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Research Article

Research on the Factors Influencing Digital Urban-Rural Sharing of Social Public Resources

Fan Jiang[*] , **Feng Xue, Shiyu Xiao, Dan Yang**

School of Economics and Management, Chongqing University of Posts and Telecommunications, Chongqing, China
Email: jeffblack123@qq.com

Abstract: Digital urban-rural sharing of social public resources (SPRs) is an effective way to narrow the urban-rural gap and promote integrated urban-rural development. Applying the method of the Grounded theory, 122 documents such as interview data and policy texts, and news reports are collected. And open codes, axial codes, and selective codes are developed to systematically examine the main factors affecting digital urban-rural sharing of SPR in China, and 23 categories and 6 main categories including government guarantee, talent support, technical support, resource supply, innovation drive, and social demand are obtained. On this basis, we construct a model of factors influencing the digital urban-rural sharing of SPR in China, analyze their effect mechanisms, and propose targeted countermeasures to enhance the digital urban-rural sharing of SPR in China.

Keywords: grounded theory, social public resource, digital sharing, influencing factor

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1. Introduction

With the in-depth implementation of China's rural revitalization strategy, higher standards and requirements have been put forward for the integrated urban-rural development, and the urban-rural sharing level of social public resources (SPRs) is an important indicator for evaluating and measuring the urban-rural integrated development (Li & Zhao, 2020). SPRs are resources that can be shared by the whole society to provide public products and public services for urban and rural residents and enhance social welfare, mainly including educational resources, scientific and technological resources, cultural resources, healthcare resources, social service resources, etc. (Li & Jiang, 2022). Using modern information technologies such as big data, the Internet of things, cloud computing, artificial intelligence, and 5G communication to promote digital and networked urban-rural sharing of SPRs in China is of great practical significance to accelerate the balanced allocation of urban and rural resources and promote the integrated urban-rural development. What factors will restrict the development of digital urban-rural sharing of SPRs? And how do they affect digital urban-rural sharing? This has become an urgent problem to be solved.

From an objective perspective, due to the influence of the long-standing "urban-rural" development structure, the digital urban-rural sharing of SPRs in China faces enormous challenges (Mu, 2021), which are constrained by such

factors as infrastructure, demand scale, resource allocation, financial investment, and institutional mechanisms. Most scholars researched on the factors influencing the digital sharing of SPRs. These resources are some fields which are public services, education, R & D information, government services, healthcare, and so on (Cronin 2017; Shen et al., 2019; Yang & Chen, 2016). For example, Rodes et al. (2019) explored the factors influencing the practice of sharing open educational resources from the perspective of college teachers' sharing intentions and found that institutional factors, attitudes, and the level of supply and demand affect the sharing practice. Liu and Jiang (2015) argued that residents' perceptions and environmental factors jointly affect residents' use of integrated information platforms for community public services. Chen et al. (2016) pointed out that social science data resource sharing is influenced by individual factors such as economic compensation and moral incentives and scientific factors such as data returns and academic recognition, as well as social factors such as policy drive and social evaluation. Wang (2018) proposed six factors affecting information sharing in medical consortia as institutional capacity, policy support, social benefits, technological impact, information collection, and health interventions. Tang (2021) found that the slow construction of digital platforms and the low information literacy of aging groups affect the application and sharing of public digital culture in China. Considering resource allocation, providing multiple suppliers and multi-channel options, ensuring that public resources are appropriately tilted to rural areas, and continuously improving the level of access to public resources for rural residents, a "dynamic balance" in the allocation of public resources in rural and urban areas can be achieved (Wu & Lu, 2020).

Overall, the existing literature has loosely studied the influencing factors of the digital sharing of SPRs, often focusing on resource sharing in specific areas and lacking a systematic and comprehensive grasp of SPRs as a whole. Given that the variety of SPRs is relatively heterogeneous and it is difficult to quantitatively analyze them with econometric models, this paper intends to conduct a qualitative study using the Grounded Theory to comprehensively examine SPRs such as science and technology, education, culture, health care, and social services to clarify the main factors influencing the digital urban-rural sharing of SPRs and to propose valuable policy recommendations for promoting the balanced development of urban-rural integration in China.

