

# Digital Economy Empowering Urban-Rural Integration Development in Wenzhou: Path Exploration and Practical Innovation

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## ABSTRACT

*This paper explores the empowerment of digital economy on urban-rural integration development in Wenzhou, which has important practical significance and theoretical value. The digital economy, characterized by virtuality, high innovation, and strong permeability, shows trends of intelligence, platformization, and cross-border integration. It can empower urban-rural integration through the flow and sharing of data elements. Wenzhou has achieved certain results in urban-rural integration but also has shortcomings. The digital economy in Wenzhou is developing well, with a characteristic industrial layout constructed, remarkable achievements in infrastructure construction, and an continuously improved innovation ecosystem, along with typical cases. Development paths such as strengthening the overall layout of digital infrastructure and safeguard measures such as policy coordination are proposed. Although there have been achievements, there are still problems. In the future, continuous investment and optimization are needed. The digital economy will help Wenzhou's urban-rural integration development, build a new integrated pattern, and provide experience for the whole country.*

**KEYWORDS;** Digital Economy, Urban-Rural Integration, Wenzhou, Development Path, Innovation Ecosystem

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## I. INTRODUCTION

A database is an assembly of meaningful information tabulated in such a way, that we can easily and quickly retrieve the appropriate result. The database management system is a general purpose software system that promotes the process of defining, constructing and manipulating database for various applications. A relational database management system (RDBMS) is a database management system (DBMS) that is based on the relational model invented by Edgar F. Codd, of IBM's San Jose Research Laboratory. Most databases in widespread use are based on the relational database model. A relational database is a set of tables containing data fitted into predefined categories. Each table (which is sometimes called a relation) contains one or more data categories in columns. Each row contains a unique instance of data for the categories defined by the columns. For example, a typical business order entry database would include a table that described a customer with columns for name, address, phone number, and so forth. The relational model offers various levels of refinement of the table relations called database normalization. Relational Databases have been providing the storage space support for many decades now with implementations like Oracle, MySQL, etc.[1]. Despite advances in computing, faster processors and high-speed networks, the performance of relational database applications is becoming slower and slower. RDBMS is not the best solution. Database schemas are very strict. When the data gets big, then the traditional SQL join operations may not work. Changes made to a single column will resound and would result in multiple changes. And finally, we need look into the mismatch occurring in different tables due to the changes done. With the intense demand to store huge volumes of information, it was a need to switch from relational databases to graph database

## Research Background and Significance

In today's era, digital technology and digital economy are the opportunities of the world's scientific and technological revolution and industrial transformation, and the key areas of a new round of international competition. Global informatization has entered a new stage of comprehensive penetration, cross-border

integration, accelerated innovation, and leading development. Developing the digital economy is becoming the consensus and a new highland of competition among countries around the world. China attaches great importance to the development of the digital economy and regards it as an important path to smooth the domestic cycle, strengthen the domestic and international double cycles, accelerate the construction of a new development pattern, and achieve high-quality development. The scale of the digital economy has grown from 11.2 trillion yuan in 2012 to 53.9 trillion yuan in 2023, expanding 3.8 times in 11 years, with a scale second only to that of the United States. China's digital infrastructure leads the world, having built the world's largest and technologically leading 5G network. The national network infrastructure fully supports IPv6, and the technology and service capabilities of fiber broadband networks have been significantly enhanced, with gigabit network services covering more than 500 million households, and the total computing power ranking second in the world, exceeding 230 EFLOPS.

Wenzhou, as an important birthplace of China's private economy, has long achieved remarkable achievements in manufacturing, commerce, and other fields with its pioneering entrepreneurial spirit and flexible market mechanism. However, in terms of urban and rural development, Wenzhou faces typical dual structure problems. From the perspective of economic data, in 2020, the per capita disposable income of urban residents in Wenzhou was 62,698 yuan, while that of rural residents was only 31,920 yuan, with a relatively obvious gap. In terms of public services, cities concentrate a large amount of high-quality educational and medical resources, while rural areas have significant shortcomings in facility equipment and service quality.

