

# Service Innovation: Visual Analysis of Literature Based on CNKI and Citespace

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**Abstract.** This study uses the method of bibliometrics to sort out and analyze the Chinese research on service innovation in the past ten years, and uses Citespace software to conduct basic statistics and keyword analysis on 1 048 literature samples screened in the CNKI database. The research shows that the number of service innovation literature has increased significantly since 2012, and it follows the development law of service innovation connotation, influencing factors, and innovation paths, and maintains a relatively stable number. From the overall situation, the core author group is not large, there is less cooperation between cross-institutional authors, and most of the publishing institutions are more cooperation between universities located in developed areas of the service industry, but the industry-university research is insufficient of publications. The results continue to extend to the fields of Information technology innovation, business model innovation and management innovation.

**Keywords.** service innovation, bibliometrics, knowledge graph, Citespace

## 1. Introduction

The report of the 19<sup>th</sup> National Congress of the Communist Party of China proposed to “accelerate the construction of an innovative country”, and made it clear that “innovation” is the primary driving force for development and the strategic support for building a modern economic system”. Since then, the central and local governments have introduced a series of policies and measures to encourage service innovation. For example, in July 2021, the General Office of the State Council issued the “Opinions on Accelerating the Development of New Formats and Models of Foreign Trade”, aiming to promote service innovation, format innovation, model innovation, etc. In the field of foreign trade; various localities have also implemented national and regarding the spirit of innovation and development of the service industry, the province has issued policies related to the innovation and development of the service industry. Most of these policies are based on knowledge innovation, and aim to focus on the development of industries such as logistics, finance, and business services, promote industrial innovation and integration, strengthen industrial development carriers, and enhance industrial development momentum. Starting from 2020, China will carry out the pilot work of comprehensively deepening the innovation and development of service trade.

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As the end of August 2022, the implementation rate of 122 specific measures proposed in the overall pilot plan exceeds 90%. All departments resolutely implement the deployment of the Party Central Committee and the State Council, the pilot tasks have been fully implemented to further improve China's service innovation level.

Service innovation is the result of the fusion of two research fields, service research and innovation research. For a long time, the manufacturing industry has been the main driving force of the economy, the concept of innovation is often equated with technological innovation, and innovation research is also mainly centered on products. In the 1970s, the output of the service industry in many Western countries gradually exceeded Be productive, but still not considered innovative. During this period, some new services began to appear in the fields of civil aviation, television, distance education, and computer software, but most of them depended on new materialized products and were not regarded as service innovations by the theoretical circles. The "industrialization" of services emphasized by Levitt is to systematize the division of labor and standardize service products through organizational innovation. Just as the division of labor and organizational innovation in manufacturing firms paved the way for technological innovation, the service sector may also be able to develop a more sustainable model of innovation. After the 1980s, with the further development of the service industry, many studies on the service industry were carried out in Europe and the United States, but their orientation was still centered on major technological changes, and many of these studies were related to innovation. After the 1990s, researchers gradually realized that service innovation is an important but neglected field. In 1998, Vandermerwe and Rada first proposed the concept of service innovation[1]. Service innovation in this paper refers to the transformation of service-oriented enterprises into new or improved service methods through new ideas and new technical means.

The research in the field of service innovation in China has been started since the reform and opening up. With the rapid development of the service industry, the research on service innovation has gradually deepened. Before 2012, Zhang Huiwen analyzed the existing research on service innovation in China, and found that China has formed a certain system in this research field, with relatively systematic research results. Lin Lei and Wu Guisheng have systematically introduced the development process of the concept of service innovation in 2003, and further explained the research methods of service innovation and the four-dimensional model of service innovation. Chen Jin and Chen Yufen systematically analyzed the classification, characteristics, models and other aspects of service innovation. In 2004, Jin Zhouying and Ren Lin systematically summarized the development history of the service economy and the development trend of the modern service industry, and for the first time described service as an important soft technology, and proposed a service innovation system and innovation approaches with soft technology innovation as the core.[2]Through the joint development of practice and theory, in 2012, the added value of China's service industry began to exceed the secondary industry, and the development of China's service industry continued to reach a new level.

