

Discussion on the Social Problems Caused by the Extensive Application of Artificial Intelligence Technology in China's Manufacturing Industry and its Countermeasures —A Case Study of Foshan Manufacturing Industry

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Abstract: In order to explore the social problems caused by the wide application of artificial intelligence technology in China's manufacturing industry, this paper takes Foshan manufacturing industry as an example, and from the actual development of Foshan manufacturing industry, focuses on the social problems caused by the wide application of artificial intelligence technology in China's manufacturing industry, including the intensification of social contradictions, the change of social structure, the hidden danger of social security, the development of the city and the change of population structure and the birth of the economic theory of artificial intelligence. On this basis, we put forward the countermeasures to deal with the social problems caused by the development of intelligent manufacturing in Foshan in the era of artificial intelligence. The research results show that in the era of artificial intelligence, the key to the transformation and upgrading of Foshan manufacturing industry is to correctly recognize the social problems in the development of Foshan manufacturing industry and offer forward-looking suggestions and countermeasures, which is of great significance for the development of China's intelligent manufacturing industry and the realization of 2025 plan.

Keywords: artificial intelligence; manufacturing industry; social attribute; countermeasure

1. Introduction

Foshan is an important city in Guangdong, Hong Kong and Macao Bay area, which has the advantages of strong manufacturing foundation, highly developed economy and good interaction between government and enterprises. Foshan city has an important position in China's manufacturing industry. In the era of artificial intelligence, the transformation and upgrading of manufacturing industry in Foshan provide Foshan sample for China's manufacturing industry, which has important value and significance. Taking manufacturing industry in Foshan as an example, this paper focuses on some social problems, social security, population structure and countermeasures caused by the deep integration of artificial intelligence technology and manufacturing industry in Foshan^[1-3].

2. Social problems caused by the application of artificial intelligence in Foshan manufacturing industry

2.1 The application of artificial intelligence in manufacturing industry may increase the gap between the rich and the poor of all social strata and intensify social contradictions

The large-scale application of artificial intelligence in Foshan manufacturing industry can improve labor productivity, reduce the demand for labor force, and promote Foshan manufacturing industry to become bigger and stronger. However, it may have certain impact on the whole social stratum, causing

more imbalance among all social strata, widening the gap between the rich and the poor, and bringing challenges to social stability and harmony. In the pursuit of profits, manufacturing enterprises will do everything possible to use artificial intelligence technology to pursue the maximum profit. This is the goal that any enterprise pursues at any time. But in this process, the enterprise has got what it wants. As the traditional workers of the enterprise, it is the ones who have been impacted. From the perspective of the whole enterprise and all social strata, the benefits created in the process of deep integration of artificial intelligence and manufacturing enterprises may not generally increase the wage income of all levels of labor, but more inclined to the capital side^[3]. The middle and low-end workers will lose their jobs and have no income, while the middle and high-end workers only occupy a small number under the influence of uneven social distribution wealth, a large amount of wealth will return to entrepreneurs, led to the polarization of social wealth, the rich richer, the poor poorer situation, resulting in the imbalance of social structure in Foshan, intensifying the contradictions between classes, endangering social stability.

2.2 The application of artificial intelligence in Foshan manufacturing industry may cause a large number of workers to lose their jobs, leading to the increase of social crime rate and the change of social structure

In the era of artificial intelligence, the deep integration of Foshan manufacturing industry and artificial intelligence technology will inevitably lead to a large number of Foshan traditional workers losing their jobs, which is not a periodic but a long-term and persistent unemployment. The unemployed workers have low cultural literacy and comprehensive ability, but are relatively old. In addition, the proportion of new jobs created by artificial intelligence is relatively small. It is very difficult for these unemployed workers to re-employment. These unemployed workers are also faced with great social pressure and family burden. The public security of the whole society will be greatly affected, and the crime rate will increase sharply due to the unemployment of a large number of workers. Crime is not only a social problem, but also an economic problem. The unemployment factor is closely related to crime. Under certain circumstances, the higher the unemployment rate, the higher the crime rate.

