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Research on the Internal Logic and Implementation Paths of the Digital Economy Driving High-Quality Economic Development

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ABSTRACT

As a new economic form guiding future development, the digital economy is becoming a core engine driving high-quality economic development. Based on the dialectical principle of productivity and production relations, this article systematically analyzes the internal mechanisms of the digital economy in promoting high-quality development and, drawing on my country's development practices, explores practical implementation paths. Research shows that by 2024, the added value of my country's core digital economy industries will account for 10.4% of GDP, and digital technology will contribute 22.5% to total factor productivity growth. This data fully demonstrates the key role of the digital economy in improving economic efficiency, enabling innovation, and optimizing the industrial structure. Currently, my country's digital economy development exhibits a "triple helix drive" but still faces significant challenges: Regional imbalances are prominent, with digital industry growth in the eastern region reaching 6.5% while in the western region only 0.8%, leading to significant resource imbalances. Core technology sectors are highly dependent on external sources, and some key technological links present supply security risks, hindering independent development. To this end, this study proposes a three-dimensional collaborative approach: technological innovation, institutional improvement, and ecosystem optimization. This will further deepen the implementation of the "Eastern Data West Computing" project, accelerate the reform of the market-oriented allocation of data elements, break down barriers to factor mobility, and ultimately build a new landscape for high-quality development of the digital economy, providing sustained impetus for economic transformation and upgrading.

KEYWORDS

Digital economy; High-quality development; Internal logic; Implementation path; Total factor productivity

1. INTRODUCTION

With the rapid evolution of next-generation information technology, the digital economy has become a key force in reconfiguring global factor resources and reshaping the global economic landscape. my country's digital economy continues to expand. In 2024, the added value of core industries will exceed 10% of GDP for the first time, reaching 10.4%, exceeding the target of the 14th Five-Year Plan. This marks the digital economy's transition from scale growth to a new stage of high-quality development. Against this backdrop, clarifying the inherent connection between the digital economy and high-quality development and exploring effective implementation paths are of great theoretical and practical significance. From a theoretical perspective, the digital economy transforms traditional production factor allocation by deeply integrating data elements into the production function. Unlike traditional factors like land and capital, which suffer from diminishing marginal returns, data factors are non-competitive and have increasing marginal returns, offering new possibilities for sustained

economic growth. In practice, by 2024, digital technology in my country will contribute 22.5% to total factor productivity growth, exceeding half of the total, becoming a core indicator of the cultivation of new-quality productivity. my country has made remarkable achievements in the development of its digital economy, including the construction of the world's largest 5G network (with over 4.19 million base stations), leading the world in computing power, and accounting for 61.5% of global AI patents. However, regional imbalances in development are prominent, with digital industry revenue growth in the eastern region at 6.5% and in the western region at only 0.8%. Furthermore, core technologies such as high-end chips and industrial software remain limited to others. How to unlock the potential of the digital economy and overcome development bottlenecks is a critical issue that urgently needs to be addressed. This article adopts a research framework of "theoretical deconstruction - mechanism analysis - real-world validation - path optimization." It first defines the core concepts, then constructs a three-dimensional driving logic model of "efficiency - innovation - structure," analyzes the current status and challenges, and finally proposes targeted implementation paths to provide a reference for promoting high-quality development of the digital economy.