Since then, as China continues to promote the innovation capabilities of the service industry, stimulate new kinetic energy in services, and encourage high-quality development of the service industry, the variety of services is becoming more and more abundant. The literature on service innovation research in academia has also increased year by year, and the topics involved are characterized by diversification and

intersection. and new formats and models have emerged. The theory has begun to solve some problems in practice.

From the research in this period, we can find the research hotspots in the field of service innovation in China. However, in addition to case studies and other application studies, most theoretical studies in this period focus on qualitative analysis of specific topics, but almost no quantitative analysis and content analysis of literature from a macro perspective. On the basis of analyzing the content of existing research literature on service innovation, this study uses bibliometrics methods and Citespace tools to select the literature from 2012 to 2021, conduct visual research on the trend of literature and the author cooperation network of service innovation literature, and understand the basic situation of the literature. Through the cluster analysis of literature keywords, this paper analyzes the research hot topics in the field of service innovation and puts forward the future research directions of service innovation.

## **2. Data analysis and visualization of results**

### *2.1. Data sources and research methods*

The data in this article comes from the China National Knowledge Infrastructure (CNKI) database, which contains important journal papers in China, covering various fields such as natural sciences, engineering technology, social sciences, arts and humanities, and is widely used in scientific research evaluation, policy development.[3]

The research content of this paper is China's service innovation research, so Chinese is selected as the language in the database. Because journal papers represent the forefront and professional knowledge in an academic field, the type of literature is defined as journals. In order to improve the quality of the obtained literature, CSSCI journals were selected as data sources.

We use the theme of "service innovation" as search criteria, the time range is 2012-2021, a total of 3039 literatures are obtained. The number of papers is large. Since this paper mainly discusses the service innovation of enterprises, we add the theme of "enterprise" to simplify the number of papers, and then deleted Contributions Wanted, conference abstracts, and news reports. In the end a total of 1 048 literatures are obtained, these literatures are used as samples for the next step of bibliometrics and knowledge spectrum analysis.

### *2.2. Data sources and research methods*

This paper adopts the bibliometric method and the knowledge graph method to analyze the related literature of service innovation. The tool used is the Citespace software to visualize the literature, the version is 5.8.R3 (64-bit). Citespace is a citation visualization analysis software gradually developed under the background of bibliometrics and data visualization. The software presents the structure and distribution of scientific knowledge by means of visualization, and the obtained visualization graph is called "scientific knowledge map". [4]

This paper firstly conducts a quantitative analysis of the literature from the aspects of the number of published papers, authors and institutions, and grasps and analyzes the research status of the field of service innovation as a whole, through the interpretation

of the generated map, combined with relevant literature, to clarify the research topics and hot topics of service innovation.

3. Literature feature analysis

3.1. Analysis of the number of published articles

The annual distribution of the number of published papers can reflect the research level and development level of a certain research field [5]. Figure 1 shows the annual number of published papers in the field of service innovation in the past ten years.

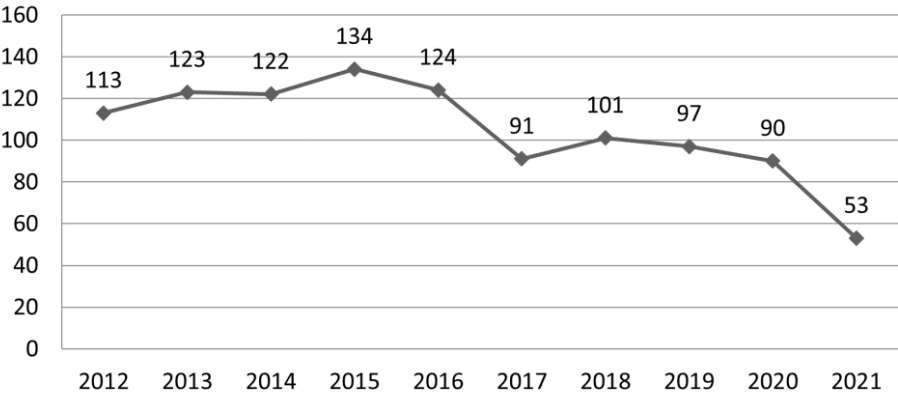


Figure 1. Overall trend distribution map

The number of papers related to service innovation turned a corner in 2015, showing a steady upward trend before 2015, and a downward trend after 2015.

