a positive impact, and on the other it has a negative impact. The positive impact of the existence of science and technology is that it provides various facilities, expands easy access to various information and expands insight and knowledge.

In addition to the positive impacts, there are also negative impacts, namely the loss of traditional culture, the emergence of various crimes in cyberspace (cybercrime), to the emergence of various social problems. There are various factors, both internal and external factors that can encourage someone to abuse science and technology. Internal factors are factors that exist within a person while external factors are those that come from outside oneself. One example is technology provides access and convenience to its users. Types of crimes such as cybercrime are the most common. Crimes such as breaking into someone's identity, spreading hoaxes, spreading pornographic information, spreading violent information, and much more. This can happen if the user does not know what impact his actions can have. Another thing that encourages someone to misuse technology is the lack of vigilance and supervision from oneself, family, community and government.

Along with the development of science and technology, it has an impact on the number of crimes that can be committed by a person. As the next generation, the nation should have an understanding of the importance of

the meaning of ethical values in Pancasila, as the basis for the use of increasingly developing science and technology. In Pancasila there are values that are very basic in human life. Pancasila shows the values of Divinity, Humanity, Unity, Deliberation and Consensus, and Social Justice, all of which serve as guidelines for the Indonesian people to act and behave. As a young generation, these values must be applied in the life of the nation and state. As in the first precept, namely, Belief in the One Supreme God, it shows that the development of science must be in line with the existence of these values, which can undoubtedly minimize, prevent and even stop the abuse of science and technology.

2. Reasons for the Importance of Implementing Pancasila Values in the Development of Science & Technology

Science and technology actually have a relationship with cultural and religious values which are the signs in the development process. Where the development of science & technology must always be based on these values and science & technology places these cultural and religious values as partners in discussions as external factors for the development of science & technology. Pancasila is a national ideology that must be the spirit and support for every activity and life of the Indonesian people, because Pancasila contains noble values which are the acculturation of various thoughts both regarding religion, education, culture, politics, social and economics. Pancasila as the nation's view of life always coordinates all life activities, including scientific activities and technological developments that are coloring the nation's life today. Scientists must always develop their knowledge based on Pancasila so that they have clear directions and goals without harming the community because Pancasila itself is an ideological value that comes from the Indonesian people themselves.

With the advancement of science and technology, we also can't deny it has a positive impact there is also a negative impact, the influence of foreign cultures that easily enter Indonesia because technological advances can also make people forget their own culture and prefer foreign cultures. Therefore, the values of Pancasila must always be instilled in every citizen so that they still have a good personality in accordance with the personality of their nation. In addition, Pancasila is also a guide for the community to always be wise and be able to distinguish between good and bad things in using and enjoying current technological advances.

First, the Precepts of the One Godhead, implementing science, creating a balance between rational and irrational ways of thinking between taste, reason and will. Where based on this first precept, technology is not only think about what is found and created but also must be considered with the aim of benefiting and the consequences that can harm the community whether there are or not. With this, humans place themselves not as the center of the universe but as part of the natural systematics they cultivate.

Second, the Fair and Civilized Precepts of Humanity, implementing the moral foundations where humans in developing and using technology must be wise and civilized which can improve welfare for many people and can increase their dignity as human beings, not as arrogant, arrogant and immoral humans as a result. technology use.

Third, the Precepts of Indonesian Unity, implement the sense of nationalism of the Indonesian nation, with this technology it is hoped that technology can become a unifying tool for the nation, maintaining brotherhood and friendship between regions. Therefore, technology must also be developed to strengthen the sense of unity and integrity in society, both from the relationship between the Indonesian people and also with the international community.

Fourth, Populist Precepts Led by Wisdom of Wisdom in Representative Deliberations, implement democratic values where in the development of science & technology scientists must respect the freedom of others, must be ready to be criticized and accept all public opinion regarding their findings.

Fifth, the Precepts of Social Justice for All Indonesian People, implement a balance of justice in life. This shows that technological progress must pay attention to a good balance in human relations with themselves, with God, with other people, and humans with their nation and country as well as with nature and the environment.

3. The concept of Pancasila as the basis for the value of the development of science & technology

The understanding of Pancasila as the basis for the value of developing knowledge can refer to several types of understanding. First, that any science and technology (science and technology) developed in Indonesia must not

conflict with the values contained in Pancasila. Second, that every science and technology developed in Indonesia must include the values of Pancasila as an internal factor in the development of science and technology itself. Third, that the values of Pancasila act as normative signs for the development of science and technology in Indonesia, meaning that they are able to control science and technology so that they do not get out of the way of thinking and acting of the Indonesian people. Fourth, that every science and technology development must be rooted in the culture and ideology of the Indonesian nation itself or better known as the indigenization of science (indigenization of knowledge). (Dikti, 2016) The four meanings of Pancasila as the basis for the development of science as stated above have different consequences. The first understanding that science and technology does not conflict with the values contained in Pancasila contains the assumption that science and technology itself develops autonomously, then on the way adaptation is carried out with the values of Pancasila.

