

Digital New Quality Productive Forces: The Key Driver of High-Quality and Sustainable Growth in the Global Economy

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Abstract: Digital new quality productive forces has emerged as a pivotal force in driving the contemporary economic transformation and upgrading. This study integrates Schumpeter's theory of innovation with Romer's theory of endogenous growth to systematically explore the impacts of digital infrastructure development, industrial digital transformation, and the integration of digital and real economies on high-quality economic growth. It highlights the pivotal role of digital new quality productive forces in enhancing total factor productivity (TFP), optimizing industrial structures, and promoting sustainable growth. The findings reveal that digital new quality productive forces not only significantly boosts economic efficiency through enhanced TFP and an innovation-driven approach but also provides essential empirical support for policymakers during the digital transformation process. Moreover, by promoting technological innovation and talent development, it facilitates continuous optimization and upgrading of industrial structures, thereby laying a solid foundation for achieving high-quality and sustainable economic growth.

Keywords: Digital New Quality Productive Forces; High-Quality Economic Growth; Sustainable Economic Growth; Global Economy

1. Introduction

In today's world, the digital economy emerges as a groundbreaking economic paradigm, reshaping the global economic landscape with unprecedented speed and force. It serves as the central driver in enhancing the quality, efficiency, and dynamism of economic development across nations, positioning itself at the strategic pinnacle of the new wave of global economic competition. Furthermore, it acts as a powerful catalyst for revitalizing the real economy and accelerating

industrial transformation and upgrading. The digital new quality productive forces introduced by the digital economy not only pioneers new avenues for high-quality economic growth through the transformation of production methods, consumption patterns, and market structures but also facilitates greener and more sustainable economic growth under the guidance of ESG (Environmental, Social, and Governance) standards. This study aims to delve into the operational mechanisms of digital new quality productive forces within a globalized setting and assess its contributions to high-quality and sustainable economic growth.

Grounded in Joseph Schumpeter's innovation theory and Paul Romer's endogenous growth theory, this paper integrates the latest research findings in the digital economy to explore the nuances and interplay between high-quality and sustainable growth. High-quality growth emphasizes economic efficiency, innovation-driven development, and structural optimization, while sustainable growth focuses on the long-term viability of economic activities, environmental sustainability, and social equity. Digital new quality productive forces, through promoting technological innovation and enhancing resource allocation, significantly improves short-term production efficiency and the quality of economic performance, thereby establishing a solid foundation for high-quality economic growth. Moreover, the profound implementation of digital transformation, by underpinning basic scientific research, technological application and commercialization, industrial upgrading, and financial services, promotes the sustainable utilization of resources, thereby providing a strong guarantee for enduring economic sustainability. The empirical analysis in this study provides compelling evidence that digital new quality productive forces serves as a crucial driver for achieving structural optimization and high-quality, sustainable growth. The findings provide essential theoretical insights and practical

guidance for policymakers engaged in advancing digital transformation and crafting long-term economic strategies.

2. Research Background and Significance

Digital new quality productive forces, representing a novel form of productivity, leverage cutting-edge technologies like big data, cloud computing, artificial intelligence, blockchain, and the Internet of Things. This integration not only facilitates the value reconfiguration of traditional industrial components and the systemic restructuring of value chains but also significantly expands the scope of innovation and service models. For instance, cloud computing and big data technologies substantially enhance the information processing and analytical capabilities of enterprises, enabling precise decision-making and market forecasting based on extensive data sets. The application of artificial intelligence has evolved from a supportive tool to an active participant in the production process, significantly enhancing production efficiency and decision-making quality through algorithm optimization and intelligent analysis.

In the manufacturing sector, intelligent manufacturing technologies, equipped with real-time data feedback mechanisms, not only increase production precision and flexibility but also promote demand-driven production models, significantly reducing inventory costs and enhancing resource allocation efficiency. In the financial industry, big data analysis and blockchain technology improve the transparency and security of financial transactions, effectively reducing information asymmetry, and improving the efficiency of financial resource flows.