2. Methods and data

2.1 *Research methodology*

The Grounded Theory is a more scientific and rigorous qualitative research proposed by Glaser and Strauss (Hammersley, 1989). The so-called qualitative research refers to the researcher's in-depth communication and interaction with the research object in the natural environment, and the systematic and profound experience of the objective things, which leads to a more comprehensive understanding of the "nature" of things (Chen, 2000). In this paper, we use the grounded theory analysis method to collect and codify information about digital urban-rural sharing of SPRs, explore the main concepts and internal logical relationships, and then scientifically and effectively construct a theoretical model that can comprehensively reflect the influencing factors of digital urban-rural sharing of public resources.

2.2 *Data resources*

For the collection of primary data and information, this study mainly used both semi-structured interviews and information retrieval. When collecting information, attention was paid to the cross-corroboration of data sources from multiple sources to reduce the one-sidedness of the collected information and the subjectivity of the collectors.

The primary information available about this study was obtained mainly using semi-structured interviews. The interview outline covered several aspects such as awareness of digital urban-rural sharing of public resources, the current situation of digital urban-rural sharing of public resources in the interviewees' regions, problems, influencing factors, and future development trends and how to further promote digital urban-rural sharing of public resources. According to the above interview outline, 36 representatives from different industries and fields were finally selected for interviews, and each interview lasted 30 to 60 minutes. The specific interviewee information is shown in Table 1. After obtaining each other's consent, each interview was recorded and audio-taped, and organized as primary data for the study. In the later process of data collation, the interview materials that might have problems were also returned to

ensure the authenticity and completeness of the primary data needed for the study.

Table 1. List of interviewees

Information	Term	Number	Percentage
Gender	Male	20	55.6%
	Female	12	44.4%
Age	Under 24 years old	4	16.7%
	24 to 48 years old	18	50.0%
	Over 48 years old	10	55.6%
Adress	Urban	14	44.4%
	Rural	18	55.6%
Education	Junior high school and below	4	11.1%
	High School	10	27.8%
	Undergraduate	12	38.9%
	Master and above	8	22.2%
Occupation	Government	8	22.2%
	Education	4	11.1%
	Science and Technology	4	11.1%
	Culture	4	11.1%
	Medical Industry	4	11.1%
	Agriculture	6	16.7%
	Others	6	16.7%

The 86 secondary sources obtained by using information retrieval in this study were mainly derived from official announcements of relevant government departments, press reports, and other relevant information provided by search engines. The author cross-validated the information sources to ensure their accuracy and credibility.

3. Analysis and results
3.1 *Open coding*

Open coding, i.e., initial coding, is a process in which researchers gradually abstract concepts and categories

based on preliminary organization and analysis of the original data information (Zhao & Han, 2016). The initial coding process requires the researcher not to be confined to existing theories, and abstract the initial concepts by coding the original data material sentence by sentence and eliminating the crossed and overlapping concepts (Zeng & Cheng, 2018). The specific process was to mark keywords after each sentence within the material, normalize them into initial concepts, analyze the unifying, correlating, or subordinating relationships among these initial concepts, merge concepts involving the same phenomenon, and subsequently identify a core category to overarch them. After open coding, this study unearthed 226 phenomena, summarized 54 concepts, and refined 23 categories, which laid the foundation for the next axial coding. Some of the open codes are shown in Table 2.

Table 2. Open coding process table (excerpt)

Selected source materials	Open coding		
	Conceptualization	Normalization	Paradigmization
The essence of big data drive is information-driven (a1), promoting information exchange and data sharing among different regions, levels, and departments (a2, a3, a4), improving the pattern of administrative fragmentation with standardized data (a5), thus enhancing the aggregation of regional public resources (a6); realizing precise supply through public service data sharing (a7), information integration and resource coordination (a8); and finally building a regional collaborative (a9) supply network, gradually forming a closely related and responsive public service community	a1: Information driven	aa1: Information sharing (a1)	A1: Information sharing (aa1, aa2)
	a2: Regional data sharing	aa2: Data sharing (a2, a3, a4, a7)	A2: Normalization of standards (aa3)
	a3: Hierarchical data sharing	aa3: Data standardization (a5)	A3: Resource integration (aa4)
	a4: Departmental data sharing	aa4: Resource integration (a6, a8)	A4: Regional coordination (aa5)
	a5: Data standardization	aa5: Regional coordination (a9)	
	a6: Resource Aggregation		
	a7: Data sharing		
	a8: Resource integration		
	a9: Regional collaboration		

