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Variations on Crisis Leadership in Business and Public Administration: A Bibliometric Analysis

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Abstract

Crises are disruptive events that represent a threat to the existence of organizations, making the study of leadership a core component of crisis management. Crisis leadership focuses on preparing organizations for and surviving crises, as well as leading thereafter. This comprehensive framework has led to several disciplines addressing crisis leadership. While there is a substantial body of literature on crisis leadership, there is a lack of bibliometric research that compares and contrasts the conceptual characteristics and intellectual patterns of the two most essential management disciplines, business and public administration. To address this gap, bibliometric methods were applied to assess the academic performance and trends, to disclose the variations in intellectual patterns, and to identify the conceptual roots of both domains. In addition to the descriptive study of performance metrics, the analytical results reveal that conceptual foundations vary considerably and are intellectually reflected by variations. The research offers readers with a road map and implications for future research.

Keywords

Crisis, Crisis leadership, Crisis management, Bibliometric analysis, Science mapping

Jel Codes: M19

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1. Introduction

A crisis is defined as a process of degeneration that can culminate in an event that disrupts the regular functioning of an actor, such as an individual, organization, or community (Williams et al., 2017). Yet, crises also represent defining moments for a leader and their organization (James et al., 2011). Global financial crises, ecological disasters, recent regional wars and COVID-19 as a global societal shock (Renjen, 2020) have not only emphasized the importance of crisis management, but also made leaders' crisis management strategies more transparent and hence comparable. As expected, both the volume and interest in crisis leadership studies are growing in this scenario. However, the expanding body of knowledge remains fragmented due to the taxonomic focus (crisis type, process, sector, etc.; Williams et al., 2017), and the perspective from which the crisis is viewed (James et al., 2011).

This study aims to analyze the evolution and variation of the crisis leadership literature using bibliometric tools in a two-domain approach; business administration (hereafter BA), and public administration (hereafter PA). As Zupic and Čater (2015:436) indicate, bibliometric approaches can provide increased objectivity in literature reviews compared to traditional techniques. There is a substantial corpus of bibliometric research on leadership (i.e., Vogel and Masal, 2015; Gumus et al., 2018, Zhu et al., 2019); nevertheless, bibliometric analyses on crisis leadership remain relatively unexplored. The exception is the study by Wu and colleagues (2021), which focuses on the general concept. Other than generic perspectives, there are no studies that specifically analyze crisis leadership in the two management disciplines. The study contributes to the understanding of crisis leadership in two ways. First, the performance of the domains is assessed by presenting the most influential writers, documents, and sources. Second, conceptual foundations and intellectual patterns were explored in order to comprehend the variations. By discovering the intersections and variations of the many characteristics of the two domains, this study may provide insight for management scholars to generate new perspectives.

The paper is organized as follows: First, a definition of crisis leadership is provided. This is followed by the research design and the methodology of the paper. The results of the bibliometric analysis examining the intellectual patterns and conceptual origins of both areas are presented next. The study continued with a discussion of the findings and concluded with an assessment of limitations and recommendations for future research.

2. An Overview of Crisis Leadership

Leadership is an age-old concept, yet it is still a difficult area for scholars to grasp (Trottier et al., 2008). As is commonly noted, "there are almost as many definitions of leadership as there are persons who attempt to define the concept" (Stogdill,

1974:259). In a broad perspective, Yukl and Gardner (2019: 26) define leadership as "the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives". Actually, the debate on contextual and organizational variations has stimulated scholarly interest as a fundamental aspect of the leadership literature. Comparing public and private managers, for instance, is a popular topic in leadership studies, particularly in the public administration literature (see Bourantas and Papalexandris, 1993; Boyne, 2002; Andersen, 2010, Van Mart, 2013), which lags (Trottier et al., 2008); however, empirical research on the differences in their distinct leadership styles is limited (Hansen and Villadsen, 2010). Moreover, addressing crisis leadership, the scholar's lenses upon those differences is still limited.

