

# The Impact of Digital Construction on High-Quality Economic Development from The Perspective of New Quality Productivity

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**Abstract:** This article explores the impact of digital construction on high-quality economic development from the perspective of new quality productivity. New quality productivity is an advanced form of productivity formed by the improvement of the quality of the constituent elements of productivity, emphasizing the role of new production factors such as knowledge, technology, and data. Digital construction, as an important manifestation of new quality productivity, reshapes the driving force and structure of economic growth through the deep integration of information technology and various fields of the economy and society. The article analyzes the theoretical basis and empirical research of digital construction on high-quality economic development through literature review, and points out that digital construction can promote high-quality economic development through new quality productivity. Based on theoretical analysis and empirical research, the article constructs a model that includes the level of digital construction, new quality productivity, and high-quality economic development. Using panel data from 30 provinces in China from 2011 to 2022, conduct empirical testing through a fixed effects model. The results indicate that digital construction significantly promotes high-quality economic development and has a positive impact by improving the level of new quality productivity. New quality productivity plays a partial intermediary role between digital construction and high-quality economic development. Based on this, the article proposes policy recommendations such as strengthening technological innovation support, improving digital infrastructure construction, and cultivating digital talents, in order to promote the empowerment of new quality productivity by digital construction and achieve comprehensive and coordinated economic development. This study provides theoretical basis and practical guidance for understanding the deep impact of digital construction on high-quality economic development.

**Keywords:** New-Form Productivity, Digital Transformation.

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## 1. Introduction

With the continuous promotion of the wave of informatization and the deepening development of a new round of technological revolution and industrial transformation, the world economy is undergoing unprecedented changes. In September 2023, General Secretary Xi Jinping first proposed the important concept of new quality productivity. New quality productivity is essentially an advanced form of productivity that is more practical, comprehensive, and developmental due to the improvement of the quality of the constituent elements of productivity. It not only covers the upgrading of traditional production factors, but also emphasizes the role of new production factors such as knowledge, technology, and data. It focuses on multidimensional development such as technological innovation, management innovation, and model innovation, representing the modernization evolution of productivity. It is a dual improvement of quality and speed driven by technological innovation and the vigorous development of high-end industries. The proposal of new quality productivity not only meets the objective needs of China's economic development stage transformation, but also is a necessary key measure taken in the face of increasingly severe international competition environment. Its rise has provided new impetus for high-quality economic development and gradually become an important force in promoting economic and social development.

Against the backdrop of accelerated economic structural transformation and new quality productivity, the rapid

development of digital construction is particularly noteworthy. The digital economy is a new economic form formed in China after agriculture and industrial economy, and it is also an important manifestation and core component of new quality productivity. Digital construction involves the extensive application of modern information technologies such as cloud computing, big data, and artificial intelligence. Through the deep integration of information technology with various fields of the economy and society, it promotes the effective allocation and efficient utilization of information resources, reshapes the driving mechanism and structural form of economic growth. China has elevated the development of the digital economy to an important national strategy and made corresponding arrangements. General Secretary Xi Jinping pointed out that "the speed of digital economy development, the breadth of its radiation and the depth of its influence are unprecedented, and it is becoming a key force in restructuring global factor resources, reshaping the global economic structure and changing the global competition pattern." As the core goal of China's economic development in the new era, high-quality economic development is also enriching and expanding its connotation and path. Digital construction is not only an important means to achieve this goal, but also a key support for improving the quality, efficiency, and sustainable development of the comprehensive transformation and upgrading of the economy. However, the process of digital construction is also accompanied by many challenges, such as data security issues, the widening digital divide, and the impact on employment structure. This requires policy makers, enterprises, and all sectors of society to work together to

develop reasonable strategies to promote the healthy development of digital construction and fully play its positive role in high-quality economic development.

