

Strategic thinking and crisis management: meta-analysis

Pensamiento estratégico y gestión de crisis: meta-análisis

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ABSTRACT. This study aims to prove bibliometric analysis to examine the evolution and current state of research on strategic thinking and crisis management from 1998 to 2023, through a comprehensive review of 1,081 publications indexed in Scopus. By employing co-citation analysis, thematic clustering, and visualization of collaborative networks, the study identifies significant trends, key themes, and influential works within the field. The results of analysis of publication dynamic allowed allocating the core phases in the theoretical landscape of strategic thinking and crisis management: initial period (1998-2003); growth phase (2004-2010); fluctuating phase (2011-2016); recent surge (2017-2023). The findings reveal seven distinct research clusters: foundational crisis management theories, COVID-19 pandemic responses, strategic planning, globalization and artificial intelligence, social media and ethics, stakeholder management, and financial crisis governance. These analyses underscore the interdisciplinary nature of the field and highlight the collaborative relationships among researchers. This meta-analysis not only maps the theoretical framework of strategic thinking and crisis management but also emphasizes the critical importance of these topics in addressing global challenges.

RESUMEN. Este estudio tiene como objetivo realizar un análisis bibliométrico para examinar la evolución y el estado actual de la investigación sobre el pensamiento estratégico y la gestión de crisis, desde 1998 a 2023, a través de una revisión exhaustiva de 1.081 publicaciones indexadas en Scopus. Al emplear el análisis de co-citación, agrupamiento temático y visualización de redes colaborativas, el estudio identificó tendencias significativas, temas clave y trabajos influyentes dentro del campo. Los resultados del análisis de la dinámica de publicación permitieron asignar las fases centrales en el panorama teórico del pensamiento estratégico y la gestión de crisis: período inicial (1998-2003); fase de crecimiento (2004-2010); fase fluctuante (2011-2016); auge reciente (2017-2023). Y los hallazgos revelaron siete clusters de investigación distintos: teorías fundamentales de la gestión de crisis, respuestas a la pandemia de COVID-19, planificación estratégica, globalización e inteligencia artificial, redes sociales y ética, gestión de las partes interesadas y gobernanza de la crisis financiera. Además, este análisis subrayó la naturaleza interdisciplinaria del campo y resaltó las relaciones de colaboración entre los investigadores. Este meta-análisis no sólo traza el marco teórico del pensamiento estratégico y la gestión de crisis, sino que también enfatiza la importancia crítica de estos temas para abordar los desafíos globales.

KEYWORDS: Management, Crisis, Critical thinking, Decision making.

PALABRAS CLAVE: Gestión, Crisis, Pensamiento crítico, Toma de decisiones.

1. Introduction

Strategic thinking and crisis management are critical areas of focus in organizational leadership and governance, essential for navigating the complex and dynamic challenges faced by modern organizations. Strategic thinking involves the development of long-term plans and the ability to foresee and mitigate potential risks (Mintzberg, 1994; Abad-Segura et al., 2024; Szczepańska-Woszczyzna & Muras, 2023). It is a disciplined process that includes aligning strategic goals with the organization's vision and mission (Bryson, 2018), continuously monitoring external and internal environments (Porter, 1985; Chandeth et al., 2020), efficiently allocating resources (Hamel & Prahalad, 1994; Chen et al., 2023; Hussain et al., 2021), identifying and managing risks (Kaplan & Mikes, 2012; Dacko-Pikiewicz, 2019a), and fostering innovation and adaptation (Pisano, 2015; Kwilinski, 2019; Szczepańska-Woszczyzna & Gatnar, 2022). Effective strategic thinking enables organizations to anticipate changes, adapt to new circumstances, and maintain a competitive edge in a rapidly evolving landscape (Teece et al., 2016). Crisis management focuses on preparing for, responding to, and recovering from unexpected events that threaten organizational stability. Effective crisis management encompasses preparedness through the development of crisis management plans and training (Coombs, 2014; Infante-Moro et al., 2020), immediate response including communication strategies and resource mobilization (Ulmer et al., 2010), recovery to restore normal operations (Boin et al., 2016), and mitigation to learn from the crisis and improve future responses (Comfort et al., 2010). The ability to manage crises effectively is vital for minimizing the impact of disruptions and ensuring organizational continuity (Herbane, 2010).

The intersection of strategic thinking and crisis management is crucial for building organizational resilience. Strategic thinking provides a framework for identifying potential crises and developing proactive measures to prevent them (Rerup, 2009; Rajiani & Kot, 2020). It ensures that organizations are agile and can adapt their strategies in response to emerging threats (Williams et al., 2017). Crisis management, in turn, ensures that organizations can respond effectively when crises occur, facilitating swift recovery and minimizing long-term impacts (Pearson & Clair, 1998).

