Frontiers in Economics and Management Volume 4 Issue 11, 2023
ISSN: 2692-7608 DOI: 10.6981/FEM.202311_4(11).0003

Research on the Mechanism and Path of Digital Technology Empowering Rural Revitalization

Zhen Chen[1], Xinyue Lin[2], Yifei Han[2], and Yan Peng[2]

[1] School of Economics, Anhui University of Finance & Economics, Bengbu 233000, China

[2] School of Finance, Anhui University of Finance & Economics, Bengbu 233000, China

Abstract

The impact of digital technology on rural development has become the focus of academic research. This article discusses four aspects: problem background, implementation path, problem shortcomings, and countermeasures and suggestions. The path for digital technology to empower rural revitalization is mainly to improve infrastructure, empower It covers four aspects: enabling rural industries, empowering rural life, and empowering rural governance. By analyzing the mechanism of empowerment and current existing problems, relevant countermeasures and suggestions are finally put forward to promote the sustainable development of rural areas and provide theoretical and practical reference for promoting rural revitalization.

Keywords

Digital Technology; Rural Revitalization; Empowerment; Implementation Path.

1. Background

With the rapid development and popularization of digital technology, the digital economy has risen globally and has a profound impact on all walks of life. Digital economy is an economic form based on information and communication technology, including digital industry, digital production and digital services. The widespread application of digital technology has changed people's lifestyles, business models and social structures, and promoted economic growth and innovative development. The proposal and implementation of the rural revitalization strategy are inevitable requirements for realizing Chinese-style modernization. Studying how digital technology empowers rural revitalization is of great significance to realizing the rural revitalization strategy. Digital technologies represented by the Internet of Things and big data play an important role in promoting rural economic development. At present, there are relatively few studies on the internal mechanism of digital technology empowering rural revitalization. This article aims to study how digital technology empowers rural revitalization, explore its potential and impact, and provide new thinking and understanding for promoting rural revitalization. 0[2].

2. Literature Review

This article uses bibliometric analysis and CiteSpace software to draw relevant knowledge maps and analyze the literature related to digital technology in the past six months.

2.1. Hotspot Analysis based on Keywords

Keywords can quickly and accurately reflect the theme and focus of an article . Through the analysis of keywords, I can get the research focus of scholars in recent times. This article conducts co-occurrence statistics on the top 20 keywords in the latest CNKI articles with the theme of "Digital Technology" from May 2023 to November 2023 to obtain Table 1, and Figure 1 shows this time Keyword co-occurrence map within the paragraph.

ISSN: 2692-7608 DOI: 10.6981/FEM.202311_4(11).0003

Table 1. Keyword frequency table

sort	frequency	Centrality	Key words
1	227	0.53	Digital technology
2	226	0.59	digital economy
3	78	0.2	rural revitalization
4	74	0.22	Digital empowerment
5	55	0.2	Digitizing
6	44	0.11	digital countryside
7	33	0.05	Common prosperity
8	31	0.05	Technology empowerment
9	31	0.11	digital governance
10	29	0.11	Empower

Through the analysis of Table 1, we can know that digital technology, digital economy, digital empowerment, and rural revitalization are hot topics studied by scholars and are keywords in recent articles. The centrality of "Digital Economy" is 0.59 , ranking first, indicating a strong research theme.

