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THE INFLUENCE OF THE DEVELOPMENT OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN THE INDUSTRIAL FIELD

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ABSTRACT

Artificial Intelligence (AI) has become a significant development of information and communication technology in the last ten years. However, its implementation in Indonesia is still relatively low due to constraints on worker skills and insufficient infrastructure investment. Nonetheless, AI has the potential to improve business performance, such as in the use of cloud computing. The application of AI in the industry requires changes and adjustments to technological developments. The use of AI is significantly affecting various sectors and people's lifestyles, and governments have an important role to play in providing technology-based services. The purpose of this study is to examine the influence of AI in the industrial sector, understand its development in Indonesia, and analyze the positive and negative impacts of using AI in the future. This study uses a descriptive method combined with qualitative content analysis techniques and field reviews. The descriptive method is a research method that aims to obtain an objective picture of the situation. Thus, the implementation of AI in Indonesia still needs to be improved by overcoming skills and investment constraints. Governments should play an active role in supporting the development of AI in the industry while considering its positive and negative impacts in the future.

Introduction

Artificial Intelligence (AI) is a development in information and communication technology that has emerged over the past ten years (Arief & Saputra, 2019). The use of artificial intelligence in industry is not only limited to the telecommunications industry, but also to the banking, manufacturing, and service sectors, even to the public sector. In some countries, the application of artificial intelligence has reached almost 56%, especially in the industrial sector. However, AI implementation in Indonesia is relatively low due to many problems such as lack of workers' skills to use AI and lack of investment in AI infrastructure development. Several previous studies have concluded that technology use in Indonesia is lower than in other Asia-Pacific regions. In Indonesia, only 14 companies have adopted AI-based technology (Planifolia, 2017). The success of AI implementation is determined by 6 key factors, namely leadership,

analytical thinking skills and corporate culture systems, initiative, leadership, and entrepreneurship (Ririh, Laili, Wicaksono, & Tsurayya, 2020).

An example of the use of artificial intelligence as information technology is cloud computing, which is represented by subscription utilities. Various definitions of the concept of cloud services are often presented in different literature. According to previous research, Indonesian companies still buy and use their servers for their business needs. This condition shows that cloud computing has a great opportunity to improve business performance. However, Indonesia is still constrained by limited bandwidth problems. This can be avoided with lightweight cloud services and continuous innovation. Seeing the existing conditions, the Ministry of Communication and Information Technology of the Republic of Indonesia stated that Indonesia still needs about 3-5 years to implement this technology (Utomo & Dermawan, 2022).

In addition to the growing role and use of artificial intelligence technology that significantly affects various sectors, it also affects changes in people's lifestyles and habits, which can lead to the emergence of complex needs and problems in society. The government plays an important role in providing technology-based services that meet the needs of the community (Akhmad, Mustanir, & Ramadhan, 2017). However, to carry out its duties and roles properly, it is hoped that the government can make changes to adjust to technological developments, one of which is the application of artificial intelligence technology in the industry. This research will discuss how AI technology affects and find out what impact will occur if using AI technology in the industrial field. Therefore, this article is entitled "The Influence of the Development of Artificial Intelligence Technology in the Industrial Field".

Development of artificial intelligence (AI). Artificial intelligence (AI) or artificial intelligence is intelligence added to the system, or in other words the ability of the system to correctly interpret external information and manage this information and use processed products for specific purposes (Ramadhan, Noertjahjono, & Irawan, 2020). Every invention in electronics, engineering, and many other fields has been influenced by artificial intelligence. Some of the early discoveries of problem-solving include basic work learning, knowledge representation, and reasoning as program models for language comprehension, translation, theory examination, associative memory, and knowledge-based systems (Manunggal, Santoso, & Wicaksana, 2022). Industrialized countries are becoming mechanized, machines are advancing. Artificial intelligence is not only about robots but also about understanding the nature and operation of intelligent thinking using computers as experimental devices. Several studies show that Europe and the United States are pioneering countries in the application of artificial intelligence (Halim & Prasetyo, 2018).