The relevance of strategic thinking and crisis management has been underscored by recent global events such as the COVID-19 pandemic, climate change, and geopolitical tensions. Organizations across all sectors have recognized the need for robust strategic planning and effective crisis management to navigate these challenges. Technological advancements, such as data analytics and real-time communication tools, have enhanced the capabilities of organizations to anticipate, respond to, and recover from crises, enabling better environmental scanning, more efficient resource allocation, and improved coordination during crises (Van Rijmenam, 2019). Moreover, the increasing complexity of global supply chains and interdependencies among industries has heightened the need for sophisticated crisis management strategies. For instance, the disruption of supply chains during the COVID-19 pandemic highlighted the importance of having contingency plans and adaptable strategies to maintain operations during unforeseen events (Golan et al., 2020; Dacko-Pikiewicz, 2019b).

However, some studies suggest that strategic thinking significantly enhances an organization's ability to manage crises by providing a robust framework for anticipating potential disruptions and devising proactive measures, leading to improved recovery times and minimized losses (O'Regan & Ghobadian, 2007; Hamel & Välikangas, 2003). Opposite, other research highlights that the benefits are not always straightforward, as initial planning stages, significant upfront costs, and a lack of immediate financial returns can offset potential advantages, particularly in industries with limited resources or experience (Glaesser, 2006; Drożdż, 2019). The effectiveness of integrating strategic thinking with crisis management is influenced by factors such as organizational culture, leadership commitment, industry nature, and external environmental conditions, with innovative and flexible cultures benefiting more compared to rigid, hierarchical structures (Eisenhardt & Martin, 2000; Wróblewski & Lis, 2021). These mixed findings underscore the need for further research to identify specific conditions under which strategic thinking most effectively enhances crisis management, helping organizations tailor their strategic planning processes to improve resilience in future crises.



This research uses a meta-analysis approach to delve into the complex relationship between strategic thinking and crisis management. The main objective is to examine how these two critical aspects of organizational leadership interact and affect overall performance and resilience. The originality of this study lies in its creation of a detailed framework that illustrates the integration of strategic thinking with crisis management practices. The findings reveal significant trends and associations that clarify how these elements work together. The results show that strategic thinking plays a crucial role in enhancing crisis management by offering a systematic approach to anticipating potential crises and developing proactive strategies. This enhances an organization's ability to respond effectively and recover swiftly from disruptive events. The study also identifies various factors that influence this relationship, such as organizational culture, leadership styles, and external environmental conditions. Importantly, this research is the first to conduct a meta-analysis on the intersection of strategic thinking and crisis management, thereby resolving the inconsistent findings present in the existing literature. By aggregating data from numerous studies, this meta-analysis provides a clearer and more comprehensive understanding of how these practices contribute to organizational resilience and performance. The insights from this research are anticipated to guide future studies and inform practical strategies to improve organizational preparedness and adaptability in the face of crises.

This research is structured into five primary sections. The initial section offers an overview of the study. The second section reviews the existing literature. The third section outlines the research methodology, detailing the sampling process, data coding procedures, and the study design. The fourth section presents the research findings, including statistical data on the sample's characteristics and the results of the moderator analysis. Finally, the fifth section discusses the research outcomes, draws conclusions, identifies limitations, and proposes directions for future research based on the findings.

2. Literature review

Strategic thinking and crisis management are two crucial aspects of organizational management. Allahveisi et al. (2019) investigate the role of strategic thinking in the quality of crisis management operations. They emphasize that strategic thinking enhances decision-making processes during crises, enabling organizations to respond more effectively and mitigate negative impacts. The study conducted on managers and experts highlights that organizations with a higher emphasis on strategic thinking are better prepared for crises. John-Eke and Eke (2020) review the literature on strategic planning and crisis management styles. They argue that effective crisis management requires a proactive strategic planning approach that involves all organizational levels. The study stresses the importance of integrating crisis management into the overall strategic management process. Leigh (2015) explores the significance of critical thinking in crisis management, arguing that it enhances the understanding of crisis dynamics and improves response strategies. The study suggests that critical thinking can bring rigor to crisis management processes, helping organizations to navigate through complex and uncertain situations. Al-Janabi et al. (2022) focus on the role of learning organizations in crisis management. They assert that learning organizations, which emphasize continuous improvement and knowledge sharing, are better equipped to handle crises. The study provides a case analysis showing how these organizations adapt and learn from past crises to improve future responses. Pollard and Hotho (2006) discuss integrating strategic and crisis management. They highlight the need for a combined approach to address the evolving nature of crises. Their study suggests that strategic thinking is an emerging field that significantly contributes to effective crisis management.

Strategic thinking prepares organizations to face crises and ensures that responses are more structured and effective. Ansell and Boin (2019) highlighted that integrating strategic thinking into regular organizational practices is crucial. This integration fosters a culture of preparedness and resilience, making organizations more capable of managing unexpected events. The element of critical thinking, as discussed by Koushafard (2013), complements strategic thinking by enhancing the depth of analysis and response strategies. This synergy between strategic and critical thinking results in a comprehensive approach to crisis management, allowing for well-informed and adaptable decision-making. Additionally, Koronis and Ponis (2018) emphasize the role of learning organizations, which prioritize continuous improvement and adaptability. Their insights align with the

arguments of Preble (1997), who advocates for a combined approach to strategic and crisis management. This perspective underscores the importance of learning from past crises to build long-term organizational resilience.