In this context, exploring the empowerment of digital economy on urban-rural integration development in Wenzhou has crucial practical significance. On the one hand, from the perspective of Wenzhou's own development needs, the digital economy provides innovative solutions to solve the problems of urban-rural integration. Through the in-depth application of digital technology, information asymmetry between urban and rural areas can be broken, the allocation of resource elements can be optimized, and the in-depth docking and coordinated development of urban and rural industries can be promoted, thereby narrowing the urban-rural gap, improving the overall development level of urban and rural areas, and injecting strong impetus into the sustainable economic and social development of Wenzhou. On the other hand, from the theoretical research level, in-depth analysis of the internal relationship, mechanism of action, and practical paths between the digital economy and urban-rural integration development in Wenzhou can enrich the theoretical system of urban-rural integration development, provide useful references for other regions, and promote the in-depth expansion of related academic research on urban-rural integration development in the digital economy era.

### **Research Purposes and Innovation Points**

This research mainly has the following purposes:

(1) Promote the practical development of urban-rural integration in Wenzhou. Analyze the mechanism of action of the digital economy in Wenzhou's urban-rural integration, summarize successful cases and experiences, identify existing problems, and formulate feasible development strategies for Wenzhou. With the help of the digital economy, narrow the gap between urban and rural areas in economy, public services, and infrastructure, promote the flow of factors and resource sharing, promote the integrated development of urban and rural areas, and enhance regional coordination.

(2) Enrich the theoretical system of digital economy and urban-rural integration. Currently, there are relatively few studies on the empowerment of digital economy on urban-rural integration in regions like Wenzhou with developed private economy and unique industries and cultures. This research enriches and expands the relevant theoretical framework through in-depth exploration of Wenzhou, provides empirical and theoretical references for subsequent research, and improves the academic system.

This research mainly has the following innovation points:

(1) Unique research perspective. Different from macro or general regional studies, this research focuses on Wenzhou, a characteristic region. Due to its active private economy, rich industrial clusters, and special urban-rural development situation, it deeply explores the combination of the digital economy with local industries, economy, and culture, providing references for similar cities.

(2) Comprehensive research methods. Integrate and innovate multiple research methods. Use literature research to sort out theories and current situations, obtain first-hand data through field research, combine case studies to analyze local typical cases, and use data analysis to quantify research conclusions, improving the scientificity and reliability of the research.

(3) Innovative strategies. Based on the actual situation of Wenzhou, propose innovative and feasible digital economy empowerment strategies. For example, in industrial integration, combine the advantages of traditional industrial clusters to create a digital collaborative platform to promote the docking of urban and rural industries; in factor allocation, use blockchain to build a digital trading platform to ensure the efficient and safe flow of urban and rural factors, providing new ideas for policy formulation.

**Research Technical Route**

The research technical route of this study is shown in Figure 1.