Artificial intelligence is used in several fields such as education, the eco, economy, and national defense. The United States and China have developed countries in the use of artificial intelligence and often engage in scientific research. Artificial intelligence is applied from elementary school to high school (Manongga, Rahardja, Sembiring, Lutfiani, & Yadila, 2022). Artificial intelligence is a digital utility for

displaying instruction, evaluating student systems and student communication systems. Previous studies have stated that artificial intelligence is a system designed to interact with everyone in the world who has special abilities and intelligence like humans (Yudoprakoso, 2019).

In Indonesia, artificial intelligence is widely used in various industries, including education, health, manufacturing, services, and products. In addition to manufacturing industries that have implemented artificial intelligence on production lines, many schools use learning outcome assessment systems that use artificial intelligence (Trinoto & Valentino, 2021). State institutions also use artificial intelligence in carrying out their duties as state regulators. The positive effect of the introduction of artificial intelligence is a reduction in waiting time and an improvement in the quality of processes or service results. But AI has considerable challenges in some developing countries, as reducing job appropriations requires considerable investment. The growth of AI companies will also attract potential talents both domestically and internationally, which will drive the dynamics of the AI industry ecosystem (Mumtaha & Khoiri, 2019).

Based on the formulation of the problem above, the objectives of Scientific Writing are as follows:

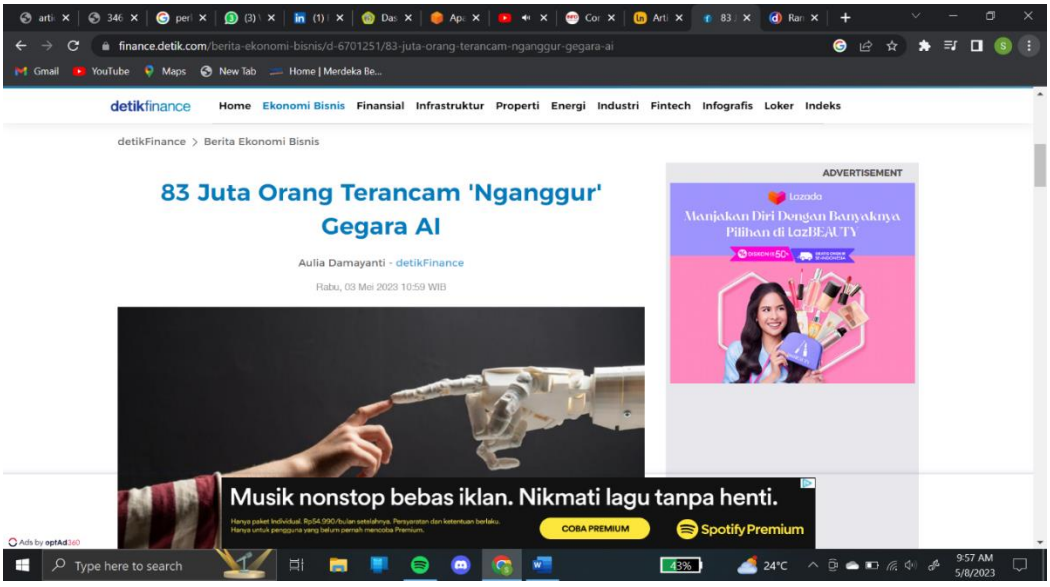
1. Knowing the influence of artificial intelligence in Indonesia.
2. Explain the process of using artificial intelligence and implementing it
3. Explain the positive and negative impact of artificial intelligence in the future.

Research Methods

This study uses a descriptive method that aims to obtain an objective picture of the situation by filling out questionnaires. This questionnaire content analysis is a research method that is widely used in social science research because it is easily suitable for small-scale research, does not require many requirements, and does not require much cost. Questionnaire content analysis is a research method used to conclude objectively and systematically by identifying certain features of a document. Field evaluation confirms the indicators obtained from content analysis and receives evaluation from specialists in the field.