The integration of strategic thinking into crisis management is crucial for enhancing organizational resilience. Hacıoğlu et al. (2016) assert that organizations with robust strategic thinking capabilities are more adept at navigating crises. This perspective is reinforced by Brønn and Olson (1999), who advocate for a proactive strategic planning approach to crisis management. Building on this, Hunzeker and Harkness (2014) emphasize the role of critical thinking in enriching strategic responses, making them more comprehensive and effective. Additionally, Koronis and Ponis (2018) introduce the concept of learning organizations, which emphasize continuous improvement and adaptability based on past experiences. This approach resonates with Ansell and Boin's (2019) argument for integrating strategic management with crisis management to create a more resilient organizational framework. While these studies provide valuable insights, their practical applications require further empirical validation to confirm their broader relevance and applicability.

Strategic thinking and crisis management have evolved significantly in recent years. However, much of the existing literature has not fully addressed emerging trends that are transforming organizational practices, such as digital transformation, big data analytics, artificial intelligence, remote work, and cybersecurity. Digital transformation enhances communication and data-driven decision-making (Zhanibek et al., 2022), while big data analytics provides predictive insights and real-time monitoring (Infante-Moro et al., 2022). AI offers automated response systems and advanced data analysis, crucial during crises (Dabrowski et al., 2023). The shift to remote work, accelerated by the COVID-19 pandemic, necessitates adaptation of crisis protocols to ensure resilience and flexibility (Szczepańska-Woszczyna et al., 2024). Additionally, the increasing reliance on digital technologies underscores the importance of robust cybersecurity measures and comprehensive incident response plans (Kharazishvili & Kwilinski, 2022). Integrating these emerging trends into strategic thinking and crisis management practices significantly enhances organizational preparedness, responsiveness, and resilience in facing modern, complex crises. Thus, the aim of this paper is to use a meta-analysis approach to explore the complex relationship between strategic thinking and crisis management, with a particular focus on how emerging trends are transforming organizational practices. The main objective is to examine how these critical aspects of organizational leadership interact and impact overall performance and resilience in the modern context.

3. Methodology

Based on the previous investigations (Panchenko et al., 2020) this study provide the meta-analysis aims to synthesize existing research on strategic thinking and crisis management, examining trends, themes, and key findings from the literature, following PRISMA guidelines (Figure 1).

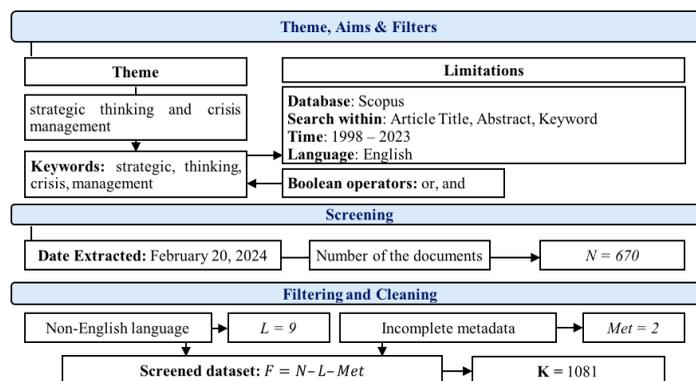


Figure 1. PRISMA guidelines for meta-analysis of the papers which focuses on strategic thinking and crisis management which indexed in Scopus. Source: Self-made.

A comprehensive search was conducted using the Scopus database with keywords "strategic thinking" AND

"crisis management," focusing on English publications from 1998 to 2023. The initial search yielded 1,081 papers, which were screened for relevance based on titles, abstracts, and full texts. Data extraction involved collecting metadata, citation counts, and keywords from each paper. The analysis contained the following stages:

1. Analysis of the publications' dynamic. The dynamic analysis provides a historical perspective on the evolution of research in this field, identifies areas of emerging interest and potential future research directions.
2. Identifying the top 10 prolific authors and the top 10 most cited papers within the phases of publication dynamics, focusing on strategic thinking and crisis management.
3. Co-citations analysis illustrating collaborative networks. It is a bibliometric method used to understand the structure of a research field by examining how often pairs of documents are cited together. When two papers are cited together frequently, it suggests that they share a thematic or methodological similarity. Co-citation analysis can reveal the underlying intellectual structure of a research domain and identify key works, influential researchers, and the collaborative networks within the field.
4. Co-occurrence analysis is a method used to identify the relationships and patterns between different terms or keywords within a set of documents. In the context of academic research, it helps to map the structure and themes of the research field by analysing how frequently certain keywords or concepts appear together in the literature. This type of analysis is often visualized using network maps, where nodes represent keywords or terms, and edges (connections between nodes) represent the co-occurrence of these terms within the same documents. The size of each circle (or node) in the network map represents the frequency or prominence of the corresponding keyword or term in the analysed set of documents. Larger circles indicate that the term appears more frequently, highlighting its importance or centrality within the research field. Conversely, smaller circles represent less frequently occurring terms. The distance between circles in the network map signifies the strength of the relationship or association between the terms. Circles that are closer together indicate that the corresponding terms often appear together in the same documents, suggesting a strong co-occurrence relationship. This proximity can reveal thematic clusters and indicate how closely related different concepts are within the research landscape. On the other hand, circles that are farther apart represent terms that do not frequently co-occur, indicating weaker or more distant relationships.

