

Citespace-Based Analysis of System Resilience Research Hotspots and Trends

Kun Rong, Jialing Li, Qingting Huang*, Guiju Zhu

School of Business Administration, Hunan University of Technology and Business, No. 569 Yuelu Avenue, Changsha, China

**Corresponding author*

Keywords: System resilience, urban resilience, organisational resilience, economic resilience, visualisation analysis

Abstract: As a starting point for your analysis, select 630 system resilience-related articles from the CNKI database that were published in CSCD and CSSCI publications between 2001 and 2022. Based on CiteSpace 6.1.3R software, this paper thoroughly examines the annual distribution trend of literature, distribution of published journals, cooperation network of authors and institutions, research hotspots, trends, and future research directions of China's system resilience research. It also uses visual analysis, content analysis, literature statistics, and other methods. It is discovered that the 22 years of system resilience study may be broken down into three key phases. Many topics are covered in system resilience research. They include community resilience, organizational resilience, economic resilience, and urban resilience, with urban resilience research being the most developed of these. In addition, there is a low degree of cooperation between researchers and institutions in China's system resilience research, and there are still a large number of blank segments in the themes of organizational resilience, economic resilience, and supply chain resilience.

1. Introduction

A "global risk society" with a high level of unpredictability and complexity has emerged as a result of globalization, technological advancement, and changes in international politics [1]. For instance, the SARS virus [2], the Wenchuan earthquake [3-5], the COVID-19 emergency, and other crises have not only harmed people's bodily and mental health but also threatened and hindered the economic development of nations. According to Zhu Zhengwei et al. (2020), today's risk occurrences are extremely complex and compound, resulting in more significant consequences and impacts, and the conventional reactive model of handling risks and taking emergency action is no longer suitable for today's society's needs [6]. Chinese scholars have therefore begun to introduce the concept of systemic resilience into the fields of urban governance, regional economy, and organizational management, in an attempt to find new models of risk and crisis management.

According to the findings of this study, which was based on a review of pertinent literature, researchers are currently focusing more on urban resilience and resilient cities while paying less attention to organizational resilience, economic resilience, supply chain resilience, etc. Also, there is a great need for research in the areas of organizational resilience, economic resilience, urban

resilience, and others, but few scholars have combined these fields to investigate system resilience and other related topics. Therefore, this study combines the relevant journal literature on China Knowledge Network and uses CiteSpace 6.1.3R software to visualize and quantitatively analyze it, to grasp the current status of research on system resilience and future theoretical research trends and directions, and to provide reference and reference for resilience governance research and practice in related fields.

2. Data Sources and Research Methods

2.1 Data Sources

The data samples for this study were obtained from the China Knowledge Network (CNKI) database. To ensure the quality of the data sample sources, only journal literature published in the List of Source Journals of China Science Citation Database (2021-2022) and the Catalogue of Source Journals of Chinese Social Science Citation Index (CSSCI) (2021- 2022) were selected. In addition, to ensure the representativeness and accuracy of the selected documents, use the "Advanced Search" function in CNKI and select "Resilience" as the search keyword in the "Subject" module, and select the "Social Science" option; The time range is from 2001 to 2022, a total of 22 years; Select "CSSCI" and "CSCD" as the journal source; Select "Macroeconomic management and sustainable development", "Economic system reform", "Enterprise economy", "Administration and national administration", "Chinese politics and international politics", "Agricultural economy", "Industrial economy", "Sociology and statistics", "Finance", "Information economy and postal economy", "Investment", "Securities" and "Trade economy" in the discipline section. An initial 818 documents were obtained (search date 31 October 2022), and after screening out those not relevant to this study, 630 core academic research documents of system resilience studies were finally obtained as the data source for this study.

2.2 Research Methodology

This study adopts the methods of bibliometric analysis, visual analysis, and content analysis methods to analyze system resilience research results with the help of CiteSpace 6.1.3R software, and visualizes the annual distribution of literature, author, and institutional collaboration networks, and the "knowledge graph" of keywords to reveal the hot spots and trends of system resilience-related research. This study mainly uses keyword co-occurrence cluster spectrogram analysis and keyword emergence spectrogram analysis. The former can, to a certain extent, reflect the research hotspots of system resilience, while the latter mainly analyzes the research frontier of system toughness.

3. Research Overview

3.1 Trends in the Annual Distribution of Literature

The analysis of 630 literature data using CiteSpace 6.1.3R software yielded annual publication volume data for the literature, resulting in an annual publication volume graph (shown in Figure 1). As can be seen from this graph, on the whole, the number of research literature on system resilience shows an upward trend. Using 2019 as the cut-off point, the annual volume trend can be divided into two phases.