3.2 Axial coding

As shown in Table 2, open-ended coding does not clarify the interrelationships between concepts and requires deeper mining and analysis. The axial coding clusters the different categories generated in the open coding, and according to the "cause condition-phenomenon-vein-mediated condition-action/interaction strategy-result" paradigm (Lin, 2019), and connects the categories through a deeper analysis of the information to uncover the interrelationships between the primary and secondary categories (You et al., 2014). Table 3 shows the paradigm of the main category "government guarantee".

Table 3. Paradigm of government guarantee

Reason conditions	Phenomenon
A6: Policy protection	
A9: System improvement	A2: Normative standards
A12: Institution building	

Main category action vein

Digital urban-rural sharing of public resources should rely on policy guarantees such as rural revitalization and urban-rural integration development strategies, gradually improved resource sharing systems, institutional mechanisms for urban-rural sharing of resources, and standardized standards for shared resources

Intermediary conditions	Action/Interaction Strategy
A20: Financial Support	A4: Regional Coordination
A17: Regulatory Security	A7: Sectoral Synergy

Results

Government actively and effectively secures resource sharing implementation

Table 4. Primary and secondary categories of axial codes and their connotations

Main Category	Sub-categories	Connotation
Social demand	A16 Public demand	Social development needs for urban-rural integration
		Rural development needs for rural revitalization
		Farmers' demand for quality resource services
	A19 Social concern	The concern of social service organizations and members of society for balanced urban-rural development
	A21 Industry to help farmers	Integration of the whole industry and the whole industrial chain
		Assisting agriculture with production and leading rural areas with urban areas
		Development of digital industry to help farmers
Government guarantee	A2 Normative standards	Standardize the standard system of resource digitization
		Formulating technical standard specifications
	A4 Regional coordination	Coordinate the construction of urban and rural public resources
		Social public resource sharing platform synergy
	A6 Policy guarantee	Guarantee a series of policies for rural revitalization, urban-rural integration, and digital village construction
	A7 Sectoral collaboration	Coordination among government departments at all levels to implement policies related to rural revitalization and "Digital China" construction
	A9 System improvement	Social public resource supply system and public service system for resource sharing, etc.

Table 4. (cont.)

Main Category	Sub-categories	Connotation
Government guarantee	A12 Institutional construction	Develop and establish a digital system for public resources
	A17 Regulatory security	Establishing a sound digital sharing security responsibility system
		Improve the level of digital supervision
	A20 Financial support	Formulating policies for financial support of social public resource sharing
		Pouring more financial resources into the construction of digital villages, etc.
Innovation drive	A5 Innovation drive	Strengthen technology application drive, sharing mechanism innovation, and sharing model innovation
	A22 Technology innovation	Accelerate information technology innovation
		Accelerate the transformation of digital technologies
		Breakthrough key technologies that restrict the digital sharing of resources
Talent Support	A13 Talent cultivation	Technical talent support and guarantee
		Innovation and entrepreneurship and digital technology training
	A23 Digital literacy	Improve digital literacy of urban and rural residents
		Enhance the digital resource use capability of urban and rural residents
Resource supply	A1 Information sharing	Ensure digital resource system openness
		Optimize the layout of public resources
		Enhancing information sharing capacity
	A3 Resource integration	Integrate digital resources from all sides
		Build resource database
		Integrate regional public basic resources
	A10 Digital resource library	Building digital centers and digital service systems
	A18 Resource supply	Improving the efficiency of public resource supply
		Enhance digital sharing service capacity
	A15 Platform building	Build digital platforms using key digital technologies
Technology support	A8 Technology application	Application of digital network technologies such as Internet of Things, big data, cloud computing, etc.
	A11 Infrastructure construction	Digital infrastructure construction
		Digitization of infrastructure
		Strengthen the support capacity of digital infrastructure
	A14 Networking layout	Degree of rural network informatization
		Expanding the scope of network penetration
		Optimize the layout of rural network coverage

After the axial coding, 23 sub-categories such as A16 public demand, A7 sectoral collaboration, and 6 main categories such as social demand, government guarantee, innovation drive, talent support, resource supply, and technology support were discovered. The specific coding results are shown in Table 4.

