

The Current Situation and Countermeasures of Digital Rural Construction in Jilin Province

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Abstract: In order to accelerate the digital rural construction of Jilin province, completely eliminate the "digital gap" between urban and rural areas, and comprehensively promote the agricultural and rural modernization of Jilin province, it is necessary to realize the deep integration of digitization and development of rural construction, rural governance, and focus on promoting the transformation and upgrading of rural economy, so as to provide new momentum for rural revitalization. This paper mainly analyzes the current situation and difficulties of digitally empowering rural construction in Jilin province, and puts forward countermeasures for digital rural construction in Jilin province.

Keywords: Digital rural construction, Rural revitalization, Dilemma, Countermeasure

1. The importance of digital rural construction

1.1 Eliminating the digital gap between urban and rural areas, and promoting rural economic development

Rural information infrastructure construction ensures convenient quality of life for farmers and strengthen rural livelihood security. The urban and rural resources is integrated, which achieves construction and sharing of urban and rural resources by utilizing the internet. In order to achieve relative connectivity of urban public services, to solve the problem of uneven rural resources, and to optimize the rural public service system, the government need to build a comprehensive platform for smart healthcare, education, and people's livelihood. To solve the problem of urban-rural development imbalance, we will make full use of resource allocation, promote urban-rural information, logistics, technology, and other solutions. Digital platforms not only promote agricultural products, but also enhance their added value and market competitiveness. It is also important for promoting the development of new formats such as rural e-commerce and broadening the economic channels for farmers.

1.2 Realize modernization of agriculture and rural areas, and assist in rural revitalization

Since 2020, China has formulated the digital agriculture and rural development plan (2019-2025). Until now, 22 provinces including Zhejiang, Jiangsu, Hunan, and Guangdong have successively issued policy documents on digital rural development.

Digital rural areas are applied in the development of agriculture, rural economy and society through networking, information, and digitization. The construction of rural network cultural platforms can promote traditional rural culture, promote the timeliness of digital policies, and innovate digital models for rural life, production, ecology, and other aspects through digital means. Farmers achieve modern living from those ways such as the acceleration of digital rural construction, and the construction of public service facilities in areas such as healthcare, education, and elderly care.

2. The achievement of digital rural construction in Jilin province

2.1 Digital technology of Jilin province promotes the development of agriculture with high quality

5G+ smart agriculture continued to strengthen the construction of digital and information technology, took the lead in achieving the full coverage of 1,000 million wide networks in rural areas, realized the intelligent irrigation and fertilization, monitoring, regional environment and land quality monitoring of rural agricultural bases, and improved the efficiency of agricultural production and management.

Through AI, big data, internet of things and other technologies to improve the survival rate of breeding in the directional cultivation of seeds, achieve intelligent intervention in crops, dynamic and accurate feeding in animal husbandry, remote disease diagnosis and treatment, and product quality traceability. Using virtual technology to experience agricultural products, it is possible for leisure agriculture and rural tourism online. Through digital technology to match the financial, insurance, credit needs, it is also easily for controlling financial risk and assessing insurance survey loss.

2.2 The pilot construction of "digital village" in Jilin province, promoting the continuous upgrading of rural digital transformation

In 2021, the pilot construction of "digital village" was launched in Jilin province. The first batch of construction completed the "digital village" pilot in 12 counties. Now 3 counties (districts) including Tiedong district in Siping, Hunjiang district in Baishan and Dongfeng county in Liaoyuan in Jilin province have completed the construction and application of 350 "digital villages".^[1] In 2023, the construction of 18 new "digital village" pilots was completed, and three level platforms for counties and villages was built. The application of registration of various production and operation entities of "Jinong code" was also organized, and the construction of both software and hardware, and application services for the "digital village" pilot was carried out.