This study considers the period from 2001 to 2019 as the budding phase. In this phase, a total of 158 articles were published in 19 years, with an average of about 10 articles per year, accounting for about 25% of the total number of articles published, and a large increase of 10 articles in 2016-2017.

It indicates that Chinese academia and society began to pay attention to the study of systemic resilience under the related field of social sciences (hereinafter referred to as systemic resilience), and a research fervor gradually emerged.

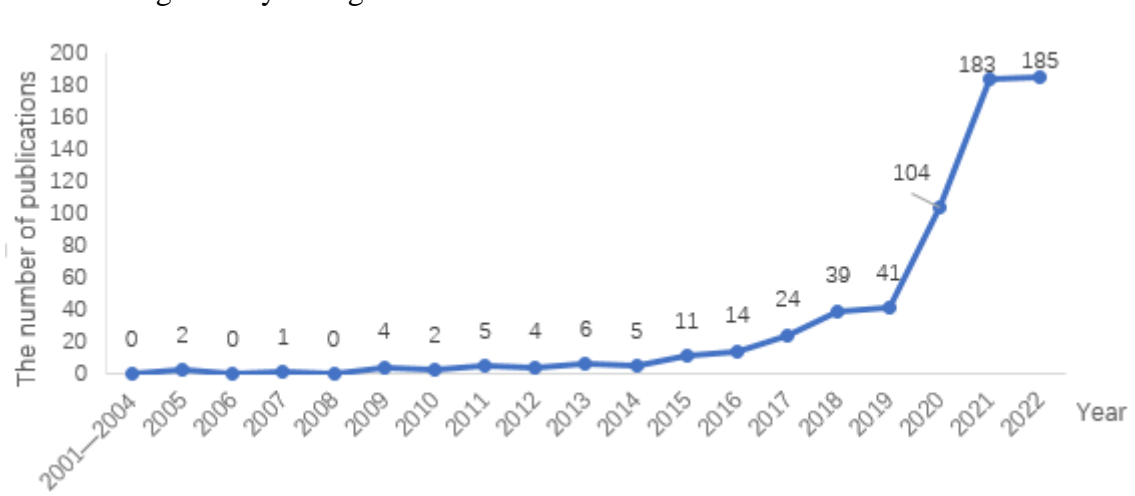


Figure 1: Annual publication volume

The period from 2020 to 2022 is a period of rapid increase, with a total of 472 publications in these three years, accounting for 75% of the total number of publications, or an average of 157 publications per year, with the number of publications and research enthusiasm continuing to rise and receiving increasing attention from scholars and other members of society. The total number of articles published and the average number of articles per year have increased significantly compared to the previous period, showing a rapid growth trend, which this study believes that the reason is related to the negative impact of the COVID-19 epidemic in early 2020 and the attention paid by all sectors of society to the governance of such social emergencies.

Table 1: The main content of the top six journals in the number of publications

Journal Name	Number of articles issued	Main content
Urban Development Studies	17	It mainly discusses the content of urban resilience, followed by the discussion of community resilience Urban Problems
Urban Problems	14	
Progress in Geography	14	Relevant contents such as economic resilience, urban resilience, rural resilience, industrial resilience and regional resilience are discussed
Geographical Research	14	
Science & Technology Progress and Policy	14	The study of resilience is mainly explored in the context of innovation or entrepreneurship, such as entrepreneurial resilience, innovation resilience, psychological resilience, and the impact of psychological capital on innovation and entrepreneurship
Chinese Public Administration	14	In addition to discussing the field of urban resilience, some scholars study resilience from administrative systems, institution systems and other aspects

3.2 Distribution of Published Journals

The data from 630 papers were screened and collated, and the 87 papers from the top six journals in terms of the number of articles published were analyzed to derive their main research content, as shown in Table 1.

In summary, the current discussion on system resilience is mainly focused on urban resilience and economic resilience, while other areas such as rural resilience, institutional resilience, and administrative resilience are less discussed, but in the future, as the concept of resilience is integrated with these areas, more and more scholars will conduct research related to system resilience.

3.3 Analysis of Author and Institutional Cooperation Networks

This study used CiteSpace 6.1.3R software to analyze the author and institutional collaboration network statistics of 630 documents, choosing a time interval of 18 years from 2005 to 2022, and setting the time slice interval to 1 year. The software default parameters were chosen for the node filtering method, and the "Pathfinder" and "each period" algorithms were used to perform the calculation. This was combined with content analysis to obtain the top authors and their main research content (shown in Table 2), and the top institutions and their main research content (shown in Table 3).

