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Research on the Benefit Evaluation of Communication Industry Serving Rural Revitalization—Take Enterprise A as an Example

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Abstract: *With the rapid development of a new generation of information technology, it has penetrated into various fields in agriculture and rural areas, information technology has become an indispensable part of rural revitalization and development, and the communication industry as a leader in the development of information technology, plays a vital role. So, what are the benefits of the communication industry for rural revitalization? Taking A communication enterprise as an example, this paper evaluates the service for rural revitalization from three aspects: economic benefit, ecological benefit and social benefit, and points out the realistic dilemma of complex geographical environment, lack of informatization standard system and lack of talent team in rural areas. It is suggested that the communication industry accelerate the construction of information infrastructure in rural areas, accelerate the construction of agricultural and rural information service standard system, and vigorously train information professionals to promote the comprehensive revitalization of rural areas.*

Keywords: *Communication industry; Rural revitalization; Benefit evaluation*

1. Introduction

Since the 18th National Congress of the CPC, the issue of "agriculture, rural areas and farmers" has been one of the priorities of the whole Party's work, and it has been proposed to promote agricultural modernization and new rural construction, and comprehensively deepen rural reform. In 2018, the No. 1 Central Document and the strategic Plan for rural Revitalization proposed the "implementation of the Digital Rural Strategy" to improve the level of rural livelihood security, bridge the digital divide, and promote the comprehensive and deep integration of modern information technology and rural production and life[4]. The report to the 19th National Congress of the CPC made a major strategic decision to implement rural revitalization, and clarified the direction and focus of agricultural and rural reform and development in the new era. In 2021, the No. 1 Central document proposed to promote the deep integration of a new generation of information technology and agricultural production and operation, and strengthen the digital and intelligent construction of rural public services and social governance. In 2021, the "14th Five-Year Plan" for the Development of the Information and Communication Industry proposed to fully implement the rural revitalization strategy, promote the construction of digital villages, improve rural communication network facilities and rural digital applications, promote the integrated development of the primary, secondary and tertiary industries, promote agricultural and rural modernization, and help rural revitalization. In 2022, the Central No. 1 document proposed to vigorously promote the construction of digital villages and promote the development of smart agriculture. The Party's 20th National Congress also proposed to comprehensively promote rural revitalization, adhere to the integrated development of urban and rural areas, and strengthen agricultural science and technology and equipment support.

At present, the state strongly supports the development of a new generation of information technology and continues to penetrate into various fields in agriculture and rural areas. Information technology has become an indispensable part of rural revitalization and development, and promoting agricultural and rural information construction is also an important measure to promote rural revitalization. The communication industry plays an important role in accelerating the modernization of agriculture and rural areas. In view of the practical problems and new challenges faced by the communication industry in the process of serving agriculture and rural modernization, it is necessary to conduct a comprehensive, objective and scientific assessment and review of the benefits generated by the communication industry in serving rural revitalization, so how the benefits generated by the communication industry in serving rural revitalization is a question worthy of in-depth consideration.

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2. The current situation of the benefits of the communication industry in serving rural revitalization

The communication industry is a strategic, basic and leading industry to build a new national digital infrastructure, provide network and information services, and fully support economic and social development. As an important part of the field of information technology, it plays an indispensable role in rural revitalization. The information construction of agriculture and rural areas includes the popularization and development of information technology such as modern network, digital technology, communication engineering and big data application[5], so the communication industry plays an important role in accelerating the modernization of agriculture and rural areas.

2.1 Current situation of economic benefits

The communication industry has brought a new economic growth point for rural revitalization. With the continuous progress and application of communication technology, emerging industries such as e-commerce, Internet finance and telemedicine in rural areas have developed rapidly. These emerging industries have not only brought more employment opportunities and economic income to rural areas, but also promoted the adjustment and upgrading of industrial structure in rural areas and injected new vitality into rural economy. In addition, the popularization and application of communication technologies have accelerated the digital transformation and modernization of rural areas. Through communication technology, enterprises and residents in rural areas can more easily access the global digital economy and open up broader markets and business opportunities, which not only promotes economic diversification and modernization in rural areas, but also brings more economic growth points and development opportunities for rural areas. In addition, the development of the communications industry has also brought more business opportunities and investment space to rural areas. With the continuous improvement of communication infrastructure and the rapid development of digital economy, more and more communication enterprises and Internet enterprises have turned their attention to the rural market, which has promoted the improvement of the business environment and the upgrading of industries in rural areas, not only bringing more business opportunities and investment space to rural areas, but also promoting the vigorous development and sustained growth of rural economy.

