Implementation of Performance Management in Artificial Intelligence System to Improve Indonesian Human Resources Competencies

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Abstract
This study aims to analyze and explore the artificial intelligence system with Performance Management Studies through the POAC (Planning, Organizing, Actuating, and Controlling) method to improve the competence of human resources in Indonesia. The era of digital transformation is part of the process of greater technology, and this is a change related to the application of digital technology in aspects of life that exist in society. Indonesia is in need of higher quality resources to deal with artificial intelligence systems that demand smart company operations, smart services and innovative products. Performance management analysis is needed in the artificial intelligence system that can be applied in the development of science and human resource competencies in Indonesia, which include: analyzing HR competencies in the working world and industry systems, synergizing the role of higher education with relevant ministries and agencies, analyzing and mapping the education budget, and analyzing the HR needs of industry or companies with an artificial intelligence system. It is expected that the POAC method can be used as a reference for developing human resources competencies in the application of artificial intelligence systems in Indonesia.

Keywords: Artificial Intelligence; Human Resource Competencies

Introduction
Technological advancement allows automation in almost all fields. New technologies and approaches that combine the physical, digital, and biological worlds will fundamentally change the pattern of human life and interaction (Tjandrawinata, 2016). Artificial Intelligence, as a part of the technological revolution, changes the way humans do activities in scale, scope, complexity, and transformation. Humans will even live in global uncertainty, therefore humans must have the ability to predict a rapidly-changing future. Each country must respond to these changes in an integrated and comprehensive manner. This response involves all global political stakeholders, from the public sector, private sector, academicians, and civil society so that the AI challenge can be turned into an opportunity.
An area of technology that has become a major contributor in digital transformation is the field of artificial intelligence. Artificial intelligence is the development and integration of the fields of electronics, computer science and mathematics. Simply put, systems with artificial intelligence can do things like humans do, such as thinking, making decisions, classifying, or even predicting future situation.

In this increasingly developing era, which is the digital age, technology is crucial. The world is currently facing a technological era or commonly called the industrial revolution 4.0. This condition is marked directly by the use of digital machines and the internet which causes rapid and significant changes to all sectors of human life, making it easier for humans to do various jobs. The era of digital transformation is part of the process of greater technology, and this is a change related to the application of digital technology in aspects of life that exist in society. Digital transformation can be considered the third stage in embracing digital technology. The era of digital transformation is changing business and social conditions, thus it requires companies, organizations, and society to adapt to technological developments so they can remain relevant and not left behind.

More than 20 years since its first development, artificial intelligence has evolved very quickly. Various aspects of life have become an inseparable part. Some aspects of life that have been assisted by artificial intelligence include: industry, economy, education, social and even medicine and health. It is predicted that all facets of human life will become an inseparable part of artificial intelligence.

Performance management analysis is needed in an artificial intelligence system that can be applied in the development of science and human resource competencies in Indonesia. It is hoped that the POAC method can become a reference for developing human resources competencies in the application of artificial intelligence systems in Indonesia.

**Method**

This study used a literature study approach to determine the extent of innovation that has been designed in the implementation of artificial intelligence. After collecting data through literature review, then the analysis on the implementation of artificial intelligence was carried out. The aim is to analyze and explore the artificial intelligence system with Performance Management Studies through the POAC (Planning, Organizing, Actuating, and Controlling) method to improve the competence of human resources in Indonesia.

**Basic Theory**

**Artificial intelligence**

The Britannica Encyclopedia defines Artificial Intelligence (AI) as a branch of computer science that represents more knowledge in the form of symbols rather than numbers, and processes information based on heuristic methods or based on a number of rules [7] [8]. AI is not necessarily able to replace the role of humans in the industry, but the role of AI as a supporter of HR performance, therefore the need for competency development by HR is something that cannot be done by AI, one of them is to improve HR soft skills.
Why do we need to learn artificial intelligence (AI)? AI has the ability to influence every aspect of our lives. The field (Artificial Intelligence / AI) tries to understand the patterns and behavior of entities. With (Artificial Intelligence / AI), we want to build smart systems and understand the concept of intelligence as well. The intelligent system that we built is very useful to know how intelligence systems, like our brain, build another intelligence systems [1][2].

**Artificial Intelligence and Human Resource Development**

There are many more methods or algorithms that can be used for the development of artificial intelligence. However, this article will not discuss the use of methods or algorithms applied in the creation of artificial intelligence, but this section will explain the role of artificial intelligence in increasing the competence of human resources.

Artificial intelligence is one of the new technologies that continues to grow and can also be used to increase the competence of human resources in the era of Indonesia's digital transformation that is growing rapidly. When moving forward to Society 5.0, all people's lives will be more comfortable and sustainable. Humans will be provided with products and services only in the amount and time needed. Human Resources (HR) is the key to face the era of digital transformation. Industry 4.0 and society 5.0, which are based on technological development, require Indonesia to prepare for the development of reliable resources. That way, Indonesia should need to prepare quality human resources who are able to make the best use of technology [11].

Human resources (HR) are productive individuals who work as activators of an organization, both within institutions and companies that have the asset function, thus they must be trained and developed [10]. Therefore, employees who have a strategic role to be able to realize achievements can take advantage of artificial intelligence to be able to produce a Digital Transformation [11][12].

One result of artificial intelligence is the problem with Customer Service role that cannot serve 24 hours, and it can be replaced with AI, namely Chatbot technology, where AI technology can automatically answer to questions correctly [14].

**Work Management**

Performance management is a strategic and integrated process that supports organizational success through the development of performance aspects that support the existence of an organization. In its implementation, performance management is not only oriented to one aspect, but rather integrated aspects in supporting the sustainability of an organization (Directorate General of Finance: 2008).