In the era of artificial intelligence, all social strata in Foshan will be subject to great competition. The whole competition includes the competition between traditional workers and traditional workers, and the competition between traditional workers and machine workers. These competitive pressures will affect the changes of social structure in Foshan to a certain extent, including the population structure, marriage rate, divorce rate and wealth distribution of Foshan city. The experience of developed countries shows that many young people are reluctant to marry and have children because of social pressure, pursuit of goals and other factors. The birth rate has been hovering at a low level for many years. In the era of artificial intelligence, this situation will be more prominent. The long-term low birth rate will change the social structure of Foshan city, which will affect the pressure of social pension and seriously endanger the development of human society.

2.3 Some possible social security problems caused by the application of artificial intelligence in Foshan manufacturing industry

With the deep integration of artificial intelligence and the whole process of manufacturing industry, robots used in manufacturing industry will be more intelligent and even have wisdom and thinking beyond human beings. At this time, as one of the crystallizations of human wisdom, whether artificial intelligence still needs human beings, whether artificial intelligence will control manufacturing enterprises and traditional workers, whether it will bring harm to enterprises and traditional workers and other social security issues, these issues deserve our deep consideration. As a leading traditional manufacturing industry in Foshan, intelligent manufacturing is also striving to be ahead of the country and even the world in the future. It is also worthy of great attention to the serious social security problems that may be brought to Foshan by the deep application of artificial intelligence in manufacturing industry. In Foshan manufacturing industry, machine workers and traditional workers are the components of direct coexistence. The alliance composed of machine workers or machine workers will be dissatisfied with enterprises or traditional workers because of some problems, thus threatening or harming enterprises or traditional workers. The so-called threats or injuries here include direct and indirect ones. The direct threat mainly includes the threat that machine workers may pose to the personal safety of traditional workers, their friends or family members. Indirect threats mainly

include the use of traditional workers' personal information, cyber-crime and other activities, stealing business secrets and so on. The progress of artificial intelligence technology and its wide application in various industries have brought great promotion to human society. At the same time, it provides convenience for network electronic crime and reduces the difficulty, which requires us to put forward higher requirements for the existing network security. We are used to enjoying the new achievements brought about by the progress of science and technology, but we hope that the achievements will be positive, which will be conducive to the long-term development of human society.

3. The application of artificial intelligence in Foshan manufacturing industry may bring about urban development and population structure changes in Foshan

Foshan is an important city in Guangdong, Hong Kong and Macao Bay area. It has the advantages of strong manufacturing foundation, highly developed economy and good interaction between government and enterprises. Foshan has an important position in China's manufacturing industry. At present, Foshan's developed manufacturing industry provides millions of manufacturing jobs, attracting a large number of outsiders to develop in Foshan, supporting the development of Foshan manufacturing industry. Its transformation and upgrading provides Foshan sample for China's manufacturing industry, which has important value and significance. If the manufacturing industry and artificial intelligence are deeply integrated in Foshan, it may bring some changes to the population structure and future development of Foshan city.

3.1 The application of artificial intelligence in Foshan manufacturing industry will promote the development of Foshan city to be more intelligent

Foshan city has a strong manufacturing foundation, provides a large number of jobs, and attracts a large number of foreigners to settle down in Foshan. It is the main target for the development of young people, thus becoming a city with dense population density. According to the general law of urban development both at home and abroad, the more net population flows into cities, the more sustainable and hopeful their development will be, and the more secure their industrial development will be. The manufacturing industry in Foshan has the basic advantages of traditional industrial chain. If we want to make it bigger and stronger, we must embrace artificial intelligence technology. Artificial intelligence technology will play an important role in the production, sales, management and service of manufacturing industry. Artificial intelligence technology is first applied in the transformation and development of manufacturing enterprise, and then gradually transits to other fields of society, thus affecting the development of all aspects of Foshan city, including transportation, municipal services, environmental governance and logistics distribution, etc., which will be more intelligent, accurate and efficient, and ultimately realize the overall transformation and upgrading development in Foshan.

3.2 The application of artificial intelligence in Foshan manufacturing industry will promote the rapid change of population structure in Foshan city

At present, Foshan attracts millions of industrial workers with its powerful traditional manufacturing industry. Many of these workers settle down in Foshan, supporting the economic and social development of Foshan. In the era of strong artificial intelligence, if we do not deal with it properly, there will be some social contradictions. With the deep integration of artificial intelligence technology and manufacturing industry in Foshan, especially in the era of strong and super artificial intelligence, all posts in Foshan manufacturing industry are bound to apply artificial intelligence technology, and a large number of traditional workers will be replaced by machine workers. In the future, there may be a large-scale unemployment wave in Foshan city. In the era of artificial intelligence in the future, some of these unemployed workers may continue to choose employment and development in Foshan. A large number of industrial workers with low cultural quality and comprehensive quality cannot find suitable jobs in Foshan, so they are forced to leave Foshan.