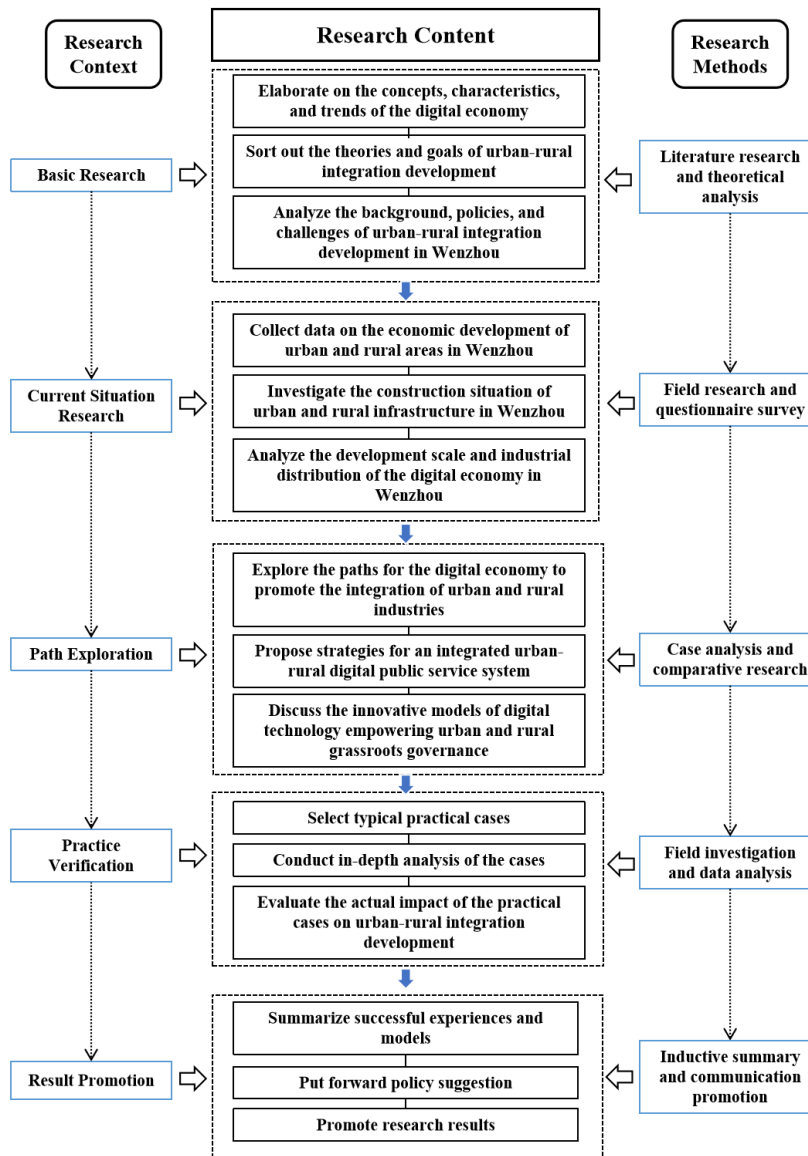


Figure 1 Research Technical Route

**II. Theoretical Basis of Digital Economy and Urban-Rural Integration Development**  
**Connotation, Characteristics and Development Trends of Digital Economy**

The digital economy is an economic form with digitized knowledge and information as key production factors, modern information networks as important carriers, and digital technology innovation as the core driving force[1][2]. It has significant characteristics: virtuality, most digital economic activities are carried out in the virtual cyberspace, breaking the traditional time and space limitations; high innovation, digital technology iterates rapidly, giving birth to a large number of innovative applications and business models; strong permeability, it can deeply integrate with traditional industries and change various links such as production, management, and marketing.

Currently, the digital economy shows trends of intelligence, platformization, and cross-border integration. Artificial intelligence technology is widely used in production and manufacturing, logistics and distribution, and other fields to achieve intelligent production and management[3]. Various digital platforms continue to emerge, such as e-commerce platforms and sharing economy platforms, which integrate resources and promote efficient docking of supply and demand. At the same time, the digital economy promotes cross-border integration between different industries, such as the integration of manufacturing and service industries to form an intelligent manufacturing service model[4].

### **Theoretical Origin and Goal Orientation of Urban-Rural Integration Development**

The theory of urban-rural integration development originated from the reflection on the urban-rural dual structure[6]. Early theories of urban-rural relations mostly emphasized the opposition between urban and rural areas. With the development of economy and society, scholars gradually realized the interdependence between urban and rural areas. Marx proposed the idea of urban-rural integration, believing that with the high development of productive forces, the differences between urban and rural areas will gradually disappear.

The goal of urban-rural integration development is to build a new pattern of integrated urban-rural economic and social development. In the economic aspect, achieve coordinated development of urban and rural industries, realize the transformation and upgrading of rural industries, and form complementary advantages with urban industries; in the social aspect, promote urban and rural residents to enjoy equalized public services in employment, education, medical care, etc., improve the quality of life of rural residents, and narrow the gap in living standards between urban and rural residents; in the spatial aspect, break the boundaries between urban and rural areas, realize the interconnection of urban and rural infrastructure, and the free flow of factors[7].

### **Mechanism of Digital Economy Empowering Urban-Rural Integration Development**

The digital economy injects new impetus into urban-rural integration development through the flow and sharing of data elements. In terms of industrial development, data, as a new production factor, can tap market demand and give birth to new business forms such as rural e-commerce and digital agriculture[8]. For example, rural e-commerce platforms use big data analysis of consumer preferences to guide farmers to produce marketable agricultural products, improving agricultural production efficiency and market competitiveness.

