The International Journal of Business Management and Technology, Volume 7 Issue 1 January-February 2023
ISSN: 2581-3889

Research Article Open Access

The Impact of Industry 4.0 to Labor in Indonesian's Law Perception

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Abstract: The development of globalization occurs almost all over the world. Even though its influence reaches the economic sector and controls the occurrence of an industrial revolution called Industry 4.0, its application in economies worldwide can be achieved through increasingly sophisticated technological developments. The use of technology aims to provide convenience in aspects of human life, especially for various jobs such as used as a substitute for replacing human resources with machine resources on an industrial scale. However, this results in the risk of high levels of unemployment. So it needs to be prevented by the government through laws. However, the rapid technological changes in industry 4.0 have yet to be followed by regulations that can adapt quickly. Therefore, further evaluation and studies regarding this law are needed. Because the law is fundamental to protect workers at risk of termination of employment due to the difficulty of competing in the world of work in the Industry 4.0 era through regulations, the rights and obligations of workers, as well as employers and legal protection for both of them will be more transparent. Thus, it is necessary to carry out further studies related to the current situation with the relevance of existing regulations.

Keywords: Globalization, Industry 4.0, Indonesia, Labor, Law,

I. INTRODUCTION

The influence of globalization that is happening all over the world makes it easier for every country to develop by knowing many things about foreign countries only by using technology. Currently, with the help of technology, every human being can exchange information, even knowledge, with other humans who are in distant places. Although globalization has occurred since the 19th century with the existence of steamships, railroads, telegraphs and others, this has also been able to increase economic cooperation between countries. Even though globalization helps the development of a country by building its economy, the process of globalization indirectly affects other fields, such as the social, cultural, and political aspects of a country[1].

The rapid development of digital technology today has given rise to the industrial revolution, which is currently known as Industry 4.0. In this development, technology becomes the basis and influences almost all aspects of life. The most developed technologies in this era are augmented reality, blockchain technology, big data, the internet of things, and rapid prototyping[2].

However, this rapid development has given impetus to every country in the world to be more competitive in implementing the technology used in life. Unfortunately, in technology development, not all countries are ready to adopt the technology due to a lack of capacity and supporting infrastructure, especially for developing countries where the focus is not on technology[3].

Even though developing countries must move quickly to catch up with developed countries, the influence of the implementation of this technology has not been spared from Indonesia. So, by taking this momentum, Indonesia is trying to adopt the concept of Industry 4.0 in order to be able to compete economically on a global scale. However, the application of Industry 4.0 must be carried out simultaneously with preparations from the government regarding systems and legal umbrellas so that they can protect and provide legal certainty not only for companies or industries but also for workers[4].

In addition, due to the adoption of Industry 4.0, there will be an increase in the substitution of human resources for machine power, so that there will be more automation for factory production and will no longer require human labour,

except for workers with special skills. This provides convenience for industry players because it can provide efficiency with both in terms of time and cost, but this will lead to an increase in the unemployment rate due to limited job opportunities and higher competency standards of workers. In fact, in Indonesia, unemployment is still a problem that has not been resolved, and this will lead to the emergence of a welfare gap that will make competition in the job market even higher[5].

As one of the countries with a large population in the world, Indonesia has a productive age-population ratio that can be correlated with a country's economic growth. Even though the automation of some jobs in the factory has increased, with the right skills, the workforce can avoid the risk of termination of employment. In addition, the use of technology that continues to change in the future is also expected to open new jobs by utilizing this technology. So it's best if the government can encourage the formation of the competence of these workers while still ensuring their welfare through an appropriate legal umbrella so that it is in line with the expectations of Pancasila and also the 1945 Constitution.

However, several regulations in the law seem unable to handle changes that have occurred as a result of the digitalization process in industry 4.0. So that it is found that there are several loopholes that can be used to exploit to the point of causing harm to the workforce, the government as a government agency should be able to prepare preventive anticipation in order to minimize the negative impact of the application of Industry 4.0 which uses more technology in economic activity. Through a clear legal umbrella, workers in the future will still be able to compete in the world of work either with other fellow workers or with machine workers and still get their welfare. And through the study below, will be explained further regarding the situation that will occur with the existing laws and regulations.

II. RESEARCH METHODOLOGY

The chosen research methodology is a qualitative descriptive method by collecting data based on secondary sources and then analyzing and studying these sources. The analysis will be carried out, and the results will lead to conclusions.