2.2 Current situation of social benefits

The development of the communication industry has brought the convenience of informatization and digitalization to rural areas, and promoted the flow of information and the dissemination of knowledge. Through communication technology, residents in rural areas can more easily access a variety of information, including agricultural technology information, market information, policies and regulations, which helps to improve farmers' production skills and management level, promote the modernization and intelligence of agricultural production, and thus improve farmers' income level. Secondly, the application of communication technology has brought more educational resources and medical services to rural areas. Through distance education and telemedicine, students and residents in rural areas can obtain the same level of educational resources and medical services in cities, which makes up for the shortage of educational and medical resources in rural areas, and promotes the balanced development of education and the popularization of medical care. In addition, the popularization and application of communication technology has also brought more employment opportunities and entrepreneurship opportunities to rural areas. Through Internet technology, residents in rural areas can use e-commerce and other platforms to carry out online and offline business activities, which broadens the way of employment and entrepreneurship, promotes more farmers' employment and entrepreneurship, and promotes economic development and social stability in rural areas. Finally, the development of the communication industry has also brought more cultural entertainment and social interaction to rural areas. Through communication technology, residents in rural areas can more easily enjoy a variety of cultural and recreational activities, including movies, music, games, etc., enriching the spiritual and cultural life of rural residents and enhancing social and cultural diversity and inclusiveness.

2.3 Current situation of ecological benefits

The application of communication technology has brought more remote working and remote education opportunities to rural areas, reduced urban and rural population migration and transportation,

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and is conducive to reducing carbon emissions and environmental pollution. Through telecommuting and distance education, many rural residents can work and study at their doorsteps, reducing the need for urban commuting and students to study in cities, reducing urban traffic pressure, reducing the risk of traffic accidents, reducing air pollution, and contributing to the improvement of the ecological environment. Secondly, the application of communication technology has also brought more intelligent and energy-saving emission reduction opportunities to rural areas. Through intelligent agriculture, intelligent industry and other applications, the production mode in rural areas can be optimized, reducing resource consumption and energy consumption, which is conducive to reducing the over-exploitation of natural resources and environmental pollution, and promoting ecological balance and sustainable development. In addition, the application of communication technology has also brought more environmental awareness and environmental protection actions to rural areas. Through Internet technology, residents in rural areas can more easily obtain knowledge of environmental protection and resource conservation, participate in environmental protection actions, promote environmental protection and ecological restoration in rural areas, improve the ecological environment, and improve the stability and health of the ecosystem.

3. The current situation and benefit evaluation of the communication industry's service for rural revitalization

3.1 Introduction of A communication company

Established in 1995, A Communications Company is a state-owned extra-large communications backbone enterprise, mainly engaged in mobile communications, Internet access and application, fixed telephone, satellite communications, ICT integration and other comprehensive information services. Enterprise A resolutely implements the important decisions and arrangements of the Party Central Committee and The State Council on agricultural and rural work, implements the new development concept, builds a new development pattern, fully recognizes the importance and urgency of strengthening the work of "agriculture, rural areas" under the new development stage, and on the basis of establishing the modernization of agriculture and rural areas as its mission, giving full play to its advantages. Increase the investment in resources such as network, technology, capital and human resources, while actively implementing and vigorously promoting relevant work, comprehensively support rural revitalization, accelerate the construction of digital countryside, and promote the high-quality development of rural economy and society.

3.2 A communication company serves rural revitalization practice

In recent years, Enterprise A has made great contributions in serving rural revitalization. On the one hand, through the construction and improvement of rural communication infrastructure, including optical fiber networks, mobile communication base stations, etc., to provide high-quality communication services and Internet access for rural areas, the use of "Internet +" means to expand agricultural sales channels, help farmers increase production and income, by building Tianhu cloud business to help agricultural e-commerce platform, since 2018, 28 provinces have access to 10,000 types of agricultural and sideline products, the total sales of agricultural products involved more than 4.5 billion yuan, so that Yanyuan walnut meat, Tianlin mango and other agricultural special products can enter more families. On the other hand, by relying on 5G technology and the "Internet + medical" model, Company A has made 5G+ medical treatment everywhere in the vast rural areas, helped Yanyuan County, Liangshan, Sichuan Province, build a 5G telematics consultation center of the county hospital, solved the problem of the difficulty of seeing a doctor for the once poor villages, and greatly improved the medical level in rural areas. In addition, in Yanyuan Lugu Lake scenic spot in Sichuan Province, A company established an environmental protection information monitoring platform to realize the intelligence and precision of sewage treatment, which effectively supported the protection of Lugu Lake water quality and the prevention and control of water pollution, thus ensuring the water safety of local people; Promote the construction of smart agriculture projects and green base stations in rural areas, help farmers achieve precision agriculture, intelligent irrigation, intelligent fertilization, etc., and adopt energy-saving and environmental protection technologies, which not only improve agricultural production efficiency, but also reduce environmental pollution in rural areas, reduce energy and raw material consumption, and promote green and sustainable development in rural areas.