With the development and continuous evolution of artificial intelligence technology, the population structure and quantity of the whole city will change greatly. In order to adapt to the employment in the era of artificial intelligence, some workers must strengthen the study of cultural knowledge and related comprehensive operation. Those who are not suitable for new jobs can only be eliminated or leave Foshan. With the change of the city and the development of artificial intelligence technology, the

industrial workers who stay in Foshan are workers with certain cultural literacy and operation skills. The population structure and quantity of Foshan city will change greatly, and the proportion and quantity of high-quality population will continue to increase, which will promote the progress of the whole society. The total population of Foshan may be reduced because some workers cannot adapt to the requirements of Foshan's artificial intelligence era. The change of Foshan's total population is closely related to how many jobs can be created in the artificial intelligence era.

4. The application of artificial intelligence in manufacturing industry may give birth to a new economic theory—artificial intelligence economics

The reason why the existing economic theory can correctly explain the economic phenomenon and guide people's behavior is that people, according to the existing economic phenomenon and production law, draw a conclusion through summing up, which is called theory. With the continuous upgrading and development of artificial intelligence technology, it will gradually penetrate into the production, research and development, sales, management and other aspects of the manufacturing industry, which has a tremendous impact on the manufacturing industry. At present, the proportion of manufacturing industry in China's GDP is declining, but it is still an important part of China's national economy [4]. With the deepening of the application of artificial intelligence in the manufacturing industry, it is bound to have a huge impact on the economic development, bringing new economic phenomena and economic laws. At that time, the relevant economic theories and theories will no longer be completely consistent with the social reality, or even form conflicts. The integration of artificial intelligence technology in the field of economics may produce artificial intelligence economics. Because the renewal iteration of artificial intelligence is likely to develop in a non-linear way like Moore's law, that is to say, artificial intelligence may suddenly participate in all aspects of the manufacturing industry and have an impact on the economy, so that human beings have no way to accurately predict the possible crisis, so it may appear in the period when the old concept is no longer applicable and the new concept has not yet formed. For a period of time, the formulation of relevant national policies lacks the powerful reference of economic concept, and the economic development has lost the theoretical prediction and guidance [5]. Just like the economic impact of previous industrial revolutions on economic structure and social fields, this artificial intelligence revolution will have a more powerful and far-reaching impact on the field of Economics [6], which has bred a new economic theory - artificial intelligence economics.

5. In the era of artificial intelligence, the countermeasures of social problems caused by the development of intelligent manufacturing in Foshan

With the wide application and development of artificial intelligence technology, it is bound to bring about urban development and the transformation and upgrading of manufacturing industry, and at the same time, it may cause various social problems, including worker unemployment, social ethics, social governance, urban development and population structure, etc. Governments at all levels, manufacturing enterprises and industrial workers are important participants, builders and promoters of urban development in the era of artificial intelligence. In view of the above possible impact and social problems, this paper puts forward the countermeasures of social problems that may be caused by the future development of Foshan city in the era of artificial intelligence from the perspectives of government, enterprises and industrial workers [7-8].

5.1 Strengthen the top-level design of artificial intelligence in Foshan, promote the research on basic theory and social ethics of artificial intelligence, and strengthen the deep integration of artificial intelligence and manufacturing industry

(1) According to the industrial advantages of Foshan and the characteristics of urban development, we should speed up the formulation of the top-level design for the development of artificial intelligence, strengthen the guidance and support advantages of policies for the industrialization of artificial intelligence, improve relevant laws, regulations and standards, promote the collaborative cooperation between the government, universities and enterprises, strengthen basic research, and promote the docking and transformation of the basic theory of artificial intelligence with the industry so that artificial intelligence is deeply integrated with Foshan manufacturing industry.

(2) We should attach great importance to the social problems caused by the application of artificial intelligence technology in Foshan manufacturing industry. We should establish research institutions specialized in studying a series of social problems that may arise from artificial intelligence, including ethics, social governance, urban development and population structure. We will propose solutions to new problems that may arise in different stages, and study forward-looking problems in the era of artificial intelligence.

