Original Research Article

Research on Digital Economy and High Quality Development of Regional Economy

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Abstract: The experience of developed countries shows that digital economy can promote high -quality economic development. By constructing a comprehensive evaluation index system, this paper measures the digital economy and high quality economic development level of Zhejiang province from 2013 to 2019. First, the coupling model is used to measure the dynamic evolution process of digital economy and high-quality economic development, then the general linear linear regression model is fitted to explore the promotion degree of digital economy to high-quality economic development, and finally, the mediationeffect model is used to analyze the mechanism of digital economy to promote high -quality economic development. The following conclusionsare drawn: In recent years, the development level of digital economy in Zhejiang province continues to improve, and the coupling coordination degree of digital economy and high-quality economic development gradually reaches a good level. Digital economy can promote high-quality economic development. Every 1% increase in the level of digital economy will increase the level of high-quality economic development by 0.4694%. The index of scientific and technological innovation is taken as a mediating variable, and the test model is constructed. The mediating effect is found to be significant, which indicates that digital economy empowers scientific and technological innovation to promote high-quality economic development. Based on this, this paper puts forward some suggestions to provide reference for thehigh quality economic development of Zhejiang Province.

Keywords: Digital economy; High-quality economic development; Coupled model; Mediation effect.

1. Introduction

American scholar Don Tapscott first introduced the concept of digital economy to the into the public eye. After that, the United States released the report “Emerging Digital Economy”, and the concept of digital economy was formally shaped. Recognizing the advantages of the digital economy in the new round of development, countries have formulated relevant policies and regulations to explain the meaning of the digital economy and vigorously promote the adaptation of the digital economy to their own development. In just a few years, the development of the digital economy has achieved some results that The emergence of innovative digital-related activities and products. The digital economy has become an increasingly important new driver of the global economy, with innovative digital-related activities and products emerging and being applied to a wide range of other traditional industries. China has become the second largest economy in the world after the United States by virtue of its reform and opening up, and in the process of decentralization and reform of its economic system, China has explored the economic system of socialist market economy, under which its economy has made rapid development. Under this economic system, China's economy has achieved rapid development. Today, China's economic volume is large enough, but at the same time, it is also facing a lack of momentum for economic development. The backwardness of traditional agriculture, the high pollution of industry, the lack of high-tech industries and other problems are inhibiting the high-quality development of China's economy. To gain an advantage in the next economic development as well as international competition, China must seek new development momentum. The digital economy, along with the development of network and industrial science and technology, is gradually becoming a key driving force to promote a new round of industrial change.

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In 2015, General Secretary Xi Jinping made his first important discussion on the development of the digital economy. The digital economy has gradually risen to the height of national strategy, and this stage of the policy content is mainly based on industrial planning and guidance, and at the same time, a relatively At the same time, a relatively clear direction and goal for industrial development has been formed. In 2016, the G20 Summit introduced the digital economy, and the participating countries paid attention to it and issued relevant documents to promise to continue to pay attention to the digital economy. In 2018, the digital economy was elevated to a national strategy. In 2020, under the double impact of the epidemic impact and the global economic downturn, the digital economy embodied an important role in this disaster relief process due to its digitalization and informatization.

Zhejiang Province is located on the southeast coast of China, and its economic development has been highly valued since ancient times. Since the new era, Zhejiang Province has become the gathering place of China's manufacturing and information technology industries. Therefore, the economic development of Zhejiang Province is especially important. Based on this, this paper establishes a scientific comprehensive evaluation system to measure the level of development of Zhejiang Province's digital economy and the level of high-quality economic development in recent years, and explore the mechanism of the digital economy to promote high-quality economic development, with a view to providing suggestions for relevant departments to formulate policies.

2. Literature Review

The research results of previous researchers have found that the studies related to this paper can be roughly be divided into three categories: The research and measurement of the characteristics of the digital economy, the research and measurement of economic high-quality development, the study and measurement of and research and measurement on the relationship between digital economy and high-quality economic development.