Based on the past studies (Lagodiienko & Yakushko, 2021), Scopus tools provided detailed metadata for assessing the impact and influence of individual papers and authors. VOSviewer software was employed for co-occurrence analysis, setting a threshold of five occurrences to visualize significant terms and relationships. Network maps created using VOSviewer highlighted thematic clusters and the temporal evolution of research themes, with the size of each node representing term frequency and the distance between nodes indicating relationship strength.

4. Results

Figure 2 presents the annual number of publications on strategic thinking and crisis management indexed in Scopus from 1998 to 2023. The data highlights significant trends and shifts in scholarly output over this period.

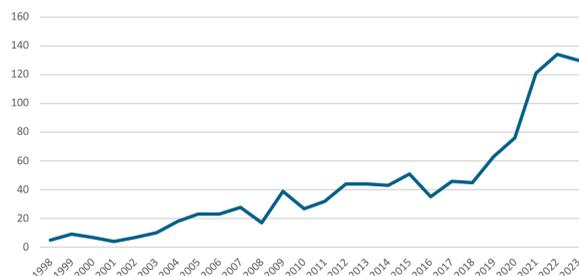


Figure 2. Dynamic of publications on strategic thinking and crisis management which indexed in Scopus. Source: Self-made.

During the early years, the number of publications remained relatively low, fluctuating between 4 and 10 documents annually. The year 2001 recorded the lowest number of publications with just 4 documents, whereas 2003 saw a modest increase to 10 publications. This period reflects the nascent stage of strategic thinking and crisis management as formal academic disciplines. Academic interest and research infrastructure were still developing, and there was limited awareness of the importance of these topics among researchers and funding agencies. Additionally, early research in these areas faced resource constraints, including limited funding and fewer dedicated research centers. Starting in 2004, there was a noticeable upward trend in the number of publications. This period is characterized by a steady increase, culminating in a peak of 39 publications in 2009. The growth phase indicates a rising academic interest in strategic thinking and crisis management. Increased awareness of the importance of these topics, driven by significant global events such as economic crises, natural disasters, and geopolitical changes, spurred more research and publications. Universities and research institutions established more programs and funding opportunities dedicated to these fields, encouraging more scholarly activity. From 2011 to 2016, the number of publications experienced fluctuations yet remained relatively high. The annual publication count ranged from 27 to 51 documents, reflecting sustained but variable research activity during these years. As the field matured, the rate of growth in publications stabilized, with researchers refining and expanding upon earlier work rather than introducing entirely new concepts. Fluctuations in research funding and institutional support led to the observed variations in publication numbers. Additionally, strategic thinking and crisis management integrated with other disciplines, resulting in varied research output depending on broader academic trends. A significant surge in publications is observed from 2017 onwards. The number of documents continued to increase, with a notable spike in 2020. The peak year was 2022, with 134 publications, indicating a peak in scholarly interest and activity. Although there was a slight decline to 130 publications in 2023, the overall number remained substantially high. Recent years have seen high-impact events such as the COVID-19 pandemic, climate change impacts, and geopolitical tensions, heightening the urgency and relevance of strategic thinking and crisis management. Technological advancements in data analytics and communication provided new tools and methods for research, contributing to increased scholarly output. Broader recognition of the critical role that strategic thinking and crisis management play in various sectors, including business (Senaratne et al., 2021; Vaníčková & Szczepańska-Woszczyna, 2020), government, healthcare, and international relations, drove the surge in publications. Increased collaboration among international researchers, institutions, and cross-disciplinary teams boosted research productivity and output.