3.3 Selective coding

Selective coding is the process of constructing a theory by extracting and summarizing the core categories based on the results of the main axis coding and analyzing and refining the relationships with other categories (Zeng & Cheng, 2018). By further analyzing the main categories and combining them with the intention of this study, the author abstracted the core category of "factors influencing the digital urban-rural sharing of resources", which was used to coordinate the other six main categories. The structure of the relationship between the main categories is shown in Table 5. The "story line" around the core category is thus derived: under the government guarantee of establishing a sound institutional mechanism for sharing, improving relevant policies and systems, ensuring financial support and cross-sectoral and cross-regional collaboration, and supervising and controlling the information security of digital resources, the innovation drive in digital technology, service mode, and sharing mechanism is taken as the core. With the core of innovation and drive in digital technology, service mode and sharing mechanism, we will strengthen talent training, digital infrastructure, and equipment construction, and key digital technology application, strengthen resource integration and sharing, increase the supply of public resource services, and provide digital urban and rural sharing services of public resources that can meet the needs of society.

Table 5. Typical relationship structure of the main categories formed by selective coding

Typical Relationships	Relationship Structure	Relationship Structure Connotation
Social Demand → Shared Behavior	Causality	Social demand positively influences the digital urban-rural sharing of SPRs. Among them, social concern, public demand, and industrial development for agriculture directly contribute to the digital urban-rural sharing of SPRs as internal driving factors.
Government Guarantee ↓ Social Demand → Shared Behavior	Safeguard relationship	Social demand positively influences the digital urban-rural sharing of SPRs, while this relationship is influenced by government guarantees. Policy guarantees and financial support provide guarantees for the implementation of sharing behavior and externally influence the promotion effect of social demand on sharing behavior.
Innovation Driven ↓ Social Demand → Shared Behavior	Regulating relationship	Social demand positively influences the digital urban-rural sharing of SPRs, while this relationship is influenced by innovation drive. Application innovation, technological innovation, and mechanism innovation influence the promotion effect of social demand on sharing behavior from the inside.
Talent Support ↓ Social Demand → Shared Behavior	Support relationship	Social demand positively influences the digital urban-rural sharing of SPRs, while this relationship is influenced by talent support. Talent training and improvement of residents' digital literacy provide talent support for the implementation of sharing behavior.
Resource Supply ↓ Social Demand → Shared Behavior	Support relationship	Social demand positively influences the digital urban-rural sharing of SPRs, while this relationship is influenced by resource supply. Resource integration and digital library construction provide resource support for the implementation of sharing behaviors.
Technology Support ↓ Social Demand → Shared Behavior	Support relationship	Social demand positively influences the digital urban-rural sharing of SPRs, while this relationship is influenced by technical support. Technology applications, infrastructure construction, etc. provide technical support for the implementation of sharing behavior.