In terms of research and measurement of the characteristics of the digital economy, the United States believes that the digital economy is supported by the Internet and led by the development of information technology, and should take the information industry as a pillar industry, in which the development of e-commerce is the promotion of economic development. In 2016, the G20 Hangzhou Summit issued a relevant document, which considers that the digital economy utilizes modern Internet technology, based on digital information and digital knowledge, and effectively uses information and communication technology to reshape the economic structure to achieve efficiency improvement. Knickrehm (2016) argues that in the context of digitization, the digital economy is the development of the Internet and the integration of the Internet with other industries resulting with the economic growth brought about by new technologies and products. According to Ding Yulong (2021) that the factors behind driving the rapid development of the digital economy are mainly ICTs. ICT has a synergistic, penetrative, and network effects.

In terms of research and measurement of high-quality economic development, the results of existing studies have concluded that the digital economy can significantly contribute to high-quality economic development. Ning Chaoshan (2021) found that market factors have realized the allocation of traditional elements through digital factor upgrading, reducing allocation costs and improving total factor productivity. Li Xue et al. (2021) argued that the digital economy, through the investment of related human and R&D capital can enhance regional innovation capacity and thus drive economic growth. Chi I.D. et al. (2020) found that the development of digital economy can optimize the employment structure, improve the employment personnel's relevant abilities, raise the employment level, and provide more new occupations and positions to meet the needs of emerging markets. Duan, Bo, and Shao, Chuanlin (2020) utilized a panel data of 284 prefecture-level cities in China to find the impact of digital economy on regional disparities. panel data of prefecture-level cities in China, found that the digital economy has a negative direct effect on regional disparities.

In the research and measurement of the relationship between the digital economy and high-quality economic development aspects. Liang Yao (2021) empirically analyzed the relationship between digital economy and industrial structure upgrading by using a fixed effect model, and the results showed that digital

economy is conducive to promoting industrial structure upgrading. Duan square and Guo Junmao (2021) used principal component analysis to digital economy development level and found that the development of digital economy can substantially increase the scale and efficiency of the urban distribution industry. Zhang Yuchuan and Qin Shanshan (2021) Construct panel data to analyze the digital economy of each province and city along the Yangtze River Economic Belt development, and found that the digital economy has a positive promoting effect.

Synthesizing the existing research results of previous researchers, it is found that there have been a lot of studies on digital economy and high-quality economic development, but there are still some deficiencies in the selection of indicators and the construction of the indicator system. Therefore, based on the existing research results, this paper constructs a feasible and scientific index system to measure the level of digital economy and high-quality economic development in Zhejiang Province from 2013 to 2019. First, a coupled model is used to measure the dynamic evolution of the digital economy and high-quality economic development. Then, a general linear regression model is fitted to explore the extent to which the digital economy promotes high-quality economic development. Finally, the mediation effect model is used to analyze the mechanism of the digital economy to promote the high-quality development of the economy, with a view to providing suggestions for the relevant departments to formulate policies.

3. Research Program

3.1 Indicator System Construction

The digital economy is closely linked to the rise of ICT. In the digital industry digitalization, digital applications promote industrial transformation and the emergence of new technologies, industries and modes, resulting in the emergence of a number of high-tech industries. Digitalization of industries digitalization applications have promoted the upgrading of traditional industries and the development of industrial integration. The application of new technologies in traditional industries, represented by 5G and artificial intelligence, significantly improve production efficiency and add new impetus to the high-quality development of the economy.

Digital industrialization, that is, the information and communication industry, in the process of the development of the digital economy, generally as a leading industry to take the lead in the development of the development of the information and communication industry in the past to be able to produce a number of new technologies, which can provide support for the development of the digital economy. It mainly includes ICT industry, Internet industry, software industry, etc. In particular, the rapid development of ICT industry significantly reduces the cost of digital industry and promotes international trade activities, so the number of Internet accesses, the number of computers owned, and the income from information technology services, etc. can be used as factors to measure the development of digital industrialization.

Industrial digitization refers to the fusion of traditional industries with digital technology to enhance industrial efficiency, which is mainly the enhancement of production capacity and efficiency brought about by the fusion and penetration of ICT industry, Internet industry and other industries. It can be divided into two main aspects: first, the volume of e-commerce transactions facilitated by governments and concluded between businesses; The second is digital integration. Specifically, the telephone penetration rate, the number of mobile Internet users, and the average number of websites owned by enterprises can be used as factors to measure the digital development of the industry.