2. THEORETICAL IMPLICATIONS OF THE DIGITAL ECONOMY AND HIGH-QUALITY ECONOMIC DEVELOPMENT

The digital economy, with data as its key element and modern information networks as its carrier, is a new economic model that promotes efficiency, quality, and power through the deep integration of digital technology with the real economy. It is integrating digital technology into all aspects of production, distribution, and consumption to reshape traditional industrial models. According to the National Bureau of Statistics, its core industries include digital product manufacturing (hardware production), digital technology application (information technology services), digital factor-driven development (data trading), and digital efficiency improvement (such as the Industrial Internet). By 2024, the number of related enterprises will reach 4.5741 million, a year-on-year increase of 17.99%. These enterprises are primarily concentrated in the eastern coastal areas, demonstrating strong vitality and agglomeration effects. As a core factor, data is replicable, shareable, and infinitely scalable, unlike land (a limited resource) and capital (diminishing marginal returns). In traditional economies, land and capital investments often encounter growth bottlenecks after reaching scale. However, data, through collection, processing, and reuse, creates greater value at zero additional cost. For example, manufacturing can reduce resource waste by 15% by optimizing scheduling through data. This breaks through traditional constraints, reconstructs production functions, and forms a new paradigm of "data-driven factor allocation." High-quality economic development is a model characterized by greater efficiency, innovation, and a better structure, reflected in increased total factor productivity, industrial upgrading, and greater inclusiveness. The digital economy is driven by three mechanisms: first, the optimal allocation of data and traditional factors. By 2024, my country's computing center racks will exceed 9 million, doubling the number at the end of the 13th Five-Year Plan, supporting the collaboration between industrial internet computing and government data. Second, digital technology is spurring the emergence of industries such as live-streaming e-commerce and online healthcare. By 2024, the number of online healthcare users will reach 418 million, doubling the number five years ago, alleviating the difficulty of accessing medical care in remote areas. Third, the "Eastern Data, Western Computing" initiative is driving the upgrading of computing infrastructure in central and western China. Data centers have been built in Guizhou and Inner Mongolia, boosting employment and alleviating computing capacity constraints in eastern China. From a theoretical perspective, the digital economy has evolved through three stages: digital industrialization (technology-driven), industrial digitization (integration-driven), and data factorization (factor-driven). my country is currently in the early stages of the third stage, with data transaction volume expected to exceed 160 billion yuan in 2024. Participants include local data trading platforms and technology companies, but data ownership and pricing mechanisms need to be improved. The "Digital China 2025 Action Plan"

proposes developing the data industry and cultivating digital talent, providing institutional guarantees for their integration, marking a new stage in which my country's digital economy is driven by both institutional and technological innovation [1].

3. THE INTRINSIC LOGIC OF THE DIGITAL ECONOMY DRIVING HIGH-QUALITY DEVELOPMENT

The digital economy's driving force for high-quality development is realized through a triple-helix mechanism: "efficiency improvement, innovation empowerment, and structural optimization," creating a dynamically reinforcing closed-loop development cycle. Efficiency improvement is the foundational support, innovation empowerment is the core driving force, and structural optimization is the inevitable outcome. These three elements work together to drive qualitative changes in economic development. Regarding efficiency improvement, digital technology leverages computing networks and the Industrial Internet to reshape production processes. By 2024, the scale of my country's Industrial Internet industry will exceed 1.5 trillion yuan, maintaining an average annual growth rate of 13%. By connecting devices and sharing data, China is achieving refined optimization of the entire production process. For example, a textile company uses an all-in-one energy and carbon intelligent control machine, which collects production data in real time and dynamically adjusts parameters, achieving an annual carbon reduction of 240,000 tons. This clearly demonstrates the practical effectiveness of digitalization in improving resource allocation efficiency. From a macro perspective, digital technology contributed 22.5% to total factor productivity growth, further demonstrating its critical role in improving efficiency [2]. The innovation-enabling dimension demonstrates a clear chain of conduct: "technological breakthroughs - industrial applications - ecosystem formation." In enterprise practice, Alibaba's "Moonshot Project" builds a unified data common layer, breaking down industry "data silos" and efficiently mining data value. Huawei, by building a data lake and thematic connection system, provides data support for global business decision-making. Both demonstrate the exemplary effect of innovative application of data elements at the enterprise level. Currently, this innovation model is spreading from leading enterprises throughout the supply chain, gradually forming an industrial ecosystem characterized by "innovation and integration among large, medium and small enterprises." The structural optimization dimension reflects the dual effects of industrial digitalization and coordinated regional development. By 2023, industrial digitalization will account for 86.8% of the digital economy, deeply driving the digital transformation of agriculture, manufacturing, and the service industries. In agriculture, Alibaba's "ET Agricultural Brain" facilitates precision planting, while in manufacturing, Haier's Industrial Internet Platform enables large-scale customization. In the service industry, digital RMB applications continue to expand, with Shenzhen's digital RMB transaction volume expected to grow by nearly 70% in 2024. At the regional structural level, the "Eastern Data, Western Computing" project has driven over 200 billion yuan in computing infrastructure investment in central and western China, effectively promoting the optimized allocation of digital resources across regions and alleviating regional development imbalances.