Table 1 lists the top 10 prolific authors focusing on strategic thinking and crisis management, detailing their affiliations, number of documents published on the topic, overall number of publications, h-index, and total citations. Arjen Boin from Universiteit Leiden, Netherlands, is a leading on number of documents on strategic thinking and crisis management (8 papers). He extensively explores the dynamics of crisis leadership, the politics of crisis management, and public administration under pressure. Louise Bacon of Abertay University, UK (h-index of 10 and 477 citations), has contributed significantly with 5 documents on the topic. The research focuses on developing training environments for crisis management, including the use of multimedia and emotional intelligence to enhance decision-making under stress. Augustine Pang (h-index of 22 and 1,449 citations) from Singapore Management University has also published 5 documents, with the research emphasizing strategic communication during crises.

| Authors, Affiliation, Country | Number of documents | | H-index | Number of citations |
|--|---|-------|---------|---------------------|
| | On strategic thinking and crisis management | Total | | |
| Boin A., Universiteit Leiden, Leiden, Netherlands | 8 | 107 | 40 | 7 636 |
| Bacon L., Abertay UniversityThe institution will open in a new tab, Dundee, United Kingdom | 5 | 57 | 10 | 477 |
| Pang A., Singapore Management University, Singapore City, Singapore | 5 | 70 | 22 | 1 449 |
| Adamu A.A., Curtin University, Malaysia, Miri, Malaysia | 4 | 17 | 9 | 192 |



| Authors, Affiliation, Country | Number of documents | | H-index | Number of citations |
|--|---|-------|---------|---------------------|
| | On strategic thinking and crisis management | Total | | |
| Bony-Dandrieux A., IMT Mines Alès, Ales, France | 4 | 47 | 15 | 556 |
| Burkle F.M., National Academy of Medicine, Washington, D.C., United States | 4 | 338 | 38 | 5 814 |
| Cesta A., Consiglio Nazionale delle Ricerche, Rome, Italy | 4 | 245 | 31 | 2 791 |
| Cortellessa G., Consiglio Nazionale delle Ricerche, Rome, Italy | 4 | 104 | 21 | 1 267 |
| Curnin S., University of Tasmania, Hobart, Australia | 4 | 30 | 10 | 337 |
| Helsloot I., Radboud Universiteit, Nijmegen, Netherlands | 4 | 59 | 19 | 1 710 |

Table 1. TOP 10 prolific authors which focused on analysis of strategic thinking and crisis management. Source: Self-made.

Pang investigates how organizations manage their image and reputation in crisis situations, strategic silence, and the role of new media. Adamu A. Adamu from Curtin University Malaysia (4 documents) focused on the preparedness and resilience of organizations facing crises within strategic thinking and crisis management. Anne Bony-Dandrieux of IMT Mines Alès, France, also with 4 documents, delves into the technical and organizational aspects of crisis management, such as risk assessment and decision support systems. Frederick M. Burkle from the National Academy of Medicine, USA (4 documents) contributes to crisis management encompass public health emergencies, disaster response, and humanitarian assistance. Alfonso Cesta (h-index of 31 and 2,791 citations) and Gianluca Cortellessa (21 and 1,267 citations), both from Consiglio Nazionale delle Ricerche in Italy, have each authored 4 documents on the topic. Cesta's research includes artificial intelligence and robotics applications in crisis scenarios, while Cortellessa focuses on the development of simulation tools for crisis training and decision support. Steven Curnin (h-index of 10 and 337 citations) from the University of Tasmania, Australia, concentrating on crisis leadership, decision-making processes during emergencies, and the integration of theory into practice. Ingrid Helsloot (h-index of 19 and 1,710 citations) from Radboud Universiteit, Netherlands, explores organizational behavior and inter-agency collaboration during crises, ways to improve coordination and communication among emergency services. The results of analysis of the top authors reveals a broad, international interest and expertise in strategic thinking and crisis management.

During the initial period from 1998 to 2003 (Table 2), several significant papers focused on strategic thinking and crisis management were published. Within the initial period the most cited paper is Wilhite et al. (2000) which addressed the shift from reactive crisis management to proactive risk management in drought planning. Their work emphasized the importance of long-term planning, comprehensive drought mitigation strategies, improved monitoring, early warning systems, and sustainable water management policies. Sharma et al. (2003) explored the development and application of speech-gesture driven multimodal interfaces to enhance crisis management efforts. They presented innovative interface designs that integrate speech and gesture recognition technologies, improving communication, coordination, situational awareness, decision-making processes, and overall efficiency during crises (Sharma et al., 2003).

| Phase | Paper | Number of citations | Journal's ranking | | | | |
|----------------------------|------------------------|---------------------|---|-----------|-------|----------|-------|
| | | | Title | CiteScore | SJR | Quartile | SNIP |
| Initial Period (1998-2003) | Wilhite et al. (2000). | 213 | Journal of the American Water Resources Association | 4.8 | 0.654 | Q1 | 0.779 |
| | Sharma et al. (2003) | 84 | Proceedings of the IEEE | 31.6 | 5.564 | Q1 | 5.551 |
| | Thompson (1999) | 77 | Journal of Entrepreneurial Behaviour and Research | 9.9 | 1.287 | Q1 | 1.889 |