This article aims to explore how digital construction has a profound impact on high-quality economic development from the perspective of new quality productivity. At the same time, explore the challenges that it may face in the implementation process and corresponding countermeasures, in order to provide theoretical support and practical guidance for the formulation of relevant policies, and promote the development of the economy towards a greener, smarter, and more efficient direction.

## 2. Literature Review

This article mainly involves three types of literature: "new quality productivity", "digital construction", and "high-quality development". In recent years, research has mainly focused on the theoretical connotation of new quality productivity, the theoretical exploration of digital construction empowering the development of new quality productivity, and empirical research on the impact of digital economy on high-quality economic development. First, the theoretical connotation of the new quality productivity [1]. On January 31, 2024, General Secretary Xi Jinping stressed in the eleventh collective study of the Political Bureau of the 20th CPC Central Committee: "The new quality productivity is an advanced productivity quality characterized by high technology, high efficiency, high quality and in line with the new development concept." Recalling Marx's description in *Capital*, the simple elements of the labor process are: purposeful activities or labor itself, the object of labor and the means of labor. As a manifestation of advanced productive forces in the new stage of development, the new quality productive forces are China's localization and modernization interpretation of Marxist productive forces theory. It reflects the theoretical innovation and practical exploration under China's specific national conditions, not only inheriting the core ideas of Marxist productive forces theory, but also endowing it with new connotations and vitality in the context of the new era. In the context of the digital age, new quality productivity is a new form of productivity that focuses on technological innovation and is committed to achieving sustainable and high-quality development. It is a qualitative breakthrough from traditional productivity, significantly changing production modes, industrial patterns, and economic structures, and demonstrating profound and comprehensive transformation characteristics (Ren Baoping, Dou Wanbo, 2024) [2]. Zheng Yongnian (2024) believes that the new quality productivity is defined as all economic activities that can improve the scientific and technological content and added value of products through technological progress. It is a strategic concept and is crucial to the realization of Chinese path to modernization [3].

Regarding digital construction, current literature mainly focuses on the digital economy. The concept of digital economy can be traced back to the 1990s when Don Tapscott, the father of digital economy, first proposed the concept of "digital economy" in his book "Digital Economy", but it was not clearly defined. Entering the 21st century, countries have begun to attach importance to the development of the digital economy (Han Fengqin, 2022) [4]. According to the report released by the China Academy of Information and Communications Technology in the "Global Digital Economy White Paper (2023)", the digital economy has become a

powerful driving force leading global industrial progress, and its influence is becoming increasingly significant. The vigorous development of China's digital economy is particularly remarkable, with an average annual growth rate of 14.2%, which is almost 1.6 times the total average annual growth rate of the digital economy in the United States, China, Germany, Japan, and South Korea, demonstrating China's enormous potential and leading advantage in this field. The 2024 government work report once again mentions "deepening the innovative development of the digital economy. Formulating policies to support high-quality development of the digital economy, actively promoting digital industrialization and industrial digitization, and promoting the deep integration of digital technology and the real economy. The digital economy based on the new generation of information technology has increasingly become an important driving force for economic development (Chen Xiaohong et al.) [5]. In the era of digital economy, the formation and development of new quality productive forces are the core of promoting high-quality economic and social development (Tong Jiadong, Zhang Qian, 2024) [6]. Against the backdrop of the booming development of the digital economy, how to accelerate the formation of new quality productive forces through the digital economy has become a common focus of attention in both academia and practice. This is not only an inevitable requirement for the development of the times, but also an important way to deepen economic structural adjustment and promote high-quality development. New quality productivity is [3] closely related to Chinese path to modernization (Zheng Yongnian 2024). Exploring the theoretical and practical path to effectively promote the development of new quality production is of far-reaching significance for grasping the future economic development trend and improving national competitiveness. When accelerating the generation of new quality productivity, the digital economy will play a fundamental and critical role, becoming an important prerequisite for the generation of new quality productivity (Li Zheng, Liao Xiaodong, 2023) [7]. Wu Wensheng et al. (2024) discussed how the digital economy empowers the development of new quality productivity, and believed that the promoting effect of the digital economy on the level of new quality productivity shows a trend of first increasing and then weakening [8]. Jiao Yong and Qi Meixia (2024) emphasized the core role of the digital economy in promoting the development of new quality productivity, believing that the digitization of data, technology, infrastructure, and governance is key [9]. The third is to explore the influencing factors of high-quality development. High quality development is the ultimate goal of new quality productivity, which requires changes in quality, efficiency, and motivation to meet the people's aspirations for a better life (Du Renhuai) [10]. Developing the digital economy is the core lever for implementing the innovation driven high-quality development strategy (Qi Yudong et al.) [11]. Qiu Guodong and Tu Wenming (2024) analyzed panel data from 30 regions in China using spatial Durbin model and mediation effect model, and found that the digital economy has a positive impact on high-quality economic development, but improving the level of digital economy may have a restraining effect on the economic development of adjacent regions [12]. Wang Jun et al. (2024) empirically analyzed that the digital economy empowers high-quality development in the Yellow River Basin by promoting industrial structure upgrading and