In June 2017, China released the Outline of Innovative Development of the Service Industry (2017-2025), which pointed out the new direction of the development of the service industry and the current research focus for scholars. Therefore, the number of documents issued after 2017 has a tendency to rise slightly.

However, after 2020, the number of papers drop rapidly, especially in 2021, the number of papers is only 53. The reason for this phenomenon has something to do with the outbreak of the COVID-19. The epidemic has led to dramatic changes in the international situation. As a result, China has begun to focus on the core technology of the manufacturing industry, paying more attention to the research field of manufacturing technology innovation. At the same time, with the development of information technology, the meta universe has attracted wide attention. New technologies, such as Web3.0, VR/AR, blockchain technology, 5G, artificial intelligence and so on, have developed rapidly but are not yet mature. Therefore, the main research on these emerging things is still developing at the technical level and has not yet reached the research service level. With the latest progress in the research of these technologies, they will be applied to enterprise services, bringing a lot of innovation opportunities to the service industry. It can be predicted that the research on service innovation will increase significantly in the future.

### 3.2. Author and institution analysis

In bibliometrics, core authors refer to those who can conduct continuous research in a certain research field and have a certain impact on research in this field. The number of papers published by authors in the field of service innovation can reflect their influence to a certain extent. According to Price's Law,  $N_{max}$  it is the number of papers published by all authors; M is the minimum number of papers published by core authors.

$$M = 0.749\sqrt{N_{max}}$$

In the literature data of this article, the number of papers published by the same author is 16, that is  $N_{max} = 16$ . According to Price's Law,  $M = 2.996$ . Therefore, authors who have published 3 papers or more are the influential authors in the field of service innovation. According to the statistics of Citespace software, the core authors include Wei Jiang, Jian Zhaoquan, Wang Lin and so on, a total of 36 people.

By running the Citespace software and setting the node type to author, we can obtain the visual map of the authors in the study in Figure 2. The larger the author's name in the figure, the more publications. The link between the nodes indicates that there is a cooperative relationship between the authors.[6]



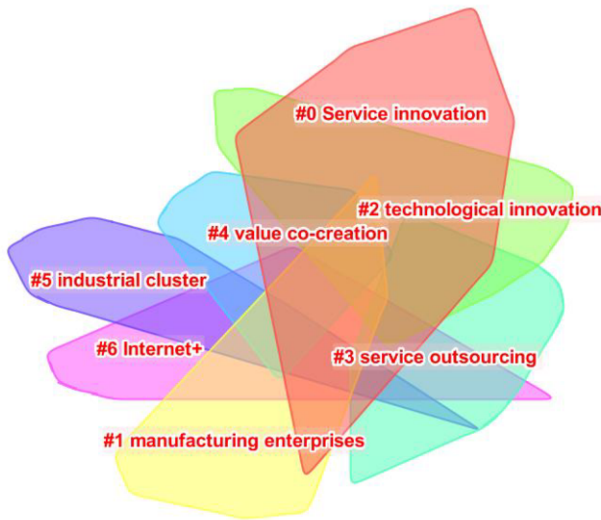
Figure 2. Author cooperation network analysis.

According to Figure 2, it can be seen that Wei Jiang, Jian Zhaoquan, and Peng Benhong have relatively large names, indicating that they have published more papers in the field of service innovation. In the cooperation network, it can be seen that the cooperation of authors in the field of service innovation research is relatively scattered, and the more obvious cooperation network is circled by the black dotted line in the figure. These influential authors, Wei Jiang, Jian Zhaoquan and Wang Lin, have collaborated a lot of high-quality research.

In order to examine the cooperation between different institutions and find out the core academic groups and institutions in the field of service innovation research, this paper analyzes the institutional cooperation through Citespace software. Set the node type to institution, and at the same time, in order to see the cooperative relationship more clearly, the threshold is adjusted to 8, and the cooperation map of the research institution in Figure is generated. The node in the figure is the name of the organization, the size of the node represents the amount of published documents, the node ring represents the annual ring, and the size of the label font represents the centrality. There are 1 026 nodes and 701 connections in the institutional cooperation network, and the network density is 0.001 3.



keywords. Next, used the LLR algorithm to cluster and analyze keywords, and is used to obtain the keyword clustering diagram in Figure 4. The Q value in the clustering map generated by Citespace software is 0.601 2 and is greater than 0.3, which means the structure is significant. The S value is 0.874 4 and is greater than 0.7, which means the clustering is highly efficient and convincing.