4. CURRENT STATUS OF MY COUNTRY'S DIGITAL ECONOMY DEVELOPMENT AND ITS SUPPORT FOR HIGH-QUALITY DEVELOPMENT

my country's digital economy has developed distinctive characteristics of "leading scale, solid foundation, and extensive application." By 2024, the added value of core industries will account for 10.4% of GDP, becoming a key support for high-quality development. Breakthrough achievements in digital infrastructure, technological innovation, and industrial integration will inject strong momentum into economic transformation and upgrading. Digital infrastructure will achieve global

leadership. By November 2024, the total number of 5G base stations will reach 4.191 million, accounting for 33.2% of all mobile base stations, and fiber access ports will account for 96.5%, creating the world's largest and most extensive information and communications network. The deployment of computing power infrastructure is accelerating. The number of standard racks in use in computing centers has exceeded 9 million, doubling since the end of the 13th Five-Year Plan. Cumulative investment in the eight "Eastern Data West Computing" nodes has exceeded 43.5 billion yuan, and the initial form of a national integrated computing network has been established. This "moderately advanced" construction approach has laid a solid hardware foundation for the development of the digital economy. Technological innovation capabilities continue to strengthen. Enterprises are achieving significant results in innovative practices. Inspur Information's prefabricated computing power factory, through a modular design, has shortened the construction period of intelligent computing centers from 18 months to 4 months, significantly improving construction efficiency and fully demonstrating the deep alignment of technological innovation with industry needs [3]. However, it should be noted that my country still has shortcomings in key areas such as high-end chips and basic software. Over 300 core technologies rely on imports, and the integrity and autonomy of the technological innovation system still need to be further enhanced. The digital transformation of industries is advancing in depth. In the agricultural sector, the application of smart agricultural technologies continues to expand. Digital management platforms have been established in many regions to enable real-time monitoring of farmland moisture and crop growth, accelerating the adoption of precision planting and breeding models. In the manufacturing industry, the number of digital workshops and smart factories has steadily increased, and the digitization rate of production equipment has significantly increased, driving an average increase in production efficiency of over 15%. The digitization rate of the service industry has reached 43.3%, with new business models such as live-streaming e-commerce and telemedicine developing rapidly. Online retail sales are expected to reach 15.5 trillion yuan in 2024. The digital RMB pilot program has been expanded to 26 regions, with transaction volumes in cities such as Qingdao and Shenzhen increasing by over 50% year-on-year. Its application in government services and consumer subsidies further highlights the value of digital technology in driving high-quality development.

5. MAJOR CHALLENGES FACING THE DIGITAL ECONOMY IN DRIVING HIGH-QUALITY DEVELOPMENT

Although my country's digital economy has achieved remarkable results, challenges remain in areas such as technological innovation, regional coordination, and institutional development, hindering its effectiveness in driving high-quality development. These challenges require precise identification and resolution. Insufficient independent innovation in core technologies is a primary bottleneck. my country still relies on imports for over 300 key digital technologies, including high-end chips and industrial control software, facing the risk of being choked [4]. The development of an open-source ecosystem lags behind, and developed countries are reshaping their technology pipelines through interface standards and underlying chips, impacting the underlying logic of my country's digital technologies. The structure of corporate R&D investment needs to be optimized, with a low proportion of basic research. While digital industry R&D investment intensity will increase by 2024, it will still lag significantly behind that of leading international companies, with a prominent focus on applications over fundamentals. Digital divides remain significant across regions and groups. Growth is accelerating in the east, but slowing in the west. By 2024, digital industry revenue growth in the east will be 6.5%, while in the west it will be only 0.8%. In cities like Beijing and Shanghai, the digital economy will account for over 50% of GDP, while some central and western provinces have lower levels. Urban-rural disparities are prominent, with internet penetration rates at 85.3% in urban areas and 65.6% in rural areas. Lagging rural digital infrastructure and applications hinder the universal benefits of the digital dividend and constrain the development of a unified national market. The institutional system and market ecosystem need improvement. The data factor market is in its

early stages, with a transaction volume of 160 billion yuan in 2024. However, data ownership and pricing mechanisms are imperfect, and data silos are widespread. Platform economy governance needs to balance innovation and regulation. Data monopoly by large tech companies and transformation by small and medium-sized enterprises are difficult to coexist. In 2021, 79% of small and medium-sized enterprises were still in the early stages of digital transformation. Digital economy statistical monitoring and security systems lag behind implementation, making it difficult to adapt to the regulatory requirements of new business models. Small and medium-sized enterprises face multiple constraints in their digital transformation. Funding shortages discourage them from pursuing high-investment, long-term projects; weak technical capabilities hinder independent development of digital platforms; and market services are mostly generic solutions that fail to meet customized needs. Digital talent is concentrated in first-tier cities and large enterprises, making it difficult for small and medium-sized enterprises to attract and retain talent. The talent structure is out of sync with industry needs, slowing down the transformation process [5].