The development of digital industrialization and industrial digitization requires the support of network technology, whether it is Internet applications, ICT industry, 5G, artificial intelligence, blockchain and other Internet industries, the development of the Internet industry depends on the completion of a good and fast infrastructure. Therefore, the completion of fiber optic cable lines and the number of websites built can be used as basic influencing factors for the development of the digital economy.

High-quality economic development requires not only that the rate of economic growth be maintained at a medium-to-high level, but also that it be sustainable, green, equitable and of high quality. Enhancing the people's

living standards and sense of well-being, and satisfying the people's material, spiritual and pursuit of a better life are the proper meaning of high-quality economic development. The meaning of high-quality economic development. Therefore, this paper divides high-quality economic development into three aspects: quality change, efficiency change, and power change.

Quality change includes the level of economic growth, the level of green development, and the distribution of social wealth, with specific indicators such as the GDP growth rate, electricity consumption per unit of GDP, water consumption per unit of GDP, industrial wastewater and waste gas emissions, and the ratio of urban and rural disposable income per capita. Efficiency change mainly refers to the increase in productivity levels, with the following indicators Specific indicators include land output rate, labor productivity, and the number of R&D practitioners. The driving force of change mainly refers to the level of investment in science and technology, and the level of household consumption, including the ratio of science and technology expenditure to fiscal expenditure, the total retail sales of consumer goods, and the growth rate of urban household consumption and rural household consumption.

In summary, this paper firstly constructs indicators to measure the development level of digital economy with three dimensions of digital infrastructure, digital application and development of digital industry, then constructs indicators to measure the high-quality development of the economy with three dimensions of economic quality change, efficiency change and power change, then constructs a coupling model to analyze the dynamic evolutionary process of the digital economy and high-quality development of the economy and analyzes the extent to which the digital economy promotes the high-quality development of the economy by using the general linear regression model, and finally tries to analyze the specific paths for the promotion of the high-quality development of the economy by the digital economy using mediation effect model.

3.2 Data Sources

The data in this paper comes from China Statistical Yearbook, Zhejiang Statistical Yearbook and other public data. The indicators in this paper are selected as in Table 1.

Table 1 Comprehensive evaluation index system of digital economy and high-quality economic development.

Level 1 Indicators	Secondary indicators	Tertiary Indicators	Direction
Development of the digital economy	Digital infrastructure	Fiber optic lines	Positive
		Telephone penetration	Positive
		Internet access ports	Positive
		Number of websites	Positive
	Digital applications	Computers per 100 people	Positive
		Number of websites per 100 businesses	Positive
		Number of mobile Internet users	Positive
	Digital industry development	Software business revenue	Positive
		Revenue from information technology services	Positive
		E-commerce sales	Positive
		Proportion of fixed investment in ICT industry to total investment in the province	Positive
		ICT Employees	Positive
		ICT industry revenue	Positive
High-quality economic development	Quality change	GDP growth rate	Positive
		Electricity consumption per GDP	Reverse
		Water consumption per GDP	Reverse
		Industrial wastewater emissions	Reverse
		Industrial waste gas emissions	Reverse
		Ratio of disposable income per capita in urban and rural areas	Reverse
	Efficiency change	Land productivity	Positive
		Labor productivity	Positive
		R&D Number of employees	Positive
	Momentum change	Ratio of science and technology expenditure to fiscal expenditure	Positive
		Total retail sales of consumer goods	Positive
		Growth rate of urban household consumption	Positive
		Rural household consumption growth rate	Positive

Among them, the land output rate is expressed as the ratio of GDP to land area, and science and technology innovation is expressed as the number of patents granted, and the units are not given in the table because the data need to be standardized.