**Figure 4.** Keyword clustering analysis

It can be seen from the figure 4 that a total of 7 cluster groups have been formed, #0 service innovation, #1 manufacturing enterprise, #2 technological innovation, #3 service outsourcing, #4 value co-creation, #5 industrial cluster, #6 Internet+.

Cluster ID	Keyword	Frequency	Sihouette	Mean Year
#0	Service innovation	41	0.921	2015
#1	Manufacturing enterprises	36	0.937	2013
#2	Technological innovation	30	0.919	2017
#3	Service outsourcing	28	0.891	2017
#4	Value co-creation	25	0.862	2014
#5	Industrial cluster	21	0.832	2016
#6	Internet +	21	0.879	2015

**Figure 5.** Keywords clustering

In the “cluster” menu bar of Citespace software, and get the cluster table of service innovation keywords in Figure 5. From Figure 5, it can be seen that the “service innovation” cluster contains the largest number of nodes, with a total of 41 nodes; followed by “manufacturing enterprises” with a total of 36 nodes, indicating that the study of service innovation research and manufacturing enterprises have the most literature. In terms of closeness, the closest cluster is “manufacturing enterprises”, which means the research on “manufacturing enterprises” is relatively concentrated. By reading the literature under each cluster, and analyzing each cluster, the hot topics in the field of service innovation research from the past ten years can be found.



Because the subject of sample selection in CNKI database search is service innovation, the cluster #0 is relatively broad, so the content of this cluster has no great research value and will not be analyzed in detail here.

#### *4.1.1. Manufacturing enterprises*

The keywords extracted from cluster #1 “manufacturing enterprises” are manufacturing enterprises, product innovation, service-oriented transformation, and value migration. Most of the research content of this cluster is the influencing factors of service-oriented transformation of manufacturing enterprises, and the impact and realization of enterprise performance. There are many empirical studies and case studies in the research methods of this clustering.

In the research on the influencing factors of service-oriented transformation, Xiao Ting found that the characteristics of the management team, the size of the manufacturing enterprise, the craftsmanship and complexity of the enterprise's products, and the enterprise's innovation ability have an impact on the degree of service-oriented transformation.[7] Qu Wan et al. found that factors such as service innovation, customer demand, technological progress and macro environment play an important role in promoting the service-oriented transformation process of manufacturing enterprises.[8]

In the research on the relationship between manufacturing service-oriented transformation and enterprise performance, different scholars have different views. Jiang Zhu et al believe that service innovation has a significant positive impact on manufacturing service-oriented transformation.[9] Chen Juhong et al. found the impact of product-oriented service-oriented strategies on enterprise performance has a significant positive impact on enterprise performance, while the impact of customer-oriented service-oriented strategies on enterprise performance is U type curve relationship [10]

In the research on the service innovation path and action mechanism of manufacturing enterprises, Wei Jiang et al. initially constructed a research framework for the service innovation strategy of manufacturing enterprises based on the three influencing factors of knowledge resources, external environment and enterprise characteristics, in order to reveal that manufacturing enterprises use service innovation strategies through service innovation. Mechanisms for gaining a competitive advantage.[11] Yang Yang found that service innovation can significantly promote the service value of enterprises, and the effect of employee satisfaction on the relationship between the two (mainly between incremental innovation and enterprise performance) has a significant regulatory effect.[12]

#### *4.1.2. Technological Innovation*

The keywords extracted from cluster #2 “technological innovation” are technological innovation, service-oriented, service innovation, patent information service, etc. This cluster has overlaps with other clusters, and has a high overlap with the technological innovation of manufacturing service-oriented transformation and service outsourcing to the undertaker.