6. PATH TO ACHIEVING HIGH-QUALITY DEVELOPMENT DRIVEN BY THE DIGITAL ECONOMY

Promoting high-quality development of the digital economy requires a three-pronged implementation approach: technological innovation, institutional improvement, and ecosystem optimization. Strengthening system coordination and fully unleashing the digital economy's driving force for high-quality development are key breakthroughs. Deepening the development of a technological innovation system is a key breakthrough. We should focus on "bottleneck" areas such as high-end chips and basic software, increase R&D investment, and implement the "unveiling the list and appointing the leader" mechanism to make breakthroughs.Key technologies. Implement the "AI+" initiative in the "Digital China 2025 Action Plan," cultivate advantageous industries such as smart terminals and intelligent manufacturing equipment, and promote technology industrialization by building high-quality data sets. Drawing on Huawei's data governance experience, build a comprehensive "data lake - topic connection - data services" system to promote the deep integration of technological innovation and industrial application. Simultaneously, strengthen the development of an open source ecosystem, enhance voice in open source communities and standard setting, and reduce technological dependence on external sources. Improving the market-based allocation mechanism for data elements is a key guarantee. Accelerate the implementation of the "2025 Key Points for Digital Economy Development," promote pilot programs for trusted data spaces for enterprises, industries, and cities, and establish rules for data ownership, pricing, and transactions, leveraging the openness of public data. Expand the scale of data transactions, referencing Zhejiang's data asset recognition standards, and explore innovative practices such as data asset inclusion. Build an upgraded version of "Eastern Data West Computing," optimize the layout of computing resources, promote the coordinated development of computing power and green electricity, achieve a computing power scale exceeding 300 EFLOPS by 2025, and improve the efficiency of data element allocation. Strengthen data security, establish a hierarchical and classified management system, and balance data circulation and security protection. Optimizing the digital economy ecosystem is a key support. Implement special actions for the digital transformation of small and medium-sized enterprises, build public service platforms, and provide "low-cost, lightweight" transformation solutions to address funding and technical constraints [6]. Narrow the regional digital divide, increase investment in digital infrastructure in central and western China, and guide non-hub nodes to integrate into the national integrated computing network, forming a coordinated development pattern across eastern, central, and western China. Improve the digital talent training system, adjust university disciplines, and launch a digital technology engineer training program to cultivate interdisciplinary talent. Promote the standardized and healthy development of the platform economy, strengthen antitrust supervision, and encourage large platforms to open up their technology and data resources to small

and medium-sized enterprises, fostering an ecosystem of "innovation and integration among large, medium, and small enterprises."

7. CONCLUSION

As a new engine driving high-quality development, the core value of the digital economy lies in reconstructing the production function through data elements, forming a multi-dimensional driving mechanism for improving efficiency, empowering innovation, and optimizing structure. my country's digital economy has achieved remarkable success. By 2024, core industries will account for 10.4% of GDP, and digital technology will contribute over 20% to total factor productivity growth. However, the country faces challenges such as insufficient independent technological innovation, unbalanced regional development, and an imperfect institutional framework. Research indicates that driving high-quality development through the digital economy requires grasping three key points: First, the non-competitive nature of data creates conditions for sustained economic growth, and its value must be fully unlocked through market-based allocation; second, the deep integration of technological innovation and industrial application is the core path, and the role of enterprises as the main innovators must be strengthened; and third, balancing development and regulation is a key principle, requiring the establishment of an inclusive and prudent institutional environment. Future efforts should focus on three key areas: deepening the "Eastern Data West Computing" project and the "Artificial Intelligence Plus" initiative to strengthen digital infrastructure; accelerating the development of the data factor market and improving property rights protection and trading rules; and implementing policies to support the transformation of small and medium-sized enterprises to narrow the digital divide. Through the coordinated efforts of technology, institutions, and ecosystems, we will promote higher-quality development of core digital economy industries, enabling them to play a greater role in improving total factor productivity, upgrading industrial structure, and transforming development models, providing solid support for building a new development landscape. With the implementation of the "Digital China 2025 Action Plan," my country's digital economy will enter a period of prosperity and maturity, injecting long-term impetus into high-quality economic development. If you have further requirements for the fluency or professionalism of a particular section, or require further optimization and reduction of plagiarism in a specific section, please feel free to let us know the specific directions.

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