Table 2: Authors with a high volume of publications

Author	Year of issue	Number of articles issued	Main content
Song Guoxue	2011	6	A study mainly on career resilience
Hu Haifeng	2020	5	The two scholars have collaborated on several articles, mainly on capital market resilience
Song Xiao Xiao	2020	4	
He Canfei	2019	4	Research mainly on industry and export resilience
Qiao Penghua	2021	4	Focuses on the impact of the psychological resilience of leaders and managers and entrepreneurs in organizations on organizational growth and innovation

According to CiteSpace 6.1.3R software statistics, a total of 227 authors have published papers, but most researchers have not cooperated in many papers. Although the number of research scholars engaged in systemic resilience governance in China is high, there are not many highly productive authors. As can be seen from Table 2, at this stage, the more published scholars mainly discuss industrial resilience and export resilience, and capital market resilience.

According to CiteSpace 6.1.3R software, there are 249 institutions posting articles, and the cooperation is rather scattered and does not form a close cooperation network. Among them, the School of Urban and Environmental Studies of Peking University and the School of Public Administration of Renmin the University of China are the most active institutions. It can be seen from Table 3 that the current research focus of Chinese scientific research institutions is mainly on economic resilience, urban and rural resilience construction, and disaster risk resilience governance.

Table 3: Institutions with a high volume of publications

Institutions	Time of issue	Number of articles issued	Main content
School of Urban and Environmental Studies, Peking University	2019	8	There are discussions on industry, economy, and export resilience
School of Public Administration, Renmin University of China	2020	8	It mainly studies the risks faced by cities or communities and the relevant aspects of resilient governance measures taken
School of Resources and Environment, University of Chinese Academy of Sciences	2019	7	Discussions mainly on economic resilience and other related topics
Zhou Enlai School of Government Administration, Nankai University	2011	6	Discussions on urban community resilience, risk governance, etc.
Institute of Economic Research, Chinese Academy of Social Sciences	2018	6	There are discussions on economic resilience, organizational resilience, institutional resilience, national development, and more
School of Public Policy and Management, Xi'an Jiaotong University	2020	6	Discussions mainly related to urban and rural resilience and resilient governance

4. Analysis of Research Hotspots

The study of system resilience in China covers a relatively rich range of topics. To intuitively depict the characteristics of system resilience literature and accurately control the research progress at this stage, this study uses CiteSpace 6.1.3R software to conduct keyword co-occurrence cluster analysis on 630 documents, which more intuitively reflects the hot research fields and frontier issues of China's system resilience at this stage. To ensure a clearer visualization of the knowledge map, a time interval of 18 years was chosen from 2005 to 2022, and the time slice interval was set to 1 year. The software default parameters were chosen for the node filtering method, and the "Pathfinder" and "each period" algorithms were used for the calculation. The Keyword Labels panel was set to a Threshold parameter of 6. The keyword clustering was then used, and the first 9 main clusters were retained. After adjustment, the keyword co-occurrence clustering map was obtained (as shown in Figure 2).

The frequency and clustering of keywords in the keyword co-occurrence clustering map give a more accurate picture of the hotspot distribution in the research area. The size of the nodes represents the frequency of the keywords. The line between nodes represents the co-occurrence relationship, and its color represents the time of the first co-occurrence. In addition, the mediated centrality of a keyword is a reflection of the node's ability to mediate throughout the network, and keywords with high mediated centrality generally indicate the main research angle in the research area. The software was used to calculate keyword mediated centrality and to filter out keywords with a mediated centrality greater than or equal to 0.1 (It is generally believed that if the intermediary centrality is greater than or equal to 0.1, it is high-level intermediary centrality) to obtain Table 4.

