

## Rural Revitalization Driven by Digital Economy: Theoretical Explanation and Practical Path

Gang Li

School of Foreign Trade and Foreign Languages  
Guilin Institute of Information Technology  
Guilin, People's Republic of China  
e-mail: 492472199@qq.com

Jinghao Zhao, Zemin Hu, Lu Shi

School of business  
Guilin University of Electronic Technology  
Guilin, People's Republic of China  
e-mail: 492472199@qq.com

**Abstract**—If the country wants to rejuvenate, the countryside must be rejuvenated. Achieving rural revitalization requires an effective engine and continuous power. There is huge room for digital empowerment in the modernization of China's agriculture and rural areas, and the digital economy will become an effective engine and continuous driving force for rural revitalization. This paper sorts out the internal mechanism of the digital economy to promote rural revitalization, and on this basis puts forward the development path of driving rural revitalization with the digital economy, including: reshaping the rural digital ecology with new digital infrastructure, and activating rural human resources elements by improving new digital skills, to promote the transformation of rural industries by building a county-level industrial Internet, and empower rural characteristic industries with digital new technologies.

**Keywords**—digital economy; rural revitalization; mechanism; path

### I. INTRODUCTION

The digital economy is rapidly changing the world. With the large-scale development of cloud computing, big data, Internet of Things, industrial Internet, artificial intelligence and other technology applications, digital technology is being fully integrated into all fields and the whole process of human economy, politics, culture, society and ecological civilization construction with new concepts, new business forms and new models. In 2020, the scale of China's digital economy has reached 39.2 trillion yuan, accounting for 38.6% of GDP, and the growth rate has reached 9.7%, which is more than three times the GDP growth rate in the same period<sup>[1]</sup>. Under the impact, the digital economy still maintains its vitality, effectively promoting the high-quality development of China's economy.

The rapidly developing digital economy provides new ideas for promoting rural revitalization. In recent years, the rapid development of rural industries in various parts of China has achieved increasingly obvious effects in promoting agricultural efficiency and rural prosperity. However, the digital transformation of rural industries still faces many difficulties and problems, such as backward digital infrastructure and technology, shortage of agricultural digital technical talents, and low level of digitalization of rural industries<sup>[2-4]</sup>. The rapid development of the digital economy has brought new opportunities for high-quality rural development, and promoting the organic integration of the digital economy and agriculture and rural

areas has become a new way to realize the rural revitalization strategy. Therefore, this study intends to analyze the internal mechanism of the digital economy to empower the high-quality development of agriculture and rural areas, and to explore the practical path of China's rural digital construction in the future, in order to promote the digital economy to promote the development and revitalization of the countryside as a whole.

### II. THEORETICAL EXPLANATION

The development and revitalization of the countryside is reflected in many aspects such as economy, politics, society and culture, and the development of economy, politics and society is undoubtedly the main aspect. In the same way, digital economy, digital government and digital society are the three main lines, three engines, and three achievements of the digital age. The three promote and complement each other, forming the flywheel of rural development and jointly promoting rural development. Among them, the vigorous development of the digital economy has brought a huge leap in productivity, which has become the cornerstone of promoting the digital development of rural areas, and has provided material and technical conditions for the digital government and digital society<sup>[5]</sup>.

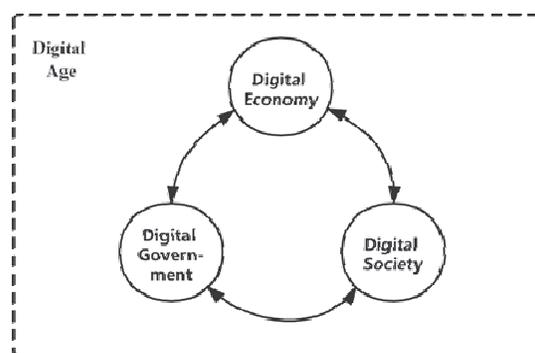


Figure 1. The three main lines of the digital age

The digital government improves the production relations of regional development and provides institutional guarantees for the development of the digital economy and digital society; the construction of the digital government will surely release more policy and reform dividends, and provide a strong impetus for regional development in terms of systems and policies. The digital economy and digital government serve the digital society.

The construction of the digital society directly reflects the level of rural digital development, and the development of the digital society will also significantly drive the development of the digital economy and force the construction of the digital government.

In the process of accelerating the modernization development of agriculture and rural areas and building a digital village, the digital economy, digital government, and digital society are the three main forces to realize the digital symbiosis and collaboration of economy, politics, society, culture, and ecological civilization construction in the rural operation system, accelerate the high-quality development of the rural economy, promote the modernization of the governance system and governance capacity, improve the level of public services and the quality of rural life, thus to drive rural revitalization.

