

Influence of Artificial Intelligence on the Development of New Quality Productivity

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Abstract: In the wave of Sci-Tech revolution, Artificial Intelligence (AI) is becoming a key force to promote the development of new-type productivity. This article makes a comprehensive and in-depth discussion around the theme of "the influence of AI on the development of new-type productivity". In this article, the concept, development process of AI, the connotation and characteristics of new productivity are clarified, and the theoretical framework of the relationship between AI and productivity is constructed. The core part of the article analyzes in detail the specific impact of AI on the development of new-type productivity. The integration of AI promotes the automation and intelligence of the production process, improves the production efficiency and promotes the optimization and upgrading of the economic structure. At the same time, the wide application of AI has led to changes in the job market, requiring the workforce to constantly adapt to new technologies and improve their skills. It not only provides new impetus for economic growth, but also brings challenges such as data security and privacy protection. In view of these challenges, this article puts forward corresponding strategies and suggestions, including increasing policy support, strengthening vocational education and skills training, and establishing and improving the legal system of data security and personal privacy protection.

1. Introduction

In the wave of Sci-Tech in the 21st century, AI is gradually infiltrating into every corner of society with its unique charm and unlimited potential, leading a new round of Sci-Tech revolution and industrial transformation [1]. From self-driving cars to intelligent medical care, from intelligent manufacturing to smart cities, AI has greatly enriched our lifestyle and reshaped the economic structure and social form at a deep level [2]. In the field of productivity, the application of AI is promoting the transformation from traditional productivity to new-type productivity, injecting new vitality into economic growth and social development [3].

Studying the influence of AI on the development of new-type productivity will help us to deeply understand the economic logic and social motivation behind this Sci-Tech revolution [4-5]. It can provide scientific basis for policy makers to guide them how to make better use of AI technology and promote the sustained and healthy development of productivity [6]. For enterprises and individuals, this research can also help them grasp the pulse of the times, seize the development opportunities brought by AI, and realize their own transformation and upgrading and value enhancement [7].

The purpose of this study is to deeply explore how AI affects the formation and development of new-type productivity. By systematically analyzing the role of AI in production mode, labor structure, industrial upgrading and economic and social effects, this article reveals its internal mechanism and external performance. Through this study, we can fully understand the impact of AI on the development of new-type productivity, and at the same time provide useful reference for future policy formulation, enterprise development and personal planning.

2. AI and the theoretical basis of new-type productivity

2.1. The concept and development of AI

As a core component of computer science, AI's fundamental concept is to develop intelligent devices that can simulate human thinking patterns by mimicking, enhancing, and expanding human intelligence [8]. This field encompasses multiple technological categories such as machine learning, deep learning, natural language processing, and computer vision [9]. Its goal is to empower machines to undertake tasks that previously relied solely on human intelligence, such as language comprehension, image recognition, and problem-solving.

Since the 1950s, AI has embarked on its journey of exploration. Until now, it has achieved a leapfrog development from theoretical foundation, technological innovation to industrial practice [10]. With the rise of big data technology, the popularization of cloud computing services, and the significant enhancement of computing power, AI has ushered in unprecedented development opportunities and gradually grown into one of the core driving forces for social progress and economic growth.

2.2. Connotation and characteristics of new-type productivity

New-type productivity is a higher-level and more efficient productivity form based on traditional productivity through technological innovation and mode change. It pays attention to the increase of production efficiency and output, and emphasizes the intellectualization, greening and sustainability of production methods. The core features of new-type productivity are shown in Figure 1:

