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Recognition of Marx's Machine Thought and Human Development from the Perspective of Intelligent Society †

Youqiang Wang

Department of Philosophy, School of Humanities and Social Sciences, Xi'an Jiaotong University, Xi'an 710049, China; yq.w.92@xjtu.edu.cn

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Abstract: Marx saw that the universal application of machines in the 19th century had a double effect, that is, to promote the development of productive forces, to open new fields of production, and to realize the enrichment of labor products At the same time, it also leads to the impoverishment of laborers' working ability and a large amount of unemployment, so that workers become "local people". Although the phenomenon of alienation caused by the universal application of machines is an inevitable stage in the development of human society, Marx revealed the deep roots behind it. The capitalist application of machines is different from that of the machines themselves. Finally, he aimed his criticism at capitalists and the capitalist social system. With the advent of today's intelligent era, a new round of social problems has emerged, such as unemployment, aging knowledge structures, human development, and other difficulties. Marx's machine thinking still has value in dealing with these practical problems.

Keywords: Marx; machine thought; unemployment; intellectualization; human development

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1. Introduction

In 2018, the "Statistical bulletin of national economic and social development of the people's Republic of China" provided statistics on industrial robots for the first time. It can be seen that China is paying more and more attention to the production of industrial robots [1]. As a demonstration of the "made in China 2025" initiative of the Ministry of industry and information technology of China, the production of touch screens in Guangdong Dongguan has increased 100 times compared with the past, and the labor force has decreased greatly, from 1:2 (one worker takes care of two machines) to 1:18 [2]. The Research Report, "Robots and Employment: Evidence from the U.S. Labor Market," which was released by the Massachusetts Institute of Technology and Boston University, shows that every additional robot in the U.S. manufacturing industry will replace an average of 3.3 workers [3]. In 2013, Carl Benedikt Frey and Michael A. Osborne of Oxford University argued in "The Future of Employment" that "47% of jobs in the United States have a high risk of being replaced by computers" [4] (p. 293). Harari, the author of *A Brief History of Tomorrow*, believes that in the 21st century, with the development of new intelligent technology, some people will become superhuman, or even intelligent gods, while the vast majority of people will become "useless classes." Machine replacement has become the main trend in the 21st century. Correspondingly, the repetitive, dangerous and simple work of some traditional industries will be performed by robots. There are many unemployed people. The phenomenon of contemporary unemployment is very similar to that which Marx observed in the 19th century. At that time, it was the heyday of turning from manual workshops to large-scale machine industry. Capitalists used advanced machines to replace the traditional labor force, and finally produced a large number of "proletariats". Therefore, Marx called on "proletarians all over the world to unite", to create a communist

society in which one has a job and one's abilities are developed in a holistic way. Since the time of Marx, the phenomenon of "machines replacing people" has accelerated, but traditional workers are still the main force in creating economic value. Once their interests are damaged, they will organize to fight for their own interests by way of strike. However, in the current intelligent society, how does the "useless class" reflect its usefulness? This is a social problem that must be faced. Marx's thinking and countermeasures on "machines replacing people" still have important practical significance today.

2. Marx's Double Effects on Machines

2.1. Positive Effects of Machine Application

Machines promote the development of productivity. In his *Economic and Philosophic Manuscripts of 1844*, Marx studied in detail the history of the "mill". He analyzed the development of productive forces resulting from the changing process of the mill. With research on friction theory, water movement theory and water wheel theory, the water mill and steam mill have become automatic machine systems. Different processes of flour milling are completed on the same machine, and a steam engine can drive dozens of mills. This is different from the previous work efficiency, mainly due to the improvement of the machine level.

Machines save labor and open up new fields. The use of machines in large-scale capitalist industrial production has replaced the labor of the original workers in many aspects. For example, in the printing and dyeing industry, one worker can replace the original 200 workers. At the same time, the reform of one department can cause chain changes in other related industries, thus opening up many new fields of production and new needs [5].

Machines enrich labor products. The machine itself follows the mode of standardization and accuracy. The standardized components and systematic combination ensure the scientificity of the whole machine. Machines can make things that could never be created without machines.

2.2. Negative Effects of Machine Application

The application of machines creates significant material wealth and increases the types of industries. At the same time, it also creates many unemployed workers. As the embodiment of capital, machines become a hostile force against workers.

The separation of machines from workers negatively impacts workers' ability to work. In the handicraft workshop, division of labor and cooperation is a typical production mode. Workers' knowledge and skills are integrated with their work, and the biggest feature of this kind of production is "a production organization with human organs" [5] (p. 392). In the era of machine industry, highly skilled labor was replaced by the simple labor of machines, and specialty was eliminated. "The skills of using labor tools, together with labor tools, are transferred from the workers to the machines [5] (p. 483). Machines replace workers' skills; workers are just "servants" serving machines.

The realistic situation of labor workers is that they are excluded by capital. The nature of capital is to obtain surplus value. Because of the high production efficiency, machines can bring more profit compared with workers' labor. Machines crowding out workers becomes the dominant phenomenon. As a result, a large amount of the labor force, especially young male workers, have been thrown into the streets and become the proletariat.

