Discussion on the Current Application of Artificial Intelligence in the Digital Economy

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ABSTRACT:

In the era of the digital economy, data, algorithms, and computing capabilities constitute vital elements that drive economic development. The three elements of artificial intelligence are -computing power, algorithm, and data. As for the difference and progress, machines imitate and enhance human physical strength, but artificial intelligence imitates and improves human intelligence. This work first mentions the status quo of how artificial intelligence boosts the digital economy. Then, it comes to several aspects of artificial intelligence's development, prospect, and application. Eventually, this paper mentioned how to apply artificial intelligence technology to various industries to form new industries, thus promoting the development of the digital economy.

In conclusion, digital technology promotes the comprehensive efficiency upgrade of various national economy departments. Its formation is that the digital economy improves the efficiency of various departments through digital technology. Efficiency upgrade means cost reduction, relative competitive advantage in the industry, adjustment and transformation of the original industrial structure and product structure, and the use of digital technology for existing products and technologies to reduce the production costs of manufacturing enterprises and achieve product upgrades. Improvements in quality, structural changes, and management efficiency have improved the core competitiveness of enterprises and achieved a comparative advantage in competition.

Keywords: Artificial intelligence, Digital economy, Application problem, development

1. INTRODUCTION

In the history of human prosperity, artificial intelligence has played a crucial role in the current and future development of the digital economy. Artificial intelligence promotes industrial development and boosts the economy. From a development perspective, the digital economy covers many fields, such as agriculture, industry, and government. The seepage of artificial intelligence in the industry is far beyond people's imagination. Precision agriculture, precise weather, or intelligent transportation are inseparable from time, space, and location information. Integrating a new generation of artificial intelligence and the real economy can ensure that technological achievements benefit the masses.

The role of artificial intelligence in the digital economy is mostly reflected in the construction of intelligent infrastructure, innovative application scenarios, and the construction of value chain ecology. First of all, as a new form of infrastructure, the deep integration of artificial intelligence with 5G, big data, cloud computing, and other technologies provides the underlying support for the prosperity of the digital economy. Secondly, artificial intelligence is becoming a powerful tool to promote upgrading the traditional economy through the innovation of application scenarios and the deep integration of the traditional economy. It also realizes highly automated production in professional fields, improves industrial efficiency, promotes the intelligentization of traditional industries, and realizes industrial upgrading. Then, optimize the industrial structure and reshape the production organization. At the same time, artificial intelligence is constantly giving birth to the intelligent industry and accelerating the transformation of people's livelihood services and social governance through the intelligentization of traditional industries and the industrialization of intelligent technologies. Finally, by building a value chain ecology, promote the internal opening and external collaboration of the artificial intelligence industry ecology, and then promote the wide-ranging application of artificial intelligence to help the high-quality development of the digital economy. At this stage, the development and application of artificial intelligence in the digital economy are emphasized, and some problems are faced. The discussion on solutions and development has practical significance.

2. The status quo of artificial intelligence promoting the prosperity of the digital economy

The digital economy is becoming a key driving force in reorganizing global element resources and reshaping the

global economic environment. According to statistics, the added value of the global digital economy has increased from US$30.2 trillion in 2018 to US$31.8 trillion in 2019 [1]. The digital economy also provides essential momentum for Chinese economic development. In 2020, the scale of China's digital economy achieved 39.2 trillion yuan, ranking second in the world, and the year-on-year growth rate was the first in the world [2]. In January 2022, the State Council issued the "14th Five-Year Plan for Digital Economy Development" (named from now on referred to as the "Plan"), which is my country's first national-level special plan in the field of digital economy. The 'Plan' forecasts that the added value of digital economy core industries will account for 10% of GDP by 2025, highlighting the important strategic position of the digital economy during my country's "14th Five-Year Plan" period and even during the medium-and long-term planning period of 2035. The "Plan" proposes that one of the keys to creating a prosperous and developing digital economy is to promote the intelligent upgrading of infrastructure in an orderly manner and efficiently deploy artificial intelligence infrastructure. By 2030, the scope of China's artificial intelligence core industry is predicted to surpass 1 trillion yuan [3]. The new generation of information technology represented by artificial intelligence will provide an essential technical foundation and industrial momentum to promote the high-quality development of the digital economy in China during the "14th Five-Year Plan" period and is of great significance to the development of the digital economy in China.