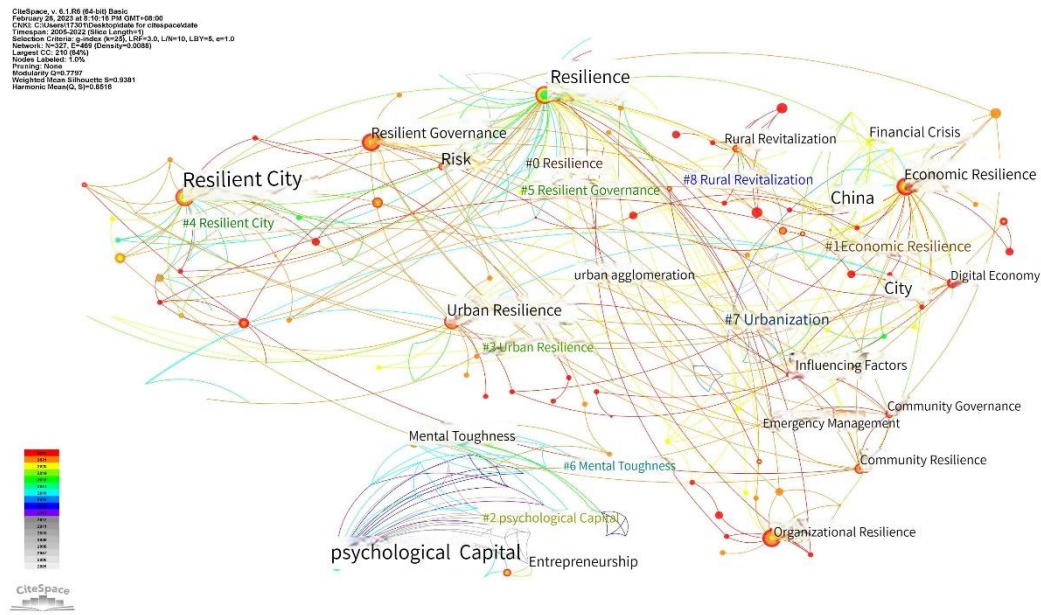


Figure 2: Keyword co-occurrence clustering mapping

Table 4: Highly mediated centrality keywords

Keywords	Year	Frequency	Intermediary centrality	Keywords	Year	Frequency	Intermediary centrality
Resilience	2009	65	0.38	Digital Economy	2021	9	0.25
Economic resilience	2016	54	0.17	Community resilience	2020	9	0.12
Resilient Cities	2017	38	0.24	City	2018	5	0.12
Resilient governance	2020	25	0.13	Intermediary effect	2014	5	0.25
Mental Capital	2010	13	0.2	Mega City	2021	4	0.16

From Figure 2 and Table 4, the hotspots of research on systemic resilience in China are currently focused on "economic resilience", "resilient cities", "urban resilience" "resilient governance", "community resilience", "organizational resilience", "rural revitalization" "psychological resilience"; Moreover, there are many lines between "economic resilience", "resilient city", "urban resilience", "community resilience", "resilient governance" and "organizational resilience", which indicates that the research is highly relevant. It is worth noting that the keywords "resilient city" and "urban resilience" are used in a mixed way. The concepts of the two are similar, but their emphasis is different, indicating that the current standard terminology system for this has not been established [7].

4.1 Theoretical Study of System Resilience

Since the concept of resilience was introduced, its evolution can be divided into three stages, from engineering resilience to ecological resilience to evolutionary resilience, where evolutionary resilience is applied to the human social domain [8]. Since psychological resilience belongs to engineering resilience, this study does not discuss it but focuses on system resilience in terms of urban resilience, economic resilience, organizational resilience, and supply chain resilience.

As mentioned earlier, a standard terminology system on resilient cities and urban resilience has not yet been established, so this study uses the term urban resilience for discussion. Shi Yulong et al. (2022) defined urban resilience as in the face of interference, the urban system will integrate and play the functions of various urban elements, mobilize the participation of multiple urban entities, and form the ability to independently realize and optimize resilience in the current and future period through prevention, resistance, recovery, learning, adaptation, and transformation [9]. In the field of economic resilience, Li Liangang et al. (2019), after synthesizing the views of other scholars, believed that its definition refers to the resilience to various shocks and disturbances, or the resilience to quickly recover the development path of the system before the impact, or even to turn to a better development path, by adjusting and adapting to the transformation [10]. In the field of organizational resilience, academics have yet to form a unified perception of its concept [11], Li Ping (2021), compared with the point of view of basing on and focusing on the rebound, more agreed with the organization's ability to resist shocks and shocks under adverse conditions, and also emphasized the ability to learn and improve beyond [12]. In the field of supply chain resilience, Shi Peiran (2022) defines it as the ability to maintain a continuous supply and quickly return to a normal supply state when the supply chain is partially failed [13].