The second understanding that every science and technology developed in Indonesia must include the values of Pancasila as an internal factor presupposes that from the beginning the development of science and technology must involve the values of Pancasila. However, the involvement of Pancasila values is in a tug-of-war position, meaning that scientists can consider what they consider appropriate to be involved. The third understanding that Pancasila values act as normative signs for the development of science and technology assumes that there are rules of the game that must be agreed upon by scientists before science is developed. However, there is no guarantee that the rules of the game will continue to be adhered to in the course of science and technology development itself. Because when science and technology continues to develop, the rules of the game should continue to oversee and shadow so that there is no gap between the development of science and technology and the rules of the game. The fourth definition which puts that every science and technology development must be rooted in the culture and ideology of the Indonesian nation itself as a process of scientific integration, presupposes that Pancasila is not only the basis for the value of science development, but has become a scientific paradigm that has developed in Indonesia. For this reason, a more detailed description and discussion among Indonesian intellectuals is needed, to what extent the values of Pancasila are always taken into consideration for scientific decisions taken.

4. The Importance of Pancasila as the Basis for the Development of Science & Technology

The importance of Pancasila as the basis for the development of science can be traced to the following matters; First, the plurality of values that have developed in the life of the Indonesian nation today along with advances in science and technology have led to changes in the human perspective on life. This requires deep reflection and reflection so that the Indonesian nation does not fall into the determination of value decisions that are not in accordance with the nation's personality. Second, the negative impact caused by advances in science and technology on the environment is at its lowest point which endangers the existence of human life in the future. Therefore, moral guidance is needed for scientists in the development of science and technology in Indonesia. Third, the development of science and technology which is dominated by Western countries with global politics threatens the unique values in the life of the Indonesian people, such as spirituality, mutual cooperation, solidarity, deliberation, and a sense of justice. Therefore, a clear orientation is needed to filter and counteract the influence of global values that are not in accordance with the personality values of the Indonesian nation.

5. Pancasila as a Source of Values, Thinking Framework and Moral Principles for the Development of Science and Technology

National development is the nation's effort to achieve its national goals as stated in the Preamble to the 1945 Constitution. In essence, Pancasila as a national development paradigm implies that all aspects of development must reflect the values of Pancasila. The state in the context of realizing its goals through national development to realize the goals of all its citizens must be returned to the basics of human nature. Therefore, national development must include aspects of the soul which include reason, taste and will, physical aspects, individual aspects, aspects of social beings, personal aspects and aspects of divine life. In human efforts to realize prosperity and increase their dignity, humans develop science and technology. Pancasila has provided the basic values for the development of science and technology for the welfare of human life. The development of science

and technology as a result of human culture must be based on just and civilized divine and humanitarian morals. Therefore, in essence the precepts of Pancasila must be a source of values, a framework of thought and the basis of morality for the development of science and technology.

The position of Pancasila as a national development paradigm according to Syahril Syarbaini (2003) must pay attention to the following concepts:

1. Pancasila must be a cognitive framework in self-identification as a nation. Pancasila must be placed as an objectively rational frame of mind in building the nation's personality. Therefore, it is necessary to develop a culture of science in fostering a sense of national unity and integrity.
2. Pancasila as the basis of national development, changes that occur in society and the nation as a result of development must increasingly place the values of Pancasila that can be felt in the life of the nation and state.
3. Pancasila is the direction of national development, the national development process cannot be separated from the control of Pancasila values. Therefore, the direction of development through its stages cannot be separated from efforts to implement the values of Pancasila, so that development is the practice of Pancasila.
4. Pancasila is the ethos of national development, in order to realize the vision of the future Indonesian nation, a mission to consistently practice Pancasila is created in the life of society, nation and state. Consistency between theory and reality and speech and action is a new paradigm in making Pancasila a national development ethic.
5. Pancasila as a moral development, this designation implies that the noble values of Pancasila (the norms of Pancasila as stated in the Preamble to the 1945 Constitution) are used as benchmarks in carrying out national development, both in planning, organizing, implementing, monitoring, and evaluating.

According to Prof. Dr. M. Sastrapratedja (in Dikti, 2016; 207-208) in his article entitled, Pancasila as the Orientation of Nation Development and Development of the Ethics of Science emphasizes that there are two roles of Pancasila in the development of science and technology, namely first, Pancasila is the foundation of the policy of developing science, which second, Pancasila as the foundation of the ethics of science and technology.