The digital economy is a solid foundation and an important engine for promoting rural development<sup>[6-7]</sup>. The organic integration of the digital economy and agriculture is conducive to giving full play to the economic effects of digital technology in agricultural production, accelerating the construction of a modern agricultural industrial system, production system, and management system, complementing the shortcomings of rural development, and empowering rural revitalization and development. The digital economy can more effectively promote the intelligentization of agricultural production, the efficiency of agricultural operation and management, and the facilitation of agricultural information services<sup>[8]</sup>, further promote the two-way flow of urban and rural commerce and trade and the integration of value chains, and more effectively stimulate new supply and new kinetic energy. Models and new business formats can better help improve the quality and efficiency of "agriculture, rural areas and farmers", promote the digital transformation of the rural economy, promote the upgrading of rural consumption and the prosperity of cultural life, accelerate the modernization process of agriculture and rural areas, and achieve high-quality development of the rural economy.

The digital government provides policy guidance and balanced regulation for rural digital development. The digital government has undergone a transformation from a single e-government to digital governance, forming a rural digital governance model of institutional system, organizational synergy, mechanism aggregation, intelligent application, and citizen participation, and further transforming into a new situation of cross-domain model and interactive "digital and intelligent collaborative governance" through digital transformation of technology, organization, and behavior, and realize a leap in the modernization level of the rural governance system and governance capacity.

The digital society is the target demand and main task of rural digital development. The digital society is people-centered, expands the network of people's relationships, has a positive impact on the development of people's cognition and intelligence, and creates a more convenient, civilized and green living environment for digital citizens; digital production provides low-carbon, personalized, high-quality products and services, increase the opportunities for digital citizens to find jobs and start businesses in the countryside and accumulate wealth through multiple channels. The digital society urges rural

digital citizens to meet the dual upgrade expectations of material and spiritual needs, and the dual realization of personal and social values.

### III. PATH ANALYSIS

In view of the current situation of rural development in China, we can lay out the digitalization of rural industries from several aspects, such as new infrastructure for digital villages, rural digital talents, county-level industrial Internet, and rural characteristic industries.

#### **1. Reshape the rural digital ecosystem with new digital infrastructure**

The government can increase cooperation with telecommunications companies, further improve the construction of rural 5G technology infrastructure, and complete the digital transformation of rural infrastructure with a new generation of Internet application technology. These can be jointly promoted by the Investment Promotion Bureau and the Big Data Development Bureau.

At the same time, accelerate the construction of rural intelligent information sharing platform, relying on the local data center network, increase the intensity of agricultural data integration and platform integration. According to local conditions, comprehensively and scientifically plan the new digital, intelligent and networked pattern of rural areas, and through the construction of a collaborative, efficient and intelligent sharing platform, provide basic services such as smart logistics, smart finance, and online transactions for the rural economy, as well as optimize farmers' production and the digital state of life. For example, establish and improve the "Sannong (Village, Agriculture and Farmer) Big Data Platform", integrate the databases of agricultural departments and industries, and use modern remote sensing technology to form an all-round and three-dimensional data perception network to provide real-time and accurate data for agricultural production, livestock and poultry aquaculture, etc. Monitoring to help agricultural intelligent production decisions.

#### **2. Activate the elements of rural human resources by enhancing new digital skills**

In the era of digital economy, information technology has fully settled in the countryside, and the problem of insufficient "digital talents" has become increasingly prominent. To promote rural revitalization under the trend of digital development, it is necessary to cultivate a group of new-type farmers and rural builders with certain new digital skills<sup>[9]</sup>.

To carry out the cultivation of new professional farmers, we must first use various publicity platforms to continuously strengthen the "digital thinking" of farmers. Through easy and simple guided explanations, farmers in rural revitalization can be made aware of the importance and urgency of the digital development of rural economy, and actively participate in the learning of new digital skills; secondly, a rural digital skills training mechanism should be formed to vigorously cultivate "local talents" rooted in the countryside. Realize the help-style teaching of technology and experience, and can also use digital technology to make full use of these authoritative positions such as county-level financial media centers and national platforms for learning to strengthen the country, aggregate and share advantageous digital technology education

resources, and create special, practical and suitable "Cloud Classroom" for the majority of agricultural producers and rural builders.

Actively guide outstanding "digital talents" to go to the countryside, especially in some remote areas, where the foundation is weak and poor. It is even more necessary to adopt a flexible approach through the "flexible talent introduction" path of "not seeking every talent, but seeking useful ones". Talents go to the countryside to build a platform and contribute wisdom to the construction of digital villages.

### **3. Promote the transformation of rural industries by building a county-level industrial Internet**

With the development of informatization entering the deep water area, China's Internet industry model is changing from consumer Internet to industrial Internet. The application frontier of Internet technology has gradually taken root in the vast grass-roots counties, and the county-level industrial Internet that integrates the Internet and traditional industries in the county has emerged as the times require. The Internet has become an important starting point for developing the county economy and promoting the transformation of rural industries. Through the open and cooperative digital ecology, carry out the overall planning and construction of digital villages, and plan the county-level rural industrial Internet according to local conditions, including information infrastructure construction and the whole process of rural digital construction.