In terms of resource allocation, the digital economy optimizes the efficiency of urban-rural resource allocation[9]. Through digital platforms, elements such as urban talents, technologies, and funds can flow to rural areas more conveniently. Taking rural entrepreneurship as an example, entrepreneurs can attract urban investment and obtain technical support through online platforms, promoting rural innovation and entrepreneurship development. In the field of public services, digital technology promotes the integration and sharing of urban-rural public service resources, such as telemedicine and online education, improving the level of rural public services and promoting the equalization of urban-rural public services[10].

## **III. Current Situation of Urban-Rural Integration Development in Wenzhou**

### **Overview of Urban and Rural Development in Wenzhou**

Wenzhou is located on the southeast coast of Zhejiang and is one of the birthplaces of China's private economy. In recent years, under the guidance of the urban-rural integration development strategy, remarkable achievements have been made.

In the economic aspect, Wenzhou's private economy has flourished, forming multiple advantageous industrial clusters such as electrical appliances, footwear and clothing, and pumps and valves. Electrical enterprises such as Chint and Delixi have products sold well at home and abroad, and footwear and clothing brands such as Aokang and Red Dragonfly also occupy an important share in the domestic market. In 2023, Wenzhou's regional GDP reached 873.06 billion yuan, an increase of 187.7 times compared with 1978, with an average annual growth rate of 12.3%, and the private economy has made great contributions. At the same time, the rural economy has also grown steadily driven by characteristic agriculture and rural tourism. Characteristic agricultural products such as Cangnan tomatoes and Yueqing *Dendrobium officinale* have entered the national market through e-commerce, and rural tourism in Yongjia, Wencheng, and other places is booming, with homestays and rural tourism emerging one after another.

In the social development field, the income gap between urban and rural residents in Wenzhou has continued to narrow, from 2.87:1 in 2002 to 1.91:1 in 2022. The income and consumption expenditure of rural residents have both increased significantly, and the quality of life has improved. Educational resources have been tilted towards rural areas, and "Internet + Education" has helped achieve educational balance. The medical security system has become increasingly sound, and the county-level medical community has achieved remarkable results. In terms of cultural construction, urban cultural venues are open for free, and rural cultural auditoriums have enriched the spiritual life of villagers.

Infrastructure construction has been continuously optimized. The urban rail transit lines S1 and S2 have been opened, forming an efficient transfer system with buses and other means of transportation. Highways extend in all directions, and the achievements of the "Four Good Rural Roads" in rural areas are remarkable, with full coverage of urban-rural public transportation integration. In the field of information and communication, the construction of 5G base stations has been vigorously carried out, and the network coverage rate and speed have been improved.

However, there are still shortcomings in Wenzhou's urban-rural integration development. In terms of industrial structure, the coordination of urban and rural industries is insufficient, and a deep complementary industrial chain has not been formed; in terms of factor flow, the loss of rural talents and funds is serious; in

terms of equalization of public services, there are gaps in urban and rural educational and medical resources; in the field of ecological environment, the task of rural non-point source pollution control is arduous, and the synergy with urban ecological protection needs to be strengthened[7].

### **Policy Measures and Practical Results of Urban-Rural Integration Development**

In recent years, Wenzhou has actively promoted urban-rural integration development and introduced a series of policy measures. In terms of the rural revitalization strategy, it has increased support for the development of rural industries and cultivated characteristic agricultural industries, such as the bayberry industry in Wencheng County and the tea industry in Taishun County. By holding agricultural product exhibitions and e-commerce live broadcasts and other activities, it has broadened the sales channels of agricultural products and promoted farmers' income increase.

In terms of urban-rural infrastructure construction, it has promoted the integration of urban and rural transportation and increased the construction and renovation efforts of rural roads. For example, the implementation of the "Four Good Rural Roads" construction in Ouhai District has improved rural transportation conditions and facilitated the transportation of agricultural products and the travel of farmers. At the same time, it has strengthened the construction of rural water conservancy, electricity, and other infrastructure to improve rural production and living conditions.

In practice, certain results have been achieved. Some rural areas have achieved rapid economic growth by developing characteristic industries. For example, some villages in Yongjia County have developed rural tourism and created a homestay economy, attracting a large number of tourists and driving the development of local catering, retail, and other related industries. The construction of urban-rural transportation integration has improved the logistics and transportation efficiency in rural areas, reduced logistics costs, and promoted economic exchanges between urban and rural areas.