In summary, the focus of the definitions of the resilience of different systems varies among scholars, but the following main common features can be identified: (i) the diversity of participating subjects. (ii) Redundancy of system elements [14] and the resulting buffering [15]. (iii) Resilience. (iiii) Adaptive evolution. Therefore, this study considers that system resilience refers to a system that provides certain early warning solutions before a crisis event occurs and can respond flexibly and maintain the continuous and stable operation of the system in the face of abnormal fluctuations brought about by the crisis event, coordinating multiple subjects to participate in the initiative to coordinate all elements to respond quickly to the damage caused by the crisis event to the system, so that it can return to its previous state or even seize the opportunity in the crisis and to a better state.

4.2 Research on the System Resilience Assessment Index System

In the study of the systemic resilience assessment index system, keywords include "evaluation", "influencing factors", "industrial structure", "strategic change" etc. Many scholars have conducted in-depth studies based on the assessment systems in the fields of urban resilience, economic resilience, and organizational resilience, exploring the level of governance of system resilience in different fields at this stage and proposing targeted countermeasures and governance paths to enhance the level of system resilience governance.

In the field of urban resilience, scholars have reviewed the assessment indicator systems in other literature and found that the current evaluation of urban resilience mainly constructs indicator systems at the levels of urban infrastructure, ecological environment, economy, institutions, society, and organization [9, 16, 17]. In the field of economic resilience, scholar Li Liangang (2019) argues that there is no consensus on this aspect of the indicator system for measuring economic resilience, so the system of variation in the constructed indicators is large, and the accuracy of the measurement results is questioned [10]. Zhang Yuesheng et al. (2022) argued that industrial structure and technological innovation are the main aspects affecting the economic resilience of cities; as scholars discuss economic resilience, factors such as institutional factors, policy factors, labor force structure, ecological environment, infrastructure, government public services, and education level have also been included in their evaluation indicator system [18]. In the research on organizational resilience, there is no consensus on its measurement indicator system [19,20], and this study is more in agreement with the evaluation indicators of other scholars as reviewed by scholars Li Ping (2021), and divides them into hard and soft strengths; where hard strengths mainly consist of resources,

structure, and strategy, and their role is to resist risks and shocks; while soft strengths mainly consist of cognitive, emotional, and soft strengths are mainly composed of cognitive, emotional and social relationships, and their role is to make a soft landing for risks [12]. Although there is no consensus on the system of indicators for evaluating organizational resilience, as research has unfolded, some scholars have analyzed the impact of factors such as digital transformation [21] and craftsmanship [22] on organizational resilience.

The evaluation and measurement of system resilience is often the basic work of constructing the resilience of a certain system, and the current research on the evaluation index system of urban resilience is more mature compared to the fields of economic resilience and organizational resilience. In addition, scholar Zhou Limin (2016) included organizational resilience and economic resilience in the evaluation index of urban resilience [23], and this study believes that to a certain extent, the scope of urban resilience includes economic resilience and organizational resilience, and there is a greater connection between the three. In future research on the evaluation of the resilience of these three systems, it is more important to combine them organically rather than severing them.

4.3 Research on Ways to Improve System Resilience

In the study of ways to improve system resilience, the keywords are reflected in the following: "risk governance", "community governance", "emergency management", "resource allocation" etc. As we enter the era of a "global risk society", the frequent occurrence of natural disasters, extreme weather, public health events, financial crises, and other unexpected risk events has created an urgent need to enhance the resilience of complex systems such as cities, economies, supply chains, and communities, and to effectively warn and solve systemic risk problems through resilience governance to achieve sustainable development of complex systems.

In the field of research on urban resilience building, China started late [24]. In terms of building subjects, scholars generally agree that give full play to the concerted efforts of the government, society, organizations, and residents [24-26]. Among the studies in this field, scholars Tang Huangfeng et al. (2019) analyzed how to improve the level of urban resilience from four dimensions: resilient infrastructure construction, resilient organizational system construction, urban economic resilience construction, and resilient urban society [24]. Scholars Xu Xuesong (2022) and others combined the concept of a smart city and a resilient city, and constructed a framework system of the smart and resilient city consisting of six levels: smart perception, resilient perception, resilient modeling, resilient decision-making, resilient collaboration, and resilient control, and analyzed its construction path [27]; based on the current research status, this paper considers that the study is relatively more comprehensive and systematic in its discussion of urban resilience enhancement. In the study of economic resilience enhancement, scholars Zhang Mingdou et al. (2021) argue that industrial restructuring should avoid over-servicing to prevent the problem of "industrial hollowing out" and focus on the rationalization of industrial structure with the goal of total factor productivity enhancement; the government should combine the characteristics of urban development stages when formulating industrial policies and technological innovation policies [28]. For example, in an empirical study by Lin Geng et al. (2020), it was found that in the context of continuous transformation of professional towns, the development of related diversified industries is not conducive to improving economic resilience, while the opposite is true for non-related diversified industries [29]. Zhang Zhen et al. (2021) argued that the share of technology industries should be increased and the industrial spatial system should be optimized from the construction of urban clusters, in addition to analyzing the path of building economic resilience in three dimensions: human capital, regional innovation system, and institutional environment [30]. In the field of organizational resilience, there are still many deficient subdivisions in the current research [19], so this study takes