In accordance with the broad definitional approach to leadership, we describe crisis leadership as the process through which leaders prepare for, respond to, and grow from unexpected crises (Bundy et al., 2017; Wu et al., 2021). Consistent with the popularity of the concept, there exist influential reviews (i.e., James et al., 2011; Bundy et al., 2017) on crisis leadership. However, these studies do not provide a comprehensive overview of the diverse constituents and variations of crisis leadership literature, nor do they include recent research (Wu et al., 2021), with the exception of Wu et al. (2021) who examine crisis leadership literature as a whole. Yet, scholars' background heterogeneity brings different perspectives (Cuccurullo et al., 2016).

3. Methodology

To assess the literature on crisis leadership, we employed two bibliometric analyses. Bibliometric techniques bring a strong quantitative rigor to the subjective assessment of the literature (Zupic and Čater 2014). Compared to other techniques, bibliometric techniques offer analytical advantages for understanding conceptual and intellectual development of research domains by examining the relational and structural relationships between various research components (e.g., authors, documents, countries, institutions, topics) (Donthu et al., 2021:287). Due to data processing and the fact that bibliometrics includes statistically reliable data, bibliometric research has risen significantly over the past decade (Ellegaard and Wallin, 2015).

The bibliometric technique has two functions: performance analysis and scientific mapping (Cobo et al., 2011). Performance analysis explores the research and publication output of people, journals, institutions, and countries, whereas science mapping aims to reveal the structure and dynamics of scientific domains (Zupic and Čater 2014). The performance analysis is based on citation analysis which essentially gauges research performance by counting document citations. This method is used to provide information about interrelations between different groups in the scientific community.

In scientific mapping, there are several methods, such as co-occurrences, co-citations, and bibliographic coupling of keywords, documents, authors, sources, and countries.

We employed the four-step bibliometric analysis procedure proposed by Donthu et al. (2021:295): (1) Definition of the study's objectives and scope, (2) Selection of bibliometric techniques, (3) Data collection, and (4) Analysis and reporting of findings. The aims of a bibliometric study should involve a retrospective analysis of the performance and science of a specific area of research, and its' scope should be large enough to conduct analysis (Donthu et al., 2021). Critical to this procedure is the selection of an appropriate bibliometric technique for the research question. While the purpose of our study is to explore variation in the crisis leadership literature, we began our analysis by measuring impact to identify the most influential articles, authors, and journals in the two domains. Citation-based indicators have been extensively used to trace the growth of topics as well as the flow of knowledge (Kovacs, Van Looy, and Cassiman, 2015). This reveals the experts in the fields, the "balance of trade" between disciplines, and the "recommended reading list" (Zupic and Čater, 2014: 439). Second, research domains and interdisciplinarity were identified using co-occurrences analysis to shed light on the origins of concepts (Yan and Ding, 2012; Sedighi, 2016). We utilized co-word relations to develop cluster networks (Milojević, Sugimoto, Yan, and Ding, 2011), which illustrate co-occurrence analysis by establishing the relationship between keywords based on the number of documents in which they co-occur. Third, in order to identify the knowledge base, also known as the intellectual structure, we conducted co-citation analysis, one of the most used bibliometric techniques (Zitt and Bassecoulard, 1994; Osareh, 1996). Co-citation is described as an occurrence in which two works are cited together by another work (Wang et al., 2016). Co-citation is applied to cited papers that are regarded the theoretical and methodological foundations or "origins of the field" (Boyack and Klavans, 2010), and the great majority of bibliometric research in management and organization employ this technique (Zupic and Čater, 2014, Wang et al., 2016). The primary benefit of this technique is that it eliminates the researcher's personal biases when interpreting the field (Acedo and Casillas, 2005).

To conduct the bibliometric analyses, Clarivate's Web of Science (hereafter WOS) database was used to identify relevant publications. WOS is one of the reliable data sources that has been utilized extensively in several previous studies (Zupic and Čater, 2014). All journals are assigned subject categories for filtering in the database. Due to the exploratory nature of the study, "crisis leadership" was used as a search query in topics, including titles, abstracts, keywords, and keywords plus, to limit the scope of the study. 5424 documents were returned as a result of the query. Next, the collection was filtered for the original articles in English-language retrieved from the SSCI and ESCI databases, as they are the most widespread in similar studies (Cuccurullo et al, 2016). We excluded reviews, book chapters, conferences, etc., which has resulted in

3,891 documents. The results are then refined within the framework of WOS research topics in accordance with the study's scope. At this phase, Business-Economics was selected first, and articles pertaining to business and management are included within this collection. The first subset was comprised of 791 articles after the exclusion of those with weak relevance. Following the same procedure, the Public Administration research area was selected to filter the second subset, which included 222 articles.