In the research of service outsourcing improving the technological innovation ability of contractor enterprises, Ren Zhicheng found that the innovation ability of contracting enterprises has been improved by the fact that the international software outsourcing has produced technology spillover. Among the various possible ways of



technology spillover, human capital plays the most prominent role.[13] Chen Haibo believed that the import of productive services can significantly improve the technological innovation efficiency of China's equipment manufacturing industry.[14]

In the research on technological innovation in the process of manufacturing service-oriented transformation of the manufacturing industry, the manufacturing industry shows a clear trend of service-oriented transformation, and my country also regards service-oriented manufacturing as an important direction for the transformation and upgrading of the manufacturing industry. Luo Jianqiang believes that the development of adaptable services relying on existing product technologies has become the key to the transformation of manufacturing into services. [15]Zhao Lilong et al. found that when the technical capability of the enterprise is weak, implementing the incremental service innovation strategy can effectively increase product value and improve market performance. When the technical ability is strong, the implementation of the breakthrough service innovation strategy can form a knowledge spillover effect with the technical ability, which is more conducive to the improvement of market and financial performance. [16]

In the research on the impact of technological innovation on service performance, Based on the theory of technological innovation and the theory of knowledge capital, Chen Wei found that the service-oriented transformation of manufacturing has a significant positive impact on technological innovation, but there is industry heterogeneity in this impact.[17]

#### 4.1.3. Service outsourcing

The keywords extracted from cluster #3 “service outsourcing” are service outsourcing, organizational learning, service industry, and knowledge sharing. In the research on service outsourcing clustering, there are many studies mainly from the perspective of the contractor. Whether the contractor can improve its own innovation ability by undertaking service outsourcing business, the existing research has confirmed this point of view, but whether the innovation ability can be improved the expansion of service outsourcing has different conclusions. For example, Cui Ping conducted an empirical study on 21 service outsourcing demonstration cities in my country development of. Through the empirical data of Zhejiang Province[18], Xu Shan verified that Zhejiang Province's undertaking of international service outsourcing has significantly promoted the development of regional innovation capabilities and promoted the transformation of innovation achievements, but the improvement of innovation capabilities has not yet stimulated the expansion of service outsourcing.[19]

In the research on the improvement path of the contractor's innovation ability in service outsourcing, the spillover of technology or knowledge will greatly improve the contractor's innovation ability. Tan Yunqing found that the spillover effect depends on the absorptive capacity of service providers, and the absorptive capacity is also affected by the enterprise's own R&D capital, human capital, social capital and knowledge management system.[20]

In the research on how to promote innovation in the service outsourcing industry, Ma Fang concluded that industrial agglomeration is the premise and foundation of collaborative innovation, and collaborative innovation is an important means to enhance industrial competitiveness. Innovation ability to realize the rapid development of software and information service outsourcing industry. [21]Li Hongzhou's research found that if the contracting enterprises can effectively use the knowledge creation

mechanism, the ability lever mechanism and the knowledge sharing mechanism, it is entirely possible to build their own innovation ability. From the perspective of knowledge management,[22] Ai Zhong found that improving the organizational learning ability, knowledge sharing level and absorptive ability of service outsourcing enterprises can promote the improvement of enterprise innovation ability.[23]

What factors in service innovation have an impact on innovation performance? Zhang Pei explored the process of business model innovation in productive service outsourcing from the perspective of value co-creation. Different interaction paths between customers and enterprises in value co-creation will lead to different types of service innovation. patterns, with significant contextual differences.[24]Liu Wenxia found that cognitive trust and emotional trust not only directly affect collaborative innovation performance, but also indirectly affect it through knowledge acquisition.[25]

#### 4.1.4. Value co-creation

The keywords extracted from cluster #4 “value co-creation” are value co-creation, collaborative innovation, interaction orientation, innovation performance, and knowledge service. With the deepening of research on service innovation, how to realize value co-creation among service-oriented manufacturing enterprises, supplier networks and customer networks has become a hot topic. Research methods in this field include empirical research and qualitative research, most of which take a specific enterprise as the research object to conduct case analysis.

In the research on the relationship between value co-creation and service performance, many scholars have verified through research that value co-creation is a key promoting factor for the realization of service-oriented strategies on service performance. In the study of its specific mechanism, Kang Yao et al. Empirical research finds that value co-creation plays a moderating effect between service-oriented transformation strategy and service performance. [26] Zhou Wenhui's research found that under the promotion of innovation leaders, the content of knowledge service and the process of value co-creation interact, and jointly promote the transformation of knowledge service into innovation performance.[27]Wang Lina used the grounded theory to study the reform of Haier's “Rendanheyi” model, and studied how to promote the transformation of manufacturing services through value co-creation from the perspective of strategy, value chain, organizational structure and accounting system. [28]