2.2.1 Digital rural construction platform to enhance the comprehensive governance capacity

The "cloud platform of Jilin digital agriculture rural" was developed. 31 plates and 128 application services were integrated in the mobile terminal "Jinong code". It is a comprehensive agricultural service platform integrating "food, housing, transportation, tourism, shopping and entertainment". The platform includes several modules such as characteristic rural products, rural homestay, popular scenic spots online, etc. the features in the geographical location of rural areas show diversified characteristics, which can let more people understand the local culture.

Through the "Jinongyun" live platform, the online training and guidance of experts for seed selection, fertilizer selection, seedling raising, agricultural product production, policy support, animal husbandry and other aspects were realized. The innovative mode of digital agricultural rural construction and operation management consistent with the situation of Jilin province was continuously explored.

2.2.2 Visualization of digital rural supervision and improvement of digital rural governance

The grid comprehensive governance was incorporated into the platform, and the timed and directional cruise of UAV was used to achieve environmental supervision, forest fire prevention, and straw burning. The grid management and integral system were used to improve the efficiency of grassroots work, the accuracy of policy implementation, and the convenience of assistance services.

3. The problems and difficulties in promoting the construction of digital countryside in Jilin province

3.1 The improved infrastructure of digital rural construction, and the unstable foundation of digital rural construction

With the phased achievements in promoting the construction of "digital Jilin" in Jilin Province, 34,000 5G base stations were built, and the 4G network was fully covered. The infrastructure of "Jilin Xiangyun" big data platform and "two places and three centers" was formed. One platform can carry out the whole process of online approval, and become the only platform for five levels of provinces, cities and counties in the country to use a set of systems.

However, the challenge is digital technology means because the data resource development and application capacity in rural areas is relatively insufficient, the data integration capacity is insufficient, the rural data resources are scattered, the agricultural digital transformation level is lower than that of industry and commerce, and the use ability of management personnel in rural grassroots for digital facilities is relatively backward.

3.2 The brain drains of digital rural construction and the aging population increase

3.2.1 The loss of population in Jilin province

According to the statistical data of Jilin provincial bureau of statistics on national economic and social

development of Jilin province, at the end of 2018, the total population of the province was 27.0406 million, and the urban population of Jilin province was 15.5565 million, accounting for 57.53% of the total population of Jilin province. The rural population of Jilin province was 11.4841 million, accounting for 42.47% of the total population of Jilin province. In the statistical data of 2022, the total population in the province was 23.4769 million, of which the urban population was 14.9618 million, accounting for 63.73%, and the rural population was 8.5151 million, accounting for 36.27%. From 2018 to 2022, the data of the past five years shows that the total population of the province decreased by 3.5,637 million, the urban population increased by 6.2%, and the rural population decreased by 6.2%. From the perspective of data distribution, the population loss of the whole province is increasing, and at the same time, the rural population is gradually moving to urban areas.

3.2.2 The aging population is increasing

The rural youth brain drains and the rural stay at home are mostly children and the elderly. Even if there are digital professionals to explain digital technology, it is difficult to deeply understand and master digital technology from the perspective of using internet technology to develop agricultural and scientific management and production activities due to the limited acceptance ability of the elderly and children. Now, the rural areas in Jilin province are lack of professionals who can meet the needs of digital rural construction and development, leading to the business philosophy and mode of agricultural production in Jilin province cannot be improved, hindering the comprehensive development of digital rural construction in Jilin province.

3.3 The uneven development of urban and rural areas, and the difficult implementation of rural digital construction

Most of the rural practitioners live far away from the city, and many aspects such as urban daily life, living convenience, education level and medical condition level are better than rural areas. The rapid economic development leads to more and more rural young talents entering the city. The convenient lifestyle makes them more willing to stay in the city, which exacerbates the imbalance of urban and rural development.

3.3.1 The per capita disposable income gap between urban and rural residents is obvious

According to the statistical bulletin of national economic and social development in Jilin Province in 2022, the per capita disposable income statistics of urban and rural residents in 2018-2022.