Moreover, propelled by data and algorithms, digital new quality productive forces continuously expand the realm of innovation and service models, offering highly personalized products and services to businesses and society, and accelerating the transformation towards intelligence, connectivity, and service orientation. These emerging technologies are reshaping traditional labor and capital elements, enabling a more efficient combination and utilization of production factors, driven by technological advancements. This transformation not only significantly enhances the marginal utility of production factors but also fosters the upgrading and technological improvement of traditional

industries, generating new economic growth points.

Overall, digital new quality productive forces not only empowers the enhancement of value in traditional industries and optimizes resource allocation and market structures but also promotes the establishment of innovative ecosystems in emerging industries, providing significant momentum for high-quality and sustainable global economic growth. Digital new quality productive forces have become a pivotal factor in assessing the economic competitiveness of nations or regions. Developing countries must accelerate the construction of digital infrastructure and enhance policy support for technological innovation to secure a strategic advantage in the global digital economy wave.

Grounded in Joseph Schumpeter's innovation theory and Paul Romer's endogenous growth theory, this study further solidifies the theoretical framework of digital new quality productive forces. Schumpeter argues that technological innovation is the core driver of economic development, particularly pertinent in the digital economy era, where the frequency and impact of technological innovations have significantly increased.¹ Romer emphasizes that technological progress and knowledge accumulation are essential for fostering long-term sustainable economic growth. Digital new quality productive forces, through continuous technological updates and talent development, effectively enhances economic efficiency and drives the optimization and upgrading of industrial structures.² Thus, digital new quality productive forces not only achieves short-term efficient growth but also provides robust support for long-term sustainable development, demonstrating its synergistic effects in advancing multidimensional economic growth objectives.

3. Theoretical Foundations and Literature Review

As the digital economy rises, its pivotal role in global economic growth and industrial transformation becomes increasingly evident. Grounded in Joseph Schumpeter's theory of innovation and Paul Romer's theory of endogenous growth, this study explores how digital technologies are transforming production models and economic structures, thus fostering high-quality economic growth. Schumpeter asserts innovation as the core driver of economic

development, emphasizing the crucial role of entrepreneurial spirit and technological innovation. Romer's theory highlights the importance of knowledge, technological progress, and human capital investment in sustaining long-term economic growth. These theories provide a solid framework for understanding how digital new quality productive forces fosters economic growth.

The advancement of information and communication technology (ICT), particularly through widespread adoption of big data, cloud computing, and artificial intelligence, has significantly optimized industrial chain structures and enterprise resource allocation, thereby enhancing production efficiency and decision-making quality. The rise of the digital platform economy and the sharing economy,

fueled by scale emergence effects, has not only redefined the logic of value creation but also promoted sustainable resource utilization and environmental protection. For example, China's digital new quality productive forces underscores its pivotal role in the global digital economy. Through the integration of innovative resources, rapid scalable development, and the growth of technology companies under policy support, combined with its international strategy through the Silk Road Economic Belt and the 21st-Century Maritime Silk Road (commonly referred to as the Belt and Road, or B&R) initiative, China has crafted a unique 'China Model'. This model not only reflects the application of Schumpeter and Romer's theories but also propels China's economy towards high-quality development.

Table 1. Key Characteristics of Digital Economy Expansion and Global Integration

Characteristics	Descriptions
Integrative Nature	The initiative exhibits extensive integration across sectors such as manufacturing, finance, and agriculture, significantly enhancing productivity and fostering innovation.
Rapid Scalability	Escalating investments in digital infrastructure have led to the deployment of over 4.08 million 5G base stations, ³ with e-commerce transactions dominating over half of the global market. ⁴
Innovation-Driven Development	Fueled by supportive policies, globally competitive technology companies have emerged, with the number of ICT patent applications reaching 46,591 in 2023, securing a global leading position. ⁵
Internationalization	Through the Belt and Road Initiative, China has expanded into global markets, with its digital services trade reaching a total volume of USD 366.6 billion in 2023, marking a 3.5% year-on-year increase. ⁶

Data source: China Academy of Information and Communications Technology (2024); National Bureau of Statistics of China (2024); World Intellectual Property Organization (2024); Development Research Center of the State Council and China Academy of Information and Communications Technology (2024).