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3.3 Evaluation on the benefits of Enterprise A's service to rural revitalization

3.3.1 Economic benefits

The scale of the industry is expanding rapidly. The primary purpose of supporting the revitalization of rural industries is to accelerate local economic development and increase farmers' income, and Enterprise A continues to promote the deep integration of modern information technology in various fields and links of agriculture and rural areas. At present, local characteristic industries, smart agriculture, Tianhu cloud business, etc., have achieved initial results, by promoting the deep integration of modern information technology and agriculture, promote local agricultural efficiency and farmers' income, and inject new vitality into rural development.

First, local industries with local characteristics are booming. Since 2022, Enterprise A has invested more than 100 million yuan in the development of rural industries and cultivated 25 characteristic industries, such as demonstration projects such as Tianlin Matsutake planting, Yanyuan apple planting, and Shufu characteristic breeding, which have led 42,000 people to get rid of poverty and get rich. At the same time, A company accelerates the promotion of cloud computing, big data, Internet of things and other new generation of information technology and the deep integration of modern characteristics of the planting industry, improve the level of production technology, and extend the sustainable development of agricultural products industrial chain and value chain. On this basis, A company invested 15 million yuan to build the first production line of flavored dried nuts in Xinjiang, which greatly improved the plight of low deep processing ratio and low product value of local forest fruit products, promoted product value-added and industrial efficiency, and promoted the expansion of agricultural industry chain and value chain. At the same time, Enterprise A supported the local Kashgar Fruit Agricultural Technology Co., LTD., making it grow into a key leading enterprise of agricultural industrialization in the autonomous region, with sales exceeding 220 million yuan in 2022, which promoted the improvement of the living standards of the people in Shufu County.

Second, smart agriculture has developed rapidly. Since 2021, Company A has undertaken more than 400 smart agriculture projects nationwide, using digital technologies such as cloud computing, big data, artificial intelligence and blockchain to deeply integrate with agriculture, gradually establish and improve the smart agriculture service system, and launched an innovative smart agriculture platform, covering four categories and more than 30 scenarios. The application of data in agricultural production is realized. Up to now, nearly 140 smart agriculture demonstration projects have been implemented nationwide. Through digital construction, the agricultural industrial chain, supply chain and value chain have been opened up, the rational distribution of agricultural productivity and the optimization and adjustment of industrial structure have been promoted, the rural advantageous industries have been strengthened, the characteristic agricultural brands have been cultivated, and the quality and safety of agricultural products have been effectively guaranteed.

Third, Tianhu cloud business to help revitalize. An enterprise relies on the Tianhu cloud business platform, gives full play to the advantages of enterprise information, and builds the characteristic e-commerce support system of Tianhu Cloud business. Around the "help marketing, promote production, dredging, and solve problems", it makes an overall effort from the aspects of self-building a special library, selecting business education providers, and expanding sales. Through the operation of farmer merchants, there are currently more than 30 merchants in the matching county, including 520 star products in poverty alleviation areas to enter the core commodity library, and the basic service fee of e-commerce in rural areas is reduced by nearly 2 million yuan. Third, through the establishment of online sales channels, more than 30 series of live events of "consumption to help agriculture" were held, and about 3.8 million yuan of agricultural products were sold.

Farmers' income continued to grow. Enterprise A actively contributes to rural revitalization and is committed to increasing farmers' income and making rural economy thriving. Under the tide of digitization and information technology, we give full play to our advantages in the field of communication, provide convenient communication and Internet services for rural areas, and promote the development of local economy and the increase of farmers' income. Tianlin County of Guangxi has established a modern agricultural manor of Aishan by developing characteristic industries and adopting a smart agricultural platform. The farm uses advanced agricultural information technology, such as pest identification, automatic control, agricultural traceability and cloud monitoring, to achieve standardized, digital and visual management of grape planting. In 2022, the grapes of the manor were put into production for the first time, with an output of more than 100,000 kilograms and an output value of about 2 million yuan. This achievement directly led to the increase in the income of 496 people in 138 households, but also effectively benefited 16,479 people in 3901 households, and solved the

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employment problem of more than 30 people. In addition, it also contributed to the increase of the collective economic income of the nine villages, and steadily promoted the continuous increase of the income of the poverty-stricken households.

