Review article

A bibliometric analysis of research on organizational resilience

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ABSTRACT

Organizational resilience is a key concept in the study of sustainable corporate growth and indicates an organization's capacity to recover from adversity. It plays a crucial role in responding to uncertain crises. In recent years, academic interest in organizational resilience has increasingly gained prominence. This research uses CiteSpace and VOSviewer to provide a thorough visual analysis of pertinent international literature based on 342 pieces of closely linked literature about organizational resilience. The findings suggest that organizational resilience research is currently experiencing a development phase. Within this field, there is a substantial number of scholars involved, with the most prolific among them including Aleksic Aleksandar, Prayag Girish, and Griffiths Andrew. The networks of collaboration among these authors, nevertheless, are very scattered. Co-citation network research reveals the academics with the biggest sway in the field. Organizational resilience, conservation of resources theory, crisis management, corporate social responsibility, and emergency management are identified as research hotspots within the keyword co-citation network. Furthermore, to determine which countries and regions are the most influential, this study has created a cooperative network among them. China, the United States, and England are the top three nations with articles published. Not only are the highly cited journals respected in the management sector, but they also showcase noteworthy research accomplishments within the field. The purpose of this study is to investigate potential avenues for future research and offer helpful sources for choosing research subjects and developing theoretical frameworks in this area. The analysis is highly valuable as a reference for research on organizational resilience in different settings in the future.

1. Introduction

Unpredictable significant dangers to the continuous growth of nations, communities, organizations, and individuals are more common in today's worldwide context. As a result, there is a growing emphasis on the significance of resilience capacity to overcome these challenges [1]. The literature on resilience has changed significantly since it first appeared in the domains of business and management. Two seminal studies by Staw and Meyer offered somewhat different explanations for how firms respond to external challenges [2,3].

The term has amassed a range of definitions over time, demonstrating its widespread use and importance in numerous industries

[4]. Different definitions of resilience continue to be debated in academic circles. Despite the lack of agreement over the definition of organizational resilience, researchers have proposed related ideas under several names [5], with the bulk of the literature supporting a competency-based approach. The term organizational resilience describes a set of assets that help a company to adapt to, anticipate, and handle crises [6]. Academics concur that organizational resilience is a unique property for businesses [7]. Research from both theoretical and practical perspectives indicates that organizational resilience can serve as a source of competitive advantage as well as success in highly volatile and dynamic market contexts, in addition to serving as an effective crisis management mechanism. Resilient organizations can effectively face and overcome significant problems because they can quickly adjust to changes and improve their operational capabilities. Organizations need to constantly change and adjust [8]. Many organizations fail to foresee and counteract external threats, which causes them to lose important organizational resources and control, which ultimately leads to the organization's collapse [9]. The concept of organizational resilience is multifaceted, as early changes have the potential to either strengthen or weaken an organization's present ability to adapt to change [10].

The distribution of annual publication volume and quantity, as well as distribution by nation or area, research institutes, journals, and subject groups, are all examined in this study. Scholars can also comprehend foundational and seminal publications on the topic by analyzing the most cited references. An introduction is given in Section 1. The literature is reviewed in Section 2. The study methodology and data source are introduced in Section 3. An overview of organizational resilience research is provided in Section 4. The research hotspots are examined in Section 5 along with the implications for further research. The findings and insights of the investigation are compiled in Section 6. In addition to providing researchers with an outline of theoretical development and key points of seminal literature, this paper provides a visual summary of the field's literature on organizational resilience. It also reveals current research hot topics and provides a reference direction for studies on the mechanisms shaping organizational resilience and empirical research. To give future researchers a strong research foundation as well as suggest directions for future research, this study aims to draw the knowledge map and evolutionary path of organizational resilience research and identify core issues. It also designs to review the research development and hotspots over the previous 20 years.

2. Literature review

The research concludes that a variety of antecedents are linked to organizational resilience in early literature [11]. The views of meaning-building, positive organizational behavior, leader resilience, employee relationships, and psychological resilience are intimately associated with the theoretical foundations of organizational resilience. Intellectual capital acts as a bridge between open innovation and organizational resilience, which is seen to be a driving force behind open innovation [12]. One powerful latent component that indirectly influences organizational resilience is two-way symmetrical communication. Because business failure as well as decline have significant negative effects on the economy and society, strengthening corporate resilience is crucial [13]. The concept of organizational resilience has multiple dimensions, including broad and pervasive levels in addition to interlaced and influencing characteristics. Understanding organizational resilience requires an understanding of its essence and characteristics. Organizations need to continuously assess their current state from a dynamic perspective, considering strengths, weaknesses, and vulnerabilities, to maintain resilience [14]. They also need to develop and put into practice suitable response strategies to adapt to and handle crises, following an assessment of the crisis as well as its context. Agility assesses the organization's ability to move quickly. Integrity evaluates how well-coordinated the workforce is inside the company.

A blend of many qualities should be used to achieve organizational resilience. Diverse qualities, including development, defense, and anticipatory, are essential elements of organizational resilience. Organizations can only efficiently respond to the effects of unfavorable circumstances when they work together. People can understand how the process of meaning construction in controlling risk perceptions supports organizational resilience because of the integration of many theoretical views, dynamic organizational capabilities, and formulation theories at the management level [15]. Keeping enough cash on hand to maintain ties, on the other hand, can make organizations more resilient in times of crisis. For an organization to survive, organizational resilience is essential for both everyday operations and times of crisis [16]. Resilience is the ability to continuously rebuild and absorb stress, which is something that organizations want to do faster than their competitors when reallocating resources [17]. Investing in technology innovation has the potential to greatly increase corporate resilience, making it possible for companies to recover from shocks quickly and effectively. One of the dual innovation strategies, exploratory innovation, can greatly increase company resilience. In part, discontinuous innovation models serve as a conduit between company resilience and investments in technical innovation. The ability of businesses to create and implement digital technologies is becoming more and more necessary in the digital age to improve organizational resilience [18]. Organizational strategy and development have been significantly impacted by digital technology advances driven by artificial intelligence (AI), blockchain, cloud computing, and big data technologies. They present fresh methods for creating organizational resilience. Corporate resilience can be increased through the use of innovative digital technology that optimizes resource bases and develops dynamic capabilities. Businesses inevitably integrate, create, as well as restructure internal and external resources to foster or improve organizational resilience when putting major strategic changes into practice.