green technology innovation, and proposed corresponding policy recommendations [13]. Ma Rong (2024) studied the impact of new digital infrastructure construction on high-quality economic development from the perspective of new quality productivity, and proposed specific practical suggestions and optimization paths [14]. Du Renhuai (2024) emphasized that the digital economy, as a new form of economy, has characteristics such as high innovation, strong penetration, and wide coverage. He believes that the digital economy is a new engine for high-quality development of the Chinese economy. By enhancing technological innovation, deepening reform, improving the level of openness, and promoting energy level enhancement, it injects strong momentum into high-quality economic development. Xu Zheng, Zheng Linhao, and Cheng Mengyao (2023) analyzed the advantages and challenges of developing new quality productivity in China, emphasized the core position of new quality productivity in promoting high-quality development, and put forward corresponding policy recommendations [15].

Through the review of relevant literature in recent years, it has been found that most scholars are committed to exploring the relationship between digital construction and the development of new quality productivity, as well as the relationship between digital economy and high-quality development. Although existing research has mainly focused on the correlation between the two, there is a relative lack of exploration on the detailed mechanisms and impact paths of the interaction between the three. Most analyses are limited to the theoretical level and lack in-depth empirical research support. Based on this, the marginal contribution of this article lies in incorporating digital construction, new quality productivity, and high-quality economic development into the research framework on the basis of existing research. Using panel data from 30 provinces in China from 2011 to 2022, a fixed effects model was used to empirically test the impact of digital construction on high-quality development from the perspective of the mediating effect of new quality productivity. Through empirical research, a series of targeted and actionable suggestions were proposed, aiming to provide scientific basis for the government and enterprises to formulate relevant policies, promote the deep empowerment of digital construction on the level of new quality productivity, and achieve comprehensive and coordinated economic and social development.

### **3. Theoretical Analysis and Research Hypotheses**

#### **3.1. Analysis of the Impact of Digital Construction on High Quality Development**

Digital construction utilizes digital technology to comprehensively transform and enhance social and economic activities. In the field of production, digital construction has greatly promoted the rapid development of emerging industries. The widespread application of emerging technologies such as cloud computing, big data, and artificial intelligence provides strong technical support for emerging industries, enabling them to rapidly rise and become new engines of economic growth. The development of these emerging industries not only provides new growth points for high-quality economic development, but also drives the development of related industrial chains, forming a good

economic ecology. In addition, digital construction provides strong support for technological innovation in enterprises by offering abundant data resources. The application of big data technology enables enterprises to extract valuable information from massive amounts of data, insight market trends, and discover potential business opportunities. Through in-depth mining and analysis of this data, enterprises can more accurately grasp market demand, predict industry development directions, and formulate more scientific and reasonable research and development strategies. In the service industry, digital construction has changed traditional business models and significantly improved consumer experience through e-commerce platforms, mobile payments, and other means. The popularity of digital channels such as e-commerce and social media enables consumers to easily access product and service information, compare prices and quality, and make more informed consumption decisions. It also enables enterprises to more accurately understand consumer needs, provide more personalized products and services, and improve consumer satisfaction and loyalty. This improved consumer experience not only drives the growth of consumption, but also promotes the healthy development of the market. Based on this, this article proposes hypothesis 1:

H1: Digital construction will significantly promote high-quality economic development.

#### **3.2. Analysis of the Impact of Digital Construction on High Quality Economic Development from the Perspective of New Quality Productivity**

General Secretary Xi Jinping stressed that scientific and technological innovation is the key to the birth of new industries, new models and new drivers, and the core element of developing new quality productivity. He pointed out that technological innovation is the strategic support for national development and the primary driving force for leading development. In the context of the digital age, technological innovation is particularly crucial. It can not only give birth to new industrial forms, but also promote fundamental changes in existing industrial models and production methods, releasing unprecedented development momentum. As an important practical field of technological innovation, digital construction is increasingly becoming an important engine for promoting economic and social development. Through the integration and application of digital technologies, including but not limited to the Internet, big data, cloud computing, artificial intelligence, etc., digital construction has realized the organic combination of digital industrialization and industrial digitalization, and has deeply transformed and upgraded traditional industries. This transformation not only improves production efficiency, but also significantly enhances product quality, enabling traditional industries to maintain a leading position in fierce market competition, thereby promoting the development of new quality productivity. At the same time, digital construction has also given birth to a number of emerging industries, such as digital economy, intelligent manufacturing, etc. The development of these emerging industries provides new impetus for economic growth. Based on this, hypothesis 2 of this article is proposed:

H2: Digital construction can promote high-quality economic development through new quality productivity.

## 4. Research Design

### 4.1. Variable Selection

#### 4.1.1. Explained variable

The dependent variable of this article is the level of high-quality economic development (HQD). There is currently no consensus in the academic community regarding the measurement of high-quality economic development [16]. This article draws on the research of Sun Hao et al. (2020). This indicator system is based on the new development

concept of innovation, coordination, green, openness, and sharing. It includes 5 secondary indicators and 20 tertiary indicators, covering multiple aspects of the economic development process and results. It aims to evaluate the sustainability, efficiency, and fairness of the economy, and adopts a relative index method to focus on the relative gap in high-quality economic development between provinces, rather than absolute levels, which has more practical guidance significance. The evaluation index system for high-quality economic development is shown in Table 1.

**Table 1.** Evaluation Index System for High Quality Economic Development

First level indicator	Secondary indicators	Third level indicators	
High quality economic development	Innovation-driven development	GDP growth rate	Regional CDP growth rate
		R&D investment intensity	R&D expenses of industrial enterprises above designated size/regional GDP
		Investment efficiency	Incremental Capital Output Rate (ICOR)=Investment Rate/Regional CDP Growth Rate
		Technical trading activity	Technology transaction volume/regional GDP
	Coordinated development	demand structure	Total retail sales of consumer goods/regional GDP
		Urban rural structure	Urbanization rate
		industrial structure	The increase in the proportion of the tertiary industry to regional GDP
		Government debt burden	Government debt balance/regional GDP
	Green development	Energy consumption elasticity coefficient	Energy consumption growth rate/regional GDP growth rate
		Unit produced wastewater	Total wastewater discharge/regional GDP
		Unit generated waste gas	Sulfur oxide emissions/regional GDP
	Development for global progress	Dependence on foreign trade	Total Import and Export Amount/Regional CDP
		Proportion of foreign investment	Actual utilization of foreign investment/regional CDP
		Marketization level	Regional Marketization Index
	Development for the benefit of all	Proportion of labor remuneration	Labor remuneration/regional GDP
		Income Growth Elasticity of Residents	Per capita disposable income growth rate of residents/regional GDP growth rate
		Urban rural consumption gap	Per capita consumption expenditure of urban residents/per capita consumption expenditure of rural residents
		Proportion of livelihood related fiscal expenditures	The proportion of local fiscal expenditure on education, healthcare, housing security, social barriers, and employment in the local fiscal budget expenditure