3.3 Research Methodology

This paper firstly adopts the entropy value method to measure the weight of each index of digital economy development and economic high-quality development in Zhejiang Province, and then uses the coupling model to measure the degree of coupling of the two systems and the degree of coordination of coupling to analyze the dynamic evolution process, and then fits a general linear linear regression model to explore the degree of promotion of the digital economy on the economic high-quality development, and finally analyzes the mechanism that the digital economy affects the economic high-quality development by using the mediation effect model.

4. Empirical Analysis

4.1 Coupling Evolution Analysis

4.1.1 Entropy Value Method

This paper adopts the entropy value method to measure the weights of the selected indicators of the two systems of digital economy and high-quality economic development in Zhejiang Province, and the steps are as follows:

(1) Standardize raw indicator data to eliminate the effects of different indicator units.

For positive indicators

$$z_{ij} = \frac{x_{ij} - \min\left\{x_{1j}, x_{2j}, \cdots, x_{nj}\right\}}{\max\left\{x_{1j}, x_{2j}, \cdots, x_{nj}\right\} - \min\left\{x_{1j}, x_{2j}, \cdots, x_{nj}\right\}} \quad \text{(Eq.1)}$$

For reverse indicators

$$z_{ij} = \frac{x_{ij} - \min\left\{x_{1j}, x_{2j}, \cdots, x_{nj}\right\} - x_{ij}}{\max\left\{x_{1j}, x_{2j}, \cdots, x_{nj}\right\} - \min\left\{x_{1j}, x_{2j}, \cdots, x_{nj}\right\}} \quad \text{(Eq.2)}$$

(2) For calculating the weights of the indicators. Use the normalized values for the following operations.

$$p_{ij} = \frac{z_{ij}}{\sum_{i=1}^{n} z_{ij}} \quad \text{(Eq.3)}$$

$$e_j = -\frac{1}{\ln n} \sum_{i=1}^{n} p_{ij} \ln p_{ij} \quad \text{(Eq.4)}$$

(3) Calculating the composite score

$$S_{ij} = \sum_{j=1}^{m} w_{ij} p_{ij} \quad \text{(Eq.5)}$$

4.1.2 Coupling Model

The coupling model is used to measure the dependence between digital economy development and economic high-quality development. u1 and u2 are the comprehensive evaluation scores of digital economy development and economic high-quality development, respectively, and the coupling degree C of the two systems of digital economy and economic high-quality development is calculated through Eq.6:

$$C = \frac{2\sqrt{U_1 \times U_2}}{U_1 + U_2} \quad \text{(Eq.6)}$$

The coupling coordination degree D of digital economy and high quality economic development is calculated through Eq.7:

$$D = \sqrt{C \times T}, T = \alpha U_1 + \beta U_2 \quad \text{(Eq.7)}$$

In Eq.7, T represents the comprehensive evaluation index of the two systems of digital economy and economic high-quality development, α β represents the evaluation weight coefficients of digital economy and economic high-quality development, and according to the results of previous research, here α, β take the value of 0.5, and the degree of coupling and the degree of coordination of the coupling are divided into the following levels.

Table 2 Classification of coupling degree and coupling coordination degree.

Coupling degree	Features	Coupled co scheduling	feature
$0 \le C \le 0.3$	Low coupling period	$0 \le D \le 0.2$	Severe imbalance
$0.3 \le C \le 0.5$	Antagonistic period	$0.2 \le D \le 0.4$	Moderate imbalance
$0.5 \le C \le 0.8$	Run-in period	$0.4 \le D \le 0.6$	Basic coordination
$0.8 \le C \le 1$	Coordination coupling period	$0.6 \le D \le 1$	Highly coordinated

4.1.3 Analysis of Results

Based on the comprehensive evaluation index system of the level of high-quality development of digital economy and economy, the entropy value method is used to measure the weight of each index, and the results are shown in Table 3.

Table 3 Results of weighting measurements.