3. Methodology

3.1. Data source and search strategy

The international literature on organizational resilience that has been published in reputable journal databases is the specific focus of this article's attention. The Web of Science (WOS) Core Collection database serves as the main basis for the data source. WOS is

always adding to and updating its database. This study benefits from an abundance of citation records from the WOS Core Collection database, which provides thorough data support for bibliometric analysis. WOS can obtain quick and thorough access to literature on particular research areas or topics. In light of this, the current study has selected a topic search technique to conduct a complete analysis of the organizational resilience research hotspots and associated domains.

SSCI and SCI-E were selected as the retrieval versions. Setting the search query to "TS=(organizational resilience)" produced 344 records, covering a broad range of literature types like papers, early access, review articles, editorial materials, book reviews, conference abstracts, corrections, and letters. Numerous academic fields are covered by the literature that was found, including management, business, environmental studies, environmental sciences, green sustainable technology, engineering, industry, public environmental and occupational health, among others. The interest in organizational resilience as a topic for research has been growing yearly since 2018. There were 342 pertinent records after the first screening removed two older documents. These records were carefully screened manually to improve the relevancy of the search results even more. All data was downloaded on November 16, 2023.

3.2. Research methodology

Bibliometrics is an interdisciplinary science that emphasizes a comprehensive knowledge system of quantitative analysis. It integrates parts of mathematics, statistics, and documentation science. It uses these approaches to quantitatively analyze different information carriers. Technologies such as information visualization and co-word analysis serve as the cornerstones for building knowledge maps. The developmental history and trends of discipline-specific issues can be presented with effectiveness using information visualization methodologies and techniques. This study uses typical bibliometric methods for a thorough examination, primarily exploring the evolution of organizational resilience issues with the aid of tools like CiteSpace and VOSviewer. CiteSpace, a commonly used data visualization tool in bibliometrics and scientometrics research, is widely utilized. To offer an understandable representation of the knowledge structure of organizational resilience study topics, VOSviewer software is used for keyword co-occurrence analysis. Appropriate analysis methods are selected for various analytical needs while using CiteSpace for data analysis. The entire analysis process is illustrated in Fig. 1.

4. Result analysis

4.1. Annual and quantitative distribution of publications

A total of 10,461 citations were detected in 342 articles on organizational resilience published between 2003 and 2023, with an average of roughly 30.59 citations per document (Fig. 2, Table 1). The annual publication volume of organizational resilience has demonstrated distinct phased characteristics. There were comparatively fewer publications in the field between 2003 and 2010, and the annual growth trend was not very noticeable, suggesting that research on organizational resilience was still in its early stages. A
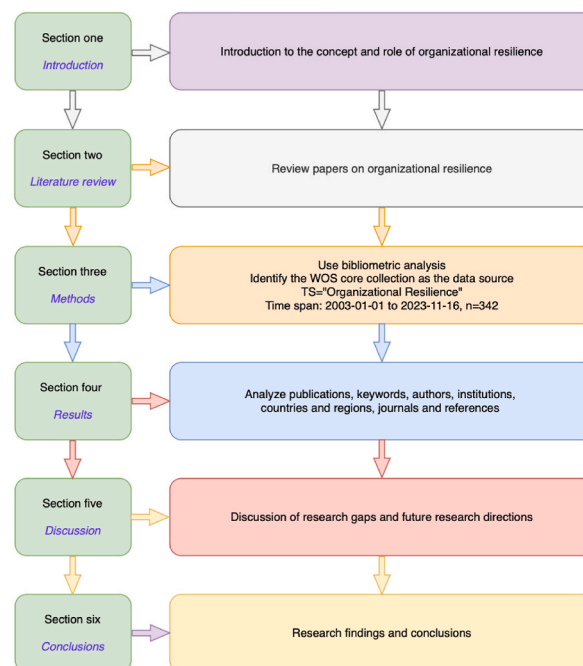
Fig. 1. The overview of the study design.

modest increase in publications was observed from 2010 to 2015. Nevertheless, the discipline had a significant surge in publications and citations beginning in 2016. Publications have increased considerably since 2021, suggesting increased interest in the topic. There were 81 publications in 2022 alone, which is 23.68 % more than the total from 2003 to 2015. Because of the database's annual update cycle and the inability to count until December 31st, the data for 2023 displays fewer articles as well as citations than for 2022. In general, the field continues to grow steadily. This suggests that the study of organizational resilience has grown to be an important field. It is anticipated that in 2024, even more publications in this area will be published, a sign that academics are starting to realize how much organizational resilience can be studied.

4.2. Keyword analysis and research hotspots

A paper's keywords play a crucial role in highlighting its main points and, in some cases, outlining its disciplinary framework. Future research orientations can be forecasted and insights into popular patterns within a particular field of study can be obtained by using the frequency, co-occurrence, as well as centrality analysis.

The five most frequently used keywords are "organizational resilience" (121), "management" (78), "performance" (75), "impact" (48), and "framework" (40). The centrality is "impact" (0.25), "management" (0.18), "performance" (0.18), "behavior" (0.15), and "system" (0.12) (Table 2). Research hotspots are the centers of shared interest among scholars in a certain topic, and keywords can reflect the direction and theme of the research. Research hotspots are identified by these keywords. The terms "model" and "framework" refer to the extensive conceptual framework for resilience established by the literature, which also examines the antecedent variables influencing organizational resilience. "Impact" and "performance" are among the keywords used to describe the mechanisms as well as explore the character of shaping resilience. There is a wide range of research perspectives on resilience, including individual resilience, psychological resilience, and focusing on employees.

The goal of the study is to synthesize and improve the cross-disciplinary hotspots of organizational resilience research through the use of comprehensive literature collation as well as visualization analysis. Ten keyword clusters with a Q value of 0.758 and an S value of 0.8297 were produced using the CiteSpace software's clustering analysis function, demonstrating that the clustering analysis has high internal homogeneity (Fig. 3).

It is important to note that cluster labels do not accurately reflect the primary goal of the cluster because they are purely based on keywords. Clusters are numbered starting at zero, and the smaller the number, the more frequently occurring keywords the cluster contains and the greater the research value of the cluster in studies. The top five types of clusters are described in detail here.

The terms organizational resilience [19], operational resilience [20], business continuity management [21], psychological capital [22], and disaster operations management [23] are included in Cluster #0, which is primarily related to organizational resilience.

The following important terms are included in Cluster #1, which is mainly related to the conservation of resources theory, and includes the following key terms: conservation of resources theory [24], fatigue [25], perceived organizational support [26], job satisfaction [27], and music [28,29].

Key terms in Cluster #2, which is mainly related to crisis management [30,31], sustainability [32], sensitivity analysis [33], and customer-focused social capital [34].