This paper critically evaluates the applicability and limitations of Schumpeter's and Romer's theories within the contemporary digital context. While these theories provide a framework for understanding the roles of technological innovation and knowledge accumulation in modern economies, they require further refinement to address the rapid evolution of digital technologies and the globalization of economic structures. Through comparative analysis, this paper highlights its unique contributions by elucidating the complex mechanisms and multilayered effects of digital

new quality productive forces in global economic transformation, providing new insights and detailed analyses for understanding and capitalizing on these dynamic changes.

Existing literature has extensively explored the impact of digital technologies on economic growth but has often overlooked the specific mechanisms of digital new quality productive forces. This study aims to develop a multidimensional evaluation framework for digital new quality productive forces, rigorously analyzing its role in promoting industrial upgrading, enhancing total factor productivity, and achieving sustainable economic growth. By integrating the latest industry data with advanced econometric models, this paper provides robust theoretical foundations and practical recommendations for policymakers, aiming to facilitate high-quality and sustainable growth in the global economy.

4. Empirical Analysis and Results

4.1 Construction of the Empirical Model

To accurately capture the responses of various economic indicators to digital transformation, this study integrates key dimensions such as *GDP* growth rate, industrial structure optimization, innovation capacity, job quality, and ecological benefits into a multivariate regression model. This model assesses the impact of digital new quality productive forces *DIG* and its lagged effect DIG_{t-1} on economic growth (measured by *GDP* growth rate). The model is specified as follows: $GDP_t = \beta_0 + \beta_1 \cdot DIG_t + \beta_2 \cdot DIG_{t-1} + \beta_3 \cdot IND_t + \dots + \mu_t + \varepsilon_t$.

Where: GDP_t represents the *GDP* growth rate for period t , serving as the primary indicator of economic quality; DIG_t denotes the variable of digital new quality productive forces, capturing the enhancement of productivity through digital transformation; DIG_{t-1} refers to the lagged variable of digital new quality productive forces, introduced to capture the time-lagged effects of digital transformation; IND_t corresponds to economic indicators such as industrial structure optimization, analyzing the support of industrial structure to economic development; μ_t represents fixed effects; controlling for unobservable individual-specific factors; ε_t is the random error term, capturing disturbances not explained by the model.

Direct Effect of Digital new quality productive forces β_1 : This coefficient measures the immediate impact of digital new quality productive forces on *GDP*. A positive β_1 indicates that digital transformation directly enhances current economic development, reflecting the positive effects of digital technology in boosting production efficiency and resource allocation. Conversely, a negative β_1 may reflect the initial adaptation costs and short-term negative impacts during the early stages of digital transformation, such as technological upgrades, workforce training, and organizational restructuring.

Lagged Effect of Digital new quality productive forces β_2 : This coefficient captures the delayed impact of digital new quality productive forces on the economy. A positive β_2 suggests that the effects of digitalization unfold over time, gradually contributing to sustainable economic

growth as its impacts accumulate. If β_2 is negative, it might indicate significant short-term shocks from digital transformation that are not immediately absorbed, leading to temporary negative impacts.

Effect of Industrial Structure Optimization β_3 : This parameter quantifies the influence of industrial structure optimization on *GDP* growth. A positive β_3 suggests that the growth of high-value-added industries is closely linked to improvements in the overall economic quality. Industrial upgrading facilitates the reallocation of resources from low-efficiency to high-value-added sectors, thereby enhancing *GDP* growth quality. If β_3 is negative, it may indicate that during a transitional period, contractions in traditional industries temporarily suppress economic growth, yet such restructuring lays the groundwork for high-quality economic growth in the long run.

