The Impact of Digital Transformation on the High-Quality Development of China's Economy

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Abstract. In the context of the fast-growing global digital economy, digital transformation has become a key driver of China's high-quality economic development. Based on the framework of "innovation-driven, structural optimization, and green transition," this paper explores how digital transformation impacts China's economic growth. Research shows that digital technologies enhance development by improving total factor productivity, encouraging industrial cooperation and value chain upgrading, and optimizing the allocation of energy and resources. For example, Suzhou Industrial Park has strengthened its local industrial chain and efficiency through a collaborative system of government, business, universities, and research institutions, while the State Grid has promoted clean energy use and cross-regional energy coordination with its smart scheduling platform. However, challenges remain, such as uneven regional development, difficulties for small and medium-sized enterprises, delays in data governance, and the issue of a "digital carbon footprint." Looking ahead, China needs to improve its digital infrastructure, strengthen data governance, support green digital innovation, and promote regional cooperation in order to fully unlock the potential of digital transformation for high-quality development. This study offers both theoretical insights and practical references for understanding the new driving forces of China's economy in the digital era.

Keywords: Digital transformation; high quality economic development; innovation driven mechanism; structural optimization mechanism; green transformation mechanism.

1. Introduction

In recent years, with the continuous development of China, the country has been adjusting its production methods and reforming its systems to achieve the goal of improving people's quality of life. The focus of economic development has gradually shifted from rapid growth to high-quality growth. The essence of promoting high-quality development is to meet the growing needs of people for a better life. Meanwhile, it is also advancing China's goal of becoming a prosperous, democratic, civilized, harmonious, and beautiful modern socialist country [1].

Digital transformation has become a key driver of global development and a major trend in the transformation of industries and enterprises. With the continuous breakthroughs in a new generation of digital technologies, remarkable achievements have been made in areas such as big data, cloud computing, artificial intelligence, and blockchain. According to data from the China Academy of Information and Communications Technology, by 2024, the scale of China's digital economy will have surpassed 60 trillion yuan, accounting for more than 40% of the country's Gross Domestic Product (GDP). Globally, China's digital economy ranks second in the world, only behind the United States. Domestically, the digital economy has deeply penetrated sectors such as industrial internet, smart logistics, and digital finance, and is rapidly expanding in emerging industries like e-commerce, live streaming, short videos, and platform-based economies. This shows that China's digital economy is growing at a remarkable pace and has become a new driving force for economic growth.

The Chinese government attaches great importance to the development of the digital economy. The report of the 20th National Congress of the Communist Party of China emphasized accelerating the construction of Digital China, creating new advantages in the digital economy, and promoting deep integration between digital technology and the real economy. At the same time, the government has introduced relevant policies, including the "14th Five-Year Plan for Digital Economy Development" and the "Overall Layout Plan for the Construction of Digital China." These initiatives

show that the state is actively improving regulations, optimizing the market and digital infrastructure, and building a relatively complete digital economy system. These strategic arrangements have greatly improved productivity and innovation capabilities, while also advancing China's long-term development goals, aiming for high-quality economic growth to achieve common prosperity and socialist modernization.

However, as digital transformation progresses, China also faces a series of challenges and contradictions. First, there is a problem of regional development imbalance. Most of the eastern coastal regions have highly developed digital economies, concentrated human and material resources, and numerous high-tech enterprises, which has allowed them to achieve rapid digital development first. In contrast, central and western regions lag behind in digital infrastructure and industrial development. Second, there is a significant gap between large and small enterprises. Leading companies generally have a higher level of digitalization, clearer digital business models, and faster transformation. In comparison, small and medium-sized enterprises face limitations in funding, technology, and talent, explore digital industries less, and transform more slowly. In addition, data governance has become an urgent issue. In the era of widespread information, it is crucial to ensure data security and personal privacy while fully leveraging the value of data. Problems such as unclear data ownership, imperfect circulation mechanisms, privacy protection, and cybersecurity remain significant challenges.