The role of artificial intelligence in the digital economy is mainly reflected in the construction of intelligent infrastructure, innovative application scenarios, and the construction of value chain ecology. First, artificial intelligence, as a new type of infrastructure, is deeply integrated with 5G, big data, cloud computing, and other technologies, providing underlying support for developing the digital economy. Computational data, algorithms, and computing power are the three most essential elements for the development of artificial intelligence. Computing data provides the core production factors for developing the digital economy. Computing power represented by artificial intelligence chips, cloud computing, and supercomputing centers provides industry applications. The underlying computing power and algorithm innovation will effectively promote the application of artificial intelligence technology. Secondly, artificial intelligence is deeply integrated with the traditional economy through the innovation of application scenarios and is becoming a powerful tool to promote the upgrading of the traditional economy. It can achieve highly automated production in professional fields, improve industrial efficiency, boost the intelligence of traditional industries, and realize the upgrading of industries. Then, optimize the industrial construction and reshape the production organization. At the same time, artificial intelligence is constantly giving birth to innovative industries and accelerating the intelligent transformation of people's livelihood services and social governance through the intelligentization of traditional industries and the industrialization of intelligent technologies. Finally, by building a value chain ecology, we promote the internal opening and external collaboration of the artificial intelligence industry ecology, thereby promoting the large-scale application of artificial intelligence and assisting the high-quality development of the digital economy.

3. The development prospect and application of artificial intelligence technology

3.1 Broad application prospects in the medical domain

In the face of the sudden outbreak of the new crown epidemic, food delivery robots in the catering industry have turned their attention to medical delivery. Robots can deliver medical supplies to hospitals, deliver food to guests in isolated hotels, and automatically measure temperature and kill in public places. It provides various services; on the other hand, artificial intelligence can be used for intelligent diagnosis and treatment, intelligent health management, and prediction of drug development. Now, artificial intelligence technology has achieved a lot of results in many fields of medicine.

3.2 The financial field will realize electronation

Mobile payment will lead the development of the payment industry. From the perspective of government supervision, mobile payments are beneficial for government departments to track and supervise the flow of funds effectively. At the same time, electronic payment has become the mainstream with flexible and diverse payment methods. Some netizens jokingly said that some cash withdrawn a few months ago is still in their pockets. Whether it is supermarkets, shops, or roadside stalls, WeChat and Alipay are used.

Furthermore, there are promotional activities, and cash and credit cards are rarely used. As of June 2019, the number of netizens in China achieved 854 million. 99.1% of Internet users use mobile terminals to connect to the Internet, and China is likely to be the first country in the world to switch to electronic money instead of cash.

3.3 Intelligence and unmanned technology in

transportation

One of the results of urbanization is the rapid growth of the population, the continuous increase of traffic pressure, frequent congestion, illegal accidents, and other phenomena. The State Council released the "New Generation Artificial Intelligence Development Plan" in 2017. This plan aims to change the current traffic rules through artificial intelligence development and solve various troubles in the current transportation industry. For example, unmanned driving can effectively provide the optimal route for vehicles, avoid congestion, and increase traffic speed. It can effectively solve fatigue driving, avoid accidents, enhance traffic safety, and strive to realize the three-dimensional and all-around application of unmanned driving, intelligent navigation, and intelligent transportation.

3.4 Intelligent-assisted teaching will be promoted in the field of education

The emergence of the new crown epidemic has accelerated people's understanding of online teaching. Various mobile apps or computer video software such as DingTalk and Tencent Conference allow people to study and work without leaving home, which significantly facilitates students' learning and work communication. However, in disseminating knowledge points in online teaching through multimedia interactive methods such as images, videos, and sounds, most parents generally report that the teaching effect could be better, and related supporting services still need to keep up. Online teaching is only a part of the current stage. As an auxiliary means, students still have to return to school to study after the epidemic.

