THE SCIENTIFIC AND TECHNOLOGYCAL REVOLUTION AND ITS IMPACTS ON HUMAN LIFE

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Abtracts: The author of the article introduces general issues of the revolution in science and technology, its typical features and characteritics, process of fomation and development. On that basis, the author analyzes and presents many evidences to show the impacts of the revolution on the society and people today, including, for example, the strong motives to promote human development trend, and the deep and wide impacts on social production and human life. The author aslo points out some challenges to Vietnam and suggests some solutions for Vietnam to take the opportunities of the revolution and at the same time to minimize its negative impacts.Of these, the two groups of solutions are well noted by the author, including the development of high- quality human resources and state management institutions.

Keywords: revolution, science and technology, impacts, human life…

Introduction

The Industrial Revolution 4.0, which has been mentioned at high frequency for more than a year now1, is essentially a product of the scientific and technological revolution that has taken place since the mid-twentieth century. The science and technology revolution is now one of the fundamental characteristics of the world since the 1950s. In the world over for more than half a century, the science of technology has made new scientific disciplines, created the industrial revolution 3.0 and 4.0, with many new industries2 and made them grow rapidly, influencing Great to the whole industry and social life. It also disappeared many industries that were created previously, which once dominated, dominated the production. With the use of multi-component combining technologies in the same production cycle instead of one-component technology, it is creating a turning point in the development of productive forces, creating two the industrial revolution, and therefore it is transforming the whole of society as a whole.

Human history has gone through four industrial revolutions.

The first industrial revolution began with the steam engine of James Watt in the middle of the 18th century, which lasted until the mid-19th century with the foundations of basic inventions such as steam engines, tractors yarns, weaving machines, steel mills, ships, steam trains, coal. It takes place only in some Western European countries like England, France, Italy, Holland. Technology platform is steam engine and mechanical technology. The second industrial revolution from the mid-19th century to the beginning of the twentieth century was based on the invention of internal combustion engines using petroleum, diesel engines, automobiles, aircraft, generators and electric motors, electromagnetic waves. Technology platforms are electromagnetic and internal combustion engines. It takes place primarily in European and North American countries, namely Western Europe, the United States, the Soviet Union and

Japan. The third major industrial revolution took place in the late 1950s with fundamental inventions in many fields such as computers, robots, super-durable materials, superconducting, super hard, polymer, atomic, artificial satellites, astronauts, supersonic aircraft and a range of new technologies such as microbiology, gene technology, information technology, and digitization. The broader technological foundation of the first and second industrial revolution, but fundamentally and principally electromagnetic, biotechnology, and digital technology. It has made great leaps in productivity, in terms of scale and pace of production development, making the most dramatic changes in human and social life.

By the third industrial revolution, the productive forces of society had a great leap forward, the time gap from scientific invention to practical application was shortened. technology and therefore, the product life cycle is also shortened. The amount of information and knowledge increases exponentially. Many traditional industries are gradually phased out, but new industries are emerging more rapidly, and not directly from production but from laboratories, scientific theories. Laser technology, nanotechnology, digital technology, etc. are examples. With the third industrial revolution, people continue to be freed from functional functions, including transportation, energy, technology. The liberation of people from management functions has real breakthroughs, as it creates robots and various automation production lines. The liberation of human beings from logical function has also been started step by step as computer systems emerge, especially when the Internet and smart devices are born.

The fourth industrial revolution, based on the foundation and following the development of the third industrial revolution, was based on the new stage of scientific and technological revolution. New technologies and new equipment, first of all artificial intelligence, 3D printing technology, self-propelled technology, all in one terminal, universal internet, cloud computing - large data, Next generation biotechnology, advanced materials technology, new robot automation technology has "wisdom" ... The fourth major technological revolution in the industry is the integration of the technologies of the third revolution and artificial intelligence. At the next stage, its technological foundation can be added. The fourth industrial revolution creates new breakthroughs in liberating people from functional functions and management functions and will make leaps of liberating human beings from logical function when Artificial intelligence is widely used. It really turns science into direct production. The science and technology revolution at the development stage of the 4.0 revolutionary industry is gradually eliminating people from the direct production process, making them truly creative subjects, creating material premise and force. New production for a new economy, being called by different names, brings mankind to the new development stage with different names (digital economy, soft economy, knowledge economy, information society, knowledge society ...).