III. LITERATURE REVIEW

3.1 The Influence of Globalization Toward Industry 4.0

Increasing technological advances from day to day are not only felt in Indonesia but are happening worldwide. Humans as social beings are increasingly facilitated in this technological change and place humans among dynamic technological flows. This change is not limited to just one field. Still, each country's economy, industry, education, government, politics, law and culture will be affected due to the unlimited exchange of information in this modern era[6].

One example that can be seen in Indonesia is that there have been significant changes in the industrial world, affecting work relations. The emergence of Industry 4.0 affected the industrial in Indonesia, as the country with the large population in the world. Even though in terms of quantity, human resources in Indonesia are abundant so that they have the potential to realize Industry 4.0, this can also cause problems.

On the positive side, globalization can increase global production, enrich people's prosperity, expand markets between countries, help the economic development of a nation, and the emergence of technological advances and additional capital. Although it is said that globalization can hamper the growth of the industrial sector in developing countries, it can make the financial sector unstable and exacerbate economic growth in the long term. It can lead to a more consumptive lifestyle[1].

However, globalization plays a vital role in realising Industry 4.0 in Indonesia. Because of globalization, exchanging information in the form of communication, media, and knowledge between countries has become very easy, especially after the evolution of the internet and telephone networks. This convenience supports Industry 4.0, which is influenced mainly by access to technology[7].

Based on Vaidya et al, there are 9 essential pillars in industry 4.0, namely cloud computing, system integration, addictive manufacturing simulation, artificial intelligence (AI), cyber security, augmented reality, big data, and the internet of things (IoT). In Indonesia, sectors that will significantly influence the development of Industry 4.0 are the electronics industry, the textile industry, the chemical industry, the food and beverage industry, the medical device industry, the automotive industry, and pharmaceuticals.

3.2 The Impact of Industry 4.0 in Indonesia

Developing countries are faced with the concept of a technological revolution, which at the industrial level, this concept was introduced as industry 4.0. The rapid development of technology is needed so that Indonesia remains competitive in global competition. Several impacts may occur due to the adoption of this new concept, even though the aim is to facilitate human activities. In developed countries, Industry 4.0 can be a way to increase infrastructure

competitiveness. In contrast, in developing countries, Industry 4.0 can help simplify production supply chains which are essential to deal with rising labour costs[4].

Industry 4.0 in Indonesia can have both positive and negative impacts at the industrial level. One of the positive impacts of Industry 4.0 is that the Indonesian government has the opportunity to reduce threats from the industrial change in Indonesia. In 2016, changes in the service-based economy caused a decline in the manufacturing industry, causing the country's GDP to become 22%. If left unchecked, it will have a negative impact in 2030. And GDP is an economic indicator of a country regarding its economic condition in a period[2].

The following are some of the impacts of Industry 4.0 in Indonesia:

1. The use of automation

The use of automation in the production and activities of the manufacturing industry has an impact in the form of time efficiency and costs in using robots for production. It is the actualization of the application of the concept of digitization in Industry 4.0. At this stage, using Artificial Intelligence becomes essential to perform tasks previously performed by humans.

2. Risk of Losing Various Jobs

It happens due to the adoption of artificial intelligence and the automation of several types of work. Then some work sectors may disappear because they can be replaced with machines instead of humans again. In addition, adopting technology that continues to develop will affect the skills needed. If a person updates his skills following the development of technology, the risk of unemployment will increase.

3. Changes in

Industrial Digitization, Work Relations Patterns enable a person to do different jobs simultaneously so that a person will do multi-functional work and multi-locations. Furthermore, this will provide changes to the working relationship. Some examples of the type of employment relationship are job supply (which is generally used in the construction sector), the PKWT pattern or the partnership pattern (used in the logistics transportation sector), attendance commission systems when workers are required to be present, partnerships that are business to business so that they use a legal approach purely civil, and work contract systems (such as in the hotel sector, security, cleaning and laundry services)[9].

3.3 Industrial Relations 4.0 with Labor Workers

Based on Law No. 22 of 1957 concerning the Settlement of Labor Disputes, article 1 paragraph states, "Worker is anyone who works for an employer and receives wages". Meanwhile, based on Law No. 13 of 2003 concerning Manpower, workers are equated with workers. So a worker works for someone else and gets paid.

Based on KBBI (Big Indonesian Dictionary), workers are classified into 3: first, unskilled workers who generally use physical force because they do not have expertise in specific fields. Two skilled workers have skills in certain areas, and three trained workers, namely workers who, have been prepared for particular skills[10].

However, the application of Industry 4.0, which uses more digitization in every work role, will undoubtedly impact this workforce. It is due to the use of technology that aims to provide efficiency in human work that can shift workers from human labour to machine labour. In the long run, this will pose a risk of layoffs for the labour force because machines or robots may replace some labour skills.