Results and Discussion

Based on the findings of research results in the form of information which is then analyzed, discussions are carried out by theory and logic. To be more detailed and elaborate, this discussion will be presented by the problems studied.



Jakarta-The world of work will experience major changes in the next five years. The World Economic Forum (WEF) revealed in its 'Future of Jobs' report that almost a quarter of jobs change in the next five years.

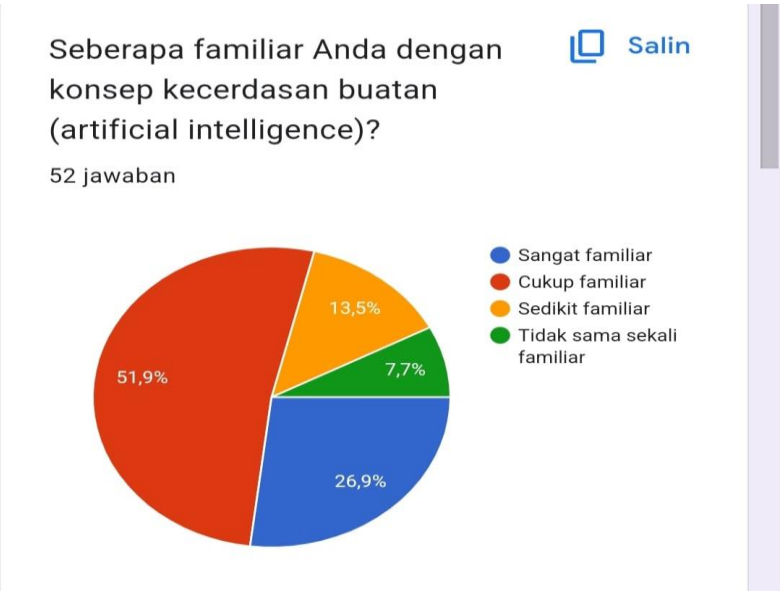
In the report, it is estimated that about 23% of jobs will be disrupted, so there are jobs lost, and will come up with new ones. The WEF estimates that within the next five years, the number of jobs will decrease by 14 million. Even 83 million jobs will be lost, and only 69 million new jobs will emerge.

"Overall, the level of change is quite high," said WEF Managing Director, Saadia Zahidi, quoted from CNBC, Wednesday (3/5/2023).

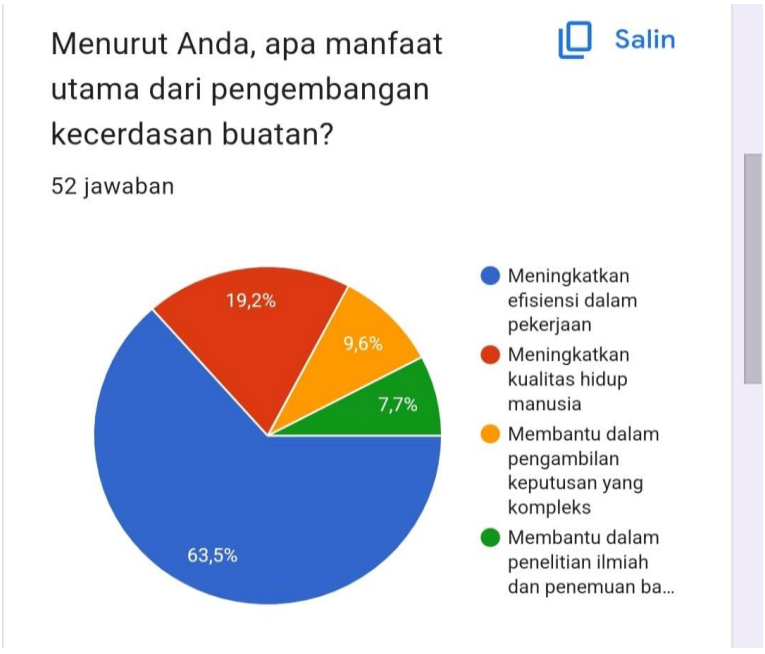
The report is based on a survey of 803 companies employing a total of 11.3 million workers in 45 different economies around the world. Concerns about technological changes negatively impacting work have grown, especially since the proliferation of new technologies from AI such as ChatGPT. Technology is feared to be one of the biggest drivers of job losses (Suryadi, 2020).

