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Study on the Construction of "5G+ Rural Revitalization" Demonstration Area in Liaoning Province from the Perspective of "Digital Countryside"

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Abstract: 5G, as a new generation of information technology, provides important support for the construction of digital villages. This paper first expounds the connotation of digital countryside, analyzes its significance to rural revitalization, and puts forward the goals of the construction of "5G+ rural revitalization" demonstration area, namely, to achieve industrial prosperity, ecological livable, rural culture civilization, effective governance and rich life. On this basis, the construction path of "5G+ Rural revitalization" demonstration area in Liaoning Province is discussed in detail, from the aspects of smart agriculture, digital economy, public service, digital governance and green rural construction, etc., and the typical practices in these aspects of Gayzhou, Jinzhou and Shenbei New District are illustrated with examples. It is believed that Liaoning Province should seize the historical opportunity of 5G and digital development, vigorously promote the construction of digital villages with 5G technology as the core, so that digital achievements can benefit the rural front line, and promote rural revitalization with scientific and technological progress.

Keywords: Digital village; 5G; Rural revitalization; Liaoning Province

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In recent years, the digital economy with the Internet, big data, artificial intelligence and other information technologies as an important part of the rapid development, digitalization is profoundly changing the way of human production and life. In this context, Liaoning Province accelerated the digitalization process of agriculture and rural areas, vigorously implemented the construction of digital villages, and led the revitalization of rural areas with digitalization. In recent years, Liaoning Province has actively carried out the construction of rural revitalization demonstration zones, covering 14 counties (cities and districts) of 14 prefecture-level cities in the province, and has achieved certain results and experience in smart agriculture, rural digital economy, rural public services, rural digital governance and smart green countryside. Under the vision of "digital countryside", it is of great significance to promote rural revitalization in Liaoning province by empowering rural revitalization with 5G technology and selecting typical areas for demonstration zone construction.

1. Concept, connotation and characteristics of digital countryside

1.1 Concept of digital countryside

Digital village refers to the traditional rural space, relying on the Internet, big data, cloud computing, artificial intelligence and other information and communication technology means to build a new digital service system and management and operation mechanism, the implementation of digital technology and rural governance, industrial development, infrastructure improvement, public service improvement and other deep integration. A new rural form that enables rural revitalization by digital means. The core

of digital village construction lies in the use of information and communication technology to open up the "last mile" in business administration, agricultural technology extension, credit service, marketing, culture and leisure [1], so as to facilitate the rapid flow of information and efficient allocation of resources, so as to improve the level of rural governance and service efficiency.

1.2 The significance of digital countryside for rural revitalization

The construction of digital countryside is of great significance in promoting rural revitalization. For a long time, there are obvious differences between urban and rural development in China, and there is a big gap between traditional rural areas and urban areas in terms of infrastructure and public services. The construction of digital countryside can promote the transformational development of rural industries. Based on big data and Internet of Things technology, a digital service platform connecting the whole process of agricultural production is built to achieve accurate management of planting, breeding and other processes. The agricultural production mode has been digitized, networked and intelligent transformation, and the agricultural operation efficiency and quality have been significantly improved.

2. Construction objectives of the "5G+ Rural revitalization" demonstration area

(1) Industrial prosperity: the demonstration area should make full use of 5G technological means, vigorously develop smart agriculture and digital economy, tap the potential of rural industries, broaden the channels for farmers to increase income, promote the transformation of agricultural production from traditional to modern, and achieve high quality and high efficiency.

(2) Ecological livable: The demonstration area should rely on the environmental monitoring system and visual management platform to promote the economical use of resources and the protection of the ecological environment, and create a green ecological village under the digital empowerment.

(3) Rural civilization: The demonstration area should make full use of 5G technology to provide high-quality public services such as education and medical care, inherit and promote the traditional virtues of the Chinese nation, and improve the civilized quality of rural residents.

(4) Effective governance: The demonstration zone needs to build a new governance system that ADAPTS to the digital age, improve the capacity and level of grass-roots governance, and make various decisions more accurate and efficient.

(5) Rich life: The demonstration zone can use digital technology to innovate rural business models, enrich the consumption scenes of rural residents, and let farmers share the new fun of digital life.

3. Construction path of "5G+ Rural Revitalization" demonstration area in Liaoning Province

3.1 Promote the construction of smart agriculture

Smart agriculture is an important aspect of the construction of digital villages, and 5G technology provides important support for it. The core of smart agriculture is to use modern information technology means such as the Internet of Things, cloud computing, and big data to realize the perception, connection, monitoring and management of the entire process of agricultural production, with the characteristics of scientific management decision-making, mechanization of operation processes, and visualization of product traceability. Taking Gayzhou City, Yingkou City as an example, Huangdazhai Village, Yangsheng Street, Gayzhou City, is the largest watermelon production base in southern Liaoning Province. The district uses 5G technology to build a smart agriculture demonstration park, realizes intelligent management in all aspects of watermelon planting, guides farmers to accurately fertilize and water through algorithm analysis, and shorts the watermelon growth cycle by about 7 days under the guidance of data. In the watermelon harvesting link, the use of unmanned harvesting machine, can achieve 24 hours of uninterrupted operation, has achieved remarkable results.

3.2 Developing the rural digital economy

The development of rural digital economy is an important starting point for rural revitalization. Digital economy takes digitalization as its core element and innovates business models through digital technology means. The development of rural digital economy can broaden the channels for farmers to increase their income and make agriculture a technical industry that constantly creates a source of wealth. Taking Gaizhou City as an example, Malianyu Village in Bangshuibao Town of Gaizhou City is one of the villages with 100 million yuan of rural characteristic industries in China. Relying on 5G network, it combines characteristic agricultural products such as apples and grapes with online sales and live delivery, expanding product sales and significantly increasing villagers' income.

3.3 Optimize rural public services

Optimizing rural public services is an important aspect of implementing the rural revitalization strategy. Public service is related to the efficiency of rural social governance and farmers' sense of gain, which is an important connotation of building a new socialist

countryside. Digital technology provides an important means to optimize rural public services. On the one hand, the informatization of public services supported by the Internet, big data and other technologies can improve the service response speed and resource allocation efficiency. On the other hand, digital technology makes quality public services more accessible and helps narrow the urban-rural gap [2]. Taking Jinzhou District of Dalian as an example, as a national digital rural pilot area, the district has made full use of "5G+ Internet" to build the city's first rural public service platform integrating government services, medical and health care, educational resources, social security, legal aid and other services, so that rural residents can enjoy high-quality public services integrated online and offline.

3.4 Innovate rural digital governance

Innovative rural digital governance is an important measure to promote rural revitalization. Rural governance is related to the effectiveness of grassroots social governance and farmers' sense of gain, and is related to the modernization of the national governance system and governance capacity. Digitalization provides important technical support for rural governance innovation. Taking Shenyang Shenbei New District as an example, as a national digital rural pilot area, the district has built a four-in-one digital rural governance system of "one network office", "one network cooperation", "one network supervision" and "one network service". Relying on digital technologies such as big data, cloud computing, and artificial intelligence, the district has established a unified integrated platform for rural governance to realize data collection, analysis, application, supervision and management of the entire process of rural governance.

3.5 Building a smart and green village

Building a smart green village is an important part of digital village construction and a key measure to promote high-quality rural development. Make full use of the advantages of digital technology to promote the construction of smart and green villages from two aspects of agricultural production methods and rural ecological environment. In terms of agricultural production methods, the Internet of Things, big data and other technical means can be used to build a refined monitoring and management system connecting the whole process of farmland crop growth, obtain soil moisture, crop growth and other data in real time, and analyze it through the algorithm model to provide farmers with accurate fertilization and watering plans, thus greatly reducing resource waste. To achieve precision and economization of agricultural production, so that agricultural production mode to achieve green transformation. 5G technology can provide high-speed and reliable network support for agricultural fine management.

4. Conclusion

The construction of digital countryside makes full use of the advantages of digital technology and promotes the modernization of agriculture and rural areas, which is an important measure to implement the rural revitalization strategy. As a new generation of information technology, 5G has provided strong support for the construction of digital villages. Liaoning Province should seize the historic opportunity of the digital wave, based on the local actual situation, further promote the construction of "5G+ rural revitalization" demonstration area, guide the construction of digital countryside with the concept of "digital empowerment, science and technology to rejuvenate agriculture", and constantly improve the level of digital rural construction, so that digital dividends benefit every village in Liaoning Province, and demonstrate the vitality of rural revitalization with scientific and technological progress.

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