



Research on the development path of digital innovation driving new-quality productivity

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Abstract. Xi Jinping made an important conclusion about the development of new-quality productivity, which play an increasingly important role in economic and social development. This text discusses what digital innovation is and how digital innovation affects the development of new-quality productivity, and clarifies the path and method of digital innovation driving the development of new quality productivity. With the continuous development of digital technology and in-depth applications, digital innovation is of great significance to the development of new mass productivity, want to use a good digital innovation drive new quality an important factor in the development of the productivity, to the health of the economic and social sustainable development injected fresh momentum.

Keywords: digital innovation, new-quality productivity, driving, development, path.

1 Introduction

Xi Jinping pointed out, “Developing new quality productivity is an inherent requirement and an important focus for promoting high-quality development”^[1], “Accelerating the development of new quality productivity”^[2] was also included in the 2024 China's Government Work Report as the first of the ten tasks, and it highlights China's determination, confidence and sense of urgency to develop new quality productivity. In essence, new-quality productivity is the modern advanced productivity, which is the key to high-quality economic and social development at present and in the future. The rapid development of digital information technology has formed an unstoppable historical trend. It has become a “key variable” to stimulate and cultivate new quality productivity and promote economic and social development, profoundly changing the mode of production, economic structure and social life. Revolutionary technological breakthroughs, innovative allocation of production factors, and deep industrial transformation and upgrading are the three major sources of new quality productivity^[3], and they are all dependent on the strong momentum provided by digital innovation.

2 What is Digital Innovation

Digital innovation refers to the use of digital technologies, such as the Internet, big data, cloud computing, artificial intelligence, etc., to transform and upgrade traditional industries, create new business models, products, services and technologies, and optimize production processes and management methods to improve efficiency, reduce costs, enhance user experience and open up new markets. Digital innovation has wide application prospects in all fields of social production and life, and can integrate knowledge and resources from different fields to break traditional barriers to create new value and solve existing problems, such as “the sharing economy and innovation help boost real-world development and promote a circular economy”^[4] has become a broad consensus.

Digital innovation emphasizes people-oriented and sustainable development orientation, pays attention to continuous iteration and improvement, attaches importance to the continuous evolution of user experience and needs, and makes decisions and promotes innovation based on data. However, digital innovation is not just a simple application of a new technology, but also a shift in mindset. To stay ahead in an increasingly automated world, the focus should shift to developing unique human skills, such as innovation and critical thinking.^[5] It requires a strategy, culture and operations that can adapt to the demands of the digital age. Through digital innovation, market players can achieve a more flexible operation model and better respond to market changes, so as to maintain a leading position in the fierce competition, bringing great changes and development opportunities for all walks of life.

3 The Role of Digital Innovation in Developing New-Quality Productivity

With the continuous development and application of digital technology, digital innovation has become a key factor to promote the development of global productivity. By promoting technological innovation, model innovation, organizational innovation and other aspects of change, digital innovation has an incomparable force of value, provides a strong impetus and support for the development of new quality productivity, will promote new quality productivity to play a more important role in economic and social development, and promote human society to a more intelligent, efficient and sustainable direction.

3.1 Enhancing the Core Competitiveness of New Quality Productivity

Digital innovation promotes technological innovation, and technological innovation is the core driving force for the development of new quality productivity. Digital innovation promotes technological upgrading and transformation of traditional industries through the use of new generation information technologies such as big data, cloud computing and artificial intelligence. For example, in the field of industrial manufacturing, digital technology can realize the automation and intelligence of the production process and improve production efficiency and product quality^[6]; In the field of

agriculture, digital technology can be applied to precision agriculture, intelligent agricultural machinery, etc., to improve agricultural production efficiency and resource utilization efficiency. These technological innovations not only enhance the core competitiveness of new quality productivity, but also provide strong support for sustainable economic and social development. Digital innovation can also promote technological integration and innovation in different fields. Through cross-border integration and collaborative innovation, digital technology can be integrated with technologies in other fields to form a new technological system and industrial ecology. This kind of integrated innovation not only broadens the scope and depth of technology application, but also provides more possibilities for the development of new quality productivity.

3.2 Expand the Development Space of New-Quality Productivity

Digital innovation leads model innovation, and model innovation is an important embodiment of the development of new quality productivity. By changing the traditional business model and service model, digital innovation opens up a broader space for the development of new quality productivity. For example, in the field of e-commerce, digital innovation has given birth to new business models such as online shopping and live delivery, providing consumers with a more convenient and diverse shopping experience; In the field of sharing economy, digital innovation has promoted the rise of new service models such as shared travel and shared accommodation, effectively utilizing idle resources and improving the utilization efficiency of social resources. Digital innovation can also promote the development of new service models such as personalization and customization. Through the use of big data, such as artificial intelligence technology, enterprises can more accurately grasp the consumer demand, to provide personalized products and services, to meet diversified needs of consumers^[7]. This consumer-centric service mode innovation, not only promoted the new productivity level of service, also provide new momentum for the enterprise's sustainable development.

3.3 Optimize the Resource Allocation of New-Quality Productivity

Digital innovation promotes organizational innovation, and organizational innovation is an important guarantee for the development of new quality productivity. By changing the organizational structure and management mode of market players, digital innovation can optimize the resource allocation of new quality productivity and improve the operational efficiency of organizations. For example, in the aspect of enterprise management, digital innovation can realize the digitalization and intelligence of enterprise management, and improve the efficiency and accuracy of management decision-making; In terms of team collaboration, digital innovation can promote information sharing and collaborative work among team members, and improve the quality and efficiency of team collaboration. Digital innovation can also promote cooperation and win-win results among enterprises. Through the construction of digital platforms and ecosystems, enterprises can share resources and complement advantages with other enterprises, form a joint force, and jointly promote the development of new quality productivity. This cooperation and win-win model based on digital innovation not only helps

to enhance the competitiveness of enterprises, but also provides strong support for the healthy development of the entire industry.

3.4 Promote the Digital Transformation of the Economy and Society

Digital innovation enhances the level of intelligence, and intelligence is a prominent feature of the development of new quality productivity. Digital innovation through the use of artificial intelligence, machine learning and other technologies to improve the intelligence level of all aspects of production, and promote the digital transformation of the economy and society. In terms of intelligent production, digital technology can realize the automation, intelligent monitoring and regulation of the production process, and improve production efficiency and product quality^[7]; In terms of intelligent services, digital technology can be applied to intelligent customer service, intelligent recommendation and other fields to improve the service level and user experience. Digital innovation can also promote the construction of new social governance models such as smart cities and digital governments. By using big data, cloud computing and other technologies, the government can more accurately grasp the needs and problems of social governance, and improve the efficiency and level of social governance. The emergence of the digital economy has reshaped the landscape of financial services, driving rapid innovation in financial technology (fintech).^[8]This social governance model based on digital innovation helps to promote the digital transformation of the economy and society and improve the overall development level of new-quality productivity.

4 The Practice Path of Digital Innovation Driving the Development of New-Quality Productivity

How does digital innovation drive new quality productivity? I believe that we should give full play to the characteristics and advantages of the digital economy. Digital innovation is the growth core of data, and it is the three engines that fully drive revolutionary technological breakthroughs, innovative allocation of production factors, and deep transformation and upgrading of industries, which generate new quality productivity, and a new source of power for high-quality economic development. It can provide reliable momentum for faster and healthier operation of these three engines. Digital economy is characterized by zero marginal cost effect and scope economy, which can pool resources and demand through platform and online, and achieve efficient economic development. Therefore, the government, market players, all walks of life and even every citizen should take active actions to comply with the needs of the digital economy era, systematically layout elements, industries, integration, governance and other aspects, and work together to form a joint force to further promote digital innovation and application, and promote the healthy development of the digital economy.

4.1 Revolutionary Technological Breakthroughs Driven by Digital Innovation

Technological revolutionary breakthrough is marked by the emergence of a large number of disruptive and cutting-edge technologies. Digitalization is an important prerequisite for the generation of disruptive technologies and cutting-edge technologies. Digitalization is like a magic key, opening the door to revolutionary technological breakthroughs and leading mankind into a new era.

4.1.1 Implement an Innovation-Driven Development Strategy.

According to *14th Five-Year National Informatization Plan*, we should adhere to the core position of innovation in the development of national informatization, and strengthen the self-reliance of key core technologies. This includes strengthening the construction of digital infrastructure, optimizing the digital policy environment, strengthening the training and introduction of digital talents, consolidating the basic capacity of information technology, improving the innovation level of key technologies, laying out the development position of cutting-edge technologies, building a flexible system and innovation environment, and strengthening the research and development of data security technologies. Improve the security and reliability of data encryption, access control, data anonymization and other technologies, and enhance the ability to cope with digital risks. These measures will help ensure that digital innovation stays on the right path and promote high-quality economic development.

4.1.2 Improve Data Processing and Analysis Capabilities.

Technological breakthroughs are accompanied by enormous amounts of data processing. In the past, processing data required a lot of time and manpower, but now through cloud computing, big data and other technologies, we can easily achieve rapid processing and analysis of massive data, which provides strong support for scientific research, technology development, business decision-making and other fields. Therefore, it is necessary to speed up the breakthrough in the field of digital technology itself, research and develop more subversive and cutting-edge digital technologies, and deeply apply them in other industrial technological innovations to provide a solid digital force for technological revolutionary breakthroughs.

4.1.3 Promote Industrial Digital Transformation and Innovation.

This is the focus of the digital innovation drive. In the field of primary industry, the application of digital technology makes agricultural production more accurate and efficient, realizing the transformation from traditional agriculture to modern and digital agriculture, and greatly improving the efficiency of agricultural production. In the field of secondary industry, the application of the Internet of Things and industrial Internet technology has realized the intelligence and automation of the production process, greatly improved the production efficiency and product quality^[6], greatly reduced labor costs, and reduced the unqualified rate of products. Digital twin technology is to simulate and predict the real world through digital models. In the process of technology research and development, it can help researchers simulate the experiment process in

the computer and predict the experiment results more accurately, thus reducing the experiment cost and reducing the experiment risk. In the field of tertiary industry, through digital transformation, the traditional service industry can be revitalized to provide more convenient, efficient and personalized services, such as 3D printing, digital precision miniaturization plastic surgery and beauty, etc., the service industry has great potential in the digital wave.

4.1.4 Promote Cross-Border Industrial Integration and Collaborative Innovation.

We will establish a mechanism for connecting technological innovation with industrial demand, strengthen industry-university-research cooperation and collaborative innovation, encourage enterprises to participate in technological development and innovation activities, and provide market demand information and financial support for innovation work, so as to foster the vigorous development of a number of emerging industries and foster new quality productive forces to become new economic growth points. Cross-border integration and innovation between different industries is an important source of the development of new quality productivity, and digitalization is the best link and bridge to connect all walks of life. This cross-border integration has not only spawned new formats and business models, such as the rise of Internet medical care, online education, online payment, intelligent transportation, etc., which are the results of the integration of digitalization and other industries. At the same time, it also provides more possibilities for technological revolutionary breakthroughs, which is conducive to cultivating a good digital industrial ecology, such as the integration of digitalization and biotechnology, new materials and other fields to promote the development of bioinformatics, biomedical engineering and other emerging disciplines, and the integration of digital technology and cultural industry to promote the innovation and industrialization of digital cultural and creative products.

4.2 Digital Innovation Drives Innovative Allocation of Production Factors

Digitalization provides powerful tools and means for the innovative allocation of production factors. Through the in-depth application of digitalization, more flexible, more efficient, more intelligent and more innovative allocation of production factors can be achieved, and resource utilization efficiency can be improved to promote high-quality economic development.

4.2.1 Build a Powerful Digital Platform.

Formulate and improve relevant laws, regulations and standard systems for data trading, establish a safe, reliable and efficient data trading platform, and promote the free circulation and trading of data elements in the market. Digital platforms can bring together information on various production factors to support real-time interaction, online trading and collaboration of production factors, including labor, capital, technology, data, etc., thus providing a transparent market environment. Through the real-time data, information sharing and data analysis provided by the platform, market players can more accurately assess market demand, predict future trends, and make smarter

decisions, thus promoting cooperation and communication between different production factor providers, promoting new combinations and applications of production factors, and improving resource allocation efficiency.

4.2.2 Use Big Data and Artificial Intelligence Well.

Big data technology can collect, analyze and integrate the data of various production factors, find out the potential links and rules between production factors, and provide data support for the innovative allocation of production factors. Artificial intelligence algorithms can simulate human decision-making process, identify models and trends in data, provide decision-makers with objective reference based on data, and provide intelligent optimization schemes for production factor allocation strategies. Advanced digital information technologies, such as cloud computing, Internet of Things, 5G, VR, AR and AI technologies, can reduce data transmission latency, improve the response speed and processing capacity of information systems, achieve remote collaboration and virtual simulation, and greatly improve the configuration accuracy and efficiency of production factors.

4.2.3 Deepen the Integration of Digitalization and the Real Economy.

Through policy guidance and financial support, we will promote the deep integration of the digital economy and the real economy, from production and supply chain to sales and services. The Internet of Things technology can monitor and track production equipment and logistics vehicles in real time, monitor the operating status and production process of production equipment in real time, find problems in time and make adjustments to improve production efficiency. Blockchain technology can be used to establish a trust mechanism in the configuration of production factors, ensure the authenticity, reliability and immutability of data, ensure the transparency and security of production factor transactions, and promote cross-regional and cross-industry cooperation and innovation.

4.2.4 Promoting the Deep Integration of Digital Technologies with Production Factors.

Promoting the digital transformation of traditional production factors. Traditional production factors are encouraged to use digital technology to upgrade and iterate, achieve intelligent, automated and green production processes, and provide new application scenarios and models for innovative allocation of production factors. Promote the efficient circulation and utilization of data elements, and promote data sharing and openness. Promote the sharing and opening of government data and social data, break data silos, improve the utilization efficiency of data resources, and provide rich data resources for the innovative allocation of production factors. Explore new production factors. Combined with digital technology, explore and develop new production factors, such as data, algorithms, computing power, etc. The introduction of these new production factors will greatly enrich the types and forms of production factors, and provide more possibilities and choices for the innovative allocation of production factors.

4.3 Drive Industrial Transformation and Upgrading Deeply Through Digital Innovation

Digitalization is the key driving force to promote the deep transformation and upgrading of the industry. By integrating resources and technological advantages of all parties, it can promote the collaborative innovation of the upstream and downstream of the industrial chain, achieve technological breakthroughs and the deep transformation and upgrading of the industry, and improve the competitiveness and sustainable development ability of the industry^[9].

4.3.1 Production Digital Transformation.

Promote automation and intelligent manufacturing, through the introduction of industrial robots, automation equipment and intelligent manufacturing systems, promote the digital innovation of technology, products and processes, and realize the automation and intelligent production process. This not only improves production efficiency and reduces human error, but also makes the production process more flexible and configurable^[10]. Implement data-driven decision making, collect and analyze data in the production process, optimize the production process with data-driven decision methods, and achieve lean production. This includes predictive maintenance, optimizing production scheduling, and improving product quality. Build a digital supply chain, realize the transparency and real-time of the supply chain through digital technology, optimize inventory management, logistics and transportation and improve the response speed and flexibility of the supply chain.

4.3.2 Service Digital Transformation.

Digital personalized services make use of big data and artificial intelligence technology to analyze consumer behaviors and needs and provide personalized products and services^[7]. This helps enterprises to better meet consumer demand and improve market competitiveness. Network remote services, with the help of the Internet and mobile technology, to provide remote monitoring, fault diagnosis, maintenance support and other services. This can not only reduce the cost of services, but also improve the timeliness and effectiveness of services. Platform-based one-stop service, build an industrial Internet platform, gather upstream and downstream resources of the industrial chain, and provide one-stop solutions. This will help promote industrial synergy and ecological construction, and promote the transformation and upgrading of the entire industry.

4.3.3 Manage Digital Transformation.

Through the introduction of new technologies, new methods and new models, to promote the digital transformation of management operations, improve the innovation ability and competitiveness of the industry. Using digital technology to digitally transform traditional business models to meet the needs of developing new quality productivity. Promote business model innovation, create digital economy, sharing economy, subscription economy, gig economy, etc., to help enterprises open up new market space and achieve business growth. Using digital technology to promote industrial

collaborative development and ecological innovation, enterprises can use digital technology to establish closer ties with partners, jointly develop new products, new technologies or new business models, build an open, sharing and collaborative industrial ecology, promote industrial integration and co-creation, and achieve industrial transformation and upgrading.

4.3.4 Digital Transformation and Upgrading of Consumption.

The digital transformation and upgrading of consumption is an inevitable trend of the development of The Times, and it is also an important force to promote economic and social development and force traditional industries to accelerate digital transformation and upgrading, which has brought more opportunities and challenges to industrial development. From traditional shopping methods to today's online shopping, unmanned supermarkets, from cash transactions to mobile phone payment, face payment, fingerprint payment, all of which benefit from the great changes brought by digitalization. The seamless shopping method created by digitalization makes consumers more convenient and brings a new consumption experience, which has become an irresistible trend. At the same time, digitalization also allows businesses to more accurately understand the needs of consumers, so as to provide more personalized products and services, improve economic efficiency and market competitiveness.

5 Conclusions

Digital innovation is a highly complex systematic project. The whole society should form a strong social atmosphere where everyone attaches importance to digital innovation and everyone participates in digital innovation, provide a good policy environment and financial support for digital innovation, and actively study and explore the path, model and technology of digital innovation. Once the tide of digital innovation is formed, it will be able to smoothly drive the three major engines of new quality productivity: revolutionary breakthrough of technology, innovative allocation of production factors, and deep transformation and upgrading of industries. Together, we will build an overall framework for digital innovation and development of new quality productivity. Close contact, close collaboration and mutual promotion will surely form a good momentum for the development of new quality productivity. The synergistic effect of "1+1+1>3" will effectively promote the rapid development of new quality productivity and inject fresh impetus into the healthy and sustainable development of the economy and society.

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