Indicators	weight
Fiber optic cable line	0.0604
Telephone penetration rate	0.0713
Internet access port	0.0767
Number of websites	0.1051
Number of computers used per hundred people	0.0892
Number of websites owned by each hundred companies	0.0542
Number of mobile internet users	0.0649
Software business revenue	0.0794
Information technology service revenue	0.0806
E-commerce sales revenue	0.1017
The proportion of fixed investment in the ICT industry to the total investment in the province	0.0738
ICT practitioners	0.0697
Gross Domestic Product of ICT Industry	0.0726
GDP growth rate	0.0854
Land output rate	0.0819
Labor productivity	0.0730
Number of R&D practitioners	0.0850
The proportion of technology expenditure to fiscal expenditure	0.1018
Total retail sales of consumer goods	0.0717
Growth rate of urban household consumption	0.0748
Rural household consumption growth rate	0.0485
Electricity consumption per unit GDP	0.1282
Water consumption per unit GDP	0.0716
Wastewater discharge volume	0.0608
Industrial exhaust emissions	0.0655
The ratio of per capita disposable income between urban and rural areas	0.0517

As can be seen from Table 3, the number of websites and e-commerce sales account for a high proportion,

indicating that the improvement of infrastructure plays an important role in the development of the digital economy, and e-commerce sales of enterprises play an important role in the digital economy.

The evolution of the combined score and coupling dynamics of the two systems of the digital economy and the level of high-quality economic development is shown in Table 4.

Table 4 Evolution of coupling degree and coupling harmonization degree.

Year	Development level of digital economy	High quality economic development level	Coupling degree	Coupled co scheduling
2013	0.0869	0.2447	0.8796	0.3819
2014	0.1811	0.2788	0.9772	0.4741
2015	0.3562	0.3390	0.9997	0.5895
2016	0.4903	0.4112	0.9962	0.6701
2017	0.6478	0.4801	0.9889	0.7468
2018	0.7860	0.6754	0.9971	0.8536
2019	0.9208	0.7688	0.9959	0.9173

As can be seen from Table 4, the coupling degree between the two systems in Zhejiang Province has been at a high level, and has basically reached a coordinated coupling since 2013. In Zhejiang Province, the coupling degree of coordination between the digital economy and economic high-quality development was only 0.3819 in 2013, and then in the following years, the coupling degree of coordination between the two systems kept rising, and in 2019, the coupling degree of coordination between the two systems had reached 0.9173, during which it had experienced a moderate dysfunctionality, basic coordination, moderate coordination and a high level of coordination, which means that in 2013, the two systems were in a moderate dysfunctionality stage. At this time, the digital economy and the high-quality development of the economy inhibited each other at a low level, and by 2019, the digital economy and the high-quality development of the economy realized mutual promotion at a high level.

4.2 Regression Analysis

4.2.1 Regression Model

A linear regression of the two systems of the digital economy and the level of high-quality development of the economy was conducted to measure the extent to which the digital economy contributes to high-quality development of the economy as a whole. In order to eliminate possible heteroskedasticity and autocorrelation in the model, the mathematical model depicting the relationship between the digital economy and high-quality economic development is established as follows:

$$\ln Y = \alpha + \beta \ln X + \varepsilon \quad \text{(Eq.8)}$$

Where lnX is the natural logarithm of the composite score for the level of development of the digital economy, lnY is the natural logarithm of the composite score for the level of high-quality development of the economy, and denotes the random error term.

4.2.2 Analysis of Results

A unit root test is required before fitting a regression model to time series type data, and this paper utilizes Eviews software to test whether there is a unit root for each variable, and the results are shown in Table 5.

Table 5 Results of ADF unit root test for variables.

variable	ADF test value	P-value	result
$\ln Y$	-14.5539	0.0001	Stable
$\ln X$	-3.8385	0.003	stable

The test results show that the series after taking the logarithm is smooth and can be analyzed by regression. Using Eviews software, the equation of Zhejiang digital economy about high quality development of the

economy was estimated by applying OLS method as:

$$\ln Y = 0.469 \ln X - 0.4173$$

$$R^2 = 0.8673 \qquad F = 32.6892 \qquad DW = 0.8729$$

The estimated equation passes the significance test at 1% level of significance. By the Engle-Granger two-part test, it is calculated that the residual series passes the unit root test. From the estimated equation, it can be seen that the digital economy has a significant role in promoting the high-quality development of the economy, and all other conditions remain unchanged, the level of high-quality development of the economy will increase by 0.4694% for every 1% increase in the level of the digital economy.