The auxiliary role of using artificial intelligence in schools is prominent. After the epidemic is over, the school resumes classes. When students come to the campus, they can automatically complete the sign-in when they enter the door. There is multimedia equipment in the classroom to assist teaching, and students can receive reminders when they are abnormal. After the exam, a summary report will be automatically generated, and parents will be automatically notified after school leaves the campus. These functions will save us a lot of thought and time. Sometimes, people only need a multimedia teaching device for independent learning, so for students, artificial intelligence has broad application prospects.

3.5 Conducive to strengthening the security of public order

Artificial intelligence in the field of public security can realize intelligent verification and intelligent security for personnel identities in public places and other transportation hub areas and create multiple functions such as "intelligent community personnel management system" and "public security system intelligent investigation and control" in resident management, effectively settle the problems of management, service, and safety, and play a more significant role in preventing and controlling epidemics and responding to emergencies, which is conducive to the improvement of social public safety.

3.6 New services will be provided in the field of commercial services

With the popularity of e-commerce and rising labor costs, logistics companies have begun to use robots to alleviate labor costs and improve efficiency. Artificial intelligence can replace a large number of simple laborers in enterprises and help firms carry out transportation. Simultaneously, with the support of artificial intelligence, the retail industry can make more changes from online to offline. From logging on to shopping websites to checking out and leaving, the goods are shipped from the nearest offline warehouse. For offline shopping, from entering the store to consuming and then leaving, customers only need a mobile phone to pay, and even manual checkout is not required. It is very convenient [4.]

4. Practical problems and the developing path of digital economy under artificial intelligence

At present, artificial intelligence promotes the development of the digital economy, and there are still a number of practical problems and development bottlenecks. In the first place, as a new technology infrastructure, artificial intelligence has some problems--lack of computing data, weak computing power facilities, weak algorithm research capabilities, and insufficient coordination of computing and network integration. Secondly, the layout of artificial intelligence technology industrialization needs to be strengthened. Besides, full-cycle intelligent governance and multi-scale intelligent urban space have not yet been formed, and industrial intelligence needs further improvement [5].

4.1 Develop digital industries for direct production and services

4.1.1 Data value-added service industry.

Utilize technologies like big data, artificial intelligence, blockchain, and the Internet of Things to fully release the new value of data resources, improve the efficiency of data collection and utilization as a strategic resource, and use data collection, data storage, data processing analysis and mining, data visualization, and data. It is a data value-added service enterprise focusing on exchange transactions and other businesses and directly engages in

digital production and services.

4.1.2 Digital information and communication technology software and hardware production and service industry.

These industries concentrate on the core technologies of the digital economy and enhance core digital technology innovation capabilities through information technology changes. They are engaged in production and services in the fields of intelligent terminal products, software development, information system integration, network communication services, digital security, etc., and are engaged in virtual reality. (Augmented Reality), smart wearable devices, 3D printing, artificial intelligence, and other emerging and cutting-edge related industries.

4.2 Integrate core technologies of the digital economy into replacing traditional technologies to form emerging industries

By accelerating the integration of digital technology and traditional physical industries, using digital technologies to replace some of the old traditional technologies with low labor productivity, promote the optimal allocation of resources through the development of new business forms like intelligent manufacturing, digital agriculture, and smart energy, promote the transformation of the real economy to digitalization and intelligence, and facilitate the improvement of industry quality synergy.

4.2.1 Intelligent Manufacturing Industry.

Develop intelligent manufacturing, deepen the application of digital technology in manufacturing, boost the rapid evolution of the new industrial revolution, strengthen the digitalization and intelligence of equipment manufacturing, develop digital products, improve the level of digital management in the manufacturing industry, promote the transformation and upgrade of the manufacturing industry, and promote the manufacturing industry. Develop towards a more comprehensive and advanced industrial intelligent economy era.

4.2.2 Digital Agriculture Industry.

Integrate high-tech technologies such as remote sensing, GIS, and GPS with disciplines such as geography, agronomy, and soil science to achieve digitalization and intelligence in agricultural production. Integrate big data and artificial intelligence with specialty agriculture such as tea, fruits, and vegetables to promote the development of new models such as mountainous high-efficiency agriculture and agricultural O2O, and promote the integrated development of agricultural product planting and processing, supply chain coordination, and rural tourism based on digital technology.