| Phase | Author(s) | Citations | Journal | Mean | SD | Q1 | Q3 |
|-------------------------------|---------------------------|-----------|--|------|--------|-----|-------|
| Growth Phase (2004-2010) | Boin et al. (2005) | 972 | In The Politics of Crisis Management: Public Leadership Under Pressure | n/a | n/a | n/a | n/a |
| | Ritchie (2004) | 799 | Tourism Management | 22.9 | 3.561 | Q1 | 3.643 |
| | Brenner (2004) | 446 | Review of International Political Economy | 8.1 | 2.331 | Q1 | 2.912 |
| | Chen et al. (2009) | 344 | Journal of Marketing | 22.1 | 10.802 | Q1 | 4.716 |
| | Moynihan (2008) | 265 | Public Administration Review | 12.2 | 3.311 | Q1 | 3.233 |
| | Somers (2009) | 244 | Journal of Contingencies and Crisis Management | 6.8 | 0.962 | Q1 | 1.456 |
| Fluctuating Phase (2011-2016) | Giménez & Shattuck (2011) | 551 | Journal of Peasant Studies | 10.1 | 2.277 | Q1 | 3.378 |
| | Boin et al. (2016) | 287 | In The Politics of Crisis Management: Public Leadership Under Pressure | n/a | n/a | n/a | n/a |
| | Kantur & İşeri-Say (2012) | 189 | Journal of Management & Organization | 6.6 | 0.677 | Q3 | 1.022 |
| Recent Surge (2017-2023) | Kraus et al. (2020) | 482 | International Journal of Entrepreneurial Behaviour and Research | 9.9 | 1.287 | Q1 | 1.889 |
| | Obrenovic et al. (2020) | 171 | Sustainability (Switzerland) | 5.8 | 0.664 | Q1 | 1.198 |
| | Ansell & Boin (2019) | 168 | Administration and Society | 5.4 | 1.238 | Q1 | 1.571 |

Table 2. TOP 10 most cited papers which focused on analysis of strategic thinking and crisis management within phase of the dynamic of publications. Source: Self-made.

Thompson (1999), while primarily focusing on entrepreneurship, offered valuable insights into strategic thinking within crisis management contexts. Thompson (1999) discussed the importance of strategic vision, innovation, adaptability, strategic planning, and risk assessment for ensuring the resilience and sustainability of entrepreneurial ventures in turbulent environments. It should be noted that the most cited paper during the whole analysed period 1998-2023 is paper which published in growth phase (2004-2010) – Boin et al. (2005). The researchers explored the complexities of crisis management through the lens of public leadership by outlining the political and administrative challenges leaders face during crises, offering insights into effective leadership strategies and the dynamics of crisis management (Boin et al., 2005).

Brenner (2004) examined urban governance and the creation of new state spaces in Western Europe from 1960 to 2000. He investigated how urban governance strategies have evolved and how they impact state structures and crisis management in urban settings. Chen et al. (2009) analyzed the financial implications of product-recall strategies during product-harm crises. They evaluated different strategic alternatives and their effects on a firm's financial value, providing a strategic perspective on managing product recalls and mitigating financial damage. Moynihan (2008) focused on the role of networks in crisis management, especially under conditions of uncertainty. The study highlighted how learning and collaboration within networks can enhance crisis response and management capabilities. Ritchie (2004) provided a strategic approach to crisis management in the tourism industry. Ritchie (2004) discussed the impact of chaos, crises, and disasters on tourism and presented strategies for effectively managing these events to ensure industry resilience and recovery. Somers (2009) proposed an adaptive strategy for organizational crisis planning, emphasizing the importance of resilience in effective crisis management.

During the fluctuating phase from 2011 to 2016 the most cited paper was published by Giménez and Shattuck (2011) with 551 citations. Their study investigates the underlying causes of food crises and the responses from various food movements. They explore whether these movements represent mere reforms or signify deeper transformations in the global food system. The authors highlight the strategic responses of food movements to crises and their potential to bring about systemic change (Giménez & Shattuck, 2011). Kantur and İşeri-Say (2012) developed a conceptual integrative framework for organizational resilience. Their work explores how organizations can build resilience to withstand and adapt to crises. They propose a comprehensive model that integrates various dimensions of resilience, including adaptability, robustness, and resourcefulness, to enhance an organization's ability to recover from adverse situations (Kantur & İşeri-Say,



2012). Boin et al. (2016) revisited their influential work on crisis management in an updated edition. This book continues to examine the role of public leadership during crises, emphasizing the political and administrative pressures that leaders face. The authors provide updated insights and strategies for effective crisis management, focusing on leadership dynamics, decision-making processes, and the importance of communication and coordination during emergencies (Boin et al., 2016). During the recent surge from 2017 to 2023, the most cited paper (482 citations) of Kraus et al. (2020) investigated how family firms in five European countries coped with the COVID-19 crisis. Their study offers initial empirical evidence on the economic impact of the pandemic, focusing on the strategies these firms employed to navigate the crisis. The authors analyze the effectiveness of various coping mechanisms and provide a comparative view of family firms' resilience across different national contexts (Kraus et al., 2020). Ansell and Boin (2019) explored the application of pragmatist principles to strategic crisis management, particularly under conditions of deep uncertainty. They argue that pragmatist principles can enhance the understanding and management of crises by fostering flexible and adaptive strategies. The authors emphasize the importance of learning, experimentation, and incremental adjustments in improving crisis management practices (Ansell & Boin, 2019). Obrenovic et al. (2020) highlights the importance of strategic planning, organizational adaptability, and effective crisis response mechanisms. The model provides a framework for assessing and enhancing enterprise resilience and sustainability in the face of unprecedented challenges (Obrenovic et al., 2020). Thus, these papers contribute to the field of strategic thinking and crisis management by addressing the economic impacts of the COVID-19 pandemic, the application of pragmatist principles to crisis management, and the development of frameworks for sustaining enterprise operations during crises.

