

Revolution Industry 4.0 – The Vision of the Labor Market in Vietnam

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Abstract:

Industrial revolution 4.0 is expected to have tremendous impact for the labor market in the world/ASEAN in general and Vietnam in particular. This paper aims to provide a better understand of the industry revolution 4.0, its opportunities and challenges, as well as the direction to proactively seize opportunities to leverage the maximum advantage of the revolution 4.0. This revolution will bring many opportunities for development and integration, but also poses numerous challenges to developing countries like Vietnam.

Keywords: Industrial revolution 4.0, the labor market, Vietnam.

1. Introduction

A look back in history showed three major human revolutions in terms of industrialization. Each revolution is characterized by the change in the nature of production created by the breakthrough in science and technology. The first industrial revolution (which happened in the 18th century) marked by the intervention of the steam machine, also known as the mechanical industrial revolution. The second industrial revolution occurred in the late 19th century and early 20th century with mass production of electricity and automatic. The third time for revolution began in the year of 1960, also known as the computer revolution or digital revolution as it is catalyzed by the development of semiconductor computer and the internet [1].

Digital technology, computer hardware, software and network systems which are not new, but the third revolution, have become increasingly complex and integrated more and more into global

society and economy. There are many different viewpoints about this change. As Erik Brynjolfsson et al. (Massachusetts Institute of technology) stated in their 2014 book “*The era of the second computer*” [2]: The world is at a turning point, at which the influence of digital technology will demonstrate “full power” through the automation and create “things never have”. In Germany 2011, The Hanover fair hosted a discussion on the topic of “Industry 4.0”, a term which a revolution of the organization of global value chains. By activating “smart factory”, this forth industrial revolution would create a world in which the production system both virtual and physical across the globe can be linked together in a flexible way. This allows to complete product customization and creates the totally novel operating model. However, industrial revolution 4.0 is not only about machine systems and smart connection, its scope is much wider. The

breakthroughs will happen in different areas at the same time, from sequencing genes to nano-technology, from renewable energy to quantum computation. The industrial revolution 4.0 is the fusion between these technologies and the application on the field of physical, digital, biological, making it fundamentally different from the preceding revolution [3].

Revolution 4.0 we are entering will create a world, in which the virtual system and the physics of the production chain across the globe can cooperate with each other in a flexible way. Revolution 4.0 is not merely about the machinery, intelligent system and is connected, but can range much wider [4]. Sustainability issues in the production process have become one of the main challenges that the industry faces in the contemporary period. Model new industrial as Industry 4.0 point towards the creation the process more sustainable. The transition from traditional production to the manufacturer ready for industry 4.0 has launched a range of barriers that organizations must overcome. [5] Analyzed in a systematic way and their contributions can help the business overcome a number of challenges are related to aspects of sustainability in the transition to industry 4.0.

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2. Impact of industrial revolution 4.0 to labor market in Vietnam

According to the General statistics in 2017, the structure of labor in Vietnam in recent years has been changing, in which many are improved. Major industry groups such as agriculture, forestry, fisheries and mining tended to reduce the labor involving in operation process. Some groups increased the number of labor for processing and manufacturing; construction; waste water treatment; services accommodation and catering. Most groups still kept a stable number of employees participating in office activities. In the years from 2017 to 2025, labor force in Vietnam is forecast to rise by an annual average of 1.28%,

respectively 728.000 persons per year. To make ends meet for workers, every year, the economy needs to create about 650,000 additional work vacancies and the restructuring of labor is the main direction to increase labor productivity. However, until 2016, in total 54.36 million workers; just over 11.21 million workers (20.6%) through training have a degree or certificate. Currently Vietnam is shortage of qualified, high skilled workers as well as of high-level manpower working in the industry, which has strong impact on growth and sustainability in the context of integration with the international economy. [6]

According to the forecasts, the boom of industrial revolution 4.0 would create disruptive changes, with major impact on economic and society development in Vietnam. Thanks to digital technology and integration of smart technology to optimize production process, this revolution would impose positive impact on Vietnam's economy. This can result in shortening the distance of international integration with global economy for a young developing Vietnam. This is also an opportunity to accelerate the process of industrialization and modernization, soon accomplish the target of an industrialized country towards modernization.

However, Vietnam's economy also faces big challenges. The introduction of new revolution brings about businesses with cheaper price, abundant productions and advantageous resources that require less human resources. This phenomenon can reduce, even suppress, the traditional domestic market; which hinders the employment of thousands, even of millions of Vietnamese workers.

According to the latest report from ILO in July 2016, Vietnam has up to 86% of labor in the textile and garment industry and footwear on the risk of unemployment under the impact of the industrial revolution 4.0. This figure can be translated into an absolute large number since the textile and footwear are two major employed sectors in Vietnam (providing approximately 2.3 million jobs, of which approximately 78% are women

workers in textile and garment industry; footwear - 0, 98 million people, of which about 74% is female workers work; labor in the two sectors accounted for 6.2% of the total workforce and 13.7% of non-farm employment). These workers are not highly skilled (respectively 17% and 26% labor in textiles and shoes are at elementary educated level) and a significant proportion of them are from age 36 and above (35, 84% for textile and 25, 37% for footwear); thus posing a major challenge to find alternative employment [7].

On the other hand, the electronics industry of Vietnam now has about 510.000 labor, with approximately 66% female workers (about 6.7% qualified at the level of primary and about 13.5% from age 36 and above) [6]. This industry in recent years has made many progresses thanks to high advanced technology and multi-national cooperation. With the advantage of relatively cheap labor and convenient economic position, Vietnam has benefited a lot from the increasing process of electronics export. However, in the medium term, this would change under the breakthrough technology in three dimensions technology and mass internet connection which are rapidly adopted into the electronics industry.

Nevertheless, these are still predicted risks factors. The future of employment does not necessarily have to be trade-offs between human and machines, the digital era development is still the opportunity for new jobs for Vietnam. With the help of novel technology improvement and high human intellectual, a prosperous future is still ahead of Vietnam and other developing countries. Advanced technology are undeniably creating emergence of new paradigm which can help solve many problems in the labor market. Remarkable examples can be seen in the advent of liberal “gig economic” through the formation of startup technology creating thousands of short-term jobs such as Uber, Lyft, AirBnB, and Grab...

In summary, it can be seen that, industrial revolution 4.0 will change the structure of Vietnam economy drastically. As every revolution does, the old less advanced would be inevitably replaced by

the new modern ones. To better respond to the incoming breakthrough, at the same time taking the most advantages that industrial revolution 4.0 brings, Vietnam is in needed of new modern visions. Most importantly is the source of high-quality human forces. This means education and training process, with special emphasis on novel science and technology, should be the main pillars of development. In the training process, not only text-book knowledge but also updated practical experiences need to be conveyed. For this time, intervention is not the main focus but efficient learning and experiences are plausible solution to produce high skilled manpower. With a quality human resource, Vietnam would approach technological achievements of the world faster and more efficiently. Additionally, a fair competition between public and private sectors should be fostered to create a transparent environment, help encourage creativity and development. Lastly, the government should take a new approach to adapt the industrial revolution 4.0 into Vietnam’s economy and society.

It is reducing a radical way of thoughts in another aspect is instructions and maximum support for the development of the business.

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