### **Analysis of Challenges and Problems**

Although Wenzhou has achieved certain results in urban-rural integration development, it still faces many challenges in the process of digital economy empowerment.

In terms of industrial integration, the digital coordination of urban and rural industries is difficult. The digital transformation of urban industries is rapid, while the digitalization degree of rural industries is low. The application scope of digitalization in agricultural production is small, and the digital connection in the processing and sales links is poor. The docking between "small farmers" and "big markets" is traditional, and the development of e-commerce and logistics lags behind, making it difficult to form an efficient industrial chain.

In terms of factor flow, the problem of unbalanced allocation is prominent. Rural areas lack digital talents, and young people flow out seriously. The digital skills of left-behind farmers are insufficient, and funds mostly flow to cities. Rural digital infrastructure and industrial incubation funds are in short supply, and the service supply of financial institutions is insufficient, hindering the development of rural digital economy.

In infrastructure construction, the urban-rural digital divide is significant. Urban network upgrades are fast, with the popularization of 5G and gigabit broadband and strong computing power of data centers; in remote rural mountainous areas, network signals are unstable, bandwidth is insufficient, and logistics and distribution are poor, restricting the development of digital economy-related businesses.

In the supply of public services, the digital empowerment of urban and rural areas is uneven. The digitalization achievements of urban public services such as government affairs, education, and medical care are remarkable, while rural areas start late and progress slowly, with low usage rates of government affairs platforms and backward information equipment and skills in education and medical care, resulting in insufficient sense of gain for rural residents.

The root cause of these problems lies in the inadaptation of the urban-rural dual system to the requirements of digital economy development. Systems such as household registration, land, and finance restrict the free flow of factors, and the traditional performance appraisal system is unfavorable to the development of rural digital economy, which urgently needs to be solved from the institutional and mechanism levels.

## **IV. Development Trend of Digital Economy in Wenzhou**

### **Overall Scale and Industrial Layout of Digital Economy**

In recent years, the digital economy in Wenzhou has developed rapidly and has become a key force in promoting the high-quality development of the regional economy. In 2023, the added value of its digital economy core industries reached 68.92 billion yuan, ranking fourth in the province, accounting for 7.9% of GDP, ranking third in the province, and having a strong driving force for overall economic growth.

In terms of industrial layout, Wenzhou has constructed a digital industrial spatial pattern of "One Corridor, Two Cores, and Multiple Points". "One Corridor" refers to the Wenzhou Eastern Digital Industry

Development Corridor, covering areas such as Lucheng and Longwan (Wenzhou Bay New Area), focusing on the development of cutting-edge core industries such as artificial intelligence, high-end software, integrated circuits, intelligent Internet of Things, metaverse, flexible electronics, and future networks. It is the frontier of innovation and development, gathering a large number of high-tech enterprises and research institutions, and continuously generating new technologies and new business forms. Among the "Two Cores", the northern core takes Yueqing as the core, relying on the strong electrical industry foundation, deeply integrating traditional electrical industries with digital technologies, developing industries such as intelligent Internet of Things, and promoting the high-end development of industries; the southern core takes Ruian, Pingyang, and Cangnan as the core, focusing on areas such as high-end software and intelligent Internet of Things, giving play to the advantages of regional industrial coordination, and creating a new growth pole for the digital industry. "Multiple Points" means that Lucheng, Longwan, and other places create multiple digital-real integration development poles such as smart fashion, intelligent electrical appliances, intelligent connected vehicles, intelligent pumps and valves, intelligent printing and packaging machinery, smart home, intelligent environmental protection and transportation equipment, and intelligent instrumentation according to their own industrial characteristics, allowing the digital economy to integrate into various industries and helping traditional industries transform digitally, forming a digital economy industrial layout system with distinctive characteristics and coordinated and efficient operation.

### **Progress in Digital Infrastructure Construction**

In terms of digital infrastructure construction, Wenzhou has achieved remarkable results, laying a solid foundation for the digital economy and urban-rural integration development.

In network infrastructure, more than 26,000 5G base stations have been built, achieving full coverage of administrative villages and key places. The proportion of 10GPON ports in cities exceeds 50%, and the proportion of users with 500M and above is nearly 40%, with the popularization of gigabit networks, meeting the network needs of all parties.