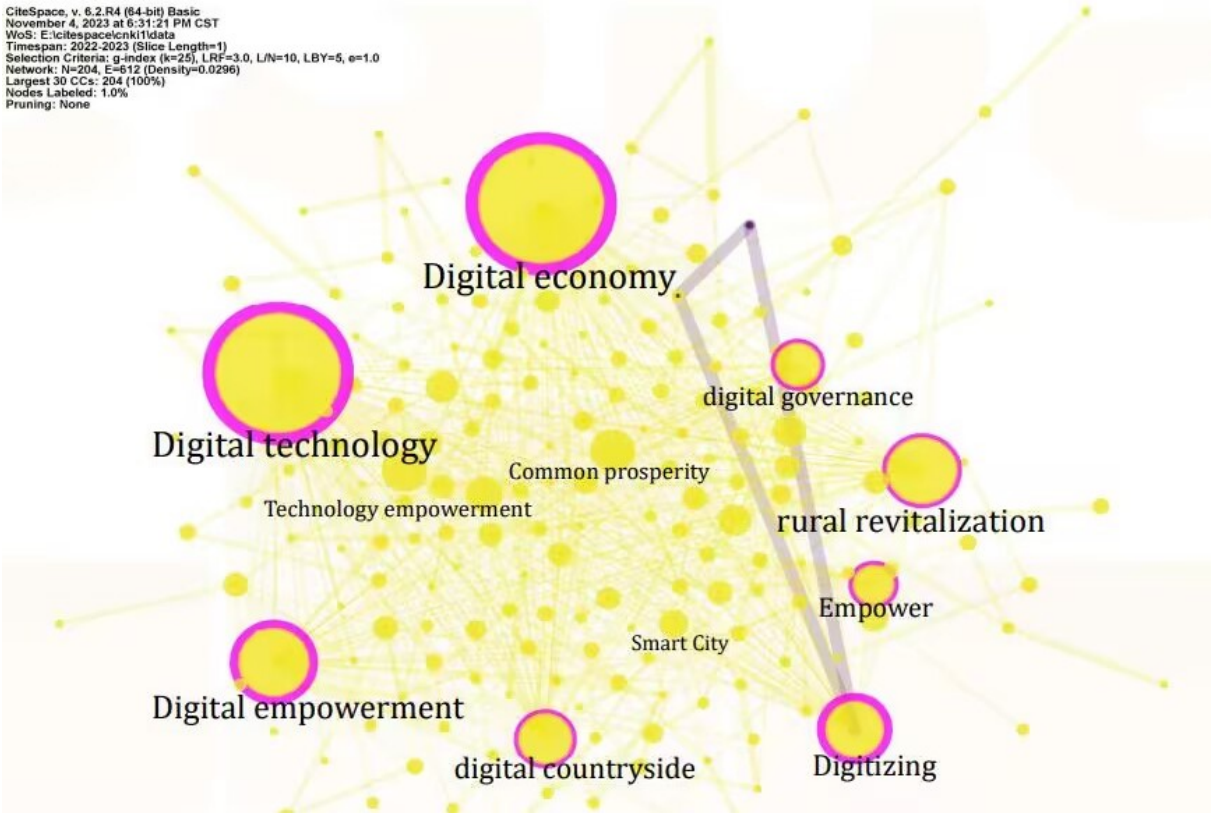

Figure 1. Keyword co-occurrence map

ISSN: 2692-7608 DOI: 10.6981/FEM.202311_4(11).0003

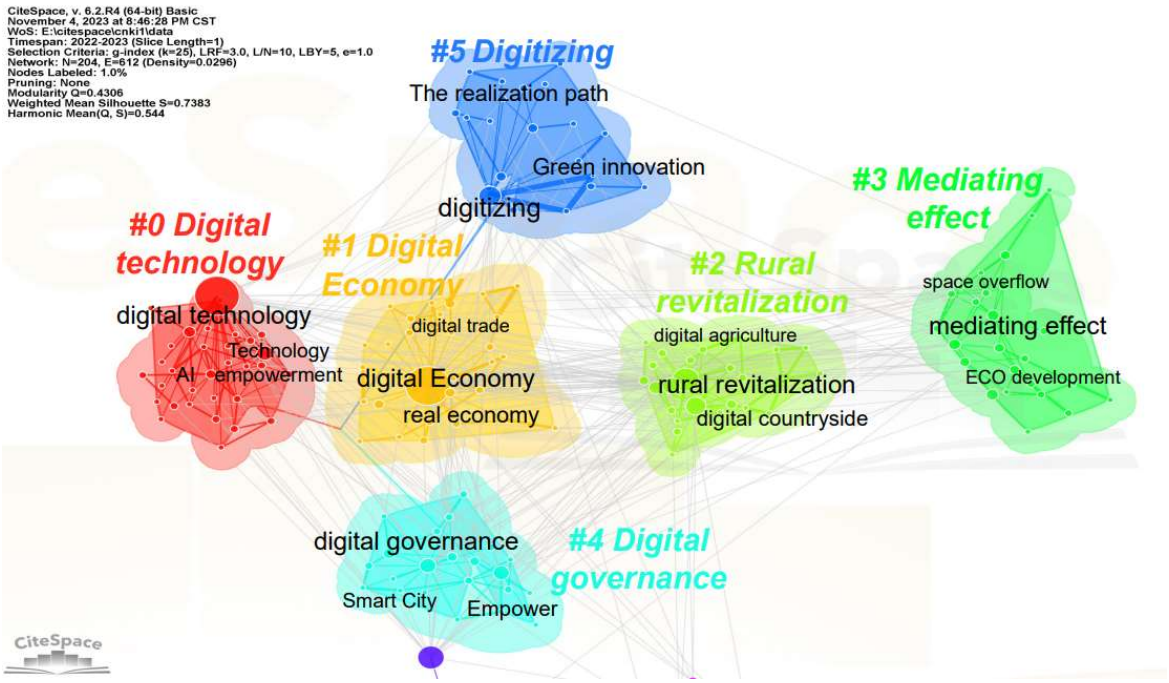

Figure 2. Keyword clustering map

As can be seen from Figure 1 , under the theme of digital technology, the focus of scholars' research is rural development and how to better achieve common prosperity. As can be seen from the cluster analysis in Figure 2, the first three categories include digital technology, digital economy, and rural revitalization. Research on digital technology focuses on how digital technology empowers people, and digital economy focuses on how the real economy transforms and upgrades to the digital economy . Rural revitalization revolves around digital rural construction and how to realize digital governance. [3].

3. Implementation Path

Digital technology empowerment refers to using the power and advantages of digital technology to provide support and promotion for rural revitalization. Through digital technology, we can improve production methods in rural areas, improve agricultural production efficiency, expand agricultural product sales channels, and promote the diversified development of rural industries. Digital technology empowerment also includes applications in digital agriculture, smart rural construction, e-commerce, digital finance, etc. This article will describe the implementation path of digital technology empowerment from four aspects.

3.1. Improve Infrastructure

Rural infrastructure construction includes not only basic production facilities , such as irrigation systems, livestock facilities, etc. , but also electronic communication facilities , such as optical fiber networks and 5G base station construction. At present , with the popularization and continuous updating of the Internet, mobile phones and broadband, it has accelerated and catalyzed the revitalization of rural areas . The improvement of basic communication facilities can improve the dissemination and access capabilities of information , reduce information barriers and information asymmetry , and ensure Information flow can promote the promotion and sales of agricultural products and services , rationally allocate resources , reduce transaction costs , and play a positive role in rural revitalization.

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3.2. Empowering Rural Industries