The terms corporate social responsibility [35–37], knowledge [38], planning [23], turning [39], and research context [39] are included in Cluster #3, which is mainly concerned with social responsibility.

The key terms in Cluster #4, which mainly deals with emergency management, are emergency management [40], interdependence
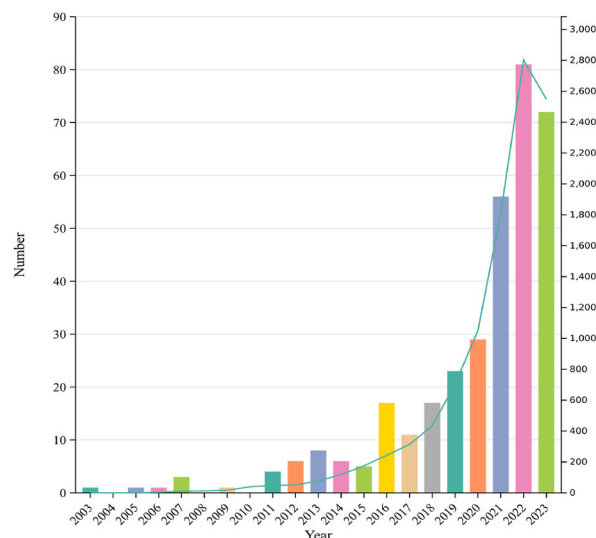

Fig. 2. Citations and publications over time.

Table 1
Annual publications and citations.

Years	Records (n,%)	
	Publications	Citations
2023	72 (21.05 %)	2548 (24.36 %)
2022	81 (23.68 %)	2802 (26.79 %)
2021	56 (16.37 %)	1811 (17.31 %)
2020	29 (8.48 %)	1051 (10.05 %)
2019	23 (6.73 %)	705 (6.74 %)
2018	17 (4.97 %)	434 (4.15 %)
2017	11 (3.22 %)	314 (3.00 %)
2016	17 (4.97 %)	243 (2.32 %)
2015	5 (1.46 %)	175 (1.67 %)
2014	6 (1.75 %)	118 (1.13 %)
2013	8 (2.34 %)	77 (0.74 %)
2012	6 (1.75 %)	52 (0.50 %)
2011	4 (1.17 %)	48 (0.46 %)
2010	0 (0.00)	39 (0.37 %)
2009	1 (0.29 %)	17 (0.16 %)
2008	0 (0.00)	12 (0.11 %)
2007	3 (0.88 %)	10 (0.10 %)
2006	1 (0.29 %)	4 (0.04 %)
2005	1 (0.29 %)	1 (0.01 %)
2004	0 (0.00)	0 (0.00)
2003	1 (0.29 %)	0 (0.00)

Table 2
Top 10 Keywords by frequency and centrality.

Rank	Keywords	Frequency	Centrality	Rank	Keywords	Centrality	Frequency
1	organizational resilience	121	0.06	1	impact	0.25	48
2	management	78	0.18	2	management	0.18	78
3	performance	75	0.18	3	performance	0.18	75
4	impact	48	0.25	4	behavior	0.15	17
5	framework	40	0.04	5	system	0.12	21
6	model	38	0.02	6	strategy	0.12	12
7	innovation	33	0.02	7	commitment	0.11	12
8	dynamic capability	30	0.03	8	perspective	0.08	16
9	supply chain resilience	27	0.04	9	moderating role	0.08	10
10	capacity	24	0.04	10	disaster	0.05	16
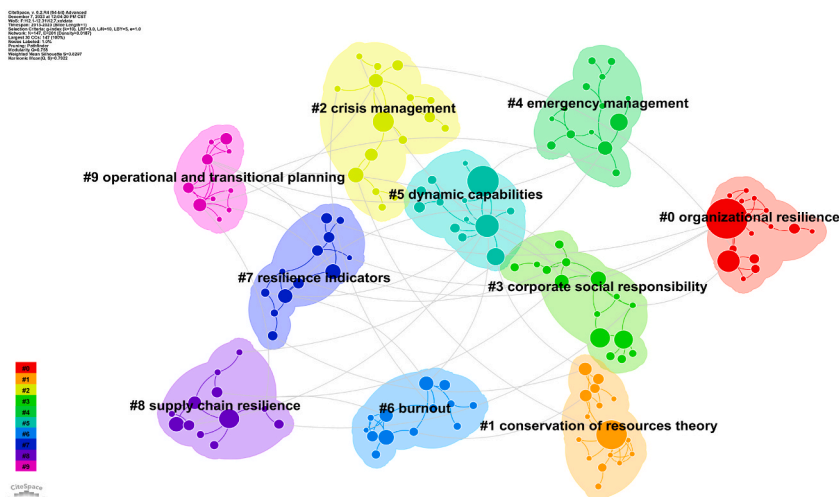
Fig. 3. Keyword co-occurrence clustering map drawn by CiteSpace.

[41–43], multi-case study [44], urban resilience [40,45], and grounded theory [46].

By the spatial and temporal interactions of keywords within the field of organizational resilience, this study produced a time-zone map of keyword co-occurrence. Such a chart, which illustrates the development of the research field over time, aids in the revelation as well as understanding of the developmental trajectory and periodic characteristics of keywords. Fig. 4 shows the historical hotspots and developmental paths of the field in an understandable way from a temporal perspective using CiteSpace software. The positions of the keywords indicate the points in time when they first appeared, with an increasing frequency over time. Between 2013 and 2015, disaster, framework, performance, organizational resilience, behavior, and other aspects were the main areas of focus for the field. This was the early phase of research, during which many key terms as well as concepts were developed, and keywords typically described foundational issues of the field. By 2015, there had been a significant increase in publications and a deeper dive into organizational resilience research. In research, there was a change in focus between 2016 and 2018. This phase saw a shift in emphasis toward management, impact, and crisis management, with a special emphasis on content related to crises. The primary goals were to further hone the research questions, examine and deal with these problems from various angles. Scholars have been devoting their attention to dynamic capabilities, models, psychological resilience, mediating roles, technology, and transformation in the past five years, offering superior empirical evidence to support the growth of organizational resilience. This period has entered a prosperous phase where it focuses on the inconsistencies between actual phenomena and theories that already exist. It also aims to integrate different theories using different approaches or viewpoints, improving the field's theoretical framework and creating a more comprehensive research category. Influencing factors have been thoroughly investigated in the literature, leading to the development of a thorough conceptual framework that includes terms like "model" and "framework". Concurrently, there has been a more thorough examination of the mechanisms underlying organizational resilience, focusing on the ways that resilience-shaping affects organizations and utilizing the terms "impact", "sustainability", and "performance". The focus of research on resilience has also broadened, encompassing not only individual resilience-such as workers' "stress" and "health"-but also "environmental resilience", which examines how businesses and the environment against the background of climate change.