The construction of data centers has achieved outstanding results. The Zhejiang Yungu Rock Data Center, the largest data center in southern Zhejiang, northern Fujian, and eastern Jiangxi, has been put into use, which can provide 4,000 racks and a peak computing power of 3.19PFlops. According to the plan, by 2025, the total number of racks in Wenzhou's data centers will reach more than 18,000, enhancing the "computing power base".

In the application and integration development of new technologies, Wenzhou vigorously supports industrial enterprises to build industrial Internet platforms, promoting the integration of manufacturing and the Internet. At the same time, new technologies such as cloud computing and artificial intelligence are deeply integrated with fields such as government affairs, medical care, and education. Applications such as "One Network for All Services" and "Telemedicine" make urban operation more efficient and residents' lives more convenient, accelerating the process of urban-rural digitalization, intelligence, and integration.

### **Construction of Digital Economy Innovation Ecosystem**

Innovation is the driving force for the development of the digital economy. Wenzhou is making every effort to build an innovation ecosystem to promote urban-rural integration.

In terms of scientific research investment, the government guides enterprises, universities, and scientific research institutions to jointly tackle key problems. Large enterprises such as Chint and Huafeng take the lead in increasing R & D investment, and many small and medium-sized enterprises also actively participate. Local universities jointly build laboratories and research institutes with digital giants such as Alibaba Cloud and Huawei to promote the transformation of scientific research results.

In terms of talent introduction and cultivation, Wenzhou has introduced preferential policies to attract high-end talents from aspects such as housing and education. For example, it provides high-level talents with housing subsidies of up to one million yuan to solve their worries. At the same time, universities and vocational colleges dynamically adjust their majors according to industrial needs and adopt the school-enterprise cooperation "order-based" training model to deliver practical digital skills talents to enterprises, with more than 10,000 graduates every year, enriching the grass-roots strength of the digital economy talent team and meeting the different levels of talent needs in urban and rural digital industries.

In terms of platform construction, high-level industrial platforms such as "One Port and Five Valleys" have emerged. For example, China (Wenzhou) Data Security Port and International Cloud Software Valley have attracted many enterprises to settle in. Maker spaces, incubators, and accelerators are scattered throughout urban and rural areas, providing one-stop services such as low-cost office space, entrepreneurial guidance, and investment and financing docking for start-up digital enterprises, such as Wenzhou University Entrepreneurship Park and Ouhai Science and Technology Innovation Park. These measures help small and micro digital

enterprises grow, forming a situation of coordinated innovation between urban and rural areas and continuously empowering the urban-rural integration development in Wenzhou.

## **V. Typical Cases of Digital Economy Empowering Urban-Rural Integration in Wenzhou**

### **Case of Digital Agriculture Leading Rural Industrial Revitalization**

An agricultural park in Wenzhou actively introduced Internet of Things technology to create an intelligent agricultural production model. In the park, a large number of sensors were installed to monitor environmental parameters such as soil humidity, temperature, and light in real time. Through data analysis, the production links such as irrigation and fertilization were precisely controlled, improving the utilization efficiency of water resources and fertilizers. The output of agricultural products increased by 20%, and the quality also improved significantly.

In the sales link, the park built an e-commerce platform and cooperated with well-known e-commerce platforms such as Taobao and Pinduoduo to carry out live streaming activities for agricultural products. Through brand building, the agricultural products in the park were made into green and high-quality brands, and the products were sold well across the country. According to statistics, the e-commerce sales volume grows at an annual rate of 30%, driving more than 500 farmers in the surrounding areas to increase their income, with an average increase of more than 5,000 yuan per person, effectively promoting rural industrial revitalization.

### **Case of Digital Technology Empowering Urban-Rural Grassroots Governance**

A district in Wenzhou used technologies such as big data and artificial intelligence to build a smart community governance platform. The platform integrated data resources from multiple departments such as public security, civil affairs, and urban management to achieve information sharing and collaborative work. Through face recognition technology, community access control management was strengthened to improve community security. Using big data analysis of residents' needs, public services were accurately provided. For example, according to the distribution of the elderly in the community, the layout of elderly care service facilities was reasonably planned.