4.3 Analysis of Mediated Effects

4.3.1 Mediated Effects Model

When studying the influence of variable X on variable Y, whether it will be realized through the intermediate variable M. If there is such a relationship, it is said that there is a mediating effect, and vice versa, there is none. In order to explore the mechanism of digital economy to promote high-quality economic development, this paper tries to construct a mediation effect model as follows:

$$Y_t = \gamma_0 + \gamma_1 Deconomy + \varepsilon_t \tag{Eq.9}$$

$$Innovation_t = \alpha_0 + \alpha_1 Deconomy + \varepsilon_t \tag{Eq.10}$$

$$Y_t = \beta_0 + \beta_1 Deconomy + \beta_2 Innovation + \varepsilon_t \tag{Eq.11}$$

Where Y denotes the comprehensive evaluation score of Zhejiang Province's high-quality economic development, Deconomy denotes the comprehensive evaluation score of Zhejiang Province's digital economic development, Innovation denotes scientific and technological innovation (expressed in terms of the number of patents granted), and is a random error term.

4.3.2 Analysis of Results

Commonly used mediation effect tests include stepwise regression method, but it has been gradually eliminated because of its low test effectiveness, while the test conditions of the product coefficient method are more demanding and not easy to implement. Therefore, this paper adopts the bootstrap method to test whether there is a mediating effect, and the results are shown in Table 6.

Table 6 Results of the mediation effect test.

		Constant	Digital economy	Patent grant volume	R^2	Adjust R^2	F-value
Patent grant	B	-0.081	1.091*		0.726	0.671	13.229
	Error	0.172	0.300				
	T	-0.473	3.637				
	P	0.656	0.015				
	β	-	0.852				
Economic growth	B	0.147*	0.626**		0.943	0.931	82.347
	Error	0.039	0.069				
	T	3.720	9.075				
	P	0.014	0.000				
	β	-	0.971				
Economic growth	B	0.160**	0.454*	0.158	0.970	0.955	64.055
	Error	0.033	0.107	0.084			
	T	4.866	4.237	1.887			
	P	0.008	0.013	0.132			
	β	-	0.314	0.314			

"*" $P < 0.05$, "**" $P < 0.01$

As shown in Table 6, the correlation coefficient between the digital economy and the number of patents granted is 1.091 and passes the significance test, which indicates that the digital economy is conducive to the high-quality development of the economy, which is mainly due to the fact that the digital application provides more space for scientific and technological innovation. After adding the variable of scientific and technological innovation (expressed by the number of patents granted) to the original model, the coefficient of 0.626 between the digital economy and the high-quality development of the economy decreases to 0.454, which indicates that the digital economy can play a role in the high-quality development of the economy through the improvement of scientific and technological innovation, and the innovation mechanism of the digital economy can be tested.

The mediating effects are accounted for in Table 7.

Table 7 Percentage of intermediation effects.

	Effect	Boot SE	Boot LLCI	BootULCI	z	p
Mesomeric	0.172	0.086	-0.527	-0.241	1.995	0.046

According to Bootstrap's test rule: from the viewpoint of the mediation path of high-quality development of economy, science and technology innovation, digital economy, the 95% interval does not include the number 0 (95% CI: -0.527~-0.241), which indicates that this mediation path exists, and the mediation effect can be tested, and the promotion effect of the digital economy on the high-quality development of the economy is realized 17.2% through realized by science and technology innovation.

The products and services derived from the digital economy have a significant role in promoting the high-quality development of the economy, and the intermediary role played by scientific and technological innovation indicates that the high-quality development of the digital economy for the economy is partly realized through technological innovation, which is the difference between the digital economy industry and other traditional industries. The digital economy significantly reduces production, logistics and transaction costs through the application of the Internet and big data, and further improves the efficiency of domestic and international resource allocation. In this way, the digital economy has a positive impact on the entire economy by promoting inter-industry integration, and pushing the economy towards high-quality development at a deeper level.