In scholarly investigations, "burst words" are frequently regarded as a crucial marker of the changing boundaries or patterns within a field of study. This analysis was able to determine the top 20 keywords with the highest frequency by utilizing CiteSpace software's burst detection feature (Fig. 5). These burst words offer profound insights into how the field of study is currently progressing and aid in the identification of new research themes as well as avenues.

With the keywords "climate change", "burnout", and "adaptation" displaying extended durations of over five years each, it is clear that this research direction has long received scholarly attention in the international field. The surge in organizational resilience research started in 2013. The terms "scale development", "future", "capacity", "governance", "mediating role", "work engagement", "tool", "employees", and "risk management" are commonly used after 2020.

The substance of organizational resilience research is constantly changing and expanding in tandem with the growing interest in this field. Researchers are broadening and enhancing the scope of the earlier phase. The notion of "workplace" [47] has emerged as a major term in organizational resilience research according to an analysis of the burst strength of keywords. It has the highest burst strength (strength = 4.76). Literature reviews show that the theme of the workplace is present throughout the entire field of study. In the last two years, research has focused on COVID-19 and reconstruction because of its emergence. These subjects include the most
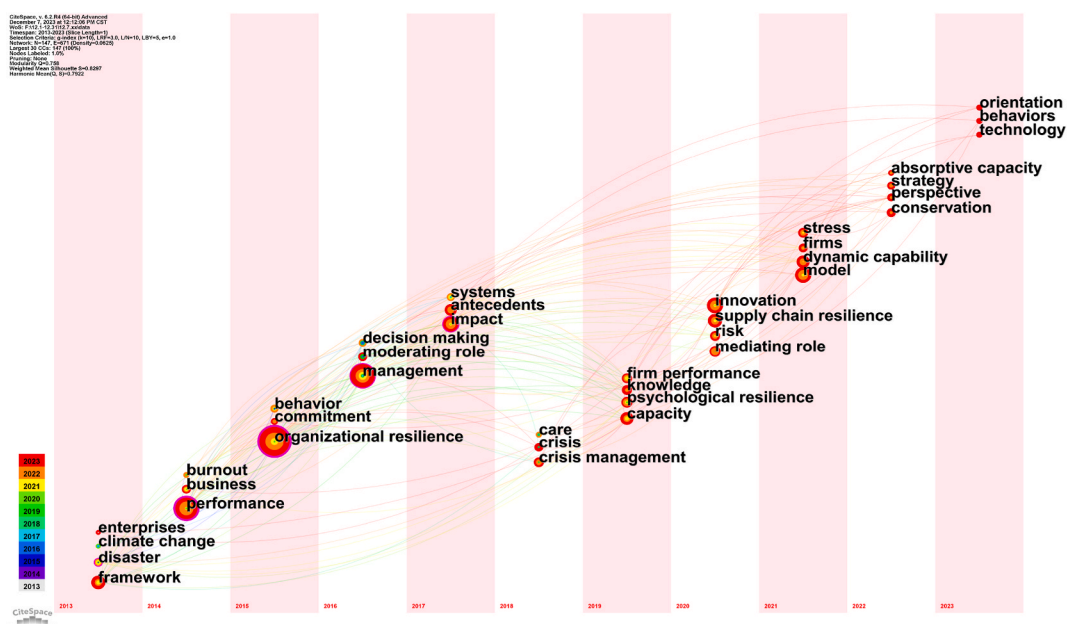

Fig. 4. The keyword time zone map drawn by CiteSpace.

Top 20 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2013 - 2023
climate change	2013	2.45	**2013**	2020	
disaster	2013	2.38	**2013**	2015	
burnout	2014	2.04	**2014**	2020	
adaptation	2015	3.06	**2015**	2021	
management	2016	3.37	**2016**	2017	
decision making	2016	2.96	**2016**	2018	
moderating role	2016	2.5	**2016**	2019	
impact	2017	2.73	**2017**	2019	
workplace	2019	4.76	**2019**	2020	
scale	2019	3.56	**2019**	2020	
psychological resilience	2019	1.63	**2019**	2020	
resources	2019	1.54	**2019**	2020	
scale development	2020	2.36	**2020**	2023	
future	2021	2.05	**2021**	2023	
governance	2021	1.54	**2021**	2023	
mediating role	2020	1.69	**2022**	2023	
work engagement	2022	1.54	**2022**	2023	
tool	2022	1.54	**2022**	2023	
employees	2022	1.54	**2022**	2023	
risk management	2022	1.54	**2022**	2023	

Fig. 5. Burst words drawn by CiteSpace.

recent developments and trending subjects in the industry.

4.3. Author analysis

A study of the author network shows that 72 authors have contributed related papers. Among these authors, the five most prolific scholars are Aleksic Aleksandar (4 publications), Prayag Girish (4 publications), Griffiths Andrew (3 publications), Arsovski Slavko (3 publications), and Tadic Danijela (3 publications) (Table 3). The map shows key researchers in the field, their collaboration relationships as well as influential research groups. Establishing stronger collaboration links among research teams is crucial. It is anticipated that additional results on organizational resilience may come from future collaborations. There isn't yet a core group of outstanding academics to direct the field's advancement. This phenomenon indicates that there is a need to further develop the collaboration links between various research institutions and higher education establishments.

It is evident from the author network map that many writers make comparatively independent contributions to the discipline. The absence of nodes with notable purple outer rings on the map, which typically indicate a centrality of more than 0.1, implies that the field has not yet produced prominent researchers with considerable vitality and influence. This study created an author clustering map of English literature by clustering authors using CiteSpace software to further assess the research topic. An examination of clusters revealed the five most important and active academic groupings (Fig. 6). It has been observed that some productive writers collaborate to build multiple independent tiny networks, suggesting that authors usually have fixed collaboration teams with close internal relationships. Overall, scholarly collaboration can still be improved, and cross-regional, multidisciplinary research cooperation as well as paper writing require additional support.

Brown Charlotte, Chowdhury Mesbahuc, and Jiang Yawei are among the principal members of Cluster 1. Organizational resilience as well as financial performance [48], organizational resilience of tourism enterprises during COVID-19 [49,50], and life satisfaction in tourism industry [51,52] were some of the primary subjects covered by the research.

Table 3
Ranking of the top 10 authors by publications.