The impact of technological revolution on human life

Industrial revolution 4.0 is the continuation of the industrial revolution 3.0, which is the product of revolutionary science and technology is happening on a larger scale, more extensive, faster speed, it seems at the same time global, to the extent that can not timely guess the "shape" of tomorrow. It exhibits concurrent, simultaneous, resonant, mutant, sudden, violent, large-scale and far-reaching effects over previous historical periods in the development of science, technology and industry. Thus the industrial revolution 4.0 has the same characteristics as the revolutionary science of modern technology and represents the

industrial revolution of science and technology. These two industrial revolutions are not separated in the current period in most countries in the world, including Vietnam. Industrial revolution 4.0 has only begun in a few countries, but the industrial revolution 3.0 is more powerful and influential than in the vast majority of countries in the world. If you have not experienced the industrial revolution 3.0, it is difficult for countries to jump on the 4.0 revolution in the current period. As the industry revolutionary experience 1.0 and 2.0 has pointed out, only when the industrial revolution 4.0 has spread in more developed countries can the rest of the countries have accelerated the pace of industrial revolution. 4.0. That does not mean that should not welcome, early implementation of some content, development orientation of the 4.0 revolution if the conditions are really convenient and effective.

In the industrial revolution 4.0, information and scientific knowledge become a particularly important element of production and social life, becoming increasingly critical to the development of productive forces, economic growth and social development, become the driving force of the development of both production, people and society. Following the industrial revolution of 3.0, the industrial revolution 4.0 has continued to create a unique social environment, unprecedented in history. It is an information environment, in which much of the physical workforce is replaced by intellectual labor with mental qualities and abilities that require creativity, uniqueness, and personalization. Information and knowledge become the conditions, the environment, the constituent elements and the essential content of the production process, the source of endless wealth, the special resource of human development. and social.

Technological revolution creates the premise for social production in the industrial revolution phase 3.0 to overcome the mass production level, characteristic of old production, in the sense of mass production. can also dominate, universal. The production stage of industrial revolution 4.0 will follow individual, individual, unique and individual needs. It is shifting social production at a global scale, operating on the basis of new principles: non-standardization, non-specialization, non-synchronization, decentralization, non-maximizing and non-maximizing. Centralization

The two industrial revolutions, particularly and mainly industrial revolution 3.0, over the past half century have dramatically changed the productive forces, the industry and the social life of the world, upsetting human perception, removing some principles or theories in the fields of science from nature to society and people. The two industrial revolutions, particularly and mainly industrial revolution 3.0, over the past half century have dramatically changed the productive forces, the industry and the social life of the world, upsetting human perception, removing some principles or theories in the fields of science from nature to society and people. The military strength, scale and speed of the wars, the attacking and defending power of the nation's dependence on the scientific and technological revolution in general, and the industrial revolution of 3.0 and 4.0. These revolutions determine the direction of economic, cultural, scientific, international relations, education, health and employment, globally as well as in individual countries. .

Industrial Revolution 3.0 and 4.0 also have a stronger impact on global issues. On the one hand, it is an effective tool to tackle global problems that have become more and more stressful for humanity. On the other hand, it also raises the stress level of some global issues, even according to some scholars, which can bring about new global problems. The negative

consequences of using the achievements of the modern scientific and technological revolution (depletion of resources, environmental pollution, ecological crisis, weapons of mass destruction, etc.) the survival and future of each human being and humanity in general. The negative consequences of using the achievements of the modern scientific and technological revolution (depletion of resources, environmental pollution, ecological crisis, weapons of mass destruction, etc.) the survival and future of each human being and humanity in general.

Industrial Revolution 3.0 and 4.0 play a special role in narrowing the development gap between countries in the world, but at the same time, it becomes one of the most difficult challenges to overcome. Developing countries, by developed countries with strong scientific and technological capabilities, can go into the future at a much faster pace than countries with weaker science and technology. In this way, the industrial revolution 4.0 has a direct and indirect effect on human development in developing and developed countries.

On the one hand, the industrial revolution, on the one hand, has a direct impact on social and human life, which increases longevity, health, physical strength and intellect, and multiplies intellectual capacity and muscle power. corn. By being indirect, but stronger, faster and more profound, it affects people and society through technology, manufacturing, telecommunications and communication. Through technology, through direct products of the industrial revolution, science, technology and new technology go into production and human life. Science has become the true motive of the social and productive development, as it is through the industrial revolution to promote the production of human and social development rapidly. In the current industrial revolution, new products, new technologies are created at a rapid, revolutionary and productive pace, rapidly changing human and social life, resulting in dramatic changes. There are revolutionary changes in these areas. The knowledge base of the modern industrial revolution 4.0 is revolutionary in science and technology.