#### 4.1.2. Core explanatory variables

The core explanatory variable of this article is the level of digital construction (DC). Based on the characteristics of digital construction and referring to the classification definition of Xu Guangjian et al. (2024), this article divides the level of digital construction into the level of new digital infrastructure and the level of people's digital living [17]. One is the level of new digital infrastructure. Referring to Lin Peng's (2023) literature, starting from the hardware and software of infrastructure [18], the per capita total telecommunications business and the proportion of computer service and software practitioners are selected to characterize the level of new digital infrastructure construction; The second is the people's digital living standard [19]. Referring to Zhao Tao et al. (2020), we select three sub indicators: Internet users per 100 people, mobile phone users per 100 people, and China's digital inclusive financial index. The entropy weight method is used to calculate the weights of both indicators, in order to measure the level of digital construction in each province and city.

**Table 2.** Evaluation Index System for Digital Construction Level

First level indicator	Secondary indicators	Third level indicators
Digital Construction Level Index	New level of digital infrastructure	Per capita total telecommunications services
		Proportion of computer service and software professionals
	People's digital living standards	Internet users per 100 people
		Number of mobile phone users per 100 people
		China Digital Inclusive Finance Index

#### 4.1.3. Mediating variables

Based on the theoretical analysis and assumptions in the previous section, this article sets the mediating variable as New Quality Productivity (NQP). Currently, research on NQP mainly focuses on theoretical analysis of its internal mechanisms, and there is no unified standard for measuring the level of NQP. This article draws on the research of Lu Jiang et al. Objectivity [20].

**Table 3.** Evaluation Index System for the Development Level of New Quality Productivity

class a	second level	Level 3	explain	attribute
Technological productivity	Innovative productivity	Innovative research and development	Number of domestic patent grants	+
		Innovative industries	High tech industry business revenue	+
		innovative product	Industrial innovation funds for large-scale industrial enterprises	+
	Technical productivity	technical efficiency	Labor productivity of industrial enterprises above designated size	+
		Technical research and development	Full time equivalent of R&D personnel in industrial enterprises above designated size	+
		Technical production	Robot installation original density	+
Green productivity	Resource efficient productivity	energy intensity	Energy consumption/Gross Domestic Product	-
		energy-resource structure	Fossil energy consumption/Gross Domestic Product	-
		Water intensity	Industrial water consumption/Gross Domestic Product	-
	Environmentally friendly productivity	Waste utilization	Comprehensive utilization/generation of industrial solid waste	+
		Wastewater discharge	Industrial wastewater discharge/Gross Domestic Product	-
		Exhaust emissions	Industrial SO2 emissions/Gross Domestic Product	-
Digital productivity	Digital industry productivity	Electronic Information Manufacturing	Integrated circuit production	+
		Telecommunications business communication	Total telecommunications business volume	+
		Internet penetration rate	Number of Internet broadband access ports	+
	Industrial digital productivity	Software Services	Software business revenue	+
		Digital information	Fiber optic cable line length/regional area	+
		Electronic Commerce	E-commerce sales revenue	+

#### 4.1.4. Control variables

To avoid misleading conclusions caused by confounding factors, this article introduces some control variables based on existing literature: government intervention level (GIL), expressed as the proportion of fiscal expenditure to regional GDP; Urbanization level (UL), expressed as the ratio of urban population to total population; Financial Development Level (FDL), expressed as the proportion of the sum of various loan balances of financial institutions at the end of the year to the Gross Domestic Product.