Table 3 highlights the top 10 countries with the largest number of publications on strategic thinking and crisis management, along with an overlay visualization of co-citations analysis. The United States leads with 240 publications, indicating a strong research focus and contribution to the field. The United Kingdom ranks second with 136 publications, reflecting a significant research output in strategic thinking and crisis management. China shows a growing interest with 68 publications, while Germany follows closely with 65, indicating robust academic interest. Australia's 57 publications highlight its engagement and research efforts. France, with 56 publications, showcases notable academic involvement, and Italy's 48 publications reflect active participation in the field. The Netherlands, with 41 publications, underlines its research focus, and Sweden's 37 publications indicate a strong research interest. Spain rounds out the top 10 with 35 publications, contributing substantially to the field.

| Country | Number of documents | Country | Number of documents |
|----------------|---------------------|-------------|---------------------|
| United States | 240 | France | 56 |
| United Kingdom | 136 | Italy | 48 |
| China | 68 | Netherlands | 41 |
| Germany | 65 | Sweden | 37 |
| Australia | 57 | Spain | 35 |

Overlay visualization of co-citations analysis within the countries

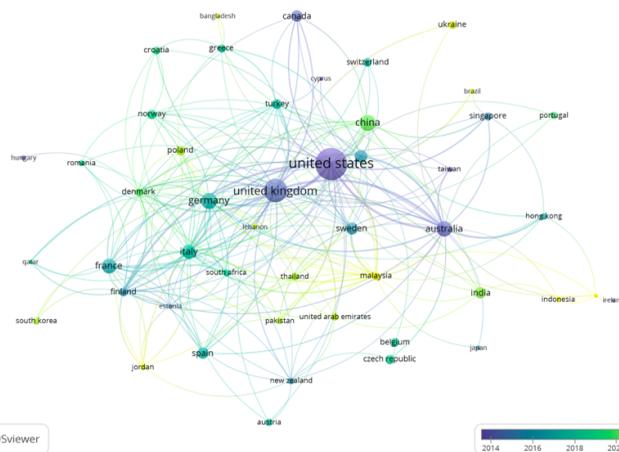


Table 3. TOP 10 of authors from which published the largest number of publications on analysis of strategic thinking and crisis management, and overlay visualization of co-citations analysis within the countries. Source: Self-made.

training. The findings from these clusters underscore the diversity of research themes and the interconnectedness within the field of strategic thinking and crisis management, as demonstrated through the co-occurrence analysis and collaborative networks among researchers. It should be noted, that all above mentioned clusters are located close to each other, instead of Cluster 6.

The overlay visualization of the co-occurrence analysis (Figure 4) of investigations on strategic thinking and crisis management provides insights into the evolution and interrelationships of research themes over time. The colour gradient from blue to yellow represents the temporal evolution, showing how research topics have shifted over the years. Key findings include the central role of "crisis management," highlighted by foundational works like Boin et al. (2005, 2016) on public leadership under pressure. The COVID-19 cluster, marked in yellow, reflects the surge in recent research addressing the pandemic, such as Boin and Lodge (2021) discussing responses to the crisis. The strategic planning cluster emphasizes long-term decision-making, with contributions like Ansell and Boin (2019) exploring pragmatist principles for crisis management. The social media, trust, and ethics cluster includes studies by Jin et al. (2006) on communication during the SARS crisis and Le et al. (2019) on strategic silence. The stakeholders, marketing, and image cluster, marked in blue, includes research on managing organizational image, such as Pang (2012) on crisis pre-emptive image management. The financial crisis governance cluster focuses on strategies for financial stability. Research on training and decision support by Bacon et al. (2011, 2012, 2013, 2017) and Dzwigol (2021) highlights the importance of preparedness in crisis management.