Industrial Revolution 3.0 and 4.0 promotes the development of not only the industry but the production of both human and social. Countries that have strong scientific and technological resources, develop and implement good industrial revolution, will have rapid growth in all aspects, conditions and opportunities for sustainable development, raising High people's life, rapid human and social development, positive contribution to the development of humanity. Due to the development of the industrial revolution in particular and the revolution in science and technology in general, not only the specific theories in the fields of science, technology and technology change, but a series of theories about the commune Society and people are forced to change.

In the industrial revolution, both the third and the fourth, the life cycle of production technologies is shortened, so that the life cycle of industrial products must also be shortened. The speed of development of technology, industry, and manufacturing, particularly of productive forces, is reflected in the technological life cycle. Technology lifecycle will be one of the pace of development of industry and of productive forces. The shorter the life cycle of the technology, the shorter the life cycle of industrial products, the faster the speed of social and human life. That in turn overwhelm a series of values, rules, norms of human behavior in society. At the fourth stage of the industrial revolution, these disturbances in social and cultural life will become increasingly powerful, even creating a shock of culture on the same land. First uses the fruits of the Third and Fourth Industrial Revolution. This should

be taken into account in the management, creation and perfection of cultural and social institutions.

The impact of science and technology revolution on the Vietnamese people

Industrial revolution and modern scientific and technological revolution, due to historical, cultural and social conditions, did not arise in Vietnam. The first industrial revolution took place in Europe when our country was under feudalism, with the heavy influence of Confucian thought on science, engineering and commerce. The second industrial revolution took place in Europe, when our country was under the French colonial empire, only a few products of this industrial revolution was introduced into France by the French colonialists for the colonial ruler. The third industrial revolution took place in the world, when the country was struggling against foreign aggression to defend national independence, no conditions to receive and promote the public revolution. This. Despite the recent decades, we have seen the revolution in science-technology, followed by the revolution in science and technology, which is the driving force behind economic, social and human development. people. Many achievements and modern products of the industrial revolution have been put to use in our country, making great contribution to the protection of construction and development of the country and people. The scientific, technical, technological and industrial potentials have been raised step by step and serve effectively for the cause of industrialization and modernization of socio-economic development and people.

The fourth industrial revolution, the latest birth of the science and technology revolution, is beginning in the world, creating a great challenge and opportunity for the Vietnamese people today. Never before in our country's history have conditions and preconditions now, politically, socially, economically, human and also international relations, been applied and implemented. Fourth industrial network. If we are to maximize and effectively utilize existing conditions and preconditions, not only the Fourth Industrial Revolution in particular but also the science and technology revolution in general, can be deployed and bring about Positive effect in our country in the coming decades can make it a decisive tool in shortening the lag gap compared to developed countries in the world.

During the last three decades of the 20th century, thanks to the effective use of the achievements of the modern science and technology revolution of the industrial revolution 3.0 countries such as Japan, Korea, Singapore and Taiwan Loan has "transformed dragon" spectacular. India is also one of the countries that have been successful in receiving and applying the achievements of the modern science and technology revolution and industrial revolution 3.0 to develop some fields such as agriculture and industry. software, automotive industry, cultural industry,

... One of the most important causes, pointed out by many researchers in the world, of the collapse of the former socialist system, is that it has not used and developed the revolutionary science and technology. , especially the industrial revolution 3.0, in the last three decades of the twentieth century.

Without taking advantage of the opportunities created by the modern science and technology revolution and the industrial revolution of 3.0 and 4.0, in order to develop production, industrialization and modernization forces, the risk of further lagging behind The periphery of global development is a real and growing threat that is increasingly difficult to overcome for our country in the next few decades. The modern science and technology revolution

together with the industrial revolution of 3.0 and 4.0, in a certain sense, is creating a deepening gap between developed and developing countries. Technology and qualification of productive forces. It also creates a great social problem and is difficult to solve in developing countries as well as in relations between developing countries and developed countries. If our country does not pay close attention to the revolutionary science and technology and the third and fourth industrial revolution in particular, this challenge can lead to unpredictable consequences. for generations of people and for all members of society. The modern technological revolution, the industrial revolution 3.0 and 4.0 will be a cause for the country and the nation in eradicating the poor and backward, removing the gap lagging with the developed world.