"The biggest losses are expected to be in administrative roles and traditional security, factory, and trade roles. Driven primarily by digitalization and automation," the WEF report said. Although there are jobs that will disappear, there will be new jobs emerging in some sectors. Some sectors that will still grow employment include the education, agriculture, and health sectors.

"In part, it's not because it's an insecure, low-paying, low-skilled job around the world. These are higher-skill, higher-value-added jobs enabled by technology in agriculture, health, and education," he said. AI is described as a key driver of the potential algorithmic move of jobs The WEF said nearly 75% of companies surveyed would adopt the technology. About 50% of companies expect new jobs from AI, while 25% expect a decline in jobs. Other factors that are also likely to lead to job declines in the coming years include the impact of the Covid-19 pandemic, supply shortages, and the global cost-of-living crisis.



In the picture above there are the results of an analysis of 52 respondents about how familiar you are with the concept of artificial intelligence. There were 4 answers in the selection with each percentage as follows: Very familiar (26.9%), Quite familiar (51.9%), Little familiar (13.5%), and Not at all familiar (7.7%).

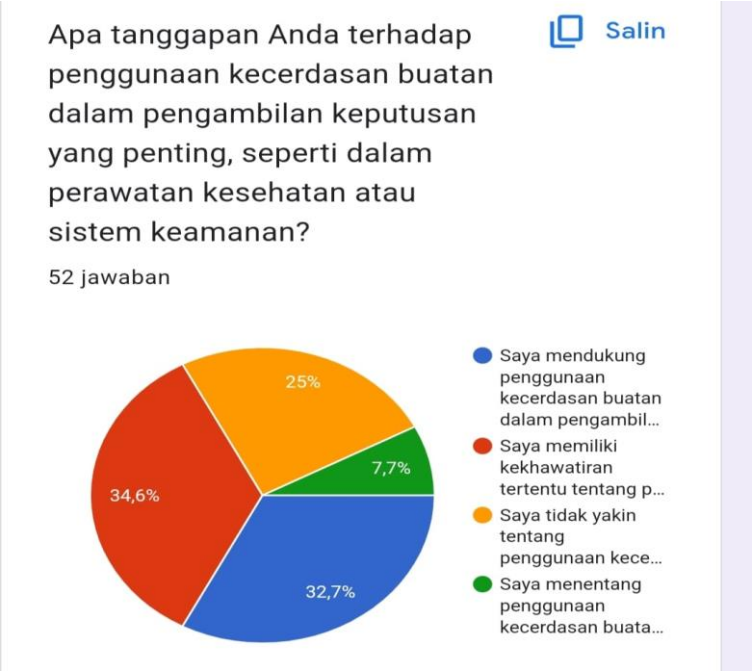


In the picture above there are the results of an analysis of 52 respondents about the main benefits of developing artificial intelligence. There were 4 answers in the selection with each percentage as follows: Improve the quality of human life (19.2%), Assist in complex decision making (9.6%), Assist in scientific research and discoveries (7.7%), and Increase work efficiency (63.5%).

In the picture above there are the results of an analysis of 52 respondents about whether you are worried about the development of artificial intelligence. If yes, why. There were 4 answers in the selection with each percentage as follows: Yes, because of concern about the use of human work (44.2%), Yes, because of concern about data privacy and security (25%), Yes, because of concern about unethical use or potential harm (19.2%), and No, I am not worried about the development of artificial intelligence (11.5%).

In the picture above there are the results of an analysis of 52 respondents about the extent to which you believe that artificial intelligence can reach the level of human intelligence. There are 5 answers in the selection with each percentage as follows: Very likely (23.1%), Most likely (53.8%), Not sure (9.6%), Less sure (9.6%), and Unlikely (3.9).