Table 1
Main Information of the collection

	BA	**PA**
Time Span	1990:2022	1993:2022
Number of documents	791	222
Source	250	67
Authors	1750	421
References	38788	10281

To conduct bibliometric analyses, Bibliometrix (Aria and Cuccurullo 2017) was used for performance analysis based on citation metrics which is conducted using RStudio (RStudio Team, 2019) through Shiny package (Chang et al., 2018). To visualize co-citation and co-occurrence networks for science mapping analysis, Vosviewer (Van Eck and Waltman, 2010) was used.

4. Results

The results are divided into two main parts. First, the results of performance analyses, and second, the results of science mapping analyses are presented.

4.1. Descriptive Analysis of Performance

First of all, publication trends were identified by assessing the annual scientific production on crisis leadership in both domains. BA scholars have produced more publications on crisis leadership than PA scholars, according to a direct comparison of the scholarly output of the two domains. For BA, an average of 21.53 articles are published annually, whereas for PA, an average of 6.62 articles are produced annually. As illustrated in Figure 1, the total number of articles per year followed a comparable pattern. Comparing the average production of the last five years reveals that the BA collection contains 57.8 articles and the PA collection contains 19.5 articles. Considering the annual growth rates of the two domains, BA (12.55%) has a greater average than PA (8.82%). The year 2021 had the most publications in both BA and PA, with a total of 103 and 43, respectively. In addition to the overall growth patterns in both disciplines, research on crisis leadership has advanced dramatically since 2018. This remarkable growth is primarily attributable to the COVID-19 outbreak, as well

as climate and political challenges that have been more prevalent in recent decade. In response to the many forms of crises, it is expected that both domains may experience a conceptual shift.

Examining the quantitative production patterns further, BA presents a higher level of scientific production trend. The dotted lines in Figure 1 represent the trend in scientific publication for both domains.

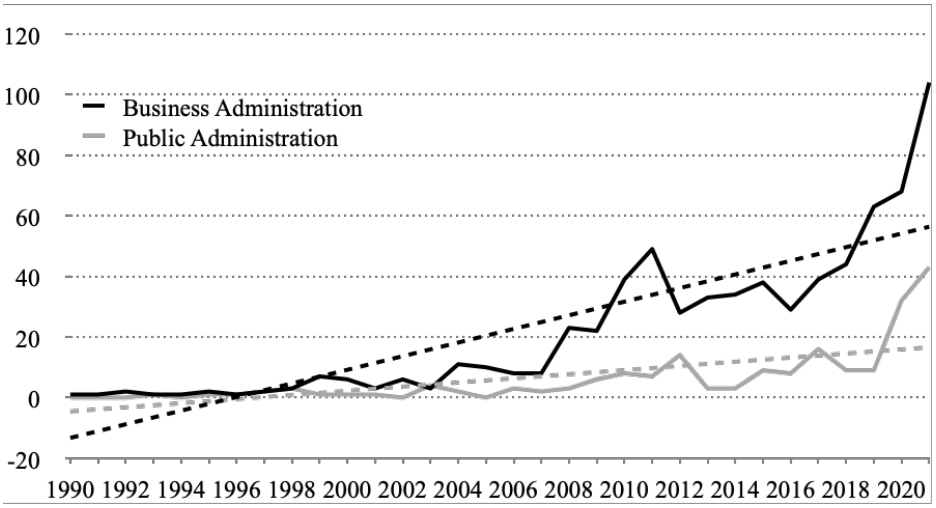


Figure 1: Scientific production of both domains

The perspective generated by citation indicators seemed relatively complex. Average citation scores indicate that although the average number of citations per document for BA was greater (19.87_{BA}; 15.95_{PA}), the average number of citations per year per document for PA was higher (2.51_{BA}; 2.92_{PA}). At this time, further citation data was required to comprehend the differences.