Rank	Authors	Records
1	Aleksic, Aleksandar	4
2	Prayag, Girish	4
3	Griffiths, Andrew	3
4	Arsovski, Slavko	3
5	Tadic, Danijela	3
6	Chen, Ruijun	3
7	Liu, Yingqi	3
8	Linnenluecke, Martina K	3
9	Ignatowicz, Agnieszka	2
10	Herbane, Brahim	2

Important players like Conroy Simon, El-Sawy Dena, and Ignatowicz Agnieszka are the main constituents of Cluster 2. Organizational resilience in the healthcare industry was the primary topic of research [53].

The main players in Cluster 3 are Chen Ruijun, Liu Yingqi, and Wang Juan. The conceptualization of organizational resilience [54], multiple case studies [55], and studies on influencing factors [39,56] were the primary areas of focus for this research.

Bilotta Federico, Costantino Francesco, and Falegnami Andrea are among the principal members of Cluster 4. The organizational resilience assessment and analysis framework [57], and multi-country comparative surveys [58] were the primary areas of focus for this research.

Principal players in Cluster 5 are Aleksic Aleksandai, Arsovski Slavko, and Stefanovic Miladin. The majority of the study was concentrated on evaluating organizational resilience using fuzzy approaches [59–61] and improving organizational resilience in medium-sized enterprises [62].

When two or more authors are cited simultaneously in a publication for academic purposes, this is referred to as a co-citation relationship. Several authors are taken into consideration in this study with 25 of them being cited more than 30 times. The top five cited authors are Lengnick-Hall CA, Linnenluecke MK, Weick KE, Duchek S, and Williams TA, ranked by frequency of citations (Table 4). These highly cited writers' multidisciplinary research is demonstrated by the range and depth of their research fields, which include ecology, engineering, as well as safety studies.

4.4. Distribution of institutions

Seventy-three institutions have demonstrated extensive research activities. In particular, American and English higher education institutions have shown to have a big impact. The University of London (8 publications), University of Canterbury (6 publications), State University System of Florida (5 publications), University College London (4 publications), and Arizona State University (4 publications) round out the top five universities. Overall, the research collaboration is very distributed and displays a variety of small team cooperation patterns. The University of London has the largest network node size. Its bright color and noticeable outer ring represent its ongoing power, significant position, and wide-ranging academic impact. The most active institutional groups for research are the University of London, the University of Canterbury, and the State University System of Florida (Fig. 7). These academic institutions have strong collaboration links and a high degree of agreement in their research directions, as evidenced by their combined publication of several publications in recent years. This close-knit consortium of partner universities has made major accomplishments and could contribute even more to the field of study. Furthermore, doing extensive study, Beijing Jiaotong University and Southeast University have emerged as China's primary research institutes in this domain. In general, higher education institutions account for the majority of the institutions that publish papers. Research institutes often show a scenario of loose but locally intensive collaboration due to a relative lack of cooperation and communication.

4.5. Distribution of countries and regions

This study aims to advance global collaboration in this area. The collaborative relationships between countries are shown by the lines between nodes in the research charts. The thickness of the lines indicates the degree of cooperation. There are 59 countries and regions engaged in organizational resilience research, with China having the most number of publications. China (75 publications), the United States (65 publications), and England (33 publications) are the top three nations. Significant centrality is present in 32 nations, with the top three being England (0.82), Spain (0.46), and Netherlands (0.45). In Fig. 8, China is designated with a bold red outside ring, emphasizing its status as a leader in the research field. With the highest centrality (0.82), England plays a central role in the international cooperation network, as seen by its purple outer ring on the chart. Ireland, Germany, and Belgium all show centrality,
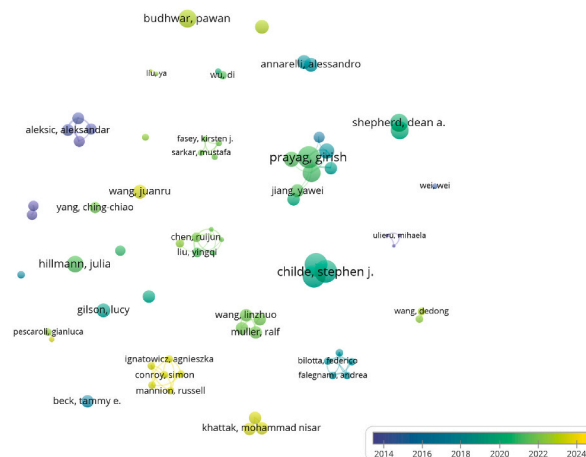
Fig. 6. Author co-occurrence cluster map by Vosviewer.

Table 4
The top 10 authors by number of citations.

Rank	Authors	Citations
1	Lengnick-Hall CA	86
2	Linnenluecke MK	75
3	Weick KE	69
4	Duchek S	63
5	Williams TA	57
6	Bhamra R	52
7	Lee AV	46
8	Podsakoff PM	45
9	Sutcliffe K. M	43
10	Burnard K	43

Fig. 7. Institutional co-occurrence clusters mapped by CiteSpace.

Fig. 8. Country co-occurrence network mapped by CiteSpace.

suggesting that they have been studied in the field. Interestingly, Ireland has a higher centrality than Germany (which published 25 papers) despite having only published 3 papers, indicating the amount of research and importance Ireland placed on this topic. International academic research on organizational resilience demonstrates a stepped development trend shows a stepwise development trend as periods and external factors alter.