The decisive factor in the application and development of the modern scientific and technological revolution, the industrial revolution 3.0 and 4.0 is not a financial resource, not a system of machinery and equipment, nor is it a natural condition and cultural history, although they still play an important role, but are human and institutional.

However, when it comes to human resources, it is not a human resource in general but a high quality human resource in the fields of science, technology, technology and business management. These are the leading forces that both play a role of direction and play the driving force of building and developing the nation's scientific, technological and industrial potential. Without high-quality human resources in these areas, it is not possible to efficiently apply the achievements of the science and technology revolution, the inability to receive modern technological advances, industrial revolution 3.0 and 4.0 into our country. High quality human resources in this field are not highly qualified or have managerial positions in various areas of social life but are professionals with many years of experience in the field. His expertise, talent, talent have been confirmed, contributed to the development of science, technology and industry. This is the main force of the revolutionary science and technology, the third revolution and the fourth industry is coming. However, the use, including the recruitment, treatment and arrangement of high-quality human resources for the development of scientific, technological and industrial resources, depends on the scientific, technological and public institutions. of the country. But the institution depends on high quality human resources, especially high quality human resources in the field of management, particularly in the management of science, technology, technology and industry. Agencies, organizations operating and applying science, technology and technology. They are the ones who set up the processes, rules, laws and policies and directly regulate the application and development of scientific and technological potentials of agencies, enterprises, training establishments and hospitals. institute, production unit, service, ... Institutions of science, technology and technology play a decisive role both in terms of orientation and scale, the pace of development of the nation's scientific, technological and industrial potential, Revolutionary industrial 3.0 and 4.0 in our country. This is a special kind of institution that is both market-oriented and non-market oriented. Extremism in the creation and application of institutions, either too tilted toward the market, or too tilted towards the non-market, has no incentive effect, which retains, even destroys The science, technology and technology of the country, hindered the ongoing industrial revolution 3.0 and the industrial revolution

In our country, over the decades of development, on the one hand, high quality human resources in the fields of science, technology, technology and industry have been built and

developed in unprecedented numbers. . Many great scientific, technical and technological achievements, promoting the country's industrial development associated with high-quality human resources in this field. However, on many levels, the team of high quality human resources has not met the requirements of the construction and development of the country in the new phase of the current science and technology revolution, especially in the period the fourth industrial revolution is coming.

On the other hand, the shift from centralized, administrative, bureaucratic and subsidized planning to a market economy with the government's regulation requires a shift in institutional arrangements to be synchronous and preferable. The development of various fields, including science, technology, technology and industry. In addition, it is the revolutionary science-technology and industrial revolution that also requires the constant improvement of management institutions in order to make use of the achievements and promote the revolution of science and technology and industrial revolution. as well as 4.0 development. Without regular reform and refinement, institutions can not promote science, technology, technology and industry. This allows us to recognize that in the era of science and technology revolution, human development, development of high quality human resources in the fields of science, technology, technology and industry is very decisive. the development of industrial revolution 4.0 and the revolution of science and technology. At the same time, the good use of achievements and promote the development of science and technology revolution, industrial revolution 3.0 and 4.0 will accelerate the development of human and social. Industrial revolution 4.0 and the revolution of science and technology in general are bringing opportunities to the land and people of Vietnam, but if not active, take advantage of opportunities and not grasp the opportunities will be opportunities. Without repeating, the speeding train of mankind with locomotives Revolutionary science and technology and industrial revolution will ignore us, people and the country will lag far behind.

Conclusion

Industrial revolution in general, especially the industrial revolution 4.0, not only creates breakthroughs in the fields of social life, but it is important that it makes the development of those sectors. out with different acceleration, in different areas and countries, different regions. On the one hand, it has created opportunities for developing countries to quickly shorten the gap behind developed countries, if they make use of the achievements of the industrial revolution, making it The real motivation for economic, social and human development. But it will be an extremely difficult challenge to overcome, rapidly increasing the lag gap that exists in developing countries, by developed countries, with scientific, technical, technology and industry, will go into the future with faster speed. Developing countries do not have such resources in the short term. The paradox of "turtles and rabbits" becomes an increasingly harsh reality for developing countries, including Vietnam.

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