Based on this "story line", a theoretical model of factors influencing the digital urban-rural sharing of SPRs in China is constructed, as shown in Figure 1.
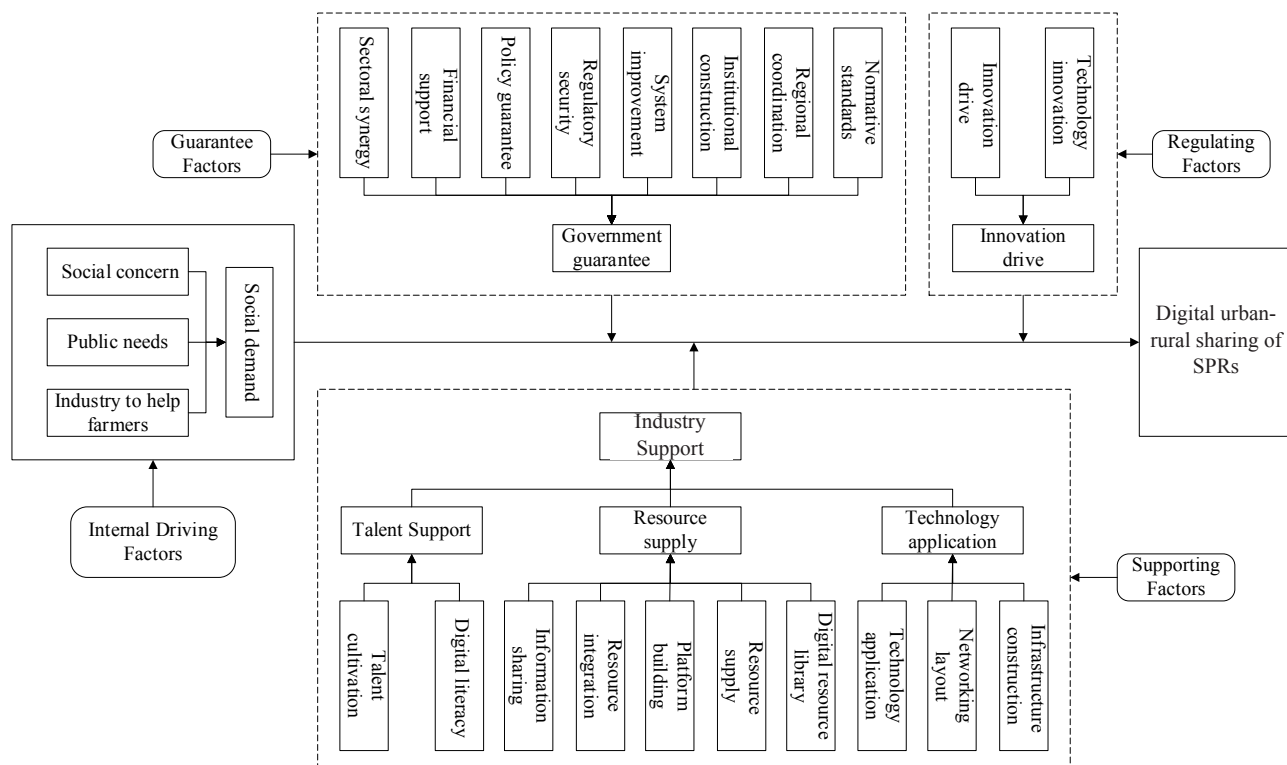

Figure 1. Theoretical model of factors influencing digital urban-rural sharing of SPRs in China

3.4 *Theoretical saturation test*

The theory saturation test is a key step in testing the soundness of the constructed theory, which determines the need to continue sampling coding work. Theory saturation is when a new theory is generated by analyzing the collected data that no longer develops into new categories (Fassinger et al., 2005). In this study, theoretical saturation was tested with 1/3 of the original material that was not involved in theory construction, and no new important concepts or categories were found after open coding it. Therefore, it can be considered that the above theoretical model has reached saturation.

4. Discussion and suggestions
4.1 *Discussion of the results*

This study adopts the grounded theory, and after three levels of coding, it constructs a theoretical model consisting of six categories: "social demand," "government guarantee," "innovation drive," "talent support," and "technology support. The theoretical model of factors influencing the digital urban-rural sharing of SPRs in China, which consists of six categories: "social demand," "government guarantee," "innovation drive," "talent support," "resource supply," and "technical support".