5. Conclusions and Recommendations

5.1 Conclusion

This paper discusses the logical relationship between digital economy, scientific and technological innovation and economic high-quality development, and constructs a theoretical framework of digital economy for economic high-quality development. According to the intrinsic meaning of the digital economy and high-quality economic development, we designed measurement indicators, selected the data of Zhejiang Province from 2013-2019, analyzed the dynamic evolution process of the digital economy and high-quality economic development by using the coupling model, and measured the degree of promotion of the digital economy to high-quality economic development from the whole by using the linear regression model, and finally analyzed the path of the digital economy to promote high-quality development of the economy by using the mediation effect model, and got the following conclusions: the digital economy has a significant role in promoting the development of economic quality. Finally, the mediation effect model is used to analyze the path of digital economy to promote high-quality economic development, and the following conclusions are obtained: the digital economy has a significant driving effect on high-quality economic development, and for every 1% increase in the level of digital economy, the level of high-quality development of the economy will be increased by 0.4694%; the digital economy improves the structure of resource allocation through the increase of high-end factor inputs, and improves the efficiency of resource allocation and synergy; the digital economy plays an important role as a mediator in promoting high-quality economic development; science and technology innovation plays an

important role as a mediator in promoting high-quality economic development. Science and technology innovation plays an important role as an intermediary variable. Unlike the traditional economy, science and technology innovation can eliminate old productive forces, bring in new technologies and derivative products and services, enhance productive forces, improve production relations, and promote high-quality economic development.

5.2 Recommendations

Zhejiang Province, as a strong economic province in China, its economic development situation has a reference significance for other provinces, based on this, the following suggestions are put forward: (1) Overall layout of digital economy development: The State should determine the connotation and concept of digital economy as soon as possible, formulate indicators related to digital economy, stipulate the types of digital industries, and divide the digital economy development areas for regions with different levels of economic development and put forward specific requirements. Support for chip and other high-tech industries, while avoiding ineffective investment. To create a "testing ground" for the digital economy, and to summarize the practical experience and results generated in the region and gradually extend them to other regions. (2) Innovative means of digital economy development: Digital facilities in different fields should be constructed with the participation of different subjects. Digital infrastructures for the benefit of the people and for the public good should be controlled by the government, while stimulating the enthusiasm of individuals and enhancing their willingness to participate, following the laws of the economy, and distinguishing the rights and responsibilities of the government. Continuous learning, mastering new technologies and development trends, improving the utilization rate and timeliness of results, and realizing the efficient development of the digital economy. (3) Driving the digital transformation of enterprises: Today, individuals are interconnected in real time with businesses, between businesses and even with society as a whole. Over the past decade or so, small and medium-sized enterprises (SMEs) have seen rapid growth and increasing demand for digitization. Driven by new technologies, embracing digitization means embracing innovation, i.e. improving core competencies. (4) Constructing digital transformation in the context of industrial Internet: applying new technologies, upgrading business models and iterative updating of products and services based on 5G, big data and cloud computing to realize intelligence and convenience; promoting the transformation of industries from offline to online, doing a good job of seamless integration, responding to market dynamics in a timely manner, and obtaining a new competitive advantage; and constructing an industrial Internet platform, integrating resources, and reducing the cost of resource allocation. (5) Enhancing the digital literacy of the entire population: Promoting educational reform, strengthening the cultivation of digital talents, adjusting the professional structure of institutions of higher learning, actively developing new professions, and promoting the integration of computer science with other professions; innovating in the cultivation of human resources, developing e-learning programs, enhancing online education, and gradually networking the teaching process; perfecting the system of science, technology, and innovation, and cultivating a sense of independent innovation and enhancing the ability to innovate on one's own. (6) Improve the regulatory system for the digital economy: strengthen guidance policies, encourage enterprises to "trial and error" and reduce the cost of "trial and error"; establish a risk prevention mechanism and strengthen the ability to control risks.

Conflict of Interest

The authors declare no conflict of interest.

References

1. Ding Yulong. The origin, connotation and measurement of digital economy: a literature review[J]. Social Science Dynamics, 2021(08):57-63.