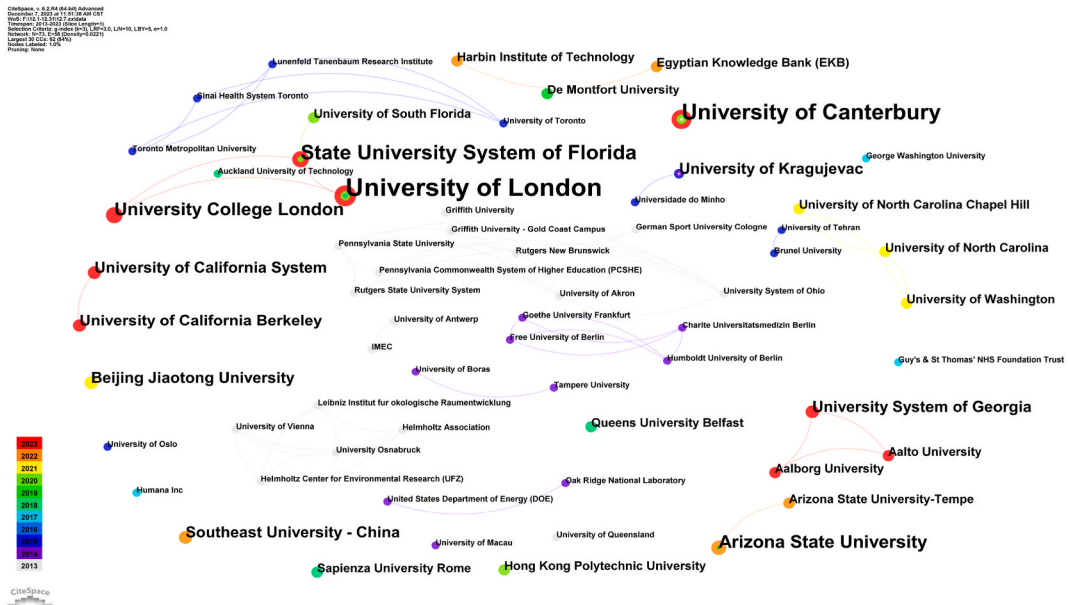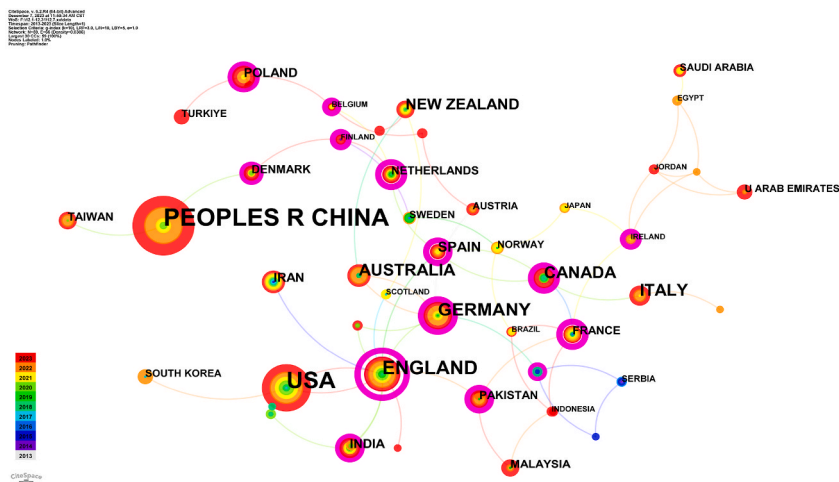This study uses social network analysis techniques, namely betweenness centrality analysis, to examine the dynamics of international collaboration and identify the relative positions of countries within the collaboration network. A country's expanding core influence in the research field is indicated by a rise in betweenness centrality. The frequency of collaborations and betweenness centrality among countries were computed following a thorough examination of the sample data. Table 5 describes the number of collaborations and betweenness centrality for each country, while Fig. 8 shows the linkages of collaboration across countries.

4.6. Distribution of journals and references

A co-citation network map of journals is shown in Fig. 9. The same-colored nodes imply a closer co-citation link between these journals, while the lines between journals indicate that two journals are cited by the same article. This study intentionally chose the top 62 journals with more than 3 citations to create this network map to show the co-citation network among journals. These journals are connected in a multitude of ways, indicating the influence and links between them.

The 342 papers included in this analysis are published in 202 distinct publications, 23 of which publish at least two linked articles and 9 of which publish five or more similar articles. Interestingly, these journals publish several high-caliber scholarly works that demonstrate how closely the field of organizational resilience aligns with the most recent advancements in modern management studies and how well-known it is among academics worldwide.

The top three journals are "Sustainability" (31 publications), "Business Strategy and the Environment" (7 publications), as well as "Journal of Contingencies and Crisis Management" (7 publications) (Table 6). Four clusters were created using the VOSviewer cluster analysis (Fig. 9).

"Academy of Management Journal" (462 citations), "Strategic Management Journal" (417 citations), and "Academy of Management Review" (387 citations) are the top three co-cited journals (Table 7). There are four clusters (Fig. 10).

In this investigation, 376 publications received more than ten citations out of the 6983 referenced references that were taken into consideration. People sifted through and compiled a list of the top 10 commonly mentioned literature to highlight the most significant works (Table 8). In addition to appearing in globally recognized scholarly journals, some of these papers are also included in special edition journals. Within academic circles, they have had a major influence. The three cited publications represent noteworthy research contributions that have garnered numerous citations, and these journals are well-regarded in the management profession.

The top co-cited reference is as follows: 1) It has been cited 836 times. Based on the tenets of positive psychology, the results corroborate the relationship between workers' positive psychological resource capacities related to performance, job satisfaction, work happiness, and organizational commitment. 2) 668 citations have been made to it. According to the paper, developing the capabilities of key personnel through strategic human resource management helps a business become more resilient. 3) 590 citations were made. With the main elements of crisis and resilience-endurance, organization and adjustment, the ability to deal with major disruptions, and feedback loops from these experiences-the study created a thorough framework. It seeks to comprehend as well as explain how resilience and crisis interact, looking at potential areas for future research on the dynamic interaction between resilience and crisis.

5. Discussion of research trends

Nowadays, organizational resilience is a topic that is of great interest and is becoming a crucial focus in multidisciplinary research. CiteSpace and VOSviewer tools were used to illustrate the results of the bibliometric analysis of the organizational resilience field from 2003 to 2023, which is the main emphasis of this study. In particular, a notable rise in relevant papers over this time frame suggests substantial advancements in the subject over the previous 20 years. The study of organizational resilience is still in its infancy and requires much more investigation, although it has advanced significantly and attracted a great deal of attention in recent years among academics. This offers the academic community a chance to investigate organizational resilience in greater detail, with possible future

Table 5
Ranking of country publications and centrality.