Social demand. Social demand, as the internal driving force of social public resource sharing in China, directly drives the development of digital urban-rural sharing of resources in China. Society's demand for balanced development of urban-rural integration and farmers' demand for quality resource services are important driving forces for digital

urban-rural sharing of public resources. Twelve interviewees talked about the imbalance between urban and rural economic development in China and the phenomenon that social public resource services in rural areas lag far behind those in cities. It is deeply urgent and important to achieve balanced urban-rural development, meet rural residents' demand for quality resource services, and accelerate the promotion of urban-rural sharing of SPRs. Firstly, the current situation of SPRs between urban and rural areas is examined and integrated to promote the sharing of public services among different groups. The utilization of public resource facilities could promote the extension of public resource allocation to rural and grassroots areas. This can make the agglomeration and distribution of public resources reflect fairness and take into account efficiency. Secondly, the relative under-investment, unequal provision, and structural mismatch between public resources and social needs, the changes in regional population, transportation, and other factors, the current development of regions and industries between urban and rural areas, and the future population trend are all important measures of the rationality and effectiveness of the layout of public resources. They are also the basis for the "equalization" of basic public resources between urban and rural areas. Thirdly, big data technology enables accurate identification of public resource needs. A general description and accurate "portrait" of social needs can be made to scientifically identify and quickly integrate public resource needs. By analyzing the different dimensions and levels of public needs of urban and rural residents and comprehensively learning about their public resource service needs, we can more accurately and effectively promote the sharing of urban and rural public resource services to maximize the efficiency of public resource service sharing.

Government guarantee. In the process of digital urban-rural sharing of SPRs in China, the management system, policy measures, and promotion mechanism are all important. Through legislation and various policy measures, the government establishes an appropriate urban-rural resource sharing mechanism system, standardizes industry standards for resource information sharing, promotes cross-sectoral and cross-regional industrial synergy, increases local financial support for social public resource sharing, and strengthens comprehensive supervision and control over the safety of digital resource sharing to guarantee the balanced and coordinated development of urban and rural areas. Moreover, it can actively explore the establishment of a basic database of urban and rural public resources and build an integrated public resource governance database, so that urban and rural areas can realize the whole chain of public resource data governance. When it comes to the future development of digital resource sharing in urban and rural areas, four interviewees suggested that the government and the industry should introduce regulations on the management of digital resources and technical standards for resource digitization as soon as possible, so as to play a supervisory and guarantee function of the government and effectively promote the steady development of digital resource sharing. Three interviewees hoped that the government would promulgate more financial support policies on urban and rural resource sharing, so as to provide institutional and economic guarantees for the balanced development of urban and rural areas and the construction of digital villages. Provide institutional and economic guarantees.

Innovation-driven. With innovation as the main driving force, we need to promote the further development of digital urban-rural sharing of public resources in China, strengthen the innovation in application, mechanism, and mode, and promote the common construction and sharing of public resources in urban and rural areas; accelerate information technology innovation and digital technology innovation and application, and break through key technologies that restrict digital sharing of resources. Through the integration of "digital + public resources", a coordinated urban and rural development system can be constructed and the digital synergy and sharing of public resource allocation can be realized. Firstly, enhancing the digital construction and intelligent upgrading of public infrastructure could accelerate the improvement of digital infrastructure and expand network coverage to create an interconnected network space for "digital + public resources". Secondly, in-depth excavation of artificial intelligence application scenarios and digital technology applications radiation range in the field of public resources can strengthen technology exchange and resource interoperability between urban and rural areas. It also can create a public resource allocation method with complementary advantages and synergy sharing between urban and rural areas. "The 14th Five-Year Plan mentions digitalization several times and points out that innovation is the core force for accelerating the development of the overall situation. Applying innovation to the field of digital resource sharing will actively promote the application of digital sharing technology, which is conducive to the construction of digital countryside and digital China, and will vigorously enhance the digitalization and intelligence of urban and rural resource sharing.