3.3.2 Social benefits

A company is committed to using ICT to support rural revitalization and promote the improvement and development of the rural public service system. On the one hand, we will promote the balanced development of urban and rural public service resources, and promote the digitalization of social service resources such as education, medical care, elderly care, employment and culture. By promoting the development of "Internet plus social services" such as telemedicine, online education, and inclusive digital finance, services such as online education, online consultation, agricultural e-commerce, and online recruitment are provided to rural residents. It has realized the centralized utilization of high-quality resources, low-cost sharing and optimization of matching utility, effectively enhanced the convenience of rural residents to obtain public services, increased the supply of public services in rural areas, improved the level of public services in rural areas, and greatly improved the quality of life of farmers.

In terms of medical and health care, Enterprise A extends telemedicine services to township health centers and village clinics, builds telemedicine information systems for grass-roots health centers, and carries out services such as remote consultation, remote diagnosis and remote training, as well as health knowledge popularization, residents' health file inquiry and online consultation, and booking services. In terms of primary medical services, grassroots cloud HIS applies the information management of primary medical services to township health centers and village health rooms, helps primary medical institutions to realize the transformation of clinical business management to standardization and electronization, and improves the informatization level and medical service ability of primary medical institutions. In terms of health care, the electronic management of rural elderly archives is realized, and management services such as health assessment, health follow-up, health examination, health treatment and health warning are provided. In terms of employment, in 2022, 65 million yuan of investment will be attracted in four designated support counties, a total of 16 local leading enterprises and 15 rural cooperatives will be supported, 8 workshops will be helped to establish, and 992 people will be transferred from poverty alleviation to employment.

3.3.3 Ecological benefits

A company builds a rural ecological environment monitoring system based on resource integration and information sharing. Coordinate the monitoring data of mountains, rivers, forests, fields, lakes and grasses, promote the data sharing among the departments of agriculture and rural areas, natural resources, ecological environment, water conservancy, forestry and grass, and meteorology, combine the monitoring data of rural ecological environment with remote sensing images, UAV aerial photography, and high-definition remote video surveillance, use big data technology for data processing, processing, and integration, and establish data analysis models. With the help of big data, Internet of Things, artificial intelligence and other technologies, the rural garbage disposal, sewage monitoring, village appearance and other core objectives, taking into account factors such as village type, mountain forest area, highway mileage, river length, etc., are reasonably divided into several management and protection units, so that the rural ecological environment and residents' production and living areas can be integrated into a comprehensive space. Realize big data early warning, point-to-point monitoring and intelligent services. In addition, by mobilizing the masses to participate in social governance and taking advantage of the mobile Internet, mobile applications are developed to report problems encountered in the rural ecological environment anytime and anywhere, establish a full-closed-loop process for problem acceptance, fully transparent handling process, and multi-level supervision to ensure that reported environmental problems get timely feedback and treatment.

4. The difficulties faced by the communication industry in serving rural revitalization and countermeasures

4.1 The complex geographical environment in rural areas leads to high cost and difficulty in the construction of information infrastructure

At present, China's agricultural digital transformation has only made progress in infrastructure construction and one-way application. In some rural areas, due to the low population density and complex terrain, the construction of network infrastructure is costly and difficult. At the same time,

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there are problems such as insufficient bandwidth and unstable signals in rural network, which limit the extension of network coverage to natural villages and farmers. In addition, the application of technologies such as the Internet of Things and big data in precision production and early warning of diseases and pests is still in its initial stage[3]. Due to the relatively low added value of agricultural products, agricultural information equipment is difficult to maintain and other practical problems, the progress of digital transformation in agricultural production is relatively slow. According to the White Paper on the Development of China's Digital Economy (2020), the scale of China's digital economy reached 35.8 trillion yuan in 2019, accounting for 36.2% of GDP and 67.7% of GDP growth. However, the proportion and growth rate of the agricultural digital economy in the added value of the industry ranked the bottom of the three industries for many years in a row. It is much lower than the 25 per cent in services and 50 per cent in industry.