This paper aims to explore the relationship between digital transformation and high-quality economic development in China. By reviewing relevant literature, it systematically analyzes the mechanisms through which digital transformation promotes industrial upgrading and innovation-driven growth. The goal is to construct an analytical framework to show how digital transformation can become a driving force for China's high-quality economic development and provide insights for other emerging economies on integrating digitalization with high-quality growth.

2. The Mechanism of How Digital Transformation Supports High-Quality Development

2.1. Innovation-Driven Mechanism

The impact of digital transformation on high-quality development mainly shows in several ways. First, digital technologies can help companies improve coordination and increase production efficiency. By using digital tools to upgrade products, workshops, and production lines, companies can strengthen their operations and innovation abilities. Second, businesses can use digital technologies such as big data and cloud computing to develop new products and projects. This kind of innovation drives market vitality, encourages both large and small companies to speed up innovation, work together more easily, and join the innovation process in a more convenient way. In this way, digital transformation pushes collaborative innovation forward. Finally, the innovation-driven mechanism helps meet the diverse needs of consumers in the market. It also creates a "long-tail effect," where even small and niche consumer demands can be satisfied [2]. This kind of digital innovation builds a strong connection between companies and consumers.

2.2. Structural Optimization Mechanism

Digital transformation drives the upgrading of industrial structures in three main ways: demand-driven, technology-driven, and data-driven [2].

The demand-driven effect mainly comes from rising consumer needs, stronger industry competition, and policy guidance. These changes push companies to adopt technological and management innovations, which lead to optimized industrial structures through digital transformation. As people's living standards improve and their desire for a better life grows, consumer demand and expectations also increase. With the help of big data, digital transformation allows companies to better

understand consumer preferences, provide more convenience, and offer customized and personalized services. This helps to further optimize industrial structures [2].

At the same time, companies must follow the trends of the digital era and carry out digital transformation to strengthen their competitiveness in the market. Digital transformation also promotes innovation and efficiency within enterprises. By exploring new directions and applying new technologies, companies can improve their activities and gain higher profits. Some businesses have already started training talents in digital technology to boost competitiveness and optimize their industries.

In addition, the government plays an important role in managing the market after digital transformation. New digital technologies continue to provide power for emerging markets, support better resource allocation, and improve efficiency. They also promote balanced regional development, create more opportunities for innovation, and help coordinate the growth of industrial chains. All of these contribute to improving the quality of economic growth [3].

2.3. Green Transformation Mechanism

Digital transformation can improve resource efficiency, protect the environment, and promote sustainable economic growth through the use of digital technologies. High-quality development and green transformation are closely connected and support each other.

First, green transformation is a necessary condition for high-quality development. It helps improve the efficiency of resources and energy use while raising the overall quality of economic and social development. This fits the idea of living in harmony with nature, which is an important part of high-quality growth. For example, companies can use big data and artificial intelligence to monitor their supply chains in real time and adjust energy consumption at different stages of production. In addition, digital technology can help optimize the energy structure by increasing the use of clean energy and focusing on environmental protection during production. This leads to energy saving, lower emissions, and more sustainable growth.

At the same time, companies should make greater use of renewable energy such as solar and wind power. With the support of digital technologies, the operation of renewable energy can become more efficient, improving the overall use of energy [4]. In this way, digital transformation supports industries in shifting toward green development. It not only raises the efficiency of traditional energy use and reduces production costs, but also encourages wider use of renewable energy. This provides strong support for sustainable growth as part of high-quality development.

3. Case Study

3.1. Suzhou Industrial Park

The case of digital transformation in Suzhou Industrial Park clearly shows how the mechanisms of innovation-driven growth and structural optimization play a key role in promoting high-quality development.

On the innovation side, the park has built a “government–enterprise–university” collaborative innovation system. The government created digital innovation platforms to connect car manufacturers, chip companies, and research institutions, forming joint teams for technological breakthroughs. Companies rely on industrial internet and artificial intelligence technologies to optimize and control production processes in real time. For example, one new energy vehicle company used sensors and algorithm models to improve its battery management system, reducing energy consumption by 17% and lowering defect rates by 12%. This kind of data-driven innovation model not only increased production efficiency but also encouraged continuous upgrades along the industrial chain, showing the essential features of new productive forces: high technology and high efficiency.