From the data, the per capita disposable income of rural residents increased year by year, but the increasing range was relatively small. From 2022, the per capita disposable income of urban residents was 35,471 yuan, decrease by 175 yuan from 2021, with a decrease rate of 0.5%. From the perspective of the overall trend, the per capita disposable income of urban residents in the province continued to increase; It can be seen that with the continuous development of the economy, the income and expenditure level of urban and rural residents has also been improved correspondingly, but the income gap between urban and rural areas is relatively large.^[2]

3.3.2 Education level of urban and rural areas in the province

According to the document "Bulletin of the seventh national census of Jilin province" (No. fourth) issued by the Jilin Provincial Bureau of statistics on May 24, 2021, the data as of zero hours on November 1, 2020.

From the data, among the number of people with various types of education in each city (prefecture) per 100,000 population, the population with university (refers to junior college and above) education is 4,029,488, and the population with junior high school education is 9,204,361. It can be seen that the population with a lower education level accounts for a large proportion. There is a lack of talents in promoting the construction of digital countryside.

3.3.3 The medical and health level of urban and rural areas in Jilin province

According to the data of national medical services in November, 2022 released by Jilin provincial health information center, the number of medical workers in hospitals in Jilin province was 4.81 million, and the number of medical workers in township health centers was 463,000, township health centers and county-level hospitals undertake outpatient and inpatient services^[3], leading to high medical costs for rural residents; The service ability of township medical workers is insufficient, and the theoretical knowledge and practical ability of basic medical care is relatively weak. The lack of large-scale professional medical equipment resources, poor medical and health conditions, and incomplete medical

security system lead to the lack of rural medical digital construction.

3.3.4 Unreasonable rural industrial structure

Agriculture is the basic industry of Jilin Province, and the rural area is mainly based on agricultural industry. The level of agricultural digitization is not high, and the type of service industry is unitary, which does not exploit the huge potential of the third industry to attract employment.

According to the data of Jilin provincial statistical yearbook in 2022, the number of employments in the province was 12.2844 million, the number of urban employments was 7.1821 million, the number of rural employments was 5.102 million, in 2021. The number of employments in the first industry was 4.5383 million, the number of employments in the second industry was 1.8118 million, and the number of employments in the third industry was 5.9343 million.

The number of employees in the manufacturing industry is significantly lower than that in the two industries of agriculture and service industry. The number of agricultural employments is located in the second place, so it can be seen that the proportion of agriculture in Jilin province is relatively large. Although the proportion of employment in the service industry is relatively high, the absolute scale is not high. The development of manufacturing industry in Jilin province is insufficient, leading to the development of manufacturing industry in Jilin province. On one hand, the heavy industry account for a large proportion and the structure is unitary. On the other hand, the light industry accounts for a small proportion, and the competitiveness advantage is insufficient. The strength of enterprises in scale development is not strong.

4. Suggestions on the construction of digital countryside in Jilin province

4.1 Optimize the digital rural construction system and provide multi guarantee

In the formulation of policy measures, we strengthened the top-level design, implemented the policy measures of the rural third-party industrial platform, and provided favorable economic and policy environment protection for digital entrepreneurs and platforms. From a single government driven model to "government + e-commerce platform", preferential policies and financial support are provided for rural e-commerce platform through relevant policy support. Expand the coverage of e-commerce logistics platform by simplifying the approval process, special loan support, tax relief and other means. In the aspect of digital talent introduction, it provides more convenient policies and other optimization measures.

4.2 Strengthen the construction of rural digital application talents

4.2.1 Cultivating digital talents

Through researching, we can understand the digital ability level of rural farmers, develop and integrate human resources such as folk artists, rural craftsmen and cultural talents. Through skills training, digital ability of famers was strengthened and digital literacy of famers was improved. E-commerce application training and live training of rural enterprises were strengthened. In this process, constantly improve the digital awareness and digital awareness of famers to constantly lay the foundation for digital talents and digital rural construction.