#### 4.2. Data Source

This article selects panel data from various provinces in China from 2011 to 2022 for empirical analysis. The indicator data involved are all from the "China Statistical Yearbook", "China Energy Statistical Yearbook", statistical yearbooks of various provinces in China, and the official websites of statistical bureaus in each province. The China Digital Inclusive Finance Index is sourced from the Peking University Digital Finance Research Center, and some missing data are filled in using interpolation. The descriptive statistics of variables are shown in the table below.

**Table 4.** Basic Descriptive Statistical Characteristics of Main Variables

Variable	count	mean	sd	min	max
HQD	360	0.239	0.099	0.134	0.582
DC	360	0.241	0.182	0.049	1.000
GIL	360	0.247	0.102	0.106	0.638
UL	360	0.593	0.113	0.350	0.896
FDL	360	3.432	1.096	1.678	7.609
NQP	360	0.202	0.180	0.027	0.877

#### 4.3. Model Settings

##### 4.3.1. Benchmark regression model

To investigate the mechanism and impact of digital construction on the high-quality development and growth of provincial economy, a benchmark regression model is constructed as follows:

$$HQD_{it} = a_0 + a_1 DC_{it} + \sum_{i=1}^3 \beta_i \text{control}_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

In the above formula, HQD represents the level of high-quality economic development, DC represents the level of digital economic development, and controllability is the control variable, including GIL, UL, and FDL, which respectively represent the degree of government intervention, urbanization level, and financial development level;  $\mu_i$  is the individual fixed effect, and  $\varepsilon_{it}$  is the error term.

##### 4.3.2. Mediation effect model

Based on the model of the impact of digital construction on high-quality development, and according to the above theoretical assumptions, in order to further explore the transmission mechanism of digital construction, new quality productivity, and high-quality economic development, this paper refers [21] to the mediation effect research method of Wen Zhonglin et al. (2004), tests the hypothesis H2, and constructs the mediation effect model as follows:

$$NQP_{it} = b_0 + b_1 DC_{it} + \sum_{i=1}^3 \gamma_i \text{control}_{it} + \mu_i + \varepsilon_{it} \quad (2)$$

$$HQD_{it} = c_0 + c_1 DC_{it} + c_2 NQP_{it} + \sum_{i=1}^3 \rho_i \text{control}_{it} + \mu_i + \varepsilon_{it} \quad (3)$$

In the above equation, NQP<sub>it</sub> represents new quality productivity; B<sub>0</sub> and c<sub>0</sub> are constant terms; B<sub>1</sub> represents the impact of digital construction on new quality productivity; C<sub>1</sub> represents the direct effect of digital construction on high-quality economic development; C<sub>2</sub> represents the impact of new quality productivity on high-quality development.

## 5. Empirical Results and Analysis

### 5.1. Benchmark Regression

The benchmark regression of the impact of digital trade on carbon emissions is shown in Table 5. The first column shows the direct regression results of digital construction on high-quality economic development without introducing control variables. It can be found that the coefficient of digital economic development level (DC) is 0.481, and it has passed

the 1% significance test, indicating that digital construction has a significant promoting effect on regional high-quality development.

In terms of controlling variables, the coefficient of government intervention degree is significantly negative, which may be due to excessive government intervention leading to distorted market signals, making it difficult for resources to be effectively allocated according to market rules. For example, the government may intervene in the market through subsidies, price controls, and other means, which may distort the price mechanism, hinder the market's self-regulation function, and thus inhibit high-quality economic development. In addition, government intervention may to some extent limit the innovation drive of enterprises: if the government provides excessive protection to certain industries or enterprises, it may reduce the pressure on these enterprises to face market competition, thereby reducing their motivation for technological innovation and improvement. The coefficient of urbanization level is significantly positive, indicating that urbanization development is conducive to improving economic quality. With the advancement of urbanization, the transfer of rural labor to cities helps optimize the allocation of labor resources. Cities provide more job opportunities and higher production efficiency, which helps to increase overall economic output. Finally, the coefficient of financial development level is significantly positive. When the financial market is developed, funds can quickly and effectively flow from savers to investors, achieving optimal allocation of resources. This type of capital flow not only reduces transaction costs, but also improves the efficiency of capital utilization, allowing resources to flow towards areas with greater production potential and innovation capabilities. The optimized allocation of such funds helps to improve the overall production efficiency and growth potential of the economy.

