Challages and Opportunities Indonesian Human Resources Manajement in Facing The Industrian Revolution 4.0

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Abstract

The world today has entered the era of the fourth generation Industrial revolution or commonly called the 4.0 Industrial Revolution characterized by the increasing connectivity, interaction and development of digital systems, visuals and artificial intelligence. Along with the development of the era, the quality of human resources becomes very important for Indonesia's success facing the IR 4.0 Era. The purpose of this research is to describe and analysis the efforts of improving the quality of human resources utilizing opportunities and facing enormous challenges of change. This research is a study of literature from various sources relating to the development of the IR 4.0 paradigm. The results of this research show that HR factors are key to answering the challenges of the IR 4.0 era.

Keywords: Revolution Industry 4.4, Human Resource, Making Indonesia 4.0.

Introduction

The Era of the 4.0 Industrial Revolution has major challenges as well as opportunities for human resources experienced by Indonesia today. The Indonesian Government has established 10 priority programs facing the 4.0 Industrial Revolution. The ten programs are (1) improve flow of goods and materials. (2) Optimizing the policy of industrial zones by aligning the road map in industry sectors, (3) accommodating the standards of sustainability, such as the capabilities of industrial-based clean technology, power, biochemistry, and Renewable energy, (4) Empowering SMES (5) to build national digital infrastructure. (6) Attracting foreign investments, (7) improving the quality of human resources by enhancing the quality of vocational schools, (8) Prepare for a central demonstration of innovation and optimize related regulations. (9) Provide incentives for technological investments, namely the redesign of the technology Adoption Incentive Plan and (10) harmonious between the rules and policies to support the 4.0 Industrial Revolution. Among the ten programs, the quality improvement of human resources by the Government is seen as the most heavy component to do. According to Aoun (2017) to obtain competitive human resources in the 4.0 industry, HR development should be designed for the out-put to be able to communicate new literacy, namely 1) data literacy, namely the ability to read, analyze and utilize big data information in the digital World, 2) technological literacy, which is to understand how the machine works, technology applications (coding, artificial intelligence and engineering Principles) and 3) Human literacy, humanities, communication and design. In the perspective of human literacy, the goal is that people can function properly in an increasingly dynamic human environment.

The problem is the readiness of Indonesian human resources to compete in the global arena while Indonesia's ability to compete still remains behind the rest of the country. The rating agency WEF,2017 Indonesia's competitive position is ranked at 36 from 137 countries surveyed. Likewise, the competitiveness of Indonesian innovation was ranked at 87 from 127 that was surveyed behind from Singapore ranked Ke7, Malaysia to 37 and Thailand to 51 (WIPO, 2017). Another problem is the characteristic of working people, according to data from BAPPENAS (2019), Human capital Index or

The Human Capital Index (HCI) Indonesia is only 0.53 (from a scale of 0 to 1) or is ranked at 87 from 157 countries in the world. Therefore, the Government continues to strive to make the Human Development Index (HDI) Indonesia continuously improved through improved education quality. As the fact, in quality, for now, Indonesian human resources has the actual competence still not in accordance with the needs of the industry 4.0.

Later, the World Bank revealed that Indonesian Human Resources is ranked 6th ASEAN, under Singapore, Vietnam, Malaysia, Thailand and the Philippines. Indonesian formal education also fails to print suitable and related students (link and match) graduates with industry needs. In fact, according to the Biro Pusat Statistik (BPS) in February 2019, showed graduates of elementary school (SD) dominated the population working in Indonesia, the portions reached 40.51 percent so that needed breakthrough that could encourage the acceleration to build the quality of Indonesian human resources. The unemployment problem and the competitiveness of human resources become a real challenge for Indonesia. The challenges faced by Indonesia are also added by the demands of companies and industries. The World Bank (2017) reported that the working market requires a multi-skills graduate that is forged by the unit and education system, both secondary education and higher education. Indonesia is also predicted to have a demographic bonus in 2030-2040, i.e. people with more productive age than non-productive population. The population of productive age is estimated at 64% of the total population of Indonesia, estimated at 297 million. Therefore, the number of people with productive age must be followed by improved quality, both from education side, skills, and competitive ability in the labor market.

A research done by Mckinsey, predicting that Indonesia has entered the demographic bonus period, it will take 17 million digital literate workforce, with a composition of 30 percent in the manufacturing industry and 70 percent in its visitor industry. The findings are aligned with those done by Bekraf (Badan Ekonomi Kreatif) which mentions in 2030 with the rapid development of digital economy, the workforce required to reach 17 million people. As for the five industrial sectors that will be the backbone to achieve big aspirations "Making Indonesia 4.0 ", namely the food and beverage industry, textile and clothing, automotive, chemical, and electronics are selected by the government because it is rated to have high leverage..

Literature Review

The 4 0 Industrial revolution is characterized by the occurrence of automation and data exchange trends in manufacturing technology, including cyber-physical systems (CPS), IoT and cloud computing. The 4.0 industry has been implemented gradual and is often initiated with the implementation of digital systems. Digital technology encourages the development of new business models (new model business) and opportunities to produce different values and change from the previous and can be perceived impact and development in developing countries (UNIDO, 2016). The physical components of the industry will be transformed more intelligently, deploying digital networks into CPS, which allows management to manage the production process in real time without limited distance and the ability to customize the product. Industry 4.0 opens the door to innovation and economic strength. This allows the product to be appropriately tailored to the customer's needs – with low cost, high quality, and with high efficiency rates (Lewis and Naden, 2018).