Table 2
Average citations

	BA	PA
Average citations per article	19.87	15.95
Average citations per year per article	2.51	2.92

Second, Figure 2 was created to illustrate the outlook utilizing relevant citation metrics. Examining the growth of the total number of citations per year revealed that this average has decreased slightly for both domains. Third, the total number of citations per author followed a similar upward pattern for both domains, with PA's growth tendency being slightly greater than BA's.

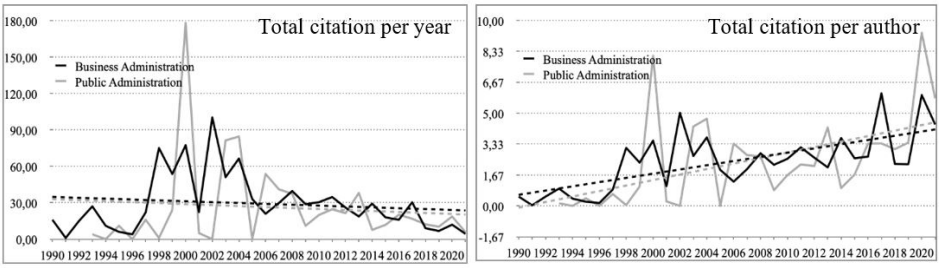


Figure 2: Total Citation Statistics

Information on author impact is a key indicator in a scientific discipline's developmental patterns. For this purpose, after giving a brief overview and the important authors in the two fields, we will evaluate whether the field is limited to a certain number of authors. Table 3 demonstrates that the number of authors per article (2.21_{BA}; 1.90_{PA}) and the number of articles per author (0.45_{BA}; 0.53_{PA}) vary slightly between the two domains. Author collaboration in BA appears slightly stronger (2.64_{BA}; 2.36_{PA}). The most influential authors by total citations index and relevant information regarding their impact in the PA and BA are as follows: Bligh, with 8 publications and 555 total citations; Kohles, with 6 publications and 505 total citations; and Mumford, with 6 documents and 183 total citations were the leading profiles for BA. With 7 publications and 526 citations, Boin was the most influential author in PA; followed by Hart, with 2 documents and 330 citations, and Kapucu, with 8 documents and 282 citations. By analyzing the metrics of author productivity according to Lotka's law (1926), neither domain seem to be dominated by a small number of authors, showing that both domains have a variety of contributors. For BA, articles published by a single author account for 92.1 percent of all documents, whereas papers by two authors account for 5.9 percent and papers by three authors account for 1.3 percent of all articles. As a result, core authors who have published more than three articles account for 0.8 percent of all published works. For PA, 92.4 percent of published papers have a single author, while 6.4 percent have two. The core group of authors consists of those who generate three or more articles and accounts for 1.1 percent.

Table 3
Author statistics

	BA	**PA**
Authors of single-authored documents	179	72
Authors of multi-authored documents	1571	349
Documents per Author	0.45	0.53
Authors per Document	2.21	1.90
Co-Authors per Documents	2.46	2.1
Collaboration Index	2.64	2.36

Core sources found according to Bradford's law (1948) depict that domain-specific journals form the two cores, as shown in Table 4. In comparison, BA's core sources demonstrate greater diversity and interdisciplinarity. However, as will be demonstrated in the following section, the fields' knowledge base provides some additional significant insights into this issue.

Table 4
Core Sources according to Bradford's Law

	BA		PA	
	Journal	**Articles**	**Journal**	**Articles**
1.	Leadership Quarterly	44	Int J of Public Leadership	18
2.	J of Business Ethics	35	Public Administration	13
3.	Leadership	34	J of European Public Policy	10
4.	J of Cont. and Crisis Manage.	26	Public Management Review	10
5.	Public Relations Review	19	Nonprofit Manage&Leadership	8
6.	Leadership & Org Dev. Journal	13	Public Administration Review	8
7.	Harvard Business Review	12	Am Rev of Public Admin.	7
8.	Journal of Manage. Inquiry	11		
9.	School Leadership & Manage.	11		
10	Business Horizons	10		
11	J of Business Research	10		
12	Public Management Review	10		
13	J of Appl Behavioral Science	9		
14	J of Applied Psychology	9		
15	J of Leadership Studies	9		

Finally, influence of publications and references on the subject is arguably the most fundamental aspect of the field. The descriptive analysis of the most local cited references (see Appendix) reveals that studies from both domains refer to documents from the other domain. Initial findings reveals that the general leadership literature plays a central role in the BA domain, whereas on the PA side, the emphasis was on crisis management studies relevant to the BA literature and various forms of crises, particularly disasters.