The goals of performance management are [15]:
1. Organizing organizational performance in a more structured manner.
2. Knowing how effective and efficient an organization's performance is.
3. Helping determine organizational decisions related to organizational performance, the performance of each section in the organization, and individual performance.
4. Improving overall organizational capability with continuous improvement.
5. Encourage employees to work according to procedures, with enthusiasm, and be productive, for optimal work results.
Performance Planning Process:
5W1H
- What
- Where
- When
- Why
- Who
- How

Implementation of Performance Management:
POAC
Planning
Organizing
Actuating
Controlling

Finding and Discussion

Director of the Center for Information and Communication Technology of BPPT, Purwoadi, explained that the strategy and roadmap for the development of artificial intelligence carried by the Minister of Research and Technology and the Head of the National Research and Innovation Agency (BRIN) Bambang Brodjonegoro will soon be completed.

Even so, he said there are major challenges in the project, which are human resources (Our educators have low competence, especially in mastery of technology. Only 2.5 percent are not technologically literate. The rest are clueless or technology illiterate) and research which were deemed unsupportive if AI robot is to be implemented. "We are not experienced in that field (AI). Not due to infrastructure, because we are already qualified, but in terms of technology, there are also many companies in Indonesia that make their own algorithms," [16].

5W 1H

| Artificial Intelligence | What | Who | Where | When | Why | How |
|------------------------|------|-----|-------|------|-----|-----|
| Intelligence added to a system that can be arranged in a scientific context or can also be called artificial intelligence | Human Resources who work using and relating to artificial intelligence | In companies that deal with artificial intelligence | The era of the industrial revolution 4.0 | More and more work using artificial intelligence | By studying and improving the ability to analyze and explore the artificial intelligence system in the company |
| Planning                                      | Organizing                                           | Actuating                                              | Controlling                                             |
|----------------------------------------------|------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------|
| Artificial Intelligence                       |                                                      | 1. Incorporate information and communication technology (ICT) training | 1. Evaluate the capabilities and competencies of HR in each company. |
| 1. Analyzing HR competencies in the world of work and industry systems. | 1. Increasing HR competency through training programs and training equally. | 2. Excellent human resources working in companies according to the needs of the work industry. | 2. Evaluation between universities and industry in stakeholder meetings |
| 2. Synergize the role of higher education with the ministries of education and culture, the ministry of | 2. There is a two-way communication between workers providers and the needs of superior workers. |                                                      |                                                        |
| labor and related institutions.               |                                                      | 3. Vocational training in the work industry related to artificial intelligence and research in delivering artificial intelligence products. |                                                        |
| 3. Analyze and map a significant education budget to build educational facilities and infrastructure that supports readiness to deal with artificial intelligence systems. | 3. Preparing a significant education budget to build educational facilities and infrastructure that supports readiness to deal with artificial intelligence systems, providing educational incentives such as scholarships, research and vocational training | 4. Industries and companies are increasingly aggressively increasing their ability to adapt in the development of intelligence |                                                        |
| 4. Analyzing the needs of industries or companies with an artificial intelligence system based on increasing human resources. | 4. Support the development of industries or companies with an artificial intelligence system based on increasing human resources. |                                                      |                                                        |
|                                              |                                                      | 3. The results of research on artificial intelligence products that are ready to function. |                                                        |
|                                              |                                                      | 4. The existence of feed back from both the community as the beneficiary and the government. |                                                        |

Based on the assumptions, the challenge must be answered quickly and precisely so as not to contribute to an increase in unemployment. The government must respond to the threat of unemployment through cross-ministerial and institutional policies in issuing various policies. The government needs to review the relevance of vocational education and employment to respond to changes, challenges, and opportunities of the industrial era 4.0 while continuing to pay attention to humanities.
The movement launched by the government is the new literacy movement as an amplifier and even shifts the old literacy movement. The new literacy movement is intended to focus on three main literacies namely, 1) digital literacy, 2) technological literacy, and 3) human literacy (Aoun, 2017). These three skills are predicted to be skills that are very much needed in the future or in the industrial era 4.0. The new literacy movement is intended to focus on three main literacies namely, 1) digital literacy, 2) technological literacy, and 3) human literacy (Aoun, 2017). These three skills are predicted to be skills that are urgently needed in the future or in the industrial era 4.0.

In order for HR not to be replaced by butane intelligence, the need for competency development, one of which is the improvement of soft skills, digital transformation in the current era is very much needed to undergo a change from Conventional to the all-digital era. Digital literacy is directed at the aim of increasing the ability to read, analyze, and use information in the digital world (big data), technology literacy aims to provide an understanding of the workings of machines and technology applications, and human literacy is directed at improving communication skills and mastery of design science (Aoun, 2017). The new literacy provided is expected to create competitive human resources by perfecting the old literacy movement which only focuses on improving reading, writing and mathematics skills.

Conclusion

Based on the research result, it can be concluded that: artificial intelligence is one of the latest technologies. Artificial intelligence does not necessarily replace the role of humans in the industry. HR role is not replaced by the AI. There are needs for competency development, including the improvement of soft skills. Digital transformation in the current era is very much needed in order to experience a change from the conventional era to all-digital era.

Excellent human resources must possess data, technology and human literacies. Data literacy is needed to improve skills in processing and analyzing big data for the benefit of improving public and business services. Technology literacy refers to the ability to utilize digital technology to process data and information. Whereas, human literacy must be mastered because it shows the element of soft skills or individual character development to be able to collaborate, be adaptive and be wise in the era of "flood" of information.

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