The digitalization of rural agriculture drives rural revitalization . The introduction of digital technology has given rural revitalization new momentum and a new engine. Digital empowerment not only increases crop yields, but also creates a new agricultural form. After e-commerce and major retailers entered the rural market, rural e-commerce has gradually stabilized. Network technology is used to allocate resources to villagers and promote their excellent agricultural products to sales channels. At the same time, it is divided into multiple categories according to different needs. The fierce competition in each category promotes the rapid rise of specialized e-commerce and content-based e-commerce in rural areas, increasing sources of income for farmers and narrowing the differences between cities and rural areas.

3.3. Empowering Residents'Lives

The goal of digitally empowered rural revitalization is to improve people's livelihood . With the continuous improvement of rural public services , the difference in basic public service standards between urban and rural areas will gradually be narrowed. First of all, in the field of education, we make full use of the functional characteristics of digital technology to break the time and geographical restrictions of traditional education, build a teaching material sharing network between urban and rural areas, and obtain more high-level information through online courses or distance learning. It provides high-quality learning resources and provides more advanced educational facilities and software tools, which optimizes the original teaching conditions, improves the quality of education, and reduces the educational differences between urban and rural areas, thus contributing to the continued progress of education. Secondly, at the medical level, we actively promote the construction and improvement of digital medical systems in rural areas, which will help significantly enhance the efficiency and accuracy of basic public services required for rural revitalization. When digital technology is widely used and matures, it can further improve the efficiency of basic public services and ensure efficient and accurate allocation of treatment resources. Intelligent management of big data has become a key strategy to promote the development of the medical industry. Finally, in the financial field, using the power of digital technology to revitalize rural areas can greatly enhance the degree of urban-rural integration in the process of urbanization. Combine rural revitalization with the digital rural platform and bank life platform , integrate resource advantages , continuously innovate and optimize the digital rural platform service model , achieve online and offline full-channel agricultural product sales , and use digital finance to assist the construction of a beautiful digital countryside. Fourth , in terms of shopping , driven by Internet giants , farmers can purchase what they need through the Internet , which enriches farmers' online shopping experience and makes online shopping more affordable and convenient.