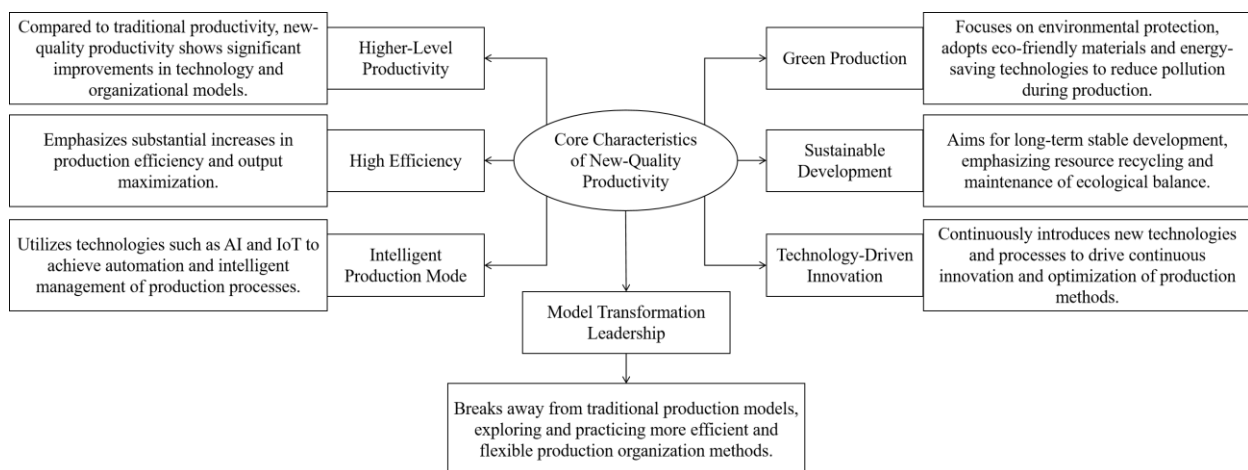


Figure 1 Core characteristics of new-type productivity

The formation of new-type productivity is the inevitable result of Sci-Tech progress and economic and social development, and it is also the key to promote high-quality economic growth.

2.3. Theoretical framework of the relationship between AI and productivity

As the forefront of the development of contemporary Sci-Tech, AI has a close and profound relationship with new-type productivity. AI provides a powerful source of power for the improvement of productivity through technological innovation and model change. On the one hand, the application of AI technology can improve production efficiency, reduce production costs, and promote industrial upgrading and structural adjustment. On the other hand, AI can also stimulate innovation vitality, promote the emergence of new industries, new formats and new models, and create favorable conditions for the formation and development of new-type productivity. Based on this, it is of great significance to construct a multi-dimensional theoretical framework including technological innovation and industrial upgrading for deeply understanding the relationship between AI and new-type productivity and guiding practical application. Under this framework, we can systematically analyze how AI promotes the continuous development and growth of new-type productivity by influencing factors of production, modes of production and relations of production.

3. The concrete influence of AI on the development of new-type productivity

3.1. Changes in the mode of production

The integration of AI indicates that the mode of production is undergoing an unprecedented revolution. The traditional production line relying on manual operation is now replaced by intelligent equipment, which realizes the automatic process from raw material input to finished product output. This "smart factory" model has significantly improved production efficiency and reduced human errors. It makes production more flexible, can quickly respond to market changes, and realizes customized production.

The use of AI in supply chain management, such as forecasting analysis and inventory optimization, further improves the collaborative efficiency and response speed of the whole production chain. This change in production mode has significantly reduced costs, improved product quality and laid a solid material foundation for the formation of new-type productivity.

3.2. Changes in labor structure and employment patterns

With the popularization of AI technology, the labor structure is undergoing profound changes. The repetitive and labor-intensive work is gradually replaced by robots and automation systems. This led to the disappearance of some traditional jobs. The rise of AI has also spawned a series of emerging professions, such as data scientists, machine learning engineers, and AI ethics consultants. These positions require higher technical skills and innovative ability. As a result, the employment form has become more diversified, and new working modes such as telecommuting and flexible employment are emerging day by day. This change requires the labor force to constantly learn and adapt to new technologies and upgrade their skills to meet the needs of the development of new-type productivity.

3.3. Industrial upgrading and structural adjustment

As an important driving force of industrial upgrading, AI is leading the transformation of economic structure from low added value to high added value. In the manufacturing field, intelligent manufacturing has become the key path of industrial upgrading. Through digital, networked and intelligent transformation, the overall competitiveness and innovation ability of the industry have been improved. AI has promoted the intelligent upgrading of the service industry (as shown in Table 1), and opened up a new space for improving the quality and efficiency of the service industry.

Table 1 Core Areas of AI-Driven Intelligent Upgrading in the Service Industry

Service Area	Content of Intelligent Upgrading
Financial Services	Intelligent risk control, intelligent investment, intelligent customer service, blockchain technology application, etc.
Healthcare	Telemedicine, intelligent diagnosis, personalized treatment plans, medical robots, etc.
Retail & E-commerce	Intelligent recommendation systems, unmanned retail, smart warehousing & logistics, virtual try-on/makeup, etc.
Education Services	Online education platforms, intelligent teaching systems, personalized learning path planning, intelligent assessment & feedback.
Smart Cities & Public Services	Intelligent traffic management, smart energy management, intelligent security monitoring, automated government service platforms, etc.
Tourism & Hospitality	Intelligent itinerary planning, virtual travel experiences, smart room service, unmanned hotels, etc.
Entertainment & Media	Content intelligent recommendation, intelligent content creation, virtual reality/augmented reality entertainment experiences, intelligent copyright protection.