After the platform was put into operation, the efficiency of grassroots governance was greatly improved, and the time for handling contradictions and disputes was shortened by 50%. Residents can handle social security, medical insurance, and other businesses online through mobile apps, achieving "zero errands" for public services, and the residents' satisfaction rate increased from 80% to 95%.

### **Case of Digital Platform Driving Urban-Rural Industrial Collaborative Development**

A digital economy platform in Wenzhou integrated upstream and downstream resources of the urban-rural industrial chain. In the manufacturing aspect, the platform connected urban footwear and leather, clothing manufacturing enterprises with rural raw material suppliers and processing enterprises. Through the platform, manufacturing enterprises could grasp real-time information on raw material inventory and prices to achieve precise procurement. Rural processing enterprises could obtain orders and improve production efficiency.

Taking the footwear and leather industry as an example, the platform promoted the collaborative development of design, production, and sales links. Urban design companies passed design schemes to rural processing enterprises through the platform, and the processing enterprises produced according to the requirements. The products were sold to all parts of the country through the platform. This platform drove the development of more than 500 upstream and downstream enterprises, significantly improving the overall competitiveness of the industry and realizing the collaborative development of urban and rural industries.

## **VI. Development Paths of Digital Economy Empowering Urban-Rural Integration in Wenzhou**

### **Strengthening the Overall Layout of Digital Infrastructure**

Increase investment in rural digital infrastructure construction and set up special funds for rural network upgrades, data center construction, etc. Improve the quality and speed of rural network coverage, aiming to achieve a rural 5G network coverage rate of 60% within the next three years. Coordinate the construction of urban and rural data centers, cloud computing, and other infrastructure to build an integrated urban-rural digital infrastructure system. While building large cloud computing centers in cities, build edge data centers in counties to provide data storage and computing services for rural areas and provide basic support for the application of digital economy in urban-rural integration development.

### **Driving the In-depth Integration of Urban and Rural Industries with Digital Technology**

Use digital technology to transform and upgrade rural traditional industries. In the agricultural field, promote intelligent planting and breeding technologies and build smart farms and smart breeding farms. Cultivate new business forms such as rural e-commerce and digital agriculture, build agricultural product e-commerce live streaming bases, and train rural e-commerce talents. Promote the digital docking of urban

manufacturing and rural industries and establish an industrial collaborative platform. For example, in the clothing industry, urban enterprises are responsible for design and brand marketing, and rural enterprises carry out processing and manufacturing through digital production equipment to create a digital industrial chain of urban-rural coordination and promote industrial integration development.

#### **Optimizing the Digital Allocation Mechanism of Resource Elements**

Establish an urban-rural factor digital trading platform to integrate information on elements such as talents, funds, and land. In terms of talents, release information on rural employment and entrepreneurship positions through the platform to attract urban talents to go to the countryside. In terms of funds, build a rural financial service platform, introduce financial institutions, and provide online credit services for rural enterprises and entrepreneurs. Innovate the digital allocation mode of land elements and use blockchain technology to achieve open and transparent transactions in rural land transfer to improve the utilization efficiency of land resources and provide factor guarantees for urban-rural integration development.

#### **Building an Integrated Urban-Rural Digital Public Service System**

Integrate urban and rural public service resources such as education, medical care, and culture to build a digital public service platform. In the education field, carry out pairing assistance between urban and rural schools and share high-quality course resources through online education platforms. In the medical field, establish a telemedicine service system, and the urban tertiary hospitals and rural primary medical institutions can achieve interconnection through the telemedicine system, and experts can conduct remote consultations. Realize the online supply of public services through the platform, such as online appointment registration and social security payment, improve the accessibility and quality of public services in rural areas, and narrow the gap in urban-rural public services.

#### **Promoting the Innovation Practice of Urban-Rural Grassroots Digital Governance**

Use technologies such as big data and blockchain to innovate the urban-rural grassroots governance model. Establish a digital governance platform to integrate information on urban management, social security, environmental protection, etc. Use big data analysis for risk warning, such as optimizing urban traffic congestion management by analyzing traffic data. In rural areas, use blockchain technology to achieve village affairs disclosure and democratic management to improve the grassroots governance capacity and level. At the same time, strengthen network security protection to ensure the safe and stable operation of the digital governance platform and create a good social environment for urban-rural integration development.