the empirical case of other scholars as an example. Shan Yu et al. (2021) analyzed the path of organizational resilience enhancement in the four dimensions of crisis management behavior of managers, empowerment, and motivation of organizational members, cognitive adjustment, and digitalization in the case of Lin Qingxuan of the enterprise [31]. Based on the perspective of crisis management, Lu Jiangchong et al. (2021) explored the role of organizational reliability, crisis command system, crisis leadership, and crisis learning in enhancing organizational resilience in the context of the practical case of Huawei [32]. Wu (2022) et al. analyzed the impact of operational redundancy on organizational resilience and the moderating role of continuous innovation capability based on data from manufacturing companies in China from 2008 to 2022 [33].

In summary, the current research on urban resilience enhancement paths is relatively more mature, and in future research, the research on economic resilience and organizational resilience enhancement paths should be increased; in addition, in line with the views in the previous subsection, the paths to improve urban resilience, economic resilience, and organizational resilience also has a greater correlation, and in the future research, the improvement path of its system toughness should be conjointly discussed.

5. Research Trends and Outlook for Future Research Directions

The research on system resilience from 2001 to 2022, can be roughly divided into three stages: in the first stage, Chinese research was in its infancy and the research heat was low, mainly only exploratory research on urban resilience; from the second stage, the keyword resilient city emerged and the field of urban resilience launched in-depth research, in addition to the rise of economic resilience research; in the third stage, economic In the third stage, the research on economic resilience and urban resilience further deepened, while the research field of system resilience gradually broadened and began to discuss rural revitalization, supply chain system resilience and organizational resilience. Combined with the emergence of keywords (whose γ value is set at 0.4), the results are shown in Figure 3.

From this diagram, it can be seen that resilient governance and resilient communities are the directions of research at present and for some time to come.

Based on existing research, the keyword resilient governance is found in the fields of rural governance, community governance, national governance, grassroots governance, and risk governance, in addition to urban governance; combined with its emergence in 2020, it can be considered that since the outbreak of COVID-19, the original governance or management model is no longer applicable in many areas to the risks and disasters faced by society today, forcing the establishment of a new management or governance model to ensure the sustainable development of society.

In addition to the research of scholars on urban resilience, the concept of resilient communities began to enter the academic field. At present, there is less research on resilient communities in China, and Liao Maolin et al. (2018) believe that the main research content can be divided into two categories; one is a summary of theoretical research and practical experience of resilient communities abroad; the other is an exploratory study on the establishment of a framework for planning, design, and management of urban communities under the concept of resilience [34]. It is worth noting that when drawing on the research findings of foreign scholars, it needs to be combined with Chinese reality, for example, there are obvious differences between China and the West regarding the concept and boundary scope of communities [35].

In summary, in future research, the concept of resilient governance will enter more fields and form different resilient systems. Among the systemic resilience studies that have emerged, economic resilience, organizational resilience, and supply chain resilience will be studied in greater depth, while

their linkages will also become closer; among the studies on urban resilience, community resilience will serve as a new research launch point for urban resilience.