4.2 The lack of a standard system for agricultural and rural informatization construction leads to a low level of informatization service

Since agriculture involves a wide variety of products and different process requirements, the state and industry have not established relevant standard systems for the time being, and each communication enterprise can only develop and provide services based on the actual needs of the local rural areas. Moreover, the development quality and standards of each enterprise are uneven, and the enterprise can no longer carry out secondary development according to the original foundation, resulting in the formation of multiple independent application platforms. The result is that data cannot be shared between platforms, the functions are redundant and wasteful, and the overall investment is high; In addition, most communication providers mainly provide services by means of system subcontracting procurement, product technology introduction, etc. Their system integration maturity is insufficient, technical service level is insufficient, and the actual efficiency of providing digital services is average. As a result, most farmers believe that the benefits generated by information transformation are far lower than the cost, and they are not highly motivated to participate in the transformation[2].

4.3 The lack of information technology professionals leads to the lack of industrial talents

The lack of digital skills of farmers and the lack of talents in information industry are important factors restricting the modernization of agriculture and rural areas. The rural labor force is generally low in educational level, agricultural labor intensity is high, occupational social recognition is low, most of the work area is far from the central city, many young people do not want to engage in agriculture, and it is more difficult to retain knowledgeable and skilled professionals. The economic development of rural areas is relatively backward, there is no digital economy, information technology and other related fields experts, but also lack of digital transformation related knowledge concepts, and the cultivation of digital skills for agricultural practitioners is seriously insufficient. According to relevant data, there were 62,064 valid samples in the three phases of the study in 2014, 2016 and 2018. The results show that the proportion of rural residents using the Internet in 2018 was still more than 18 percentage points lower than that of urban residents, and rural residents significantly lagged behind urban residents in terms of digital skills. The gap in overall income growth between urban and rural areas is 24.6% because of skills deficits[1].

5. Conclusions

First, accelerate the construction of rural network facilities, step by step and accelerate the promotion of rural "new infrastructure" projects, make up for the shortcomings of digital facilities in rural and poor areas, and narrow the "digital divide" between urban and rural areas. The second is to promote the deep integration of agricultural informatization with various application scenarios, and improve the application of the whole industrial chain, such as crop cultivation, agricultural product production and processing, agricultural product sales and circulation, and rural tourism. The third is to build a co-construction and sharing model with government guidance and social participation, and study the means of government purchase of services, social market-oriented operation and loan discount, so as to promote the participation of social forces, industrial and commercial capital and financial capital in agricultural and rural modernization, so as to comprehensively support rural revitalization.

The first is to establish a regular training program for professionals in information technology, invite communication industry experts and professional scholars to team residents and cadres in rural areas to carry out universal education on basic knowledge of information technology, and improve the information technology application and management ability of cadres and farmers in "agriculture, rural

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areas"; Regularly with major universities, research institutes to carry out industry-university-research cooperation, training a group of agricultural and rural informatization professional leading technical personnel, management personnel, to create a high-quality, high-quality personnel team. The second is to improve the environment for agricultural and rural development, promote the relevant departments to introduce talent introduction and incentive policies, encourage a large number of professional and technical talents to go to the grassroots and return to the countryside, attract and retain talents through policy dividends, and provide a steady supply of talents for rural areas.

References

[1] Yin Haodong; Huo Peng; Wang S G. Digital transformation in agriculture and rural areas: realistic representation, impact mechanism and promotion strategy [J]. Reform, 2020, (12):48-56.
[2] Yilong Lu. Rural revitalization of agriculture and rural areas in the modernization problems [J]. Journal of China agricultural university (social science edition), 2018, 35 (3): 48-56. DOI: 10.13240 / j.carol carroll nki caujsse. 2018.03.006
[3] Guo T T. Research on the strategy of high-quality construction of "digital countryside" under the background of rural revitalization [J]. Journal of Liaoning Agricultural Vocational and Technical College, 2022, 24(03):60-64.
[4] Dong Zhiyong, Li Daming, Li Chengming. Digital fu to rural revitalization of rural construction: the key problem and optimization path [J]. Journal of administrative reform, 2022, (6): 39-46. DOI: 10.14150 / j.carol carroll nki. 1674-7453.2022.06.001
[5] Wang Liang, Wu Weiping. Communication market competition and network investment: An empirical study from the perspective of non-dominant operators [J]. Economic and management research, 2018, 33 (4) : 6. 67-74 DOI: 10.13502 / j.carol carroll nki issn1000-7636.2018.04.006