3.4. Empowering Rural Governance

Digital technology empowers rural areas to diversify rural governance subjects , make governance content more detailed , and make governance concepts more humane. The combination of digital technology and rural governance can , on the one hand , break through the limitations of time and space , allowing residents in other places to understand and understand the situation in a timely manner. Grasp effective rural information , discuss and make decisions on rural public affairs , expand the breadth and depth of residents' autonomy , and fully protect residents' rights to know and participate. On the other hand , it can strengthen the collective identity of villagers and shape their sense of village community.

In addition, in terms of party building , content such as organizational life, theoretical study, and party member management are carried out online through the Internet to enhance the effectiveness of rural party members' participation in learning party member-related content , and to improve the efficiency and level of party affairs work management of grassroots party

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organizations. In terms of government affairs , we rely on online government service platforms and rural convenience service centers to promote the standardization of government affairs processes, the efficiency and accuracy of services , and improve the efficiency of government affairs processing. Digital transformation of rural governance requires the leadership of a competent government and the digital technology support of an effective market. We must make full use of the policy influence of grassroots party organizations and actively stimulate the enthusiasm of social organizations to participate, so as to establish a promising government and create an organically integrated digital rural governance community. [4][5].

4. Main Issues Faced by Digital Empowerment in Promoting Rural Revitalization

Led by the empowerment of digital technology, rural revitalization has achieved certain results: digital technology has brought new opportunities to agricultural production and sales, improved production efficiency and quality; promoted industrial adjustment and optimization; and provided farmers with better livelihood convenient. However, in the process of giving full play to the role of digital technology in empowering rural revitalization, our country still has some problems and shortcomings.

4.1. Digital Divide Issue

Due to the different levels of economic development between urban and rural areas, there is a gap in the popularization and application of digital technology between urban and rural areas. Some remote rural areas may not be able to enjoy the convenience brought by digital technology. This digital divide not only exists between different regions, but also some elderly people and farmers with low education levels may not be able to adapt to digital life, thus hindering the construction of digital countryside. The 2022 China Digital Rural Development Report points out that as of June 2022 , the penetration rate of the Internet in rural areas has only reached 58.8% . The penetration rate of the Internet is related to the functional efficiency of digital technology in empowering rural areas. Only half of the penetration rate has not reached 58.8% . Differentiation is one of the problems that must be solved in digital technology empowerment.

4.2. Shortage of Technical Talents

Rural areas lack digital technical talents, including talents in the Internet, Internet of Things, big data, artificial intelligence, etc. This restricts the development of digital rural construction and makes it impossible for rural areas to make full use of digital technology to improve production efficiency and quality of life. At the same time, due to the shortage of technical talents, digital facilities in some rural areas cannot be maintained and updated in a timely manner, further affecting the construction process of digital villages. [6].

4.3. Digital Security Issues

With the popularization and application of digital technology, digital security issues have gradually become prominent. When farmers use digital means such as the Internet and mobile payments, they may encounter problems such as personal information leakage and network security. They may also listen to and believe wrong information on the Internet and fail to filter out correct information from the torrent of digital information. These problems will not only affect the quality of life of farmers, but also have a negative impact on the construction of mathematical villages, which need to be effectively solved and managed.

4.4. Insufficient Digital Application

In some rural areas, digital application is still in its infancy, and digital technology is mainly used to manage and record agricultural production processes. However, digital technology can

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also play a greater role, such as market analysis and optimization of agricultural production through digital technology. In addition, digital technology can also be applied to public services in rural areas, such as medical care and education. However, data shows that there are currently relatively few digital applications in these fields. As of 2021 , the informatization rate of agricultural production has only reached 25.4% . Informatization is also called intelligence. Informatization is based on modern network technology, communication technology, etc., and aggregates relevant factors of agricultural production into a database, and then uses the collected technical information. Assisted decision-making can greatly improve agricultural production efficiency and reduce production costs. In the primary industry, agriculture, fishery, animal husbandry and other industries suitable for rural development, the informatization rate is only 20% to 40% , the degree of information collection is not high, and the utilization rate of information technology is not high. This is also one of the "shortcomings" in the implementation of our country's strategy.