**Table 5.** Benchmark Regression Results

	(1)	(2)	(3)	(4)
	HQD	HQD	HQD	HQD
DC	0.481*** (36.17)	0.458*** (34.39)	0.369*** (27.46)	0.193*** (11.88)
GIL		-0.137*** (-5.78)	-0.075*** (-3.63)	-0.308*** (-13.29)
UL			0.269*** (12.09)	0.153*** (7.86)
FDL				0.041*** (14.31)
_cons	0.123*** (30.80)	0.163*** (20.82)	0.010 (0.67)	0.036*** (3.09)
N	360	360	360	360
R2	0.785	0.804	0.861	0.912
R2_a	0.785	0.802	0.860	0.911
*** p<0.01, ** p<0.05, * p<0.1				

## 5.2. Robustness Test

To ensure the robustness and scientificity of the conclusion, this article follows the approach of Zhao Tao et al. (2020) and adopts methods such as replacing core explanatory variables (using software business revenue, e-commerce transaction volume, mobile phone penetration rate, and number of information technology enterprises as new indicators to measure digital construction) and reducing the sample size by 1%. The regression results are shown in column (1), and the

positive significance of the regression results is still significant. If the robustness test results are basically consistent with the benchmark effect results, the conclusion can be drawn. The benchmark regression results of this article are robust, which indicates that hypothesis H1's conclusion that digital construction will significantly promote high-quality economic development has strong robustness.

**Table 6.** Results of robustness test

	(1)
	HQD
DC	0.061*** (3.02)
GIL	-0.442*** (-18.71)
UL	0.140*** (5.97)
FDL	0.065*** (28.17)
_cons	0.032** (2.40)
N	360
R2	0.880
R2_a	0.878
*** p<0.01, ** p<0.05, * p<0.1	

## 5.3. Analysis of Intermediary Effect

Based on in-depth analysis of existing literature and theoretical construction obtained in the previous section, this article regards the level of new quality productivity as a key mediating variable, and further explores how digital construction can promote high-quality economic development through this path. By constructing a theoretical model that includes three core variables: digital construction, new quality productivity, and high-quality economic development, this article will explore the impact of digital construction on new quality productivity, as well as the driving role of new quality productivity in promoting high-quality economic development, thereby clarifying the deep transmission mechanism of digital construction on high-quality economic development. The relevant regression results are shown in Table 7.

**Table 7.** Regression Results of Mediating Effects

	(1)	(2)
	NQP	HQD
DC	0.422*** (5.80)	0.173*** (10.40)
GIL	-0.638*** (-6.15)	-0.278*** (-11.64)
UL	0.161* (1.85)	0.145*** (7.59)
FDL	-0.008 (-0.59)	0.042*** (14.75)
NQP		0.047*** (4.09)
_cons	0.188*** (3.64)	0.027** (2.33)
N	360	360
R2	0.2468	0.2916
R2_a	0.2462	0.2914
*** p<0.01, ** p<0.05, * p<0.1		