In the picture above there are the results of an analysis of 52 respondents about how you see the role of artificial intelligence in the future. There were 4 answers in the selection with each percentage as follows: Substitute for human work in many fields (28.8%), Tools for humans in work and daily life (51.9%), Provide solutions to complex problems in the world (11.5%) and Carry certain risks that need to be watched out for (7.7%).



In the picture above there are the results of 52 respondents' analysis of your response to the use of artificial intelligence in important decision-making, such as in health care or security systems. There were 4 answers in the selection with each percentage as follows: I support the use of artificial intelligence in important decision making (32.7%), I have certain concerns about the use of artificial intelligence in important decision making (34.6%), I am not certainly sure about the use of artificial intelligence in important decision making (25%) and I oppose the use of artificial intelligence in important decision making (7, 7%).

1. The Influence of Artificial Intelligence on Industry

Now artificial intelligence has been widely used in various industries. Even the people around us are already using AI. Some of the applications of artificial intelligence in the industrial world are:

1. Virtual Assistant

Google and the use of voice search on mobile phones are products of artificial intelligence in the information and technology industry. Google is already using artificial intelligence to make everyday life easier. Just by using voice recognition, we can do anything without writing and can find the nearest restaurant on Google with this AI robot recommendation.

2. Technology & Security

Many security loopholes in network technology affect Internet security or technology usage. However, these security issues may now become more serious when facial recognition methods are used. This facial recognition is now widely used in a variety of technologies, ranging from online presence apps to other online services. So that technology becomes more accurate and cannot be lied to anymore. If you use facial recognition technology, then you are already using AI technology in everyday life.

3. Service Field

Next is the customer service area. Where now many chatbots are used to replace CS because they can be on for 24 hours. These chats are automatically created to respond to automatically. This can be done via email or other means of communication. Thus, online services can more easily and quickly respond to customers by using artificial intelligence in chatbots.

4. Marketing / Advertising Field

Along with the development of digital advertising or digital marketing, artificial intelligence is involved. It works by showing ads to specific users. For example, when you search for office applications on the Internet or search social media and marketplaces, ads related to what you are looking for will appear. This way, ads can be shown to those who need them. Similarly, if you search for a specific product in the market, you will be shown many other product recommendations. This is the use of artificial intelligence in marketing. Where they use algorithms to read your behavior on the platform. Then AI helps point out relevant things.

A. The Development of Artificial Intelligence Can Enter Indonesia

AI has been used in Indonesia since the 1980s, Adhi said. However, at that time, only companies in certain industries, such as oil and gas, air transportation, and logistics used artificial intelligence. Oil and gas companies often use artificial intelligence to find oil wells. Meanwhile, airlines and logistics companies are using artificial intelligence to determine fleet routes. Adhi explained the reason many companies do not use AI is because of the limitations of existing technology. "Why in the past only airlines or oil and gas companies could use artificial intelligence? Because only they can buy supercomputers which then cost billions," he said in an interview with Hybrid.co.id. "Now we already have a supercomputer in our hands, that is, a smartphone."

Examples of the use of artificial intelligence in Indonesia today can be found in various fields such as health, agriculture, and production. In the healthcare industry, artificial intelligence is used to identify diseases and help doctors make more accurate diagnoses. In the agricultural sector, artificial intelligence is used for weather

forecasting, crop data analysis, and optimization of agricultural production. In the manufacturing sector, artificial intelligence is used to manage production flows and increase production.