Information infrastructure construction is to build a complete county-level industrial Internet software and hardware facilities. All rural business data is migrated to the cloud, mainly including cloud servers, cloud storage resources, cloud algorithms, etc., which can provide fast and targeted computing power and analysis and processing capabilities, meet the basic deployment of reliable digital application systems, and have infrastructure availability and extensibility. Set up various Internet of Things equipment, including sensors, environmental control, video camera IOT, etc., to achieve dynamic data collection, detection, statistics, early warning throughout the whole process, and achieve refined real-time management. All agricultural information data can be transmitted and stored through block-chain technology, providing a basis for traceability.

The whole process of digital construction in rural areas is to promote the digitalization of the whole process of agricultural production, including planting, breeding, and sales<sup>[10]</sup>. Specifically include: ① digital planting agricultural planting scene, through various sensors, pest video monitoring equipment, water and fertilizer integrated system, agricultural machinery and agricultural equipment control, traceability system, to obtain meteorological farmland environmental detection data, soil moisture detection data, storage temperature and humidity, remote sensing images, etc. to realize the whole process data collection of agricultural scenes; ② with the help of various monitoring of digital breeding sites, environmental data (such as oxygen, ammonia content, temperature and humidity, light, etc.), production data, video data, egg & poultry signs and weights are obtained; ③ in terms of sales channels, it covers customer channel management, order management, supply chain management, in-transit and

warehouse monitoring, etc., providing basic data support for financial services.

### **4. Empower rural characteristic industries with new digital technologies**

Rural tourism resources are mainly natural scenic spots in China, and there are many natural landscapes distributed in rural areas, which brings unique tourism resource advantages to rural revitalization. The government could combine digital technology to create "one center and three platforms" for rural tourism, namely tourism big data center, tourist comprehensive service platform, comprehensive supervision platform and comprehensive operation platform; improve the digital infrastructure of tourist attractions and realize the supervision of the whole process of tourism.

At the same time, a new development model that realizes the deep integration of rural characteristic industries and digital business platforms can be explored. Accelerate the development of agriculture-related digital business platforms and open up the supply and demand market for agricultural products. All regions can cooperate with e-commerce platforms such as JD.com, Alibaba, and Pinduoduo to expand new ways of selling agricultural products and help the promotion of agricultural products in the region; with the advantage of data analysis and algorithmic e-commerce platforms, they can provide customer source analysis and user portraits for merchants in our region. It provides menu services such as sketching and sales forecasting, and then provides efficient information support for the healthy development of agricultural products.

## **IV. CONCLUSION**

The integration and interaction of the digital economy and agriculture and rural areas will bring about a breakthrough revolution and become a new driving force and new engine for rural revitalization. This paper summarizes the three main lines of the digital age: digital economy, digital government and digital society; the three promote each other and jointly drive the development of rural areas, making the high-quality development of the rural economy, the modernization of governance systems and governance capabilities, and the level of public services and rural areas. The quality of life has been continuously improved, and finally the comprehensive revitalization of the countryside has been realized. At the same time, based on the status quo of rural development in my country, this paper proposes four development paths for driving rural revitalization with digital economy, namely, reshaping rural digital ecology with new digital infrastructure, activating rural human resource elements with new digital skills, and building county-level industrial Internet promotion. The transformation of rural industries and the empowerment of rural characteristic industries with digital new technologies are expected to provide reference for rural development.

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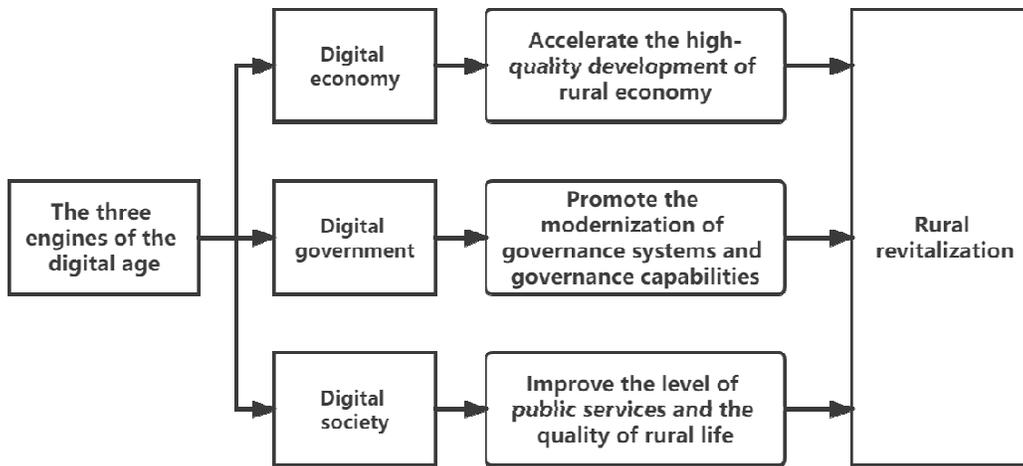


Figure 2. The basic framework for the digital economy to drive rural revitalization