4.2. Variations in Conceptual Structure: Co-occurrence Analyses

Co-occurrences of keywords facilitate the creation of a conceptual map that indicates thematic clusters. For this purpose, conceptual clusters were built for both domains based on 50 nodes. Co-occurrence analysis reveals considerable differences and similarities in the literature on crisis leadership from the two management disciplines. In this regard, this section investigates the co-occurrence network in the two domains.

Business Administration: Figure 3 illustrates seven clusters generated by the BA literature co-occurrence network.

Co-occurrence cluster 1 (red); Organizational culture and responsible leadership: Leadership in crisis situations is strongly associated with organizational culture and values (Bhaduri, 2019). To effectively handle crises, scholars have proposed combining organizational culture (Bowers et al., 2017) and core values with leadership competencies (Fortunato et al., 2018; Caringal-Go et al, 2021). According to Hutajulu, Susita and Eliyana (2021), leadership influences employee creativity, and employee creativity influences organizational innovation. During crisis, innovation influences the survival of organization (Dwiedienawati et al, 2021). This cluster contains responsibility and responsible leadership. Research indicate that responsible leaders have a direct effect on the reputation and financial worth of their companies (Coldwell et al., 2012; Varma, 2021). Furthermore, corporate social responsibility, sustainability, and climate change have been related to responsible leadership (Lehman et al, 2010).

Co-occurrence cluster 2 (green); Crisis communication and ethical leadership: Cluster 2 was the second largest cluster of keywords co-occurrence including 9 items. The topics are mostly concerned with crisis communication and public relations. Several crisis communication processes have been studied in the context of crisis leadership (Verhoeven et al., 2014; Frandsen and Johansen, 2020), including contingent public expectations from organizations (Hwang and Cameron, 2008; 2009), legitimacy in communication (Yim and Park, 2019), influence of channels such as social media (Liu et al., 2018; Zhao et al., 2018), post-crisis/recovery (Austin et al., 2014), and lessons from failures (Boyd, 2001). CEO, financial crisis, governance and ethical leadership themes were positioned in the periphery of this cluster. Leadership (Khan and Ahmad, 2013) and ethical failures in financial crises (Schwartz, 2020) are recurring issues in this field of study; as a result, ethical leadership is closely associated with it. Sims and Brinkman (2002) indicate that one of the reasons leaders are able to create an ethical organization is their response to crises.

Co-occurrence cluster 3 (blue); Attitudes and transformational leadership: The center of the cluster was transformational leadership, which is one of the pioneering concepts in leadership research and considered a key leadership style in crisis events (Bhaduri, 2019). Transformational leaders influence crisis management effectiveness favorably (Dwiedienawati et al., 2021). Furthermore, servant leadership has emerged in this cluster (i.e., Langhof and Gueldenberg; 2021). Finally, organizational behavior themes such as emotions, emotional intelligence, job satisfaction, and well-being were linked to crisis leadership. Leadership style is reported to influence job satisfaction during organizational crises (Marques-Quinteiro et al., 2019), especially through pandemics (Tao et al., 2022). Emotional intelligence has been proven to be an essential leadership quality (Wisittigars and Siengthai, 2019). On the other hand, the emotional state of employees is a crisis-related subject of research. Crises were associated with emotions including anger, sadness (Madera and Smith, 2009), and fear (Coget et al.,

2011). According to some researchers, it is possible to reduce negative emotions in crisis situations by improving organizational effectiveness (i.e., team effectiveness; Kaplan et al., 2011). In addition to the emotions of employees, the well-being in the workplace is also directly related to crisis leadership, as crises influence employees' impressions of their leaders (Birkeland et al., 2017). During a crisis, negative leadership behaviors have been found to negatively impact employee well-being (Brandebo, 2020).