On the structural optimization side, the case highlights deep cooperation across the industrial chain and regional adaptation. Through digital platforms, the government broke down data barriers in the supply chain and raised the local matching rate of components from 35% to 81%, which reduced

external dependence and lowered supply chain risks. At the same time, digital technology helped reshape the value chain. Companies moved from being only manufacturers to integrating "R&D + manufacturing + services," which improved both added value and competitiveness. This process of upgrading the industrial structure through digitalization not only made resource allocation more efficient but also strengthened the resilience and inner momentum of the regional economy. It serves as a typical example of achieving growth that is both higher in quality and greater in quantity [5].

3.2. The Digital and Green Transformation of State Grid Corporation of China

In the digital transformation of the State Grid Corporation of China, it can clearly see how green transformation and structural optimization play important roles in driving high-quality development through new productive forces. As a leading enterprise in the energy industry, the State Grid has focused on the Internet of Things, big data, and smart dispatching technologies to build a "digital power grid." This shift transformed the power system from traditional manual scheduling to intelligent and precise management, greatly improving the efficiency of energy allocation and operations.

In terms of green transformation, digitalization has solved the long-standing challenge of connecting and using clean energy. Since wind and solar power are naturally unstable and intermittent, the State Grid built a renewable energy forecasting system and a flexible dispatching platform to better match power generation with electricity demand [6]. This has greatly increased the use of clean energy. According to the 2024 National Renewable Energy Power Consumption Report, the renewable energy utilization rate in many regions rose by more than 8%, which equals millions of tons of carbon dioxide emissions being reduced. This shows the key role of digital technologies in supporting low-carbon energy transformation and sustainable development [6].

In terms of structural optimization, the State Grid used digital dispatching and cross-regional trading platforms to remove barriers between provinces and regions, making nationwide energy allocation more efficient. In particular, it enabled the transfer of green electricity from resource-rich western areas to the high-demand eastern regions. This not only promoted regional cooperation but also eased the imbalance between energy supply and demand, providing strong support for industrial planning and coordinated regional growth.

The case of the State Grid shows that digital transformation can both drive the low-carbon transition of the energy system and upgrade the overall structure of the energy industry. It is a strong example of how the digital economy and the real economy can work together to support high-quality development.

4. Conclusion

This paper has systematically discussed how digital transformation influences the high-quality development of China's economy, analyzing its role from three perspectives: innovation-driven growth, structural optimization, and green transformation. The study shows that digital transformation is not only about technological progress, but about the deep integration of digitalization with industries. It is becoming a core driving force of market growth and plays an irreplaceable role in achieving high-quality development that is efficient, innovative, and low-carbon. By using data and intelligent technologies, digital transformation significantly improves productivity and innovation capacity, encourages the creation of new products and business models, and supports collaboration between government, industry, and research institutions. However, small and medium-sized enterprises still face disadvantages in digital innovation.

Digital transformation also reshapes how value is distributed across industries and regions. It promotes the integration of manufacturing and services and upgrades value chains, but at the same time it increases structural challenges such as the "digital divide" and resource concentration. Furthermore, digitalization supports green transformation by enabling technologies like smart grids and energy internet to save energy and cut emissions. Still, it is important to address the problem of

the “digital carbon footprint” by developing green computing and smarter energy systems to improve sustainability.

In conclusion, digital transformation is a key engine for China’s high-quality economic development, but its progress requires balancing efficiency and fairness, innovation and inclusiveness, as well as growth and sustainability. Policymakers should focus more on cooperation across regions and industries, strengthen digital governance and institutional innovation, and improve systems for data ownership and transactions. This will help shift digitalization from “quantitative expansion” to “qualitative improvement.” Only by advancing in multiple areas—such as technology application, institutional design, and talent development—can digital transformation fully unlock its potential in supporting high-quality development and provide a solid foundation for China’s modernization.

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