(3) We should strengthen the investment in artificial intelligence education, build an artificial intelligence talent training system, and train multi-level talents including senior skilled personnel, compound talents and senior researchers, so as to provide talent source for the deep integration of Foshan manufacturing industry and artificial intelligence technology.

5.2 According to its own characteristics, Foshan manufacturing enterprises formulate the transformation and upgrading strategy to cope with the new era of artificial intelligence

(1) Foshan manufacturing industry needs to accurately plan the future development direction of enterprises in the era of artificial intelligence according to the characteristics of its own industry, constantly promote the integration of artificial intelligence and manufacturing industry in different stages, be good at taking advantage of the good advantages of traditional manufacturing industry, and further lay the advantages in the era of artificial intelligence.

(2) Foshan manufacturing industry should attach great importance to the cultivation of cultural quality and comprehensive quality of industrial workers. In the era of artificial intelligence, the key to the transformation and upgrading of manufacturing industry lies in the quality of industrial workers. Foshan manufacturing enterprises must improve the comprehensive quality and skills of workers in traditional industries, pay attention to the regular training of employees, formulate pragmatic and long-term talent development strategy, and actively promote the optimization and transformation of human resource structure.

(3) Foshan manufacturing industry needs to strengthen the in-depth cooperation between schools and enterprises, collaborative training, integration of production and education, and optimize the training mode of artificial intelligence talents. The school enterprise cooperation in training talents has realized the organic combination of professional learning and working posts, and the sharing of resources between schools and enterprises, including talents, management, technology, etc., to achieve complementary advantages, achieve win-win situation and shorten the gap between learning and using artificial intelligence talents.

5.3 Foshan manufacturing industry workers take an active part in the strategic activities of the government and enterprises, improve their own quality, and adapt themselves to the trend of highly integration of the manufacturing industry and artificial intelligence technology in the future

(1) The traditional industrial workers of Foshan manufacturing industry will be the direct stakeholders in the future artificial intelligence era, and the future industrial workers will have certain comprehensive quality and operation ability. Workers in traditional industries must take the initiative to improve their comprehensive ability, including the ability of operation and practice, learning ability and the ability to solve practical problems, so as to cope with the fast-changing new era in the future.

(2) In the new era of artificial intelligence in the future, there will be subversive changes in the working mode and working form of manufacturing enterprises. There is competition not only between traditional workers and traditional workers, but also between traditional workers and machine workers. In order to deal with this possible situation, traditional workers must strengthen self-study and improve comprehensive ability on the one hand, and strengthen psychological learning on the other hand to adapt to the new psychological environment.

(3) In the new era of artificial intelligence, traditional workers in manufacturing industries should fully respect and accept the ethical background and corresponding rules and regulations of artificial intelligence. Traditional industrial workers must fully respect the intelligent machine workers in the future. Only by harmonious coexistence and mutual competition can the development of enterprises be promoted. Only by correctly understanding and researching the thinking and cognitive modes of both sides, can the manufacturing industry in the era of artificial intelligence develop orderly and smoothly.

References

- [1] Dang Jiayu. *Research on the ethical and legal risks of artificial intelligence [J]. Information security research, 2017,3 (12): 1080-1090.*
- [2] Bostrom, N. *How long before superintelligence? [J] Linguist Philos Investig. 2006, 5. 11-30.*
- [3] Tan Wenjun, Dong Guicai, Zhang binru. *Development status and Enlightenment of industrial robot industry in China [J]. Macroeconomic management, 2018 (4).*
- [4] Yu Mingyuan, Fan Aijun. *Demographic dividend and international competitiveness of China's manufacturing industry [J]. Economic and management research, 2016,37 (2): 3-11.*
- [5] Lin Yulong. *Comparative analysis of real business cycle theory and Keynesian business cycle theory [J]. Chinese and foreign entrepreneurs, 2007 (3).*
- [6] Cao Jing, Zhou Yalin. *Research progress on the impact of artificial intelligence on economy [J]. Economic trends, 2018.*
- [7] Zhu Qiaoling, Li min. *research on Countermeasures of artificial intelligence, technological progress and labor structure optimization [J]. Science and technology progress and countermeasures, 2018, 35 (06): 36-41.*
- [8] Liu Wei, Zhao Lu. *Reflections on some ethical issues of artificial intelligence [J]. Science and society, 2018, 8 (01): 40-48.*