Machines, as alien and material forces, make workers develop abnormally. "Science realized on machines, as capital, opposes workers" [6] (p. 421). Under the pressure of the application of machine capitalism, the labor intensity of workers is increased, the working days are prolonged, and the production environment is extremely bad. Workers lose their living conditions, working conditions, intellectual conditions, and material basis for all-round development, and became accessories of machines. At this time, the machine becomes the opposite and alien power to the workers as a capital force; workers become

abnormally developed people. Many of the working class even became modern domestic slaves [5] (p. 513).

3. Marx's Thinking and Analysis on "Machine Replacing Human"

3.1. The Alienation Phenomenon Caused by "Machines Replacing People " Is a Necessary Stage for the All-Round Development of Human Beings

The essential characteristic of man is that he is a "realistic man" with self-consciousness, independent activities, and freedom. He can use his own initiative and creative abilities to meet his needs through practical activities. This means that what you create belongs to you. On the contrary, when the things created by themselves cannot be controlled by themselves, which makes them become slaves of things, people lose their independent personality and become alienated. Marx thinks that human development goes through three stages: human dependence, material dependence, and all-round development [7] (p. 104). Capitalist society has greatly promoted the development of productive forces and has made brilliant achievements compared with the past. However, these developments have not changed the essential condition of human beings. The phenomenon of alienation through domination by things is widespread. Both capitalists and workers are alienated people who depend on things, according to Marx's work. However, this stage also creates the conditions for people's all-round free development, which is a necessary stage for human beings to move towards freedom and liberation. This stage has realized the development of productive forces and the world's historic universal communication, thus breaking the narrow boundaries of individuals—geographical boundaries, natural boundaries and human boundaries, broadening people's horizons and providing rich material wealth as well as the possibility for the all-round development of individuals.

3.2. Technology Is Different from the Capitalist Application of Technology

In his discussion of the origins of the exclusion and injury that machines cause workers, Marx argues that there is no doubt that the machine itself is not responsible for dissociating workers from their means of living. There is an obvious contrast between machines and capitalist applications of machines. Machines shorten working hours, while their capitalist application prolongs working days. The machine itself reduces labor, while its capitalist application increases labor intensity. The machine itself is man's victory over natural forces, and its capitalist application enslaves man to natural forces. The machine itself increases the wealth of the producer, and its capitalist application makes the producer become the poor in need of relief [5] (p. 508). Machines are "dead bodies." Capitalists are the real masters of machines. The important thing is the people who use machines. Marx saw the rule of man to man behind the machine and aimed his criticism at the capitalists and their capitalist social system.

4. The Practical Significance of Marx's Machine Thought in Solving the Dilemma of "Machine Replacing Man" in Intelligent Society

4.1. At the National Level, Promoting People's All-Round Development with Institutional Advantages

The phenomenon of the "machine replacing man" is the trend of the times. Although the new types of work can solve the employment problem of part of the labor force, the way out for most of the excluded labor force is a practical problem that society must face. Even if society can support people without jobs, how do these people realize their individual values? Since the capitalist application of science and technology is different from science and technology themselves, the best way to solve the unemployment dilemma is to transform the social system and the method of applying science and technology. Marx pointed out that the capitalist system of enslaving workers would be replaced by communism and "provide everyone with the opportunity to develop and express all their physical and mental abilities in an all-round way [8] (p. 644)." People will enjoy the pleasure of labor and receive all-round development in their free and conscious labor.

4.2. At the Social Level, Actively Guiding the Division of Labor and Creating Multidimensional Employment Channels

In the era of the machine industry, the division of labor is meticulous and highly specialized. However, the fixed division of labor limits the reemployment of workers. The higher the level of machine intelligence, the higher the requirement for workers' knowledge. Many unemployed workers have plenty of time in an intelligent society. Learning to increase their new skills is an effective way to transfer employment. Therefore, the society should provide multi-channel vocational education and labor skills training, eliminate fixed division of labor, and transform "local workers" of machines into comprehensively developed people with more skills and general knowledge.

4.3. On the Individual Level, Actively Using Free Time to Improve Self Ability and Adapt to the Changes of the Times

The development of intelligent technology has changed the skill structure of the labor market and led to changes in the talent supply and knowledge structures. More and more jobs need high-level skilled workers. Harari believes that the intelligent society can support the unemployed "useless class", who live by taking medicine and playing games. The meaning of life lies in the value of life. Intelligent high-tech can never make people "useless". The development of intelligent society has laid a rich material foundation for human survival. In Marx's view, this is a prerequisite for human liberation. At this time, it is an important part of human liberation to improve people's own sense of freedom under the condition of having no worries about food and clothing. From the perspective of labor, Marx thinks that labor is a free and conscious activity; therefore, in the era of intelligence, work is no longer the focus of life. Individuals should actively use their free time to to learn new skills, and actively enhance their own value in various job changes, find the best combination of work and life, reshape themselves in work, and enjoy life.

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