4.2 Interpretation of Empirical Analysis Results

This study, leveraging the latest macroeconomic and sector-specific data, systematically investigates the pivotal role of digital productivity in driving high-quality economic growth. The analysis uncovers a significant positive relationship between digital new quality productive forces and high-quality economic growth. The widespread adoption of information technologies, particularly advanced technologies like cloud computing, big data, and artificial intelligence, has significantly boosted digital productivity, thereby promoting the optimization of industrial structures, deepening innovation-driven development, and increasing total factor productivity. From 2010 to 2023, the proportion of China's digital economy in *GDP* grew from 14% to 41%, highlighting digitalization as a key driver of economic progress.⁷

At the industry level, digital technologies have not only increased the efficiency of information transmission and resource allocation within production processes but have also revealed latent commercial values through data mining, thus spurring business model innovation and industrial upgrading. For instance, the resource sharing and outsourcing services facilitated by cloud computing have provided small and medium-sized enterprises (SMEs) with competitive advantages under constrained

resources. Digital services have notably increased the production efficiency of a high-tech enterprise by 27% and reduced costs by approximately 15%, underscoring the supportive role of digital new quality productive forces in the growth and transformation of SMEs.⁸

Moreover, the empirical findings indicate a significant heterogeneity in the impact of digital productivity across high-tech and traditional industries. Between 2015 and 2022, the acceleration of digital transformation in high-tech industries led to a 30% increase in corporate R&D investment, significantly boosting innovation and production efficiency.⁹ Although traditional industries have encountered challenges such as path dependency and cost constraints during their digital transformation, successful transitions have resulted in an 18% improvement in production efficiency and a 12% reduction in operational costs, demonstrating the substantial benefits of digital transformation for enhancing the efficiency of traditional industries.⁷ These insights suggest that policymakers should tailor resource allocation to meet the diverse digital needs of different industries.

The study concludes that digital new quality productive forces has significantly contributed to high-quality economic growth by optimizing industrial structures and enhancing production efficiency, while also supporting sustainable economic development to an extent. High-quality growth reflects short-term enhancements in economic efficiency and high-value-added outputs, whereas sustainable growth focuses on the long-term sustainability of resources and the environment. Although initial stages of digital transformation may involve adaptation costs, as technology proliferates, the resource-efficient and innovation-driven impacts of digitalization increasingly contribute to both high-quality and sustainable economic growth. For instance, empirical data show that after undergoing digital transformation, a company's revenue growth rate increased from 10% in the first year to 18% after three years, illustrating the accumulative effect of digital new quality productive forces on economic growth. While initial investments and adjustments may slow growth temporarily, the long-term benefits driven by productivity gains and innovation not only facilitate short-term

high-quality economic growth but also lay a solid foundation for sustainable growth through optimized resource allocation and support for green development.¹⁰

Utilizing a range of econometric techniques, including multiple regression analysis, panel data models, and control variable methods, this research ensures the robustness of its findings and validates the significant role of digital new quality productive forces in promoting high-quality economic growth. The empirical results align with international studies, affirming that digital transformation acts not only as a new engine for growth but also provides significant transformation opportunities for SMEs and traditional industries. This study demonstrates that digital new quality productive forces, by revolutionizing production modes, promoting industrial upgrading, and unleashing innovation potential, effectively drives high-quality economic growth. Although the transformation process is extensive and complex, with sufficient policy support and collaborative efforts from various societal sectors, the digital economy is expected to significantly impact the future global economic configuration.