4.2.3 Smart Green Energy Industry.

Focusing on green economy and new energy economy, intelligent energy and the Internet of Things, energy industry innovative technology, intelligent energy efficiency technology development and application, clean technology and zero emissions, etc., facilitate the in-depth application of digital technology in all aspects of the energy industry chain and use traditional The digital transformation of energy and new energy production enables real-time monitoring of energy production, precise scheduling, fault diagnosis, and predictive maintenance, and improves energy production efficiency.

4.3 Digital economy core technologies penetrate the service industry to form emerging industries

Digital technology is spreading and penetrating industry and service industries, cultivating new modern digital and networked business formats, and innovating business models and product and service innovations based on integrated development.

4.3.1 Smart Tourism Service Industry.

Penetrate the core technologies of the digital economy into the tourism industry, strengthen the open sharing of data resources in the tourism industry, build an intelligent tourism public service system based on all-region tourism, achieve precise services, and use the integrated development and application of natural landscapes and virtual reality technology to boost the developing of the tourism industry.

4.3.2 Smart Health Service Industry.

Integrate core technologies of the digital economy into the healthcare industry, develop and apply medical and health digital terminal products, and develop online and offline collaborative medical and health information services. Innovate new models of Internet hospitals and remote diagnosis based on “Internet +.”

4.3.3 E-commerce industry.

We will build an omnichannel e-commerce ecosystem and a quality and safety traceability system based on digital technology, products, and services. Deepen the application of digitalization, facilitate the integration of online and offline e-commerce platform products, the integration of planting, breeding, processing, and sales, the development of rural e-commerce and comprehensive e-commerce platforms, and promote online sales of high-quality agricultural products.

4.3.4 Digital financial industry.

Integrate IT like big data, the Internet, and artificial

intelligence with the traditional financial services industry to build financial services that provide digital assets to governments, enterprises, and individuals.

4.3.5 Smart Logistics Industry.

Based on digital economic technology, create a logistics information sharing system to boost the informatization development of the logistics industry and realize the interoperability and sharing of information, such as real-time tracking of the logistics supply chain. Promote the connection between intelligent logistics platforms and e-commerce platforms, build smart logistics deployment and distribution networks, improve the construction of intelligent logistics and distribution systems, and promote the coordinated development of e-commerce and logistics services.

4.3.6 Digital cultural and creative industries.

Build industrial parks such as cultural, industrial, creative, and original ecological ethnic industrial parks. Promote the production and promotion of digital radio, film, and television works, and promote the development of new digital cultural formats such as digital film and television, digital music, animation and online games, Internet new media, culture, and art design.

4.3.7 Internet Platform Economy Industry.

Develop platform-based economic industries based on the Internet and provide professional services. Develop a platform economic model with online and offline collaboration and cross-border integration, and guide the platform industry toward personalization, specialization, characteristics, and verticalization.

4.3.8 Cultivate the sharing economy development industry.

Develop production capacity and the sharing economy, support the construction of a number of industry service platforms, improve the utilization rate of idle assets in large-scale manufacturing industries, realize the sharing and opening up of some element information resources of large and medium-sized corporations to the society, and improve the efficiency of collaborative development between industries. Develop an educational resource-sharing economy, rely on educational resources, carry out public infrastructure-sharing services such as scientific research instruments, classroom resources, activity centers, etc., rely on online education platforms, develop online services based on knowledge sharing, and maximize the value of educational and scientific research.

5. CONCLUSION

Digital technology has boosted the upgrade of the comprehensive efficiency of various national economy departments. The various sectors of the national economy can be reduced to four sectors: producer enterprises, residents belonging to consumers, government, foreign producers and consumers, and financial institutions that undertake savings and investment intelligence. The digital economy has upgraded the adequate supply of the four major national economy departments. The mechanism is that the digital economy has improved the efficiency of each department through digital technology. The upgrade of efficiency is the reduction of cost, forming a relative competitive advantage among industry players, adjusting and transforming the original industrial structure and product structure, and adopting digital technology for backward products and technologies to decrease the production cost of production enterprises and upgrade product quality. Structural changes and improved management efficiency have improved the company's core competitiveness and achieved relative competitive advantages. Therefore, the development of the digital economy should be closely combined with artificial intelligence technology.

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