Talent Support. Talent team construction has an important supporting role in digital urban-rural sharing of public resources. Ensuring the supply of technical personnel for the digital sharing of SPRs, carrying out targeted training on

modern digital technology application skills for urban and rural residents, improving their digital literacy, and expanding the popularity of digital network technology is the only way to ensure the comprehensiveness, systematization, and sustainability of resource sharing. The construction of digital skills cultivation system for rural residents should be accelerated. On the one hand, a digital skills alliance involving multiple parties from government, industry, academia, and research should be constructed. A more long-term and diversified value-oriented curriculum system should be formed. They can guarantee the supply of smart terminals and learning places, etc. On the other hand, digital skills education should be promoted in formal and non-formal education, and innovative learning channels such as "family" and "community" training should be developed. In addition, special digital skills training should be provided for public service workers to take the lead. When talking about digital resource sharing, three respondents said they knew little about this information and did not know how to use the Internet to obtain digital resources and services; five respondents also said they enjoyed the convenience of digital resource sharing and could obtain information and handle affairs without leaving home. Strengthening the training of digital technology talents and digital technology application training can lay the foundation for the promotion of the digital sharing of public resources in urban and rural areas.

Resource Supply. The influence of resource supply on the digital sharing of public resources in urban and rural areas is mainly reflected in the construction of resource databases and the building of sharing platforms. By integrating digital resources from all parties and building resource databases and digital service systems; optimizing the layout of public resources to enhance resource sharing capacity; and building digital platforms to guarantee resource management and service provision, the digital sharing of resources is provided with resource supply sources that are rich in content and complete in categories. Six interviewees mentioned that in the networking of medical associations and regional education integration, there is still mutual competition for negative sharing, and there are certain technical loopholes in the resource sharing platform, which greatly affects the digital sharing of resources. The "National Public Resources Trading Platform" in China gathers information on public resource transactions from 31 provinces and cities. The platform realizes the vertical and horizontal penetration of various public resources trading platform systems at all levels and information resource sharing, and constructs a "one network" for information sharing of national public resources transactions. The integration of online resources formed by such a borrowed Internet platform is conducive to the integration of resource fragmentation across regions and time. Measures taken by various local governments in the Yangtze River Delta region to promote the convenient sharing of public services, such as integrating regional public service basic data and building livelihood protection data systems, provide a good reference for promoting the implementation of digital sharing of public resources in urban and rural areas.

Technical support. The development, maturity and innovation of key digital technologies are prerequisites for digital sharing of resources, and the application of digital technologies such as big data, cloud computing, Internet of Things, block chain, 5G communication, and artificial intelligence to SPRs is necessary to realize digital urban and rural sharing of resources. The digitalization of infrastructure and its supporting capacity are important influencing factors for digital sharing of resources, and their influence is reflected in the degree of digitalization of rural networks and the ability of urban and rural residents to use shared digital resources. Three interviewees indicated that the application of modern information technology in rural areas, such as the Internet of Things and big data, has promoted the construction of local smart agriculture and further improved the digitalization of rural production and life. Key digital technology is the soft support for digital urban-rural sharing of resources, and infrastructure equipment is its hard support; the combination of the two will be more conducive to digital urban-rural sharing of China's SPRs. With the support of new-generation information technology such as big data, Internet of Things and artificial intelligence, the development of new scenarios of "digital +" such as telemedicine, online education and online training can break out of the inertia of the previous flow of factors resources and realize the networked collaboration of public resource allocation across space and time. This is not only conducive to breaking through the traditional constraints of scarcity of factor resources on the universality of public resource allocation, but also to promote the extension of high-quality public resources to other regions and realize the non-exclusive sharing of public resources between urban and rural areas and between regions.

The implementation of national strategies such as integrated urban-rural development, rural revitalization and digital China construction has greatly stimulated the social demand for digital urban-rural sharing of SPRs, and this force of social demand as an internal driving factor directly drives and influences the sharing process. Government policies and institutional construction as a guaranteed factor provide a good policy environment and service support for digital urban-rural sharing of resources. Innovation drive as a regulating factor, the results of institutional innovation,

sharing model innovation and sharing technology innovation influence the level and efficiency of digital urban and rural sharing of resources. Cross-industry and multi-industry resource integration, specialized talent training, and technical support and application serve as supporting factors, providing resources, talent, and basic technical guarantees for the development of digital urban and rural sharing of resources. The internal driving factors, guaranteeing factors, regulating factors, and supporting factors jointly influence the digital urban-rural sharing of SPRs through interactions. To sum up, the mechanism of the influencing factors of digital urban-rural sharing of SPRs is that, with the coordination of government departments and policy guarantee, the development of digital urban-rural sharing of SPRs is promoted with innovation drive as the core, relying on cross-industry and multi-industry resource integration and talent supply, and integrating digital technology application to meet the needs of social development.