Rank	Countries	Centrality	Rceords	Rank	Countries	Rceords	Centrality
1	ENGLAND	0.82	33	1	PEOPLES R CHINA	75	0.06
2	SPAIN	0.46	12	2	USA	65	0.06
3	NETHERLANDS	0.45	7	3	ENGLAND	33	0.82
4	FRANCE	0.43	7	4	GERMANY	25	0.30
5	PAKISTAN	0.38	7	5	CANADA	18	0.22
6	IRELAND	0.31	3	6	AUSTRALIA	18	0.02
7	GERMANY	0.30	25	7	ITALY	16	0.06
8	BELGIUM	0.25	3	8	NEW ZEALAND	15	0.06
9	FINLAND	0.23	3	9	SPAIN	12	0.46
10	CANADA	0.22	18	10	POLAND	9	0.17
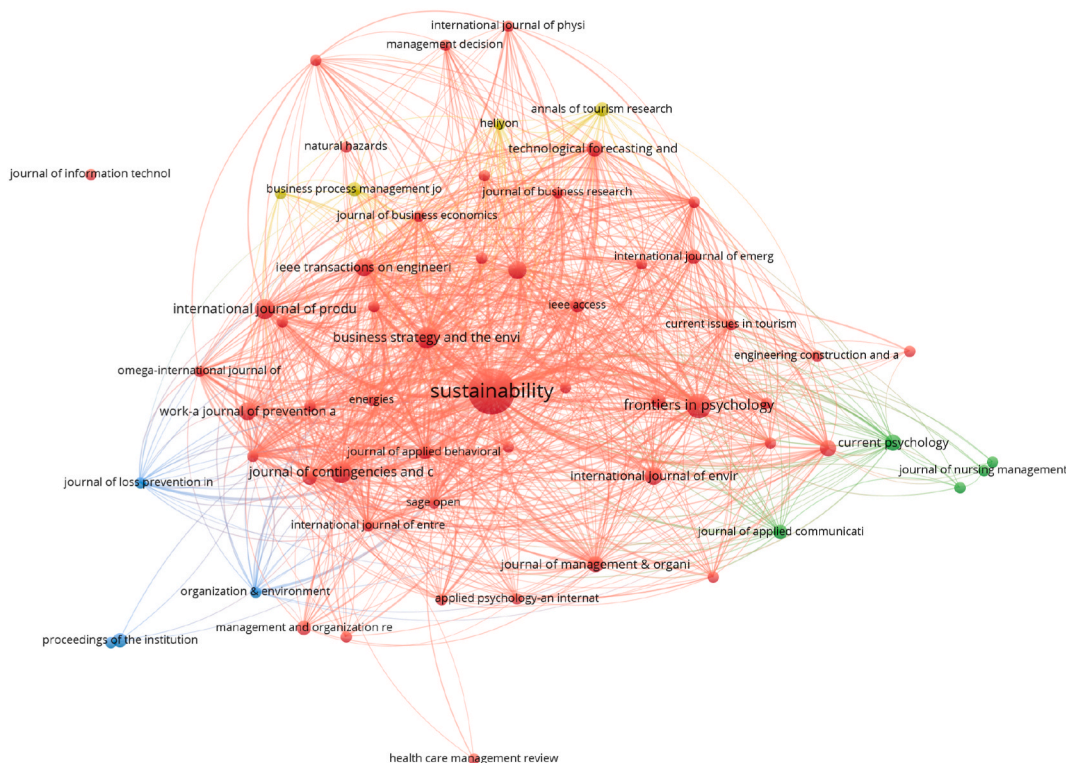
Fig. 9. Clustering map of journal sources drawn by VOSviewer.

Table 6
Top 10 journals in terms of number of publications published.

Rank	Source	Publications	Citations	Average Citation/publication
1	Sustainability	31	411	13.26
2	Frontiers in Psychology	9	9	1
3	Business Strategy and the Environment	7	250	35.71
4	Journal of Contingencies and Crisis Management	7	127	18.14
5	International Journal of Production Economics	6	449	74.83
6	International Journal of Environmental Research and Public Health	5	152	30.4
7	Work-A Journal of Prevention Assessment & Rehabilitation	5	147	29.4
8	Ieee Transactions on Engineering Management	5	78	15.6
9	International Journal of Disaster Risk Reduction	5	24	4.8
10	Journal of Management & Organization	4	185	46.25

Table 7
Top 10 journals in terms of number of citations.

Rank	Source	Citations
1	Academy of Management Journal	462
2	Strategic Management Journal	417
3	Academy of Management Review	387
4	Journal of Management	362
5	International Journal of Production Research	363
6	Journal of Business Research	302
7	Sustainability-Basel	270
8	International Journal of Production Economics	269
9	Administrative Science Quarterly	267
10	Organization Science	224

Fig. 10. Clustering map of cited journals drawn by VOSviewer.

Table 8
Top 10 of the most frequently cited references.

Rank	Cited references	Citations
1	Youssef CM, 2007, J MANAGE, V33, P774, DOI10.1177/0149206307305562	836
2	Lengnick-Hall CA, 2011, HUM RESOUR MANAGE R, V21, P243, DOI10.1016/j.hrmr.2010.07.001	668
3	Williams TA, 2017, ACAD MANAG ANN, V11, P733, DOI10.5465/annals.2015.0134	590
4	Shin J, 2012, ACAD MANAGE J, V55, P727, DOI10.5465/amj.2010.0325	370
5	Ortiz-de-Mandojana N, 2016, STRATEGIC MANAGE J, V37, P1615, DOI10.1002/smj.2410	353
6	Dubey R, 2021, INT J PROD, V59, P110, DOI10.1080/00207543.2019.1582820	340
7	Gittell JH, 2006, J APPL BEHAV SCI, V42, P300, DOI10.1177/0021886306286466	302
8	Pal R, 2014, INT J PROD ECON, V147, P410, DOI10.1016/j.ijpe.2013.02.031	229
9	Annarelli A, 2016, OMEGA-INT J MANAGE S, V62, P1, DOI10.1016/j.omega.2015.08.004	211
10	Barasa E, 2018, Int J Health Policy Manag, V7, P491, DOI10.15171/ijhpm.2018.06	210

studies concentrating on the following areas:

First and foremost, developing theoretical underpinnings and using academic resources are critical to advancing research in organizational resilience. Even while organizational resilience research is still developing in the field of management, the majority of studies are still limited to a single viewpoint and concentrate only on the idea and traits of organizational resilience, producing somewhat scattered results. On the one hand, researchers frequently operate in siloed teams with little inter-team cooperation. Conversely, relevant publications are usually published in organizational behavior-focused journals. Given that organizational resilience is a multifaceted notion that encompasses individuals, teams, organizations, communities, and even entire societies, its immense worth cannot be adequately captured by a single theoretical framework or point of view. Future research needs thus improve collaboration as well as communication between various academics and institutions. It also needs foster greater linkages across disciplines, and maximize the effective use of academic resources. Through the integration of diverse theories and viewpoints, research can progress more completely as well as methodically, fortifying its theoretical foundations and advancing the field of organizational resilience studies as a whole.

Subsequently, additional research ought to explore the antecedent variables and their mechanisms of action that impact organizational resilience. Understanding these factors can help one get a more thorough understanding of how organizational resilience forms and changes. Numerous elements, such as modifications to the internal and external environments, have an impact on it. Therefore, studies need to focus on concentrate on how organizational resilience is affected by both internal and external environmental factors such as deglobalization, carbon neutrality goals, as well as internal factors like digital transformation and organizational characteristics on organizational resilience. Additionally, more research on moderating and mediating variables has to be done.