Termination of employment for these workers will affect the unemployment rate in Indonesia. Based on BPS, the unemployment rate in Indonesia has been experiencing a downward trend since 2020, so this decline needs to be maintained because unemployment can significantly impact economic growth in Indonesia and poses a risk to existing criminal acts.

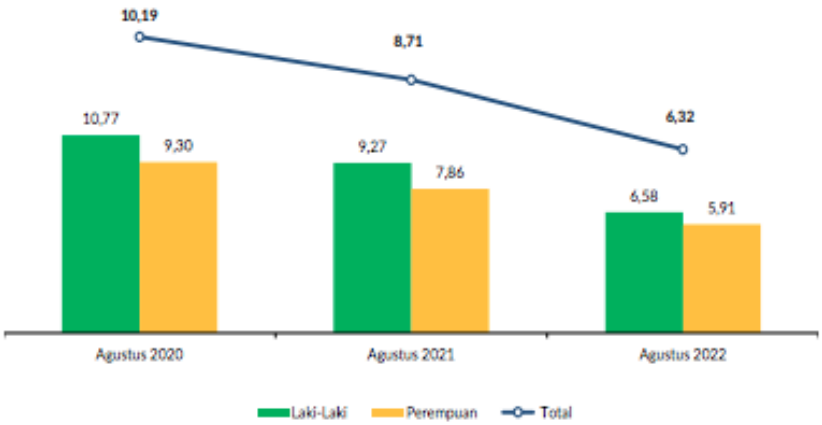

Fig1. Trend of Unemployment Rate in Indonesia in the Last 3 Years Based on Gender.

Source: BPS. 2022

Unemployment not only influences economic growth but also affects society's social level. If unemployment increases, the poverty rate will also increase and indirectly affect Indonesia's GDP value.

Then, this digitalization era will require many new competencies to face industry 4.0. However, based on BPS, the unemployment rate based on the education of the Indonesian people in 2022 shows that the unemployment rate is most at the lower secondary school level

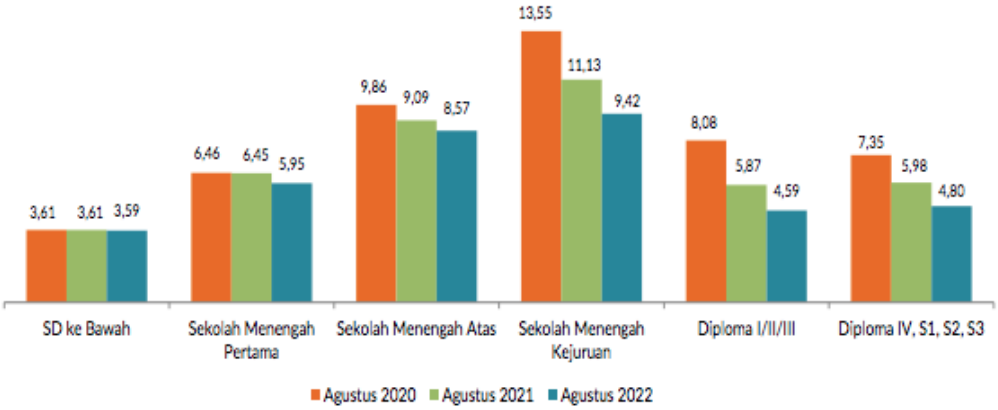

Fig 2 . Trends in Indonesia's Unemployment Rate Based on Education Level
Source: BPS. 2022

It shows that there are limitations to the level of competency of the Indonesian workforce. Workers with a lower secondary school education level will be more at risk if the expertise or skills possessed are less. Meanwhile according to the McKinsey, the need for higher cognitive and technological skills is expected to increase by 8% and 55% in 2030 compared to 2016.

3.4 The Effect of Law on Labor Workers and the Application of Industry 4.0 in Indonesia

Applying the Industry 4.0 system in Indonesia should aim to achieve welfare, justice, and equitable prosperity both materially and spiritually and must be based on Pancasila and the 1990 Constitution of the Republic of Indonesia 1945 (1945 Constitution), which also has the same goal as Industry 4.0, namely for national development. And in realizing this, labour is one of the crucial factors to note because its role is significant.

Currently, the employment relationship in the Manpower Act is the relationship between the employer and the worker/labourer based on the agreement of both parties, the ability or ability to carry out legal actions, and the existence of the work agreed upon. However, the working relationship that emerged in the era of the industrial revolution 4.0 differs from the working relationship stipulated in the Labor Law. The relationship between employers and job recipients (labour or labourers/workers) is no longer permanent and static. Still, it is a natural partnership, so workers or labourers/workers may work for several companies.