In the research on how value co-creation promotes service innovation, Hu Yanling revealed the value co-creation mechanism of big data alliance data service innovation from the collaborative dimension of “resource-capability-relationship”. [29]Jian Zhaoquan found that within the service ecosystem, the facilitative factors such as institutions, value propositions and experience contexts promote value co-creation and service innovation through interaction mechanisms.[30]Xie Lishan found the organizational interaction orientation perceived by employees and the degree of customer value co-creation positively affect the customer demand knowledge level of front-line employees. and employee innovation behavior; the customer demand knowledge of frontline employees has a significant positive impact on employee innovation behavior. [31]

#### 4.1.5. Industrial clusters

The keywords extracted from cluster #5 “industrial cluster” are industrial clusters, network characteristics, information service industry, and innovation networks. Most of the literatures on this cluster are based on evolutionary game theory, discussing how different subjects play games to achieve cooperative innovation, and there are many studies on industrial clusters, which study how to serve industrial clusters, such as information services.

The literature on industrial cluster clustering mostly uses specific industrial clusters as case studies. Some of the research objects are, for example, agricultural regional industrial clusters in Shouguang, Shandong Province, integrated development of traditional industries and e-commerce in Shantou, Guangdong, cross-border e-commerce comprehensive pilot zones, and Shanghai biomedicine, Guangdong Furniture, National Advertising Industrial Park, etc. self-service systems that adapt to the development stage of industrial clusters. However, combined with the upgrading trends and needs of industrial clusters, systematic analysis of industrial cluster service systems is relatively insufficient.

In the research on the formation mechanism of industrial clusters, the government plays a larger role in the process of promoting the formation of industrial clusters. For example, when the vegetable industry cluster in Shouguang City was formed, the government created a good innovation environment for the development of the cluster, provided supporting infrastructure, Agricultural training system, information service center, banking and insurance and other financial services, formulating standardized production guidelines, etc.

Service system innovation is an important condition to ensure the sustainable, rapid and healthy development of industrial clusters. In some traditional manufacturing clusters in China, many of them are based on OEM production methods, and there is a problem of ignoring their own brand building and market cultivation, resulting in low product added value, Weak technological innovation capability, incomplete industrial chain, low level of cluster coordination, and extensive management.[32] At present, the management services in industrial clusters cannot meet the development needs of industrial clusters, and services must be innovated. In these studies, the main body of the government plays a leading role.

#### 4.1.6. Internet +

The keywords extracted from cluster #6 “Internet+” are Internet+, big data, business model, and value creation. This clustering has a lot of overlap with other clustering contents. The research is mainly on the service-oriented manufacturing industry, using technologies or means such as big data and knowledge management to innovate manufacturing services. The research on this clustering is dedicated to creating new business models.

In the context of Internet+, the Internet has changed the connotation and driving factors of service innovation, and will also have an impact on the innovation model and path of the service industry at the macro level. Combining the service-dominant logic and value co-creation theory, Di Rong analyzed the value creation process of breakthrough service innovation, and constructed an efficient realization mechanism of breakthrough service innovation value co-creation, which provides service-oriented enterprises with breakthrough service innovation strategies. Countermeasures suggested.[33] Based on the new situation of deep integration of “Internet +” and

traditional industries, Tu Ying put forward the “Internet + Power Marketing” intelligent interactive service innovation system, and constructed four levels of resource guarantee, data support, business management, and operation management.[34]

Based on the cluster names of the LLR algorithm, these clusters are further summarized and sorted, and the above hot topics in the Chinese service innovation field can be roughly divided into three themes: innovation in information technology, including clustering technology innovation, Internet+; business model. Innovation, including clustering manufacturing enterprises, service outsourcing; management innovation, including industrial clusters, value co-creation.

#### *4.2. Research on foreign service innovation*

Western research is earlier and the research is relatively mature. For example, the S-D logic (the service-oriented logic) proposed by Vargo and Lusch, proposes that value is jointly created, many Chinese scholars conduct further research based on this. The current development of service innovation in western countries is a multidisciplinary theoretic cross, and it is combined with other fields, such as service design, public service innovation, and social innovation.

Among the research hot topics in recent years abroad, there are many researches on Information and Communications Technology (ICT). ICT and digital infrastructure play a role in promoting service innovation. ICT is not only regarded as a tool, but a resource for service innovation, which can be combined with other resources. Combined to promote the combination potential of service innovation.