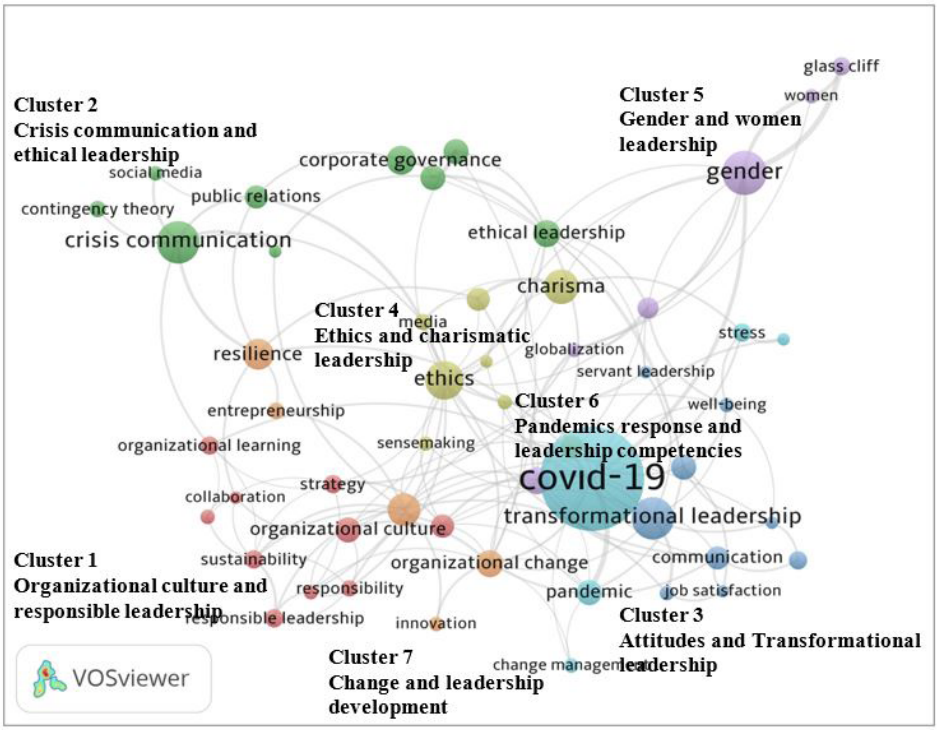


Figure 3: Co-occurrence of keyword network: Business administration

Co-occurrence cluster 4 (yellow); Ethics and charismatic leadership: The focus of Cluster 4 is ethics and charismatic/authentic leadership. According to this cluster's algorithm, leadership styles are strongly correlated with un/ethical behavior (Sims and Brinkman, 2002; Selart and Johansen, 2011), trust (Bundy et al., 2012; Peus et al., 2012), charisma perception (Hunt et al., 2004), media (Bligh et al., 2006), and social media (Gruber et al., 2015). Charismatic leadership is commonly thought to emerge during times of crisis. Given that crises are times of rapid change, charismatic leadership is closely linked to change management. According to research, leaders that promote change are viewed as more charismatic. For instance, Nohe and colleagues (2013) discovered that leaders are regarded as charismatic when they participate in change-promoting activities, which enhance team performance through the perceived charisma and commitment to change of team members. Paradoxically, Levay (2010)

argues that charismatic leaders are sometimes believed to maintain the status quo and inhibit change in certain contexts, such as religious and political settings.

Cluster 5 (purple); Gender and women leadership: This cluster focuses mostly on the glass cliff and leadership inequalities faced by women (Ryan et al., 2011; 2106). Women's leadership has been a prominent research topic in recent years, particularly during the global financial crisis (Elliott and Stead, 2018). There is evidence to suggest that women's leadership may be preferable, particularly when firm performance declines. According to Haslam and Ryan's (2008) study, women are more likely to be selected for leadership positions associated with a higher risk of failure. Kulich and colleagues (2011) argue that, regardless of gender, agentic leaders should be prioritized above community leaders if leadership qualifications and actual change potential are the determining factors for leader selection. They examine the complexity of why women become crisis leaders, namely because women are viewed as indicators of change. Finally, Cosentