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Research on the path of digital empowering rural revitalization under the background of artificial intelligence

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Abstract: Under the background of artificial intelligence, the development of digital agriculture will help the smooth implementation of the rural revitalization strategy. The widespread use of digital technology will help optimize resource allocation and improve agricultural production efficiency. It can also provide more accurate decision-making support for the production, processing and sales of agricultural products, thereby promoting the transformation and upgrading of the agricultural industry. At this stage, in the process of developing digital agriculture in rural areas, there are still problems such as weak rural digital infrastructure, relatively scarce rural digital professional talents, and relatively lagging in rural digital application levels. In view of this, the article puts forward specific path selection suggestions for digital agriculture to help rural revitalization from the aspects of strengthening infrastructure construction, strengthening digital empowerment, strengthening resource integration, improving the level of agricultural digitalization, and increasing the efforts to cultivate and introduce talents.

1. Introduction

The proposal and implementation of the rural revitalization strategy in the new era is an important decision we have made based on the "second centenary" goal and to meet the general public's yearning for a better life. The rural revitalization strategy is a major decision and deployment made by the 19th National Congress, a major historical task for the decisive battle to build a moderately prosperous society in all respects and build a modern socialist country in all respects, and is also the core strategy for solving the "three rural issues" in the new era. Taking digital rural construction as the core direction of rural revitalization strategy can effectively accelerate the overall prosperity and development of rural areas[1].

The 2022 Central Document No. 1 "Opinions on Doing a Good Job in Key Work on Comprehensively Promoting Rural Revitalization in 2022" proposes to vigorously promote the construction of digital villages, empower rural public services with digital technology, and promote the extension of "Internet + Government Services" to rural areas. The document clearly states that it

is necessary to accelerate the construction of an agricultural power and strengthen the supporting role of agricultural science and technology and equipment. With the continuous advancement of new generation information technology, digital technology has brought new impetus to the comprehensive revitalization of rural areas[2].At the same time, with the country implementing the rural revitalization strategy, rural informatization construction has ushered in a rare opportunity. Therefore, the issue of digital empowering rural revitalization has also attracted more and more attention from people. In recent years, the pilot work of digital rural construction has gradually been carried out in various regions, and the pace of agricultural and rural modernization as a whole has been accelerated[3]. However, many problems have also been exposed in the process of digital rural construction. We must give clear answers to these problems in order to accelerate the pace of digital empowerment of rural revitalization, make agriculture stronger, make rural areas beautiful, and make farmers rich.

2. The practical significance of digital empowering rural revitalization under the background of artificial intelligence

The 14th Five-Year Plan period is an important period for the digital development of agriculture and rural areas. Promoting the development of digitally empowering rural revitalization has adapted to the historical trend and the general trend of my country's development. Against the backdrop of implementing the rural revitalization strategy, strengthening the deep integration of digital and rural revitalization not only provides strong support for rural construction, but also an inherent requirement for implementing the comprehensive revitalization of rural areas. The sinking of the new generation of digital technology into rural areas has brought more modern changes and further development to various rural industries. In rural areas, the widespread application and promotion of digital technology will effectively give birth to different forms of rural development and stimulate the development potential of rural areas. The pace of agriculture and rural areas towards modernization will be further accelerated; this will help promote high-quality agricultural development, strengthen the confidence of rural people in the development of agricultural economy, and improve the sense of gain of rural people; this will help optimize the ecological environment of rural areas, and the application of digital, informatization and intelligent technologies will promote the improvement of rural ecological civilization; this will help accelerate the construction of a new development pattern, promote the construction of a digital China, enhance our country's comprehensive national strength, and more effectively advance towards the "second centenary" goal [4].

3. Related Theoretical Research

3.1 The Meaning of Rural Revitalization

The rural revitalization strategy, as an important strategy for rural construction in the new era, sets higher standards and greater goals for the future development of rural areas. Rural revitalization requires all-round revitalization of rural society, including industrial revitalization, talent revitalization, cultural revitalization, ecological revitalization and organizational revitalization. The rural revitalization strategy is proposed to accelerate the modernization process of agriculture and rural areas, improve farmers' quality of life, and provide support for my country's transformation from an agricultural power to an agricultural power. With the comprehensive victory of the fight against poverty, my country's rural revitalization policy has also been adjusted accordingly according to the actual situation of social development [5]. Rural development has entered a new historical period, and the focus of development has also undergone a historic transformation. In addition, we must also pay attention to improving the living conditions of farmers and meeting the needs of farmers for

material and spiritual pursuits, thereby enhancing their sense of happiness in life.

3.2 The Meaning of Digital Empowerment

In layman's terms, digital empowerment is to use the power of digital technology to enable people to acquire corresponding skills and improve their ability to survive and live. Digital empowerment is an important strategy in the digital age, emphasizing how digital technology empowers individuals and entities to better adapt and leverage digital opportunities and challenges. This concept has had a profound impact on all areas of economic, social and political. The leaders attached great importance to the development of the digital economy and elevated it to a national strategy, and put forward the strategic decision to build a "digital China". On different occasions, it has been emphasized that we should pay attention to the importance of digital and big data to China's development. On different occasions, it has been emphasized that we should pay attention to the importance of digital and big data to China's development. At the same time, the General Secretary repeatedly emphasized the need to accelerate the integration of new generation information technology with human production and life, and strengthen the popularization and application of new generation information technology in the fields of national governance, economic development, people's life, etc. On the issue of agriculture, rural areas and farmers' development, it is emphasized that we must continue to give priority to the development of agriculture and rural areas and strive to promote the process of agricultural and rural modernization[6]. Against this background, we must also pay attention to improving the digital knowledge and skills of the whole people and the whole society, improving digital technology capabilities, and highlighting the concept of security.

4. The Current Situation of Digital Empowering Rural Revitalization

4.1 Rural Digital Infrastructure is Relatively Weak

Rural digital infrastructure plays an indispensable and key role in achieving digital empowerment of rural revitalization. Its importance is directly reflected in the scope of application of digital means, the effectiveness and the sustainability of rural revitalization. But overall, rural digital infrastructure is still relatively weak and there are some prominent problems [7]. At present, my country's rural digital infrastructure construction has made significant progress, and the broadband rate of existing administrative villages has reached 100%, which solves the communication difficulties in remote and backward areas, allowing villagers to truly enjoy the development dividends brought by the information age. But overall, there are still problems such as unbalanced development in the current process of rural digital infrastructure construction in my country.

4.2 There is a Shortage of Rural Digital Professional Talents

Building digital villages is inseparable from professional talent support and leadership, and talent is a key factor in digital empowerment to promote rural revitalization. However, judging from the current situation, digital professionals in rural areas still face many problems. First of all, the shortage of educational resources is a fundamental problem. Compared with cities, higher education resources in rural areas are relatively scarce, especially the limited curriculum and teaching resources in digital majors, which greatly restricts the cultivation of professional talents in the digital field. This not only affects the cultivation of digital talents in rural areas, but also restricts the speed of digital empowerment of rural revitalization[8]. Secondly, the loss of digital talents is particularly prominent in rural areas. Many talents who are interested in the development of the digital field choose to go to cities to seek broader development space. This has led to a large-scale loss of talents in the digital

field of rural areas and has also brought resistance to the digitalization process of rural revitalization.

4.3 The Level of Rural Digital Application Lags Relatively

The digital application of rural areas is not only an important way to develop digital rural areas, but also a key measure to promote the comprehensive digitalization of rural areas and promote the comprehensive revitalization of rural areas. Although the degree of digitalization in rural areas is gradually increasing, its development still faces some relatively lagging challenges [9]. First of all, from the perspective of agriculture, compared with cities, the agricultural technology level in rural areas is relatively lagging behind, and there is a lack of application of advanced digital agricultural technologies. The application of digital technologies in agricultural Internet of Things, precision agriculture and other aspects is still relatively lacking. Similarly, the information acquisition channels in rural areas are limited, and the lack of real-time market information, meteorological information and other important information related to crop planting, making it difficult for farmers to make timely decisions in the planting, processing, and sales of crops. Secondly, from the perspective of rural areas, rural areas may lack the construction and support for digital development platforms, the information acquisition channels in rural areas are narrow, and it is difficult for rural governance institutions to obtain accurate basic data in a timely manner, which affects scientific decision-making and resource allocation, resulting in insufficient driving force for digital application in rural areas. In addition, another important issue is that farmers have a negative willingness to digital rural construction. Farmers are the main force in rural construction, but their understanding of digital empowerment of rural areas is still one-sided, which leads to their lack of enthusiasm and initiative in digital rural construction, which affects the construction process of digital empowerment of rural revitalization.

5. Practical Path of Digital Empowering Rural Revitalization

5.1 Refine and Implement Local Digital Rural Policies

Refining and implementing local digital rural policies is the key to ensuring the success of digital empowerment of rural revitalization. Although my country has formulated many plans and policies for digital empowering rural revitalization, in daily work, it is more important to refine policies, clarify division of labor, in place, and assign specific tasks to be implemented. At the same time, we must strengthen supervision and inspection of work and promote the better implementation of all work in the construction of digital empowerment of rural revitalization. First, from a detailed perspective, it is key to conducting sufficient demand surveys and analysis before implementing digital rural policies. Understanding the actual needs of rural residents, digital literacy levels, infrastructure status and other information will help formulate more practical policies. At the same time, formulate a clear digital plan with local characteristics, including policy goals, implementation plans, timetables, etc. This can serve as a guiding document for implementation, ensuring that digital policies have clear directions and goals. Secondly, from the perspective of implementing the policy of digital empowering rural revitalization, a special policy implementation agency should be established in rural areas to be responsible for the specific implementation and supervision of digital policies. Finally, a regular policy evaluation mechanism should be established to evaluate the implementation effect of digital empowerment policies. According to the evaluation results, rewards and punishments are in parallel. Inappropriate policies should be adjusted in a timely manner to combine theory with practice to adapt to the actual development needs of rural areas.

5.2 Strengthen the Construction of Digital Infrastructure

Strengthening the construction of digital infrastructure is a key link in digital empowering rural revitalization, and can provide better digital services and support to rural areas. First of all, in terms of signal coverage, in the practice of digital empowering rural revitalization, we must ensure that there is signal coverage in rural areas. Signal coverage can be carried out by improving network coverage, promoting fiber laying and promoting satellite network applications; in terms of improving network coverage, broadband network coverage mainly includes the coverage of signals such as 4G and 5G. It can be used to increase base stations and improve signal transmission equipment to meet the Internet needs of rural residents and promote the gradual popularization of digital services; in terms of promoting fiber laying, fiber networks have the advantages of high bandwidth and low latency, which can better support the development of digital agriculture, telemedicine and other applications in rural areas. Therefore, we must vigorously promote the laying of fiber optic networks in rural areas and provide higher speed network connections; in promoting the application of satellite networks, satellite networks can achieve global coverage, provide more reliable Internet services for remote villages, and provide guarantees for the development of digital empowerment of rural revitalization. Using satellite network technology can make up for the problem of insufficient network coverage in remote rural areas. Secondly, people in rural areas have established digital information centers as the core of digital infrastructure. The center can centrally store and process data, provide digital services, information consultation and other functions, and serve rural residents and agricultural production. Finally, we must promote the construction of digital power facilities in rural areas and strengthen the construction of digital power facilities, which can ensure that rural areas have stable power supply, strengthen digital power facilities, improve the intelligence level of the power grid, and support digital agriculture and other digital services.

5.3 Build a Digital Talent Team and Provide Scientific and Intellectual Support

Digital talents play a key role in digital agriculture. The construction of a digital talent team not only concerns the success of the rural digitalization process, but also directly affects the implementation effect of the rural revitalization strategy and the sustainable development of rural society. The talent team is the backbone of promoting digital empowerment of rural revitalization practices, injecting vitality and innovative impetus into rural development. Therefore, building a digital talent team is an important task in promoting the practice of digital empowering rural revitalization. First of all, we understand the technological needs of rural revitalization, including digital agriculture, e-commerce, smart rural construction, etc. Develop a detailed digital talent training plan based on needs. In rural areas, we must establish a digital talent training base to provide a practical training environment.The base can include computer laboratories, digital agricultural demonstration zones, etc., to provide practical support for training. Policies to support digital talent training can also be formulated, including incentive measures such as scholarships, entrepreneurial funds, tax incentives, etc., to increase the enthusiasm of rural residents to participate in training. Secondly, we must attach importance to talent introduction, cooperate with universities and technology enterprises, and introduce professional faculty and practical projects. Through distance education and professional training, we cultivate more digital talents for rural areas. At the same time, we can create a digital talent exchange platform to encourage interaction and cooperation among digital talents. We can share experiences, solve problems, and form a win-win situation for cooperation and win-win results. Through the above measures, a talent team with digital skills and scientific and technological intelligence can be established in the countryside to provide strong scientific and technological support for rural revitalization. This will help promote the smooth implementation of digital empowerment of rural revitalization practices and promote the sustainable

development of rural communities.

5.4 Promote the Innovative Development of Digital Agricultural Technology and Application

Promoting the innovative development of digital agricultural technology and applications Promoting the innovative development of digital agricultural technology and applications is an important step in promoting the practice of digital empowering rural revitalization, and promoting the development process of rural digitalization through innovation. First, we strengthen in-depth cooperation between industry, academia and research, and establish a joint research platform for digital agricultural technology innovation. People promote the rapid transformation of technology through close cooperation between academia, industry and agricultural producers. We must also increase investment in the research and development of digital agricultural technology, encourage rural scientific research institutions to cooperate with enterprises, and promote cutting-edge research on digital agricultural technology, including the Internet of Things, big data, artificial intelligence and other directions. At the same time, the government can organize digital agricultural technology innovation competitions to stimulate the creativity of scientific and technological talents. The government sets up awards to attract more researchers and farmers to participate and promote technological innovation. We must focus on adapting to local conditions and promote the transformation and application of innovative achievements. Agricultural science and technology demonstration stations can also be built in rural areas to showcase innovative applications of digital agricultural technology. Such demonstration stations can become a place for farmers to learn and experience new technologies. The government builds a digital agricultural technology exchange platform to promote exchanges and cooperation between rural scientific and technological personnel and practitioners in related industries. They share experience, solve problems, and promote common technological progress. Secondly, the government can guide enterprises to increase R&D investment in digital agricultural technology innovation through fiscal and tax policies and improve their enthusiasm for technological innovation. Through the above measures, we can promote the innovative development of digital agricultural technology, promote the successful implementation of digital empowerment rural revitalization practices, and improve the industrial competitiveness and sustainable development level of rural communities.

6. Conclusion

With the rapid development of the new generation of digital technology, promoting modern rural construction with digital technology is becoming an important means to help rural revitalization. Therefore, the issue of digital empowering rural revitalization has also gained more and more attention from people. This article analyzes the practical significance of digital empowering rural revitalization and provides some theoretical summary, analyzes the current situation of digital empowering rural revitalization, and summarizes the practical path of digital empowering rural revitalization based on the previous analysis.

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