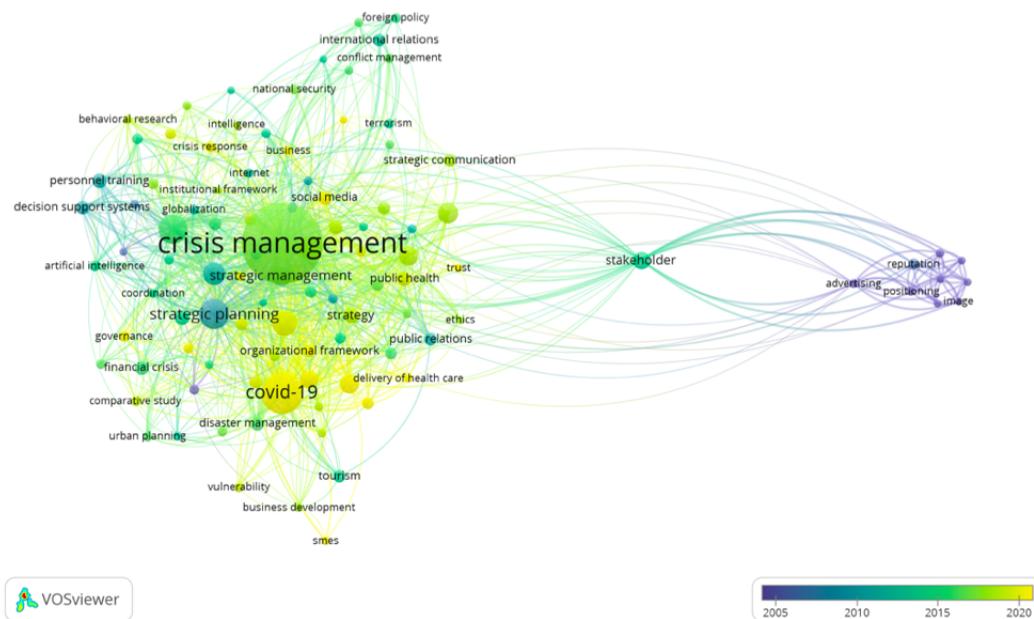


Figure 4. The overlay visualization of the co-occurrence analysis of the investigations on strategic thinking and crisis management.
Source: Self-made.

Additionally, Dückers et al. (2017) examine the intersection of crisis leadership and psychosocial support. Examples of contributions include Ahmad et al. (2012) on interactive simulation technology for crisis management and Boin et al. (2014) on developing IT platforms for crisis management. Boin et al. (2013) present a framework for assessing leadership during crises, emphasizing the qualities and actions that define effective crisis leadership. Mei et al. (2010) explore the role of new media in escalating crises, examining how these platforms can both exacerbate and help manage crisis situations. Ye and Pang (2011) analyze the Chinese approach to crisis management, focusing on strategies such as cover-ups, saving face, and adhering to the "Upper Level Line" to maintain control and minimize public backlash. Mackinnon, Bacon, Cortellessa and Cesta (2013) discuss the use of emotional intelligence in training crisis managers, introducing the Pandora approach to enhance the emotional and psychological readiness of crisis responders. MacKinnon and Bacon

(2012) emphasize the importance of realistic training scenarios in preparing for crisis management, highlighting methods to create more effective training environments. Finally, Paweenawat and Liao (2023) investigate the impact of higher education on migration patterns to cities in Thailand, revealing how educational attainment influences urban migration and contributes to urban development.

5. Conclusions

The analysis of publications on strategic thinking and crisis management from 1998 to 2023 reveals significant trends and shifts in scholarly output. The field has evolved from its nascent stage, characterized by limited awareness and resources, to a mature discipline marked by robust academic interest and increased research output, especially in response to global events and technological advancements. The identification of top authors, most cited papers, and leading countries underscores the international and collaborative nature of this research field. The thematic clusters and co-occurrence analysis reveal the diverse areas of focus within strategic thinking and crisis management, highlighting seven distinct research clusters. These clusters include foundational crisis management theories, COVID-19 responses, strategic planning, globalization and AI, social media and ethics, stakeholder management, and financial crisis governance. The analysis underscores the interconnections between these themes, reflecting the interdisciplinary nature of the field. Collaborative networks among researchers are illustrated through co-citation analysis, showing significant relationships and the global impact of various studies.

This investigation has significantly contributed to the theoretical framework of strategic thinking and crisis management by mapping the evolution of research themes, identifying influential works, and uncovering collaborative networks. Key theoretical contributions include the development of crisis leadership frameworks, the integration of strategic communication in crisis scenarios, and the exploration of resilience and adaptability in organizational contexts.

However, this study has several limitations. The reliance on publications indexed in Scopus may exclude relevant works from other databases, potentially leading to a partial view of the research landscape. Additionally, the focus on English-language publications may overlook significant contributions in other languages. The threshold of five occurrences for co-occurrence analysis, while ensuring the inclusion of significant terms, might exclude emerging but less frequent topics.

Future research directions should address these limitations by incorporating a broader range of databases and languages to provide a more comprehensive view. Further investigations could explore the impact of cultural and regional differences on strategic thinking and crisis management practices. Additionally, examining the role of emerging technologies, such as artificial intelligence and big data analytics, in enhancing crisis management strategies could provide valuable insights. Finally, longitudinal studies tracking the evolution of research themes and their practical applications over time would contribute to a deeper understanding of the field's development and its real-world impact.

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