B. What are the Positive and Negative Effects of Using Artificial Intelligence in the Future

Artificial intelligence or AI has both positive and negative effects on society. Here's a further explanation of these effects, the positive impact of AI on society:

1. Better efficiency and productivity: AI can help improve efficiency and productivity in various fields. For example, in industry, AI robots can perform repetitive and dangerous tasks automatically, saving time and money.
2. Improve quality of life: AI can help improve people's quality of life by providing solutions in areas such as healthcare and the environment. For example, artificial intelligence can help predict the likelihood of disease and provide appropriate and accurate treatment solutions.
3. Provide convenience in everyday tasks: Artificial intelligence can help people with everyday tasks such as planning schedules and managing finances. For example, AI can help people create efficient work schedules or predict monthly expenses.

The negative impact of AI on society:

1. Replacement of human workers: AI can replace employees in repetitive and dangerous tasks. This can lead to job losses and economic uncertainty for those involved.
2. Technology dependence: Excessive use of AI can lead to technology dependence. People may lose certain skills and abilities because they rely more on machines than on learning and developing their skills.
3. Data protection and security policies: The use of poorly regulated artificial intelligence can threaten the privacy and security of personal data. Irresponsible people may misuse or steal personal information, causing harm to individuals or organizations.

C. Our Opinion on the Problem Studied About "83 Million People Threatened with 'Unemployed' AI Shock"

1. According to 10520026-Shariar Calabrian Islam Taufik:

In this case, humans will always experience changes and development. This is inevitable because humans always innovate. After all, the intellect and intelligence to manage things become more sophisticated. Humans always try to create innovative works to be able to help their work and even try to make a technology that can replace them in thinking. This starts with developing Artificial Intelligence (AI) and allows it to lead to a term called singularity. Humans can enter an era of singularity where Al's intelligence surpasses humans. The purpose of this paper is to examine Al and singularity is either a mistake or a challenge. By using descriptive qualitative methods, the primary data obtained is carried out with a literature approach. As for the results of this study, technological sophistication cannot be restrained, so singularity is indeed a

challenge. The challenge is all the more evident if we maintain humanity as an entity that cannot be replaced by such a sophisticated AI.

2. According to 10520028-Rismayanti:

In my opinion, it is natural that many people are afraid of losing their jobs due to the development of AI technology, but the presence of technology also has positive and negative impacts. Instead of being afraid of the development of AI technology, it is better to take a positive impact by studying and utilizing AI technology to make work easier and more efficient so that AI technology does not replace human work. Inevitably have to use technology because technology will be increasingly developed and new technologies will emerge.

3. According to 10520006-Dylan Revina Sopian:

In my opinion, AI technology is very influential on human life, especially in the industrial field, where humans live side by side with AI. As long as humans can keep pace with their development, the unemployment that will be caused can be minimized.

4. According to 10520015- Great Advensius Dede Saputra:

In my opinion regarding the problem of unemployment caused by the advancement of Artificial Intelligence, as we all know that technology today is very extraordinary and sophisticated, especially in the industrial field. With this technology, more and more human labor is no longer needed, as a result, many jobs in the industrial field do not require human labor, but technological or robotic personnel. Therefore, more and more jobs are obtained and resulting in unemployment. In my opinion, the local government should provide training or employment that needs human labor so that the impact of unemployment is reduced (Febrianti et al., 2021).

5. According to 10520032-Krisna Octavian:

Along with the rapid development of AI technology, human skills are also needed that can operate it properly so that it can help humans work optimally. If not balanced, it can have a bad impact on humans themselves, namely the lack of jobs replaced by AI.

Conclusion

The implementation of AI varies widely across different organizations and overall AI is rated as an organizational strength to improve the efficiency and effectiveness of process procedures. The implementation of AI must be accompanied by rapid product development to minimize gaps in data security and to respond to user or consumer needs quickly so that AI technology continues to be used and is not obsolete. In addition, AI technology with a high level of market competition, is also easy to be dominated by foreign markets so if it does not make continuous system improvements and increase cooperation between organizations, AI with local developers will be weak. In this research there are still many limitations, especially in terms of time and scope of research, therefore further studies are needed on AI, especially at the level of acceptance in society. We recommend that AI in business incubators needs to be given special

attention (not combined with other topics) and to achieve a certain level of success in implementing AI requires a certain pattern of success.

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