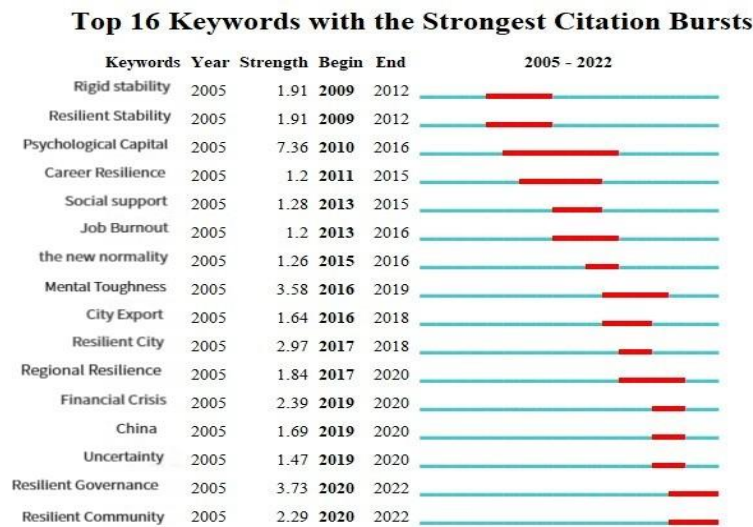


Figure 3: Keyword highlighting mapping

6. Conclusion

Between 2001 and 2022, the field of system resilience research in China made breakthroughs, and the quantity and quality of research have improved, but the following deficiencies still exist in the field of system resilience research at this stage.

(1) Insufficient cooperation between research scholars and institutions. Through mapping analysis and literature combing, it is found that different scholars and institutions have very different research themes in the field of systemic resilience, and there is little cooperation, showing a fragmented character. The research on system resilience covers a wide range of fields, such as urban resilience, economic resilience, organizational resilience, community resilience, etc. There is a strong interdisciplinarity and expansion of disciplines, and scholars should strengthen academic exchanges and bring into play their disciplinary strengths to comprehensively study the resilience of different complex systems.

(2) The maturity of system resilience research is insufficient. In the fields of organizational resilience, economic resilience, and supply chain resilience, there are still a large number of blank and subdivided segments because of the late start of Chinese research. For example, in the study of the economic resilience evaluation system, there is no universally agreed measurement index system; and in the study of ways to improve organizational resilience, there are many lacking subdivided segments; in the field of supply chain resilience, few Chinese scholars have conducted research on it.

Acknowledgements

This work was sponsored by the National Natural Science Foundation of China (No. 72104076) and the Scientific research project of Hunan Provincial Department of Education (No. 22B0630).

References

[1] Fan Ruguo. "World Risk Society" Governance: The Paradigm of Complexity and Chinese Participation. *Social Sciences in China*, 2018, 39 (02): 77-93.

