Research on the Impact of AI on China's Industrial Development and Policy Choices

Yifan Xu

International Business College, Dalian Minzu University, Dalian 116650, China.

Abstract: Artificial intelligence (AI) is a strategic technology leading a new round of scientific and technological revolution and industrial reform, with a strong "head goose" effect of spillover. Accelerating the development of a new generation of AI is an important strategic starting point to win the initiative in global science and technology competition, and an important strategic resource to promote the leapfrog development of China's science and technology, industrial optimization and upgrading, and the overall leap in productivity. Based on the current situation of China's AI development, this paper analyzes the current development trend of China's AI, and puts forward policies and measures for the development of China's AI in the new era

Keywords: AI; Industrial Development; Industrial Upgrading; Scientific and Technological Revolution

1. Introduction

Since the concept of AI was proposed in 1956, it has experienced more than 60 years of ups and downs. In recent years, with the maturity of big data, cloud computing, Internet and other technologies, the application of AI has been rapidly promoted. The emergence of AlphaGo, GoPro sports cameras, driverless cars and other products indicates that AI is changing the traditional way of life of human beings. The birth of the event that the orthopedic surgical robot "Tianji" has completed simulated surgery, lights off operation of industrial robots and other events means that AI will also have a profound impact on manufacturing, finance, medicine, agriculture and other industries, and will rapidly promote the transformation and upgrading of the global industrial structure. However, the development of AI still faces many problems and challenges, such as what is the development trend of AI in the future? What impact will the promotion of AI have on China's industrial development? What weaknesses does China's AI development still face and how to deal with them? The solution of these problems is a necessary condition for China to smoothly promote the development of AI.

2. The current status of China's AI development

Since the Chinese government incorporated AI into its national strategy in 2017 and granted more favorable policies, China's AI development has made gratifying achievements and demonstrated its

advantages in many aspects. According to China AI Development Report 2018, China currently ranks among the top in the world in terms of scientific and technological output indexes of AI. Among them, the total number of papers published and cited with AI as the theme is the first in the world. The number of patents also leads the United States and Japan. The number of AI related enterprises ranks second in the world. The scale of investment and financing in the field of AI is the largest, accounting for 60% of the global total. In addition, China's large population base and rich data resources also provide reliable data support for China's AI. However, China's supercomputers have a fast computing speed, providing computing support for the development of AI technology, and laying a foundation for China's AI to occupy a leading position.

Although China has entered the international leading ranks in the development of AI, and has occupied many advantages and achieved good results, it is undeniable that there are still shortcomings in the development of AI in China.

First of all, from the perspective of development direction, at present, the advantages and R&D strength of China's AI mainly lie in market applications, such as the R&D of intelligent robots, unmanned aerial vehicles and other terminal products, while the control ability of core technologies, such as IoT devices and algorithms, is still weak. This weakness means that China's AI development foundation is still not solid, and it may rely on other countries in the long-term global AI competition.

Second, from the perspective of research subjects, the knowledge output of China's AI still largely stays in universities and research institutions. Even for domestic technology giants such as Baidu, Tencent and Alibaba, their AI papers and patent applications are still not comparable to those of foreign leading enterprises.

Third, from the perspective of talent structure, there is a mismatch between the quantity and quality of Chinese AI talents. The total number of AI talents in China currently ranks the second in the world, but the proportion of outstanding talents is low. The gap between the top AI technical talents and developed countries such as the United States is still very obvious.

Fourth, from the perspective of the construction of laws and regulations, the negative problems associated with the development of AI have not yet been regulated by the legal system. At present, local governments in China actively support the development of AI and provide a favorable policy and talent supply environment. However, in general, their main focus is still on technological progress and industrial application, and they have not paid enough attention to the negative problems that AI may bring, such as ethics and safe operation.

3. Policies and measures for the development of China's AI in the new era

According to the Development Plan for the New Generation of AI, China's AI development strategy is divided into three major steps: the first step is to synchronize the overall technology and application of AI with the world's advanced level by 2020. The second step is to achieve a major breakthrough in the basic theory of AI by 2025, with some technologies and applications reaching the world's leading level. Third, by 2030, the theory, technology and application of AI will have reached the world's leading level, and become

the world's major AI innovation center.

First, in terms of theoretical and technological breakthroughs, we should initially establish a new generation of AI theory and technology system, and make breakthroughs in the research of autonomous intelligence. Compared with developed countries, China still has a gap in the core theory and technology of AI. Therefore, in the new era, we should pay more attention to the breakthrough and control of key core technologies, and attach importance to the original research of strengthening the foundation. The frontier basic theory of AI is the cornerstone of AI technology breakthrough, industry innovation and industrialization promotion. Facing the critical point of development, we must make major breakthroughs in the basic theories and cutting-edge technologies of AI in order to gain the ultimate say.

Secondly, in terms of industrial development, China's AI industry should be promoted to the top of the global value chain. The new generation of AI should be widely used in intelligent manufacturing, intelligent medical treatment, smart cities, intelligent agriculture, national defense construction and other fields. The emerging model of "AI+" has become increasingly mature with the development of technology, which will have a disruptive impact on China's industrial structure and accelerate the arrival of an inclusive intelligent society. Driven by the demand of industrial applications, it is necessary to break the perception bottleneck, interaction bottleneck and decision-making bottleneck of AI, promote the integration and improvement of AI technology and all sectors of society, and further optimize industrial upgrading.

Third, in terms of policy system, it is necessary to initially establish laws and regulations, ethical norms and policy system of AI, and form AI security assessment and control capabilities.

AI has a wide range of impacts and strong subversion. The resulting problems, such as changing the employment structure, impacting the law and social ethics, violating personal privacy, and challenging the norms of international relations, will gradually emerge, and have a profound impact on government management, economic security, social stability, and even global governance. Therefore, while continuing to vigorously develop AI in the future, China must attach great importance to the potential security risk challenges, strengthen forward-looking prevention and restraint guidance, minimize risks, and ensure the safe, reliable and controllable development of AI.

References

[1] Dai KZ, Wu TL, Pan AM. Artificial Intelligence and Industrial Structure Upgrading [J/OL]. Jinan Journal (Philosophy and Social Sciences Edition): 1-19.

[2] Chen N, Tang YT. Building the Development View of Artificial Intelligence with Chinese Characteristics [J/OL]. Special Zone Practice and Theory: 1-4.

[3] Xu P, Xu XY. The Logic and Analysis Framework of Enterprise Management Change in the Age of Artificial Intelligence [J]. Management World, 2020, 36 (01): 122-129+238.

[4] Guo KM. Development of Artificial Intelligence, Transformation and Upgrading of Industrial Structure and Change of Labor Income Share [J]. Management World, 2019, 35 (07): 60-77+202-203.

[5] Chen J, Zhang YJ, Wang J. Comparative Study on the Development of Sino US AI Industry Based on Patent Analysis [J]. Information Journal, 2019, 38 (01): 41-47

[6] Rui MJ. Strategic Ideas, Objectives and Paths for Building a Modern Industrial System [J]. China

Industrial Economy, 2018 (09): 24-40.

[7] Cai ZX. China's Artificial Intelligence 40 Years [J]. Science and Technology Guide, 2016, 34 (15): 12-32.