## **VII. Policy Suggestions and Safeguard Measures**

### **Policy Coordination Support**

The government should introduce a series of policies to support the empowerment of digital economy on urban-rural integration development. In terms of industrial policies, give tax incentives, financial subsidies, and other support to rural digital economy-related industries. Strengthen the coordination and cooperation among various departments, establish a working coordination group composed of departments such as the Economic and Information Technology Bureau, the Agricultural and Rural Affairs Bureau, and the Science and Technology Bureau, and regularly study and solve problems in the empowerment of digital economy on urban-rural integration development. Set up special support funds and invest 500 million yuan every year to encourage enterprises to participate in urban-rural digital economy projects and promote the implementation and effectiveness of policies.

### **Talent Support and Guarantee**

Formulate digital economy talent cultivation and introduction plans. Strengthen cooperation with universities and vocational colleges, offer digital economy-related majors in universities, and carry out digital skills training in vocational colleges. Jointly establish internship and training bases with enterprises to cultivate practical digital economy talents. Introduce preferential policies such as providing talent apartments and housing subsidies to attract outstanding digital economy talents from other places to Wenzhou for development. Set up a talent reward fund to reward talents who have made outstanding contributions in the digital economy field and provide talent guarantee for the empowerment of digital economy on urban-rural integration.

### **Strengthening Safety and Supervision**

Strengthen the construction of the digital economy security guarantee system, establish a network security monitoring and early warning mechanism, and conduct regular network security inspections. Ensure data security, formulate data security management measures, and standardize the collection, storage, use, and other links of data. Establish and improve the digital economy supervision mechanism, strengthen the



supervision of digital platforms, e-commerce enterprises, etc., crack down on illegal acts such as network fraud and infringement, regulate the market order, and create a healthy and orderly digital economy development environment.

### **VIII. Conclusions**

Through the research on the empowerment of digital economy on urban-rural integration development in Wenzhou, it is found that the digital economy plays an irreplaceable role in promoting the integration of urban and rural industries, optimizing resource allocation, and equalizing public services in Wenzhou. By strengthening the overall layout of digital infrastructure, promoting the in-depth integration of urban and rural industries, optimizing the digital allocation mechanism of resource elements, building an integrated urban-rural digital public service system, and innovating the urban-rural grassroots digital governance model, the barriers of the urban-rural dual structure can be effectively broken, and the free flow of urban and rural factors, resource sharing, and coordinated development can be promoted.

Under the strong support of safeguard measures such as policy coordination, talent support, and safety supervision, the empowerment of digital economy on urban-rural integration development in Wenzhou has a solid foundation and a good development environment. However, there are still many problems and challenges at present, such as the need for further improvement of rural digital infrastructure, insufficient depth and breadth of industrial digital transformation, and shortage of digital economy professionals. In the future, Wenzhou needs to continue to increase investment in the digital economy field, continuously optimize the policy environment, and strengthen talent cultivation and introduction to deal with these challenges.

Looking forward to the future, with the continuous development and maturity of emerging digital technologies such as 5G, artificial intelligence, and blockchain, the digital economy will inject stronger impetus into the urban-rural integration development in Wenzhou. On the one hand, rural areas are expected to achieve leapfrog development with the help of digital technology, deeply transform and upgrade traditional industries, and vigorously develop emerging industries, further narrowing the economic gap with cities. On the other hand, digital technology will promote the all-round and in-depth integration of urban and rural public services, and high-quality resources in education, medical care, culture, and other fields can be more fairly and efficiently shared by urban and rural residents.

At the same time, we should continuously pay attention to new problems brought about by the development of the digital economy, such as data privacy protection and network security risks, and timely formulate corresponding policies and regulations to deal with them. In addition, strengthening exchanges and cooperation with advanced regions at home and abroad, learning from their successful experiences, and continuously exploring new models and new paths suitable for the empowerment of digital economy on urban-rural integration development in Wenzhou will be the key to achieving high-quality urban-rural integration development in Wenzhou. It is believed that under the guidance of the digital economy, Wenzhou will gradually build an integrated development pattern of urban and rural economic prosperity, social harmony, and ecological livability, providing replicable and promotable valuable experience for the national urban-rural integration development.

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