In terms of industrial structure, the wide application of AI has promoted the rapid development of emerging industries. These include the AI industry itself, the big data industry, and the cloud computing industry. These industries have become the new engines of economic growth and

promoted the optimization and upgrading of the economic structure.

3.4. Analysis of economic and social effects

The application of AI significantly improves the production efficiency, reduces the production cost and enhances the international competitiveness of enterprises. It has provided new impetus for economic growth. AI has also promoted the gathering and sharing of innovative resources, accelerated the transformation and application of Sci-Tech achievements, and provided strong support for high-quality economic growth.

From a social perspective, the popularity of AI has improved people's quality of life. For example, intelligent medical care improves the accessibility and efficiency of medical services, intelligent transportation reduces traffic accidents and congestion, and improves the efficiency of urban operation. However, the development of AI has also brought about social problems such as changes in employment structure, privacy protection and data security. This requires the joint efforts of the government, enterprises and all sectors of society to formulate relevant policies and regulations, strengthen ethics and supervision, ensure the healthy development of AI technology and maximize economic and social benefits.

4. Challenges and countermeasures

4.1. Challenges faced

While AI promotes the rapid development of new-type productivity, we also face many challenges.

① The imbalance of technological development leads to the increasingly prominent problem of "digital divide". Some regions and industries are difficult to enjoy the dividends brought by AI due to backward technology, which aggravates the imbalance of economic and social development.

② The wide application of AI has impacted the job market, and low-skilled jobs have been replaced by automation. Emerging jobs require higher skills and knowledge, which leads to increased pressure on labor transformation.

③ Data security and privacy protection have become urgent problems to be solved. AI relies on a lot of data processing and analysis, which increases the risk of data leakage and abuse.

④ The unclear definition of AI's ethical and legal responsibilities, such as algorithm bias and autonomous weapon system, has aroused widespread social concern and controversy.

4.2. Coping strategies and suggestions

Facing the above challenges, we need to take active and effective coping strategies.

① The government should increase its support for backward areas and industries, promote the balanced development and wide application of AI technology through policy guidance and technical assistance, and narrow the "digital divide". At the same time, the government should strengthen vocational education and skills training, improve the skill level and adaptability of the labor force, and promote the smooth transformation of the job market.

② The government should establish and improve the legal system of data security and personal privacy protection, strengthen the supervision of the whole process of data collection, storage, processing and use, and ensure the security and legality of data.

③ The government should actively promote the construction of AI ethics and legal framework, clarify the responsible subject of the algorithm, standardize the design and application of the algorithm, and avoid the bias and abuse of the algorithm.

④ The government should actively mobilize enterprises and all social forces to participate in the exploration, R&D and practice of AI, promote close cooperation and integration between Industry-University-Research, and accelerate the transformation of Sci-Tech achievements into practical applications, so as to ensure the steady and healthy development of emerging productive forces.

5. Conclusions

This article deeply discusses the influence of AI on the development of new-type productivity. Based on the theoretical basis, this article expounds the concept, development process of AI and the connotation and characteristics of new-type productivity, and constructs the theoretical framework of the relationship between AI and productivity. Subsequently, the article analyzes in detail the specific impact of AI on the transformation of production mode, the change of labor structure and employment pattern, industrial upgrading and structural adjustment, and economic and social effects. It also reveals the important role of AI in promoting the development of new-type productivity.

It is found that AI significantly improves production efficiency, reduces production costs and promotes the optimization and upgrading of industrial structure. It provides a powerful impetus for economic growth and social progress. The development of AI has also brought challenges such as changes in employment structure, data security, privacy protection and ethical laws, which require us to adopt active and effective coping strategies to ensure the healthy development of technology and the maximization of social benefits. In the future, with the continuous progress of technology and the expansion of application scenarios, AI will play an important role in more fields and promote profound changes in production methods, lifestyles and social governance methods.

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