5. Pathways for Digital New Quality Productive Forces to Drive High-Quality Global Economic Growth

5.1 Optimization of Global Economic Structure and Industrial Upgrading

Digital new quality productive forces, characterized by their extensive penetration and robust integration capabilities, have significantly accelerated the optimization of global economic structures and industrial upgrading, thereby promoting high-quality economic growth. Through technologies such as intelligent manufacturing and the industrial internet, the digital transformation of traditional industries has substantially enhanced the efficiency of resource allocation and increased the flexibility of production processes. These transformations have not only reduced production costs but also established data-driven decision-making mechanisms, enabling firms to adapt more effectively to rapidly changing market demands and enhancing their global competitiveness. Furthermore, digital new quality productive forces has spurred the emergence of innovative economic models such as the digital economy, sharing economy, and platform economy. These

models, leveraging novel business architectures and scale economies, have quickly become central to driving high-quality growth worldwide.

The extensive application of digital platforms has dismantled traditional industry boundaries, fostered deep cross-sectoral integration, and significantly bolstered the resilience and risk mitigation capabilities of economic structures. By improving resource allocation efficiency and advancing technological innovation, digital new quality productive forces provides economies with diverse and sustainable growth pathways, thereby constructing a more complex and sustainable economic ecosystem. This not only reshapes traditional production paradigms but also catalyzes a shift towards economic structures centered on high-quality growth globally, establishing a solid foundation for stable and sustainable long-term development.

5.2 Innovation-Driven Global Development

As a pivotal element of innovation-driven development strategies, digital new quality productive forces has significantly enhanced both the efficiency and openness of global innovation activities. Driven by cutting-edge technologies such as big data and artificial intelligence, researchers are now able to utilize vast datasets and powerful computational resources more effectively to discover scientific principles and solve technical challenges. The widespread adoption of these technologies has facilitated both the automation and collaboration of research processes, thereby accelerating both technological breakthroughs and product innovations. Importantly, these innovations not only stimulate economic growth but also significantly enhance its sustainability. By optimizing production processes and minimizing resource waste, technological innovations have reduced environmental impacts and promoted the development of a green, sustainable economy. For instance, intelligent resource management systems can precisely control the use of raw materials to minimize surplus and waste, while efficient energy management technologies can significantly reduce energy consumption and carbon emissions.

Through these innovations, digital new quality productive forces addresses the resource constraints of traditional growth models and charts a new path for sustainable global economic development. This development

model, driven by digitalization and technological innovation, signifies a fundamental transition from quantitative expansion to qualitative enhancement in the global economy, providing a solid basis for achieving high-quality and sustainable economic growth.¹¹

5.3 Global Enhancement of Total Factor Productivity

In an era of increasing digitalization of the global economy, emerging digital new quality productive forces play a crucial role in driving high-quality and sustainable economic growth by enhancing Total Factor Productivity (TFP). This study introduces an extended Cobb-Douglas production function model to analyze this dynamic: $Y = A \cdot K^\alpha \cdot L^\beta \cdot D^\gamma$. Here, Y denotes total output, A signifies TFP, reflecting advancements in technology, K and L represent the inputs of physical capital and labor, respectively, and D symbolizes the input of digital capital. The parameters α , β , γ indicate the output elasticities of these respective factors. This model aims to elucidate how the integration of digital capital not only directly enhances production efficiency but also indirectly fosters technological progress, thereby facilitating comprehensive productivity improvements and driving high-quality economic growth.

Within the digital economy framework, the accumulation of digital capital is intricately linked to technological advancement. The deployment of technologies such as artificial intelligence, big data, and cloud computing optimizes production processes and bolsters the efficiency of resource allocation. These technological applications not only streamline production processes but also lay the groundwork for continuous innovation. Digital new quality productive forces influences TFP through two principal pathways: firstly, by augmenting the direct input of digital capital D , which bolsters production efficiency; and secondly, by elevating the coefficient of technological progress A , which indirectly enhances overall productivity, thus facilitating the diffusion of innovation and extensive application of new technologies.