4.2 *Policy recommendations*

Based on the influence and relationship between the six categories mentioned above on digital urban-rural sharing of SPRs, the following policy recommendations are proposed to promote digital urban-rural sharing of SPRs in China.

First, optimize the allocation of SPRs. In view of the economic development of different regions, we should analyze the hierarchical structure of SPRs demand and comprehensively understand the realistic demand for SPRs in different urban and rural areas. The construction of digital service infrastructure in rural areas should be enhanced. Digital service infrastructure construction in rural areas should be strengthened. ICT should be used to facilitate the digital transformation of traditional industries. In addition, technology applications in areas such as smart healthcare and digital education should be deepened to expand the field and scope of sharing public resources. To balance the allocation of resources in urban and rural areas and meet the needs of social and economic development, and with the means of industrial integration and urban-rural integration, the level and strength of digital urban-rural sharing of SPRs will be improved.

Second, implement the policy guarantee for resource sharing. Deepen the coordination function of governments at all levels, strengthen cross-regional cooperation and coordinate urban and rural public resources. At the same time, develop and establish a digital standard system for SPRs, maximize the revolutionary impact of digital technology on public resources, and strengthen digital security supervision to guarantee the security and reliability of digital resource sharing. In addition, for regions with scarce resources and lagging economic development, establish a system for dividing affairs, improve the standard system for transfer payments, and pour more financial resources to enhance the mobility of local economic factors.

Third, strengthen the drive of digital technology innovation. Digital resource sharing needs to be tailored to local conditions, drawing on advanced sharing experiences at home and abroad, innovating digital resource sharing models and exploring locally appropriate sharing institutional mechanisms. We should actively explore the "standardization + digital intelligence + public services" model, use modern information technology such as big data to integrate residents' demand for social public resources, and open up channels for the common construction, sharing and governance of resources among resource supply entities. At the same time, we should strengthen digital technology innovation and transformation, and break through the key technologies that clamp down on digital sharing of public resources.

Fourth, enhance the supply of talents, technologies, and resources. Enhance the supply of talents, technologies, and resources. Strengthen the popularization of digital and networked knowledge in rural areas, enhance digital literacy of urban and rural residents, cultivate digital technology-related professionals, and guarantee the supply of professional and technical personnel. Optimize the layout of rural network structure, enhance the degree of rural networking and digitization, and at the same time, strengthen infrastructure construction, enhance digital infrastructure support capacity, and utilize the efficient and convenient qualities of digital network technology to economically and effectively promote the allocation, utilization, management and service of SPRs.

5. Conclusions

This paper adopts the grounded theory, and based on the interview materials collected from 36 representatives of different industries and relevant information retrieved from the Internet, the original materials are coded at three levels to discover, explore, and summarize "social demand," "government guarantee," "innovation-driven," and "innovation-

driven," "talent support," "resource supply," and "technical support" to build The theoretical model of the influencing factors of digital urban-rural sharing of SPRs is developed, and some descriptive and explanatory analyses are provided. At the same time, it explains the mechanism of social demand as an internal driving factor, government guarantee as a guaranteed factor, innovation drive as a regulating factor, and talent support, resource supply and technical support as a supporting factor to influence digital urban-rural sharing of SPRs. The results of this study are beneficial to the construction of the digital urban-rural sharing mechanism of public resources in China, provide a reference basis for the in-depth development of digital resource sharing, and have good guidance and reference significance for the construction of digital countryside and the implementation of rural revitalization strategy.

However, there are still some shortcomings in this study. Due to interviewees and geographical limitations, the primary information collected was insufficient enough. The secondary information such as government documents and news reports collected by information retrieval is somewhat one-sided. Therefore, the effect extent of these factors influencing digital sharing of SPRs could be clearly described. Based on this, the future study can further investigate the mechanism of digital urban-rural sharing of social and public resources in China based on a large sample of real data from different regions, and adopt a quantitative analysis method.

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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