There are three key themes in the field of service innovation research under the S-D logic abroad: value co-creation, service ecosystem and service platform. There are many western research contents on these three topics, but Chinese research more focus on value co-creation, while the other two aspects are less researched.

## **5. Conclusion**

### *5.1. Summary*

This paper makes a quantitative analysis of a total of 1,048 CSSCI documents on service innovation published in the CNKI database from 2012 to 2021, and draws the following main conclusions:

There is a trend of first rise and then decline in the number of papers related to service innovation. It is expected that the number of service innovation will increase in the future. From the perspective of the authors of the article, there is less cooperation between authors, but there are also small-scale cooperation networks. From the point of view of institutions, the issuing institutions are mainly colleges and universities, indicating that colleges and universities are the main research groups, but the industry-university research is insufficient. This situation is not conducive to academic communication and research development. Therefore, an academic research system of service innovation should be built with the participation of multiple subjects.

Through keyword clustering analysis, it is found that manufacturing enterprises, technological Innovation, service outsourcing, value co-creation, industrial clusters, Internet + and other topics are the research hot topics of service innovation in the past

ten years, and through induction service innovation mainly focuses on innovations in technology, model and management.

## *5.2. Outlook*

There have been many mature research results in the research on service innovation, and a certain theoretical system has been formed, but in-depth research and discussion still need to be carried out in the following aspects:

(1) Service innovation for the normalization of the epidemic. In the literature samples of this study, a secondary search was performed, and a search condition was added to the CNKI database to include “epidemic” in the full text, and a total of 11 results were obtained. This shows that under the normalization of the epidemic situation, there are not many high-level journal documents related to service innovation. In the current situation of repeated and normalized epidemics, how to carry out service innovation while taking into account the requirements of epidemic prevention is a major research direction in the future, especially in the cultural tourism industry.

(2) Contribute to the realization of the “dual carbon” goal. The Chinese government has committed to “carbon peaking” by 2030 and “carbon neutrality” by 2060. The realization of the “dual carbon” goal is an irreversible global consensus and trend, which is related to the sustainable development of the Chinese nation and the building of a community with a shared future for mankind. To achieve the “dual carbon” goal, it is necessary to reform the existing economic structure and reduce carbon emissions, which is a good development opportunity for the service industry and other industries' service business, so how to carry out service innovation to reduce carbon emissions It is also a research hot topic in the future, and it is also a direction for future scholars to further study.

(3) Research in the field of service intelligence. Information technology, network technology and the information platform formed on this basis play an important role in promoting service innovation and the modern development of the service industry. The application of ICT has become an important way to strengthen service innovation, improve core competitiveness and improve efficiency. In the literature research on service innovation in the past decade, the research on big data and Internet+ is the hot content of service innovation research. However, with the rapid development of science and technology, in the web3.0 era, emerging technologies and applications such as AI and the meta universe have become the focus of the future development of major companies. 2021 is called the first year of the meta universe. Service intelligence has been fully proven in the application field, but as a new research field, The depth and breadth of the research still need to be expanded. In the future, research achievements in the field of service intelligence will increase dramatically, and future research directions in the field of service innovation also need to increase corresponding research in this area.

(4) Integration of service industry and other industries. In the service industry innovation and development outline 2017-2025, it can be learned that China is encouraging industrial integration, and plans to build a number of service oriented primary, secondary and tertiary industry integration leading enterprises to promote the integration of the service industry and agriculture. However, in the existing literature, most of the research on service innovation is based on specific industries, and there is less research on industrial integration, especially on agricultural service innovation. This field can be regarded as a new research content in the future. To study how the

cooperation between enterprises and advantageous agricultural product producing areas can form an online and offline agricultural product circulation mode, and how to use information technology to optimize agricultural production and operation decision-making, agricultural technology training, agricultural product supply and demand docking and other services.

After entering the 21st century, the integration development trend of manufacturing industry and service industry has been fully demonstrated, and the boundary between manufacturing and service is increasingly blurred. The research on service-oriented manufacturing is relatively sufficient. Although service civilization depends on industrial civilization to a certain extent, in the new historical period, industrial civilization needs more guidance from service civilization. There are few researches on the expansion of services to manufacturing.

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