In this employment relationship, the time used to work is more flexible, and the workplace does not always have to be in a building. In the case of an employee or labourer/worker salaries, by using a partnership work relationship, salary payment calculations may not use the usual monthly system but are paid in hours, days, weeks or months depending on the agreement and level of expertise. So, with such an employment relationship and salary payment system, in the event of Termination of Employment (PHK), the workforce or labourers/workers will not receive severance pay because the working relationship is of a friendship nature (partnership).

IV. RESULTS AND DISCUSSION

a. Changes in Patterns of Employment Relations for Workers in Indonesia

Changes in employment relations due to the implementation of Industry 4.0 have resulted in several employment relations previously listed in Law No. 13 undergoing a somewhat abstract change. It causes the application of this regulation to be not optimal, so the benefits will be difficult for workers to feel. The digital era will change business models and company management so that work relations will become more flexible and ultimately affect workers' status. In addition, because there are many types of work relationships, the provision of benefits such as wages, work safety and social security needs to be improved.

Previously, in Law Number 3 of 2013, Article 1, paragraph 15 stated that a working relationship is between employers and workers/labourers based on a work agreement, which has elements of work, wages and orders. Still, in the Industrial 4.0 era, in partnership work patterns, for example, many found labour exploitation with meager salaries. It is because the Indonesian Labor Law is no longer relevant, so it needs to be amended to adapt to changing times[9].

b. Labor Competency According to the Labor Law

Jobs with creative and social skills and complex decision-making processes will be more difficult to replace with machines or artificial intelligence, so this type of work is predicted to increase in the future. That is, the workforce wants to continue To compete in jobs, and the crew needs skills that can also use machines and digitalization so that machines will not replace their role. And the Labor Law in several articles, namely articles 11, 12, paragraphs 3, 18, paragraphs 1 and 23, states that companies or business owners are obliged to improve and develop the competence of their employees through job training[9].

c. Termination of Employment

Uncertainty from various patterns of employment relations and the use of machines or robots in several fields can result in the replacement of workers in the industry, and the need for workers with skills and competencies that can keep up with rapid technological developments has a high risk of experiencing termination of employment. Several sectors, such as retail and digital-based businesses, are currently vulnerable to termination of employment. Although based on the Constitutional Court Decision regarding Article 164 paragraph 3 of Law Number 3 of 2013 concerning work, it states that employers may only choose the layoff path if the company closes permanently, and the workers are given some compensation. As well as adding to Article 151 paragraph 1 of the Manpower Act also states that employers/labourers, trade unions/labour unions, and the government must make every effort to ensure that there is no termination of employment, either by setting working time, saving, improving work methods, and provide guidance to workers/labourers. However, several companies continue to terminate employment for efficiency, even though the company is not permanently closed.

V. CONCLUSION

a. Conclusion

The influence of globalization on the formation and realization of Industry 4.0, especially in Indonesia, has had a significant impact, especially in the world of work. It is due to the many influences of Industry 4.0 that force Indonesia to adapt to technological changes from time to time continuously. This change caused several aspects of employment previously regulated in the Manpower Act to become less relevant to the current situation. It is because the Labor Law existed before the widespread influence of Industry 4.0 in Indonesia.

Some of the impacts that will be felt by the labour force, such as the ambiguity of the current employment relationship, and the labour force who generally have limited skills or even no special skills, will make it difficult for the labour force to compete in the job market so that opportunities to survive in the Industrial 4.0 era will be even smaller. And if the labour force adapts slowly, such as increasing their competence, carrying out a clear pattern of work relations, the risk of losing their job will also be higher. If the number of workers who lose is high, this will affect the unemployment rate and ultimately affect Indonesia's GDP value. If the growth in the GDP value in Indonesia decreases due to high unemployment, it will be difficult for Indonesia to become a developed country in its economic field.

Indirectly, regulatory arrangements and sound systems can have a significant effect not only on the labour force but the workforce as a whole and also on business people from the individual level to the industrial scale.

b. Recommendation

Firm action from the Indonesian government in reducing fraud due to gaps that arise from gaps between laws that have previously been made and current conditions is urgently needed to minimize losses for workers who have the potential to experience losses due to Industry 4.0 and increasingly massive digitalization. In addition, it is also necessary to evaluate and update several regulations related to human resources so that they can provide more protection and become an unbiased legal umbrella for workers in particular, whether it's regulations about patterns of work relations or regulations that can improve competence and skills for every productive age community so that the workforce benefits and also becomes more prosperous.

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