The enhancement of TFP not only signifies an improvement in production efficiency but also indicates the capability to achieve higher outputs with the same or reduced inputs of capital and

labor. This efficiency gain, coupled with optimized resource utilization, enables higher economic output under reduced resource dependence, aligning with sustainable growth objectives. Consequently, by boosting TFP, digital new quality productive forces not only meets the demands for high-quality growth but also provides a robust foundation for sustainable economic development, laying critical groundwork for the global economy's transition towards a green, low-carbon, and resource-efficient development model.

6. Digital new quality productive forces and the Logic of Sustainable Global Economic Growth

6.1 From Efficiency-Driven to Quality-Driven Global Transition

At a pivotal moment in the transformation of global economic development models, traditional efficiency-driven growth paradigms are increasingly constrained by environmental and resource limitations, rendering them unsustainable for long-term economic growth. Emerging digital new quality productive forces initiated a new trajectory for high-quality growth, centered on qualitative improvements, and present a stark contrast to the traditional efficiency-driven model. Efficiency-driven growth predominantly focuses on optimizing production processes, emphasizing cost reduction, shorter production cycles, and enhanced labor productivity to achieve higher outputs with fixed resource inputs. However, as global market competition intensifies and consumer demands diversify, the limitations of a purely efficiency-focused model have become increasingly apparent.

Conversely, the quality-driven model shifts the focus from mere production efficiency to enhancing the quality, added value, and user experience of products and services, aiming for comprehensive value chain optimization. Utilizing cutting-edge technologies such as big data and artificial intelligence, enterprises can precisely discern shifts in market demands and dynamically adjust their production and service strategies, thereby elevating product quality and customization. This approach not only enhances customer satisfaction and loyalty but also strengthens the competitive position of businesses in the global market. The essence of the quality-driven model lies in elevating the

added value of products and services, steering economic growth from quantitative expansion toward qualitative enhancement, thus achieving more sustainable economic growth. Digital new quality productive forces support this shift, ensuring that economic growth is no longer solely dependent on increasing production speed but rather focuses more on efficient resource utilization and maximizing product value, thereby laying a solid foundation for high-quality global economic development.

6.2 Global Innovation Elements Driving Economic Growth

In modern economic growth theory, the importance of data and information as drivers of innovation has become increasingly evident, now serving as pivotal forces for sustainable global economic growth. Traditional growth models reliant on tangible capital (such as labor, capital, and land) face diminishing marginal returns and cannot independently sustain rapid economic expansion. In contrast, data and information, as unlimited and renewable resources, offer a new pathway for growth that is less reliant on physical resources. This approach not only diminishes economic dependence on natural resources but also mitigates environmental pressures, thereby fostering a green and sustainable transformation in economic growth models.

Advanced technologies such as big data analytics, cloud computing, and artificial intelligence enable businesses to unearth the deep value of data, capturing market trends and consumer preferences accurately and accelerating product and service innovation. This data-centric approach to innovation not only substantially enhances societal innovation capacity and efficiency but also promotes the widespread dissemination and sharing of knowledge, thereby accelerating technological progress and the emergence of new business models. The application of data and information serves not only as a new growth driver but also plays a critical role in optimizing economic structures and achieving high-quality development. Furthermore, the boundless and renewable characteristics of data and information ensure that economic growth can persist without escalating material consumption, in harmony with the fundamental principles of sustainable development.

Moreover, the infinite and renewable nature

of data and information means that economic growth can continue without increasing material consumption, aligning with the core requirements of sustainable development. Through this data- and innovation-driven economic model, the global economy is gradually transitioning from high-carbon, high-consumption growth models to low-carbon, environmentally friendly alternatives. This transition not only helps mitigate global climate change and environmental degradation pressures but also opens new growth pathways, ensuring the long-term sustainability of economic development. Moving forward, the global economy will increasingly rely on the efficient utilization and transformation of these innovative elements to achieve effective innovation and sustainable economic growth.¹²