4.2.2 Strengthen the import of talents

Exploiting the advantages of government departments, scientific research institutions, colleges and vocational schools, the application of digital rural construction is carried out, and a long-term mechanism of production, teaching and research cooperation is established. The enthusiasm of digital talents for rural construction is stimulated, rural entrepreneurship and employment through policy guidance were supported. Continuously optimizing the industrial structure, the construction of medical infrastructure, basic living facilities of residents, and form digital talents to actively flow to the countryside were strengthened.

4.3 Mining the rural cultural characteristics of Jilin province to provide economic support for the construction of digital countryside

4.3.1 Formulate rural cultural management policies and strengthen the inheritance of rural traditional culture in Jilin province

To prepare the protection and development plan of traditional villages, the government need to organize province, city and county three levels of cultural tourism in Jilin. On the other hand, to lay a solid foundation for the scientific and sustainable development and protection of ancient village sites and culture, it is necessary to carry out the core protection scope of construction planning, and the relevant management of traditional culture.

Paying attention to the inheritance of characteristic excellent traditional culture, respecting the traditional habits of indigenous people, building the traditional village folk museum and village history museum, vigorously promote the excellent traditional culture of Jilin Province, so that the ancient villages radiate new digital integration vitality. The protection and inheritance of rural intangible cultural heritage in Jilin province will be combined with the beautiful digital rural construction, agricultural digital cultural protection and rural tourism digital development, and the digital rural development plan will be formulated and implemented according to local conditions.

4.3.2 Cultivate superior culture and highlight the characteristics of ancient village tourism resources

It cultivates tourism ancient village characteristic resources, develops characteristic folk customs, experiences rural farming, ancient village culture, advantageous characteristic cuisine, parent-child rural activities, etc., five level linkage of provinces, cities and counties, combined with the situation of Jilin province, focuses on boutiques. To achieve national promotion of products and form a characteristic brand influence, the administrators start from the characteristics of products to build a boutique through tourism means.

Cultivating intangible cultural heritage inheritors, folk artists, civil societies, etc., creating internet-celebrity inheritors through major platforms, using VR and other technologies create digital rural application scenarios, and expand the spread of rural culture. Through a variety of means, we can provide financial support for digital rural construction.

4.4 With the help of entity e-commerce logistics collaborative development mechanism

4.4.1 Industrial optimization of e-commerce platform

Through the introduction of e-commerce platform through digital means and large-scale intelligent production of rural characteristic agricultural products, we will form a fully automated production system.

The formation of the completed industrial chain and the creation of digital rural characteristic brands is achieved by a comprehensive optimization of the production, processing, packaging and storage of rural characteristic products.

4.4.2 Intelligent logistics center system optimization

Carry out reasonable planning, construction and popularization of express center sites, and accelerate the construction of intelligent logistics and distribution center system. Products are sold to all parts of the country by performing the formation of regional brand creative advantages, the use of digital network platform for the promotion of agricultural brands, and the combination of online and offline product promotion, which provides an economic basis for the construction of digital villages.

4.4.3 Multi industry platform collaborative development

The introduction of a variety of industrial platform technology, through multi-party cooperation, forms a complete digital mode, acts as a think tank in their own development process, and multi-party collaborative development, to solve the problems in the process of digital rural construction.

5. Conclusions

In summary, by analyzing the current situation of digital rural construction and development in Jilin province, it has been sorted out that the infrastructure of digital construction has improved, the aging and loss of rural population have led to a shortage of digital talents, the insufficient coordinated development of digital technology and rural related industries, the unitary industrial structure, and issues related to

living security. In response to the above issues, it is proposed to strengthen the policy guarantee for digital rural construction in rural areas of Jilin province, focus on cultivating talents in the field of digital agriculture, tap into unique cultural tourism to support digital economic development, and promote the improvement of the collaborative development mechanism of digital agriculture. This will promote the construction of digital rural areas in Jilin province and assist in the revitalization of rural areas in Jilin province.

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