- [2] Research Group on the Social Impact of SARS in Nankai University. (2003). Reflections on SARS epidemic events from the perspective of sociology. *Nankai Journal (Philosophy, Literature and Social Science Edition)* (04), 13-15.
- [3] Chen Quanrun, Zhu Kunfu & Yang Cuihong. (2008). Calculation of the impact of the Wenchuan earthquake on the economic growth of Sichuan and the whole country. *Management Review* (12), 15-19+63.
- [4] Xi Tao, Fan Jun, Cui Hao & Hu Lin. (2008). Analysis of the impact of the Wenchuan earthquake on China's economy, society and environment. *International Economic Review* (04), 13-18.
- [5] He Jie, Xu Shasha, Zhu Zhuohong, Wang Li & Wang Wenzhong. (2011). Study on PTSD symptoms and related factors in adolescents after Wenchuan earthquake. *Chinese Journal of Clinical Psychology* (01), 103-105.
- [6] Zhu Zhengwei & Liu Yingying. (2020). Resilience governance: a new approach to risk and emergency management. *Administrative Tribune* (05), 81-87.
- [7] He Jixin, Meng Yihao & Zheng Peiqi. (2022). Research Progress and Trends of Urban Resilience Governance in China (2000—2021)—Visual Analysis Based on CiteSpaceV. *Journal of Catastrophology* (03), 148-154.
- [8] Shao Yiwu & Xu Jiang. (2015). Understanding Urban Resilience: A Conceptual Analysis Based on Integrated International Literature Review. *Urban Planning International* (02), 48-54.
- [9] Shi Longyu, Zheng Qiaoya, Yang Meng & Liu Lingyu. (2022). Research progress in the concept, influencing factors and evaluation of urban resilience. *Acta Ecologica Sinica* (14), 6016-6029.
- [10] Li Liangang, Zhang Pingyu, Tan Juntao & Guan Haoming. (2019). The Evolution of the Concept of Resilience and the Research Progress of Regional Economic Resilience. *Human Geography* (02), 1-7+151.
- [11] Ye Jing, Zhang Xufan & Zhou Lulu. (2022). The relationship between organizational resilience and innovation: a meta-analysis. *Science and Technology Management Research* (13), 105-114.
- [12] Li Ping, Zhu Jiazhe. (2021). Tissue toughness: a review of the latest literature. *Foreign Economics & Management* (03), 25-41.
- [13] Shi Peiran. (2022). "Resilient Supply Chain" Strategy and China's Role Repositioning in Global Value Chain. *Pacific Journal* (09), 62-75.
- [14] Wang Naiyu. (2022). The concept of resilient city empowers the city to prevent disasters with digital intelligence. *Frontiers* (Z1), 56-63.
- [15] Zhao Yubo, Zhang Gui & Wang Hong. (2022). Resilience concept, characteristics and evolution mechanism of industrial innovation ecosystem in digital economy. *Soft Science* (11), 86-95.
- [16] Zang Xinyu & Wang Qiao. (2019). Concept evolution, research content and development trend of urban resilience. *Science & Technology Review* (22), 94-104.
- [17] Zhao Ruidong, Fang Chuanglin & Liu Haimeng. (2020). Research progress and prospect of urban resilience. *Progress in Geography* (10), 1717-1731.
- [18] Zhang Yuesheng, Deng Shuaiyan & Zhang Yinxue. (2022). Research on urban economic resilience: theoretical progress and future direction. *Journal of Management* (02), 54-67.
- [19] Zhang Gongyi, Zhang Chang & Liu Wanqing. (2020). Turning Danger into Safety: A Review and Prospect of Research on Organizational Resilience. *Business and Management Journal* (10), 192-208.
- [20] Zhang Xiu'e & Teng Xinyu. (2021). The connotation, dimension and measurement of organizational resilience. *Science & Technology Progress and Policy* (10), 9-17.
- [21] Sun Guoqiang, Yang Jing & Yan Xuxian. (2021). Network Embedding, Knowledge Search and Organizational Resilience—The Regulatory Role of Digital Transformation. *Scientific Decision Making* (11), 18-31.
- [22] Duan Shengsen, Chi Dongmei & Zhang Yuming. (2021). The Power of Faith: A Study on the Influence of Craftsman Spirit on Organizational Resilience. *Foreign Economics & Management* (03), 57-71.
- [23] Zhou Limin. (2016). Resilient cities: risk governance and indicator construction -- also on international cases. *Journal of Beijing Administration Institute* (02), 13-20.
- [24] Tang Huangfeng & Wang Rui. (2019). Resilient city construction: the best choice for the modernization of urban public security governance in China. *Inner Mongolia Social Sciences* (01), 46-54.
- [25] Wu Xiaolin. (2021). Research and judgment on the situation of social risks in megacities and resilient governance. *People's Tribune* (35), 56-58.
- [26] Yang Rongjun. (2022). Construction of Resilient Cities from the Perspective of Uncertainty Risk Making Governance Paradigm of Technological Governance Transformed. *Probe* (01), 125-135.
- [27] Xu Xuesong, Yan Yue, Chen Xiaohong, Liu Xingbao, Su Yun, Tang Jiale, Peng Jianjun. (2023). Framework System and Path of Smart Resilient City Construction. *Strategic Study of CAE* (01), 10-19.
- [28] Zhang Mingdou, Wu Qingbang & Li Weilu. (2021). Changes in industrial structure, total factor productivity and urban economic resilience. *Journal of Zhengzhou University (Philosophy and Social Sciences Edition)* (06), 51-57.
- [29] Lin Geng, Xu Xin & Yang Fan. (2020). Research on the relationship between industrial specialization, diversification and economic resilience in Foshan. *Scientia Geographica Sinica* (09), 1493-1504.
- [30] Zhang Zhen & Zhao Ruyun. (2021) Theoretical discussion on regional economic resilience. *Reform of Economic System* (03), 47-52.

- [31] Shan Yu, Xu Hui, Zhou Lianxi & Zhou Qi. (2021). *Digital Intelligence Empowerment: How to form organizational resilience in a crisis situation—Exploratory case study based on Lin Qingxuan's transformation from crisis to opportunity*. *Journal of Management World* (03), 84-104+7.
- [32] Lu Jiangyong & Xiang Peirong. (2021). *Crisis process management: how to improve organizational resilience?* *Foreign Economics & Management* (03), 3-24.
- [33] Wu Xiaobo & Feng Xiaoya. (2022). *The impact of operational redundancy on organizational resilience in the context of VUCA -- the regulatory role of continuous innovation capability*. *Journal of Systems & Management* (06), 1150-1161.
- [34] Liao Maolin, Su Yang & Li Feifei. (2018). *Urban community construction under the framework of resilience system*. *Chinese Public Administration* (04), 57-62.
- [35] Li Xuewei & Wang Ying. (2021). *Research on community resilience from the perspective of social capital: review and prospect*. *Urban Problems* (07), 73-82.