Elements like corporate culture and the capacity for cognitive-emotional regulation as moderating variables should be examined. The study ought to cover the variables that influence organizational resilience, how it affects performance, and strategies for enhancing organizational resilience. It is also important to investigate how organizational capabilities, communication, and commitment affect organizational resilience. These fields provide academics with a plethora of avenues to explore as they reflect the frontiers and hotspots of contemporary study.

Future research ought to concentrate on investigating the mechanisms of organizational resilience and take into account the attributes of its dynamic processes. It deals with how companies overcome crises and adversities by leveraging their resources, talents, as well as how they recover and transcend after a catastrophe. Research that has already been done frequently looks at the effects from the standpoint of organizational performance. The following research endeavors may involve the extension of the outcome variables and the analysis of the distinct effects of its various dimensions on organizations through quantitative research. Organizational resilience serves as a dynamic process that is dormant in organizational structures outside of times of crisis and swiftly activates and responds in times of emergency. Research in the future can examine the mechanisms of organizational resilience based on different stages of a crisis (before, during, and after), each with its own specific focus and coping mechanisms. This would combine the entirety of organizational resilience with the dynamism of processes. Future research ought to examine any potential drawbacks as well as the potential boundaries of its effects.

Furthermore, it is imperative to expedite the empirical research process to propel the theoretical and practical development of organizational resilience research. Prospective research should include qualitative methods as well as existing research primarily focuses on quantitative methods. This is because it is a complex organizational capability that may vary across different scales and industries. Scales appropriate for the local Chinese situation could be developed by utilizing techniques like case analysis, grounded theory, and Qualitative Comparative Analysis (QCA) to investigate the characteristics in the Chinese context. This would add to the body of knowledge on organizational resilience theory and give managers pointers on how to develop and strengthen organizational resilience. Moreover, the adoption of dynamic tracking research methods and conducting longitudinal studies across time series can more comprehensively capture the dynamic changes in organizational resilience. Since organizational resilience is a multi-faceted, dynamic phenomenon, research based on dynamic capabilities theory should concentrate on different levels, such as the impact of individual psychological resilience on overall organizational resilience. Currently, research on resilience often examines it from team or organizational perspectives. Thus, to investigate the interdependent effects of various levels, including individuals and teams on organizational resilience and establish multi-level models. Such studies would strengthen the explanatory power of research conclusions and promote the guidance of theoretical research on management practice by revealing the mechanisms of organizational resilience through empirical research.

Finally, as a "once-in-a-century major transformation" has emerged as a critical force that organizations need contend with in the modern era. Businesses need weigh internal and external environments, operational status, and organizational members when deciding on digital technology innovation strategies. They need make "optimal" decisions by optimizing benefits. Numerous factors impact this process is influenced by various factors, so innovation in digital technology can potentially improve corporate resilience. The value space of organizations may be affected by shifts in industry technology trajectories and dominant logic as a result of the emergence of ubiquitous connectivity, collaborative coexistence, and technological penetration. Additionally, organizations may have to navigate through crises as a result of the symbiotic logic of ecosystems and platform support. Enterprises and organizations are dealing with more complicated and unpredictable circumstances. Enterprises will be better equipped to respond to challenging internal and external environments if they have clear thinking and a thorough analysis of these situations. To achieve self-reinvention and development, organizations need to develop the capacity for flexible operations, break from tradition, and change conventions. These new ideas for shaping organizational resilience are brought forth by digital transformation and innovation in digital technology. Digital investments don't pay off right away, and developing resilience capabilities may take some time for businesses going through or planning a transformation. Corporate digital resilience is formed and shaped in large part by the updating of digital resilience. Enterprise management transformations are continuously optimized and upgraded by digitization-*as*-a-service strategies, which make effective use of digital technologies for organizational construction, resource allocation, and opportunity development. Through the exploration of novel business opportunities and the modification of industry positions or technological approaches, they help companies become more resilient, perform better, and achieve sustainable development. Enterprises with stronger resilience are more likely to adopt countermeasures (such as cost control, sales strategy adjustment, and remote working) and create plans (like improving cash flow management, employee training, and digital transformation). Environmental adaptability learning and digital technology integration are the two types of renewal activities that update in digital strategy take on when forming resilience. The significance of organizational resilience is becoming more and more apparent as a result of the business operating environment's growing complexity and turbulence as well as the normalization of crises or risks within organizational contexts. It is expected that the volume of publications will continue to exhibit a noticeable upward trend in the future.

6. Conclusions

This study covers topics including risk management, emergency management, crisis management, performance, and technology to find as well as determine effective strategies for averting crises and boosting organizational resilience. It does this by conducting a thorough analysis of pertinent literature. Given that research on organizational resilience was initially conducted in a Western cultural context, this paper suggests that future investigations should focus on how adaptable resilience is in China. Diverse cultural backgrounds can give rise to disparities in organizational behavior, which can offer novel insights into the field of study. This essay focuses on the distinct purposes as well as roles that organizational resilience plays in extremely complex, unpredictable, volatile, and

ambiguous circumstances (including crises and black swan events). Furthermore, it discovers that the role that crisis process management plays in enhancing organizational resilience serves to enhance and enhance organizational resilience theory.

This research provides business managers with guidance methods for developing and strengthening organizational resilience. It also offers the references and insights for scholars as well as practitioners in the field of business, both domestically and internationally. This study's sample source is limited to the WOS Core Collection, which means that the literature in other languages and databases is not included in the analysis. As a result, the thoroughness and accuracy of the research conclusions may have been limited because this paper may have overlooked closely related published articles on the research topic. To thoroughly examine issues about organizational resilience, future study endeavors ought to contemplate expanding the scope of literature sources and research languages. To further improve current research viewpoints and theoretical frameworks, additional comprehensive bibliometric analyses in digital technology are among the future research directions to be pursued.

Data availability statement

The information found in "Web of Science" at https://webofscience.clarivate.cn/wos/alldb/basic-search provides evidence for the conclusions drawn from this study. The data in this paper can be obtained from the corresponding author.

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CRediT authorship contribution statement

Nan Jiang: Supervision, Funding acquisition, Formal analysis, Conceptualization. **Peng-Yuan Li:** Writing – review & editing, Writing – original draft, Methodology, Data curation. **Jia-Ming Liang:** Methodology. **Xing Liu:** Writing – review & editing, Methodology, Data curation.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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