2. Zou Shuisheng. Digital economy connotation, current situation and path analysis of driving new economy[J]. Science and Technology Economy Guide, 2021, 29(17): 209-210.
3. Henry D, Cooke S, Montes S. The Emerging Digital Economy [R/OL].（1998）[2017-02-28]. http://www.esa.doc.gov/sites/default/files/emergingdig_0.pdf.
4. LU Jingchi, YU Jiankun, LIU Mingyao. Research on the Evaluation of Digital Economy Development-Taking Yunnan Province as an Example[J]. Contemporary Economy, 2021(02):60-65.
5. Liang Yao. Research on the Impact of Digitalization Development Level on Industrial Structure Upgrading in Shaanxi Province [J]. Modern Business Industry, 2021, 42(17):12-13.
6. Duan square, Guo Junmao. The Heterogeneous Impact of Digital Economy on the Development of China's Distribution Industry-An Empirical Test Based on Prefecture-Level City Data[J]. Research on Business Economy, 2021(06):15-19.
7. Zhang Yuchuan, Qin Shanshan. An empirical study on the digital economy to promote regional economic growth-Based on 2010-2019 data of the long economic belt [J]. Logistics Technology, 2021, 40(01):56-62.
8. Ning Zhaoshan. Digital Economy, Factor Marketization and High Quality Economic Development[J]. Changbai Journal, 2021(01):114-120.
9. Li Xiaohua. New features of the digital economy and the formation mechanism of the new momentum of the digital economy[J]. Reform, 2019(11):40-51.
10. Li Xue, Wu Fuxiang, Zhu Lile. Digital economy and regional innovation performance[J]. Journal of Shanxi University of Finance and Economics, 2021, 43(05): 17-30.
11. Qi Yudong, Liu Cuihua, Ding Shulei. Development of Digital Economy, Employment Structure Optimization and Employment Quality Enhancement[J]. Economics Dynamics, 2020(11):17-35.
12. Duan Bo, Shao Chuanlin. Has the Digital Economy Exacerbated Regional Disparities? -Empirical evidence from 284 prefecture-level cities in China [J]. World Geography Research, 2020, 29(04):728-737.
13. WEN Zhonglin, YE Baojuan. Mediation effects analysis:Methods and model development[J]. Advances in Psychological Science, 2014, 22(05):731-745.
14. WANG Cheng, TANG Ning. Spatio-temporal characteristics and pattern evolution of the coupled spatial functions and coordination of the three livelihoods in rural Chongqing[J]. Geography Research, 2018, 037(006):1100-1114.
15. SUN Yu, JIANG Ningning, CUI Yin. Temporal and spatial evolution of the coordinated development of ecological civilization and urbanization in Beijing-Tianjin-Hebei[J]. China Population-Resources and Environment, 2020, 30(02): 138-147.
16. ZHANG Zhihe, GUO Xing, YI Lan. Innovation-driven mechanism for high-quality economic development[J]. Journal of Xi'an Jiaotong University (Social Science Edition), 2019, 39(06): 39-46.
17. Jing WJ, Sun BW. Digital economy for high-quality economic development: a theoretical analysis framework[J]. The Economist, 2019(02):66-73.
18. Ren Baoping. Logic, Mechanism and Path of Digital Economy Leading High-Quality Development[J]. Journal of Xi'an University of Finance and Economics, 2020, 33(02):5-9.
19. Song Yang. Digital economy and high-quality development in the perspective of economic development quality theory[J]. Guizhou Social Science, 2019(11):102-108.
20. Jin Beibei. An economic study on Hgh-Quality Development[J]. China Industrial Economy, 2018(04):5-18.
21. Luo Yihong. Analysis on the Mechanisms of Big Data, Artificial Intelligence, Blockchain and Other ICTs for High-quality Development of Digital Economy[J]. Quality Development Mechanism Exploration[J]. Guizhou Social Science, 2019(12):122-132.
22. Tian Li. Comparative study on the concept of digital economy in various countries[J]. Economic Research Reference, 2017(40):101-106, 112.
23. Huang Qunhui, Yu Yongze, Zhang Songlin. Internet development and manufacturing productivity improvement: internal mechanism and Chinese experience[J]. China Industrial Economy, 2019(08):5-23.