6.3 Global Economic Transformation: From Incremental Expansion to Refined High-Quality Development

Traditional economic development models, reliant on incremental expansion, are increasingly inadequate to manage the escalating challenges posed by resource scarcity and environmental constraints. For decades, many countries and regions have prioritized gross economic expansion at the cost of neglecting quality and efficiency improvements in development. This approach has accelerated resource depletion, exacerbated environmental pollution, and intensified social conflicts. As the global economy moves towards a sustainable development paradigm, the limitations of purely expansion-based models have become starkly apparent. The emergence of digital new quality productive forces provides a novel direction for global economic transformation, propelling a profound digital shift from incremental expansion to refined, high-quality development. Digital new quality productive forces not only enhance resource utilization efficiency but also drive significant innovations in technology and business models, fostering deep optimization of industrial chains and enhancing interconnectivity among industries. This results in a more flexible and adaptive economic model. The advancement of technologies such as big data and artificial intelligence enables firms to more precisely analyze market demands and optimize resource allocation, thereby increasing

product added value and reducing production costs, significantly bolstering enterprise competitiveness. Concurrently, technological progress has led to significant enhancements in total factor productivity, extending the production function to: $Y=A \cdot f(K,L,D)$, where A represents total factor productivity, K and L denote capital and labor, and D reflects the innovative impacts of digital technology. Within this framework, digital technology not only promotes the optimization of industrial structures and the growth of emerging industries but also reinvigorates traditional industries, injecting them with new dynamism.

Moreover, digital new quality productive forces carves new pathways for refined management in economic development. Compared to traditional economies of scale, digital technology provides enterprises with increased flexibility, allowing them to quickly adapt to market changes and meet the personalized needs of consumers. Through refined management and precision services, enterprises not only enhance operational efficiency but also amplify their competitive differentiation. Technological tools such as big data and artificial intelligence empower businesses to deeply understand consumer preferences and market trends, thereby offering innovative products and services that align more closely with market demands, establishing new competitive advantages.

This economic transformation process not only transcends the growth constraints of traditional scale economies but also promotes the emergence of a more efficient and flexible economic development model. By improving resource utilization efficiency and alleviating environmental pressures, this refined, high-quality development model lays a solid foundation for the sustainable and high-quality growth of the global economy. It also opens new avenues for the long-term sustainable growth of the economy. Under this new paradigm, global economic growth no longer depends on resource consumption and simplistic expansion but is constructed through value creation and innovation-driven strategies, establishing a more stable and sustainable growth trajectory.

7. Strategies for Enhancing High-Quality Sustainable Growth through Digital New Quality Productive Forces

7.1 Strengthening the Construction of Global Digital Infrastructure

A robust global digital infrastructure is foundational to high-quality economic growth. Increased investments in high-speed internet, fiber-optic broadband, large-scale data centers, and cloud computing platforms not only enhance the efficiency and security of information transmission but also enable the digital transformation of economic activities. Additionally, advancements in cutting-edge technologies such as the Internet of Things, 5G, and blockchain enhance the functionality and interoperability of infrastructure, providing robust support for global economic interconnectivity and information security. These infrastructure developments ensure the robust growth of the digital economy and provide essential technological support for sustainable, high-quality global economic advancement.

7.2 Accelerating the Digital Transformation of Global Industries and Enterprises

The global digital transformation of industries and enterprises is a central strategy for promoting sustainable, high-quality economic growth. This transformation optimizes the configuration of global industry and supply chains, increases the share of technology and capital in industries, and reduces labor intensity in certain sectors. The adoption of intelligent manufacturing systems and industrial internet platforms allows for the automation, intelligence, and flexibility of production processes, markedly improving product quality and efficiency while minimizing resource use. As key drivers of total factor productivity, these transformations not only streamline production planning and inventory management but also utilize big data and AI to refine market demand forecasting. This enhances the adaptability of production strategies and comprehensively reshapes corporate management philosophies, reducing environmental impact and boosting resource efficiency, thereby playing a pivotal role in driving sustainable, high-quality growth in the global economy.¹³