The 4.0 industry has the potential to increase productivity and competitiveness, improve energy efficiency and resources, while also protecting environmental conditions. In this era, the industrial economy will allow its products to be reused, remanufactured and recycled. Mentioned by Rojko (2017), the impact of implementing the 4.0 industry features could result in decreased production costs (10-30%), decreased logistics costs (10-30%) and decreased quality management costs (10-20%). Furthermore also mentioned other advantages of the implementation of the 4.0 industry are: 1) Shorten the marketing period of new products, 2) improve response from customers, 3) The opportunity to customize the product without increasing production costs, 4) A more comfortable and flexible work environment, and 5) More efficient in energy use and resources.

Research Methods

In this case the authors use a descriptive research method and the type of research used is literature. In drafting this article, researchers collect as much information from the related literature. The library's sources come from the journal, reports of research, scientific magazines, newspapers, relevant books, seminar results, unpublished scientific articles, resource sources, literature papers, graphic video, and so on in relation to human resources, with the 4.0 industrial Revolution, the

challenges and opportunities of the digital era in improving human resources in Indonesia.

Discussion

Human Resources (HR) is an important point to encourage a country to evolve into the next generation of industry, no exception to Indonesia. In addition to investment and technology needed, skilled human resources need to be prepared to welcome the 4.0 industry.

Ministry of Industry identifies at least 10 main challenges Indonesia faces IR 4.0 era i.e. 1) Upstream and less developed midstream. The raw materials and key components of the industry depend on imports. 2) less optimized geographical potential. 3) The Trend of global Sustainability is not 4) left behind. 5) Insufficient digital infrastructure 6) domestic financing and limited technology 7) labor of many but untrained 8) the absence of innovation Centers 9) The tendency to not change 10) & settings are still overlapping policies.

There are three things related to human resources that need to be considered, namely the problem of quality, quantity and distribution of human resources between regions in Indonesia.

First is quality, which is an effort to produce quality human resources to fit the needs of work market based on digital technology. Second, is the quantity problem, namely to produce a quality human resources, competent and appropriate industrial needs. Thirdly, is a problem of quality HR distribution that is still not evenly distributed between regions in Indonesia.

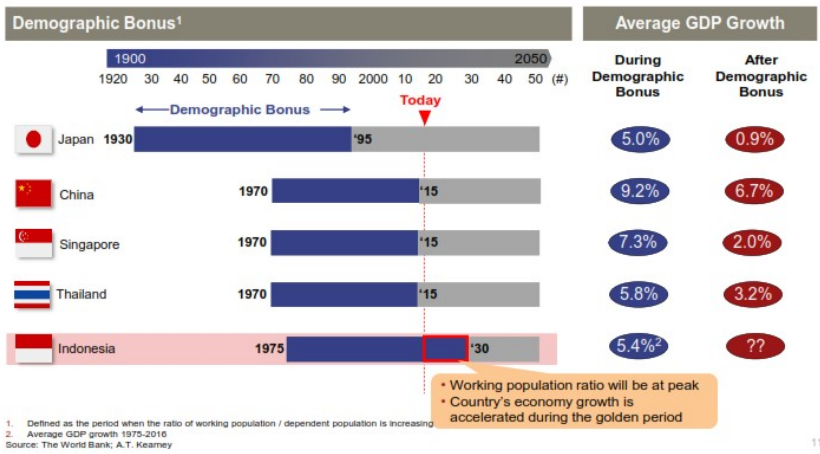
To address the challenges of the 4.0 industry, vocational education (Vocational education) as an education oriented towards individual performance in the workforce; As well as training of increased worker skills and prospective workers to be a strategic choice to encourage. Brown, Kirpal, & Rauner (2007) argues that vocational training and skill enhancement greatly affect the development of a person's identity related to work. Vocational education is where one's maturity and skill is ready for the workforce.

The opportunity to be taken by Indonesia can have a starting point from the wealth of Indonesian natural resources as well as the Indonesian demographic bonus in the year 2030-2040. The opportunities of processing natural resources of Indonesia

should be a factor of strength such as tourism sector, the natural cultivation of fruits, vegetables and spices. Through the development of Indonesian natural resources, the role of community in society will be important '

With the demographic bonus in the year 2030-2040, if it can prepare well then it is a very profitable opportunity for the development and growth of Indonesia's economy. From the experience of some countries, demographic bonuses can boost economic growth very significantly.

Gambar 1. Demographic Bonus and Average GDP Growth



In the face of the 4.0 industry, the Indonesian government has devise an HR development strategy to have a good competitiveness in implementing this era. This is as strategic step of Indonesia development that poured into the document Strategis'making Indonesia 4.0 ' as road map to IR 4.0.

Clonclution

The revolution of the 4.0 industry changes paradigms, thinking patterns and ways of acting to creative and innovative in various fields. Indonesia has the potential to immediately enter the IR 4.0 era by utilizing Indonesian natural resources and demographic bonuses in the year 2030-2040. HR Management is the main key for Indonesia to compete with other countries globally and to make use of it for Indonesia's better development.

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