4.5. Lack of Overall Planning

In some areas, digital rural construction lacks systematic planning and coordinated management, resulting in digital construction being carried out independently and lacking integrity and systematicity. By 2021 , the national digital rural development level will only reach 39.1% , of which only 33.6% will be achieved in the western region . This is due to the duplication of construction or waste of resources in digital construction between different rural departments. In addition, due to the lack of unified planning, the digital construction in some rural areas may not take into account the actual local conditions and needs, resulting in the inability of digital facilities to fully function.

5. Countermeasures and Suggestions

5.1. Improve Policies and Systems

Facing the current national and agricultural conditions and following the laws of digital technology and economic development, in terms of policy structure, while carrying out top-level design, the government must also strengthen policy promotion at the county level and do a good job in grassroots work. The construction of grassroots policies directly determines the efficiency of policy implementation and the degree of policy implementation. Combined with the construction of my country's digital rural pilot and the development plan of rural revitalization, coordinate the planning structure design and improve the policy system for digital technology to empower rural revitalization.

Reasonable policies will effectively support the development of digital agriculture. The government must face up to rural governance issues, propose a new round of development goals, and establish and implement the latest policies. At the same time, we should establish a scientific evaluation system, strengthen the sustainability of digital rural revitalization policies, build a complete and systematic policy evaluation system and a rigorous and standard system, provide classified guidance and layered evaluation for different levels and regions, and ensure that it is based on the facts. Improve and constantly improve.

5.2. Introducing and Cultivating Digital Talents

In the process of social development, the concept of "people-oriented" must be followed. Digital rural construction is inseparable from the support of talents. Digital talents are the intrinsic driving force of rural revitalization. In the context of modernization development, talent revitalization is the foundation of rural revitalization, and digital economy is the development direction of rural revitalization.

First, carry out relevant skills training for farmers, improve farmers' digital literacy, and promote the application of relevant technologies to adapt to the development of modern

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agriculture. Secondly, the introduction of digital talents is also very important. The government should further improve the higher education system to effectively cultivate digital talents, and at the same time make full use of the Internet and local advantages to build a platform through a combination of online and offline methods to attract talents into rural areas. Take root in rural areas and develop rural areas. At the same time, a guarantee and incentive mechanism will be established to retain digital young talents through a series of welfare guarantees and promote the continuous development of agricultural modernization.

5.3. Improve Digital Infrastructure

First, build and improve rural basic information facilities. Further expand the scope of network information facilities and intelligentize sensing systems, increase network access for rural residents, and strengthen rural network infrastructure. At the same time, the construction planning of communication facilities also needs to be continuously improved. The government needs to provide support in base station site selection, on-site construction, and power security to ensure the construction of rural communication infrastructure.

Secondly, the economic development brought about by the rural construction process requires the government to strengthen rural financial infrastructure. It is necessary to continue to improve our country's rural financial service system and continuously improve the construction of rural financial infrastructure, which will bring funds to rural production and meet the financing needs in the development process of digital agriculture. This enables the convenience and effectiveness of rural financial services to be realized.

Finally, providing more convenient services to rural residents is inseparable from the construction of rural infrastructure. Comprehensive coverage of basic living facilities for entertainment culture, fitness and sports, and public lighting. Improve the happiness of rural residents and strengthen the construction of spiritual civilization. [7].

5.4. Optimization of Rural Industrial Structure

Vigorously develop ecological agriculture, promote the application of ecological technology, and develop tourism and other related industries based on local advantages. At the same time, adjust the industrial chain and strengthen interaction and integration with artificial intelligence, blockchain, Internet of Things, etc. Complying with the laws of industrial development, starting from the planting link and extending to processing, sales and other links, we can achieve the organic connection of various industries, improve the industrial chain, increase value and enhance the comprehensive agricultural benefits. [8].At the same time, in order to achieve sustainable development, establish the concept that clear waters and lush mountains are invaluable assets, follow the laws of agricultural production, and make green and low-carbon improvements to the industrial structure. [9].

Acknowledgments

This article is a research achievement of the Research Innovation Fund for College Students in the School of Economics, Anhui University of Finance & Economics, Project number: ACJJXYZD2323.

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