The first thing that is related to the position of Pancasila as the foundation of science development policies includes the following five things. First, that the development of science must respect the religious beliefs of the community because scientific discoveries may not be in line with religious beliefs, but they do not have to be contradicted because both have their own logic. Second, science is aimed at the development of humanity and is guided by ethical values based on humanity. Third, science and technology is an element that "homogenizes" culture so that it is an element that unites and allows communication between communities. Building mastery of science and technology through the education system is a means of strengthening unity and building national identity.

Fourth, the principle of democracy will demand that the mastery of science and technology must be evenly distributed to all people because education is a demand of the entire community. Fifth, the gap in the mastery of science and technology must be continuously narrowed so that it becomes more even, as a consequence of the principle of social justice. The second thing that puts Pancasila as the ethical foundation for the development of science and technology can be detailed as follows :

- 1) The development of science and technology, especially those concerning humans, must always respect human dignity, for example in genetic engineering
- 2) science and technology must improve the quality of human life, both now and in the future
- 3) the development of science and technology should help the expansion of human communities, both locally, nationally and globally
- 4) science and technology must be open to the public; especially those that have a direct impact on people's living conditions
- 5) Science and technology should help create a more just society.

6. The essence of Pancasila as the basis for the value of the development of science & technology

The essence of Pancasila as the basis for the value of science and technology development was put forward by Prof. Wahyudi Sediawan (in Dikti, 2016; 2016-217) in the Symposium and Workshop on Pancasila as the Paradigm of Science and Nation Development, as follows:

The first precept, Belief in the One Supreme God gives awareness that human life in this world is like taking a test and the results of the test will determine his eternal life in the hereafter. One of the tests is that humans are

commanded to act for good, not to cause harm to the earth. Guidance of attitude to the code of scientific and engineering ethics, such as: upholding the safety, health, and welfare of the community; behave honorably, responsibly, ethically and obey the rules to improve honor, reputation and professional benefits, etc., is a manifestation of an act for that good. Scientists who practice their technical competence well in accordance with the guidance of this attitude are grateful for God's grace.

The second principle, Just and Civilized Humanity, provides direction, both universal and specific, to scientists and engineers in Indonesia. The principle of humanity or humanism requires that the treatment of humans must be in accordance with their nature as humans, namely having desires, such as material adequacy, socializing, having respect for their existence, issuing opinions, playing a real role in their environment, working according to their highest abilities. The mono-pluralist nature of human nature, as stated by Notonagoro, consists of body and soul (natural structure), individual and social beings (nature's nature), and God's creatures and autonomous (natural position) requires balance in order to perfect the quality of humanity.

The third principle, the Unity of Indonesia provides an essential foundation for the survival of the Unitary State of the Republic of Indonesia (NKRI). For this reason, Indonesian scientists and engineers need to uphold the principle of Indonesian Unity in their professional duties. Synergistic cooperation between individuals with their respective advantages and disadvantages will result in higher productivity than the sum of the individual productivity. A job or task that is done together with a high spirit of nationalism which can optimize productivity.

The fourth precept, Democracy Led by Wisdom of Wisdom in Deliberation/Representation provides guidance on populist principles, which means that the formation of this republican state of Indonesia is by and for all the people of Indonesia. Every citizen has the same rights and obligations towards the state. Likewise, scientists and technical experts are obliged to contribute as much as possible according to their abilities for the progress of the country. This fourth precept also provides direction in decision management, both at the national, regional and narrower scope. Decision management based on the spirit of deliberation will bring better results because it can involve all parties willingly.

The fifth precept, Social Justice for All Indonesian People, provides direction so that there is always an effort to avoid the welfare gap between the Indonesian people. Scientists and engineers who manage the industry need to constantly develop systems that advance the company, while ensuring the welfare of employees. So far, industrial management has been more oriented towards economic growth, in terms of company profits, so it tends to ignore employee welfare and environmental sustainability. This unequal situation is caused by a work pattern that is only concerned with the progress of the company. In the end, this pattern can trigger protests that actually harm the company itself.

III. CONCLUSION

Pancasila is the nation's view of life and the foundation of the Republic of Indonesia. Pancasila is also the source of the psyche of the people and the state of the Republic of Indonesia. So Indonesian people make the practice of Pancasila as the main struggle in social life and state life. Therefore, the experience must start from every Indonesian citizen, every state administrator which will broadly develop into the experience of Pancasila by every state institution and community institution, both at the center and at the region

The implementation of Pancasila is an effort to realize every value contained in Pancasila by applying it in everyday life and making Pancasila as a guide or basis for acting and behaving.

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