According to the data analysis in Table 7, at a significance level of 1%, digital construction has shown a significant positive impact on both new quality productivity and high-quality development. The same regression model will be used to test high-quality economic development, digital construction level, and new quality productivity. As shown in Table 7 (2), the coefficient is 0.173, and there is still a significant positive impact at a significance level of 1%. This result shows that after considering the mediating effect of new quality productivity, the positive impact of digital construction on high-quality economic development still exists significantly. This indicates that new quality productivity plays a partial intermediary role in the impact path of digital construction on high-quality economic development, that is, digital construction promotes the development of new quality productivity, and then drives the transformation of the economy towards high-quality development. Digital construction has promoted the development of emerging industries such as information technology, biotechnology, and new energy, while also promoting the upgrading of traditional industries, such as improving the intelligence level of manufacturing through digital means and optimizing industrial structure. Further enhancing the productivity of new quality products. In addition, digital construction has strengthened the implementation of the innovation driven development strategy, and the rapid iteration and update of digital technology provide strong support for innovation, promoting the continuous emergence of new technologies, new formats, and new models. The development of these emerging industries is an important manifestation of new quality productivity. This validates hypothesis 2 of this article: digital construction can promote high-quality economic development through new quality productivity.

## 6. Conclusion and Suggestions

This article is based on panel data from 30 provinces in China from 2011 to 2022. The entropy method is used to measure digital construction, and the fixed effects model is used to empirically examine the impact of digital construction on high-quality economic development. The mediation effect model is used to test the mechanism of digital construction on high-quality development. The empirical results indicate that digital construction will significantly promote high-quality economic development, and this result still holds true after conducting robustness tests. Meanwhile, digital construction can promote high-quality economic development by enhancing the level of new quality productivity. Based on the above conclusion, this article proposes the following policy recommendations:

Firstly, strengthen support for technological innovation. The government can establish special funds specifically to support key core technologies in cutting-edge fields such as artificial intelligence, quantum computing, and biotechnology. These funds can be used for basic research, applied research, as well as the pilot and industrialization stages of technology, ensuring full chain support from basic theory to practical application. Organizations such as technology innovation alliances or industrial technology research institutes can be established to encourage deep cooperation among all parties in technology research and development, achievement transformation, and other areas. These organizations can regularly hold academic exchange activities, seminars, etc., share the latest research results and technological progress,

and promote the dissemination and exchange of knowledge. Through the implementation of the above measures, an ecosystem conducive to technological innovation and industrial upgrading can be built, providing a continuous source of technological innovation power for high-quality economic development.

Secondly, improve the construction of digital infrastructure. The government should increase investment efforts, encourage and guide social capital to participate, and jointly invest in the construction and upgrading of 5G networks. Reduce the construction costs of operators and accelerate the popularization of 5G networks through financial subsidies and other means. For IoT infrastructure, considering the specific needs of different industries such as agriculture, logistics, urban management, etc., corresponding IoT dedicated networks should be built to meet the application requirements of different scenarios. The government can provide technical research and development support, promote the application of low-power wide area network (LPWAN) and other technologies, and achieve the Internet of Things. At the same time, establish an open laboratory for the Internet of Things to provide a testing and verification environment for enterprises. According to the national and local economic development plans, scientifically plan the layout of 5G base stations, giving priority to covering key areas such as economically developed regions, transportation hubs, and important industrial parks. For remote and underdeveloped areas, satellite communication and other technologies can be used to achieve network coverage.

Thirdly, cultivate digital talents. Establish vocational education and training institutions related to digitalization, providing short-term and long-term training courses covering popular fields such as digital marketing, data analysis, and network security. Carry out the construction of online education platforms, provide rich digital course resources, support self-directed learning and distance education, and meet the learning needs of different levels and fields. Cooperate with industry associations to regularly hold skill competitions and certification exams, encouraging employees to improve their skills while working. At the same time, universities can encourage and support students and teachers to participate in international academic exchanges and cooperation projects, to understand the forefront of digital technology and educational concepts in the world. Introduce high-quality international educational resources and teaching methods, enhance the level of digital education in China, and cultivate digital talents with an international perspective. Effectively enhancing the digital literacy and skill level of the entire society, providing a solid talent guarantee for high-quality economic development.

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