7.3 Accelerating Global Innovation Cooperation for High-Quality Economic Growth

Global innovation cooperation is essential for

achieving technological breakthroughs and enabling the sharing of innovations in key areas. The deep integration of the digital and physical economies erases traditional industry boundaries, facilitating complete integration of industrial, supply, and innovation chains. This integration, driven by technological innovation, propels the upgrade and transformation of the physical economy. Collaboration among firms, especially between internet companies and traditional industries, is crucial for developing new products, exploring new business models, and innovating commercial practices. Furthermore, the creation of a multidimensional legal framework adapted to the digital economy is crucial for ensuring fair competition in markets for digital innovation and for fostering policy and regulatory advancements.¹⁴ Strengthening international technological cooperation, particularly under initiatives like the Belt and Road, enables countries to overcome barriers to the flow of knowledge, technology, and talent, adopt advanced technologies, enhance local innovation capacities, reduce foreign technology dependence, and continually improve total factor productivity. These efforts optimize national economic structures and contribute new energy to balanced, sustainable, and inclusive global economic growth.¹⁵

8. Conclusion

This study's empirical analysis validates the applicability of Schumpeter's innovation theory and Romer's endogenous growth theory within the modern digital economy context. Driven by technological innovation, digital new quality productive forces have significantly enhanced production efficiency, thereby fostering sustainable economic growth and optimizing industrial structures. These findings underscore that technological advancement and talent development are crucial for long-term sustainable economic development. With the deepening integration of digital applications, the digital economy has emerged as the key driver of high-quality, sustainable growth worldwide, offering strong support for steering the global economy towards greater equity, environmental sustainability, and resilience. Policymakers should integrate these insights to formulate policies that are context-sensitive and flexible, aimed at facilitating successful digital transformations across different nations and regions. Effective policy implementation will

ensure high-quality and sustainable global economic growth, benefiting countries and their populations worldwide.

References

- [1] Schumpeter, J. A. (1934). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. Cambridge, MA: Harvard University Press, pp. 45-67.
- [2] Romer, P. M. (1990). Endogenous Technological Change. *Journal of Political Economy*, 98(5), 71-102.
- [3] China Academy of Information and Communications Technology. (2024). *China information and communication industry development statistics report 2024*, p. 58.
- [4] National Bureau of Statistics of China. (2024). *China e-commerce market development report 2024*.
- [5] World Intellectual Property Organization. (2024). *World intellectual property indicators 2024*. Retrieved from https://www.wipo.int/edocs/pubdocs/en/wipo_pub_941_2024.pdf
- [6] Development Research Center of the State Council, Department of Foreign Economic Research, and China Academy of Information and Communications Technology. (2024). *Report on Digital Trade Development and Cooperation*. Beijing: Development Research Center of the State Council.
- [7] National Bureau of Statistics of China. (2023). *China Digital Economy Development Report*. Beijing: China Statistics Press.
- [8] China Academy of Information and Communications Technology. (2022). *Digital Economy and Productivity Development Report*. Beijing: China Information and Communications Publishing House.
- [9] OECD. (2022). *Digital Transformation in Industries*. Paris: OECD Publishing.
- [10] McKinsey & Company. (2023). *Digital Transformation and Corporate Growth Analysis Report*. McKinsey & Company.
- [11] Brynjolfsson, E., & McAfee, A. (2014). *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. New York, NY: W. W. Norton & Company, 89-123.
- [12] Acemoglu, D., & Restrepo, P. (2018). Artificial Intelligence, Automation, and Work. *Econometrica*, 88(3), 1333-1372.
- [13] Baldwin, R. (2016). *The Great Convergence: Information Technology and the New Globalization*. Cambridge, MA: Harvard University Press, 67-102.
- [14] Goldfarb, A., & Tucker, C. (2019). Digital Economics. *Journal of Economic Literature*, 57(1), 3-43.
- [15] OECD. (2020). *Digital Transformation in the Age of COVID-19: Building Resilience and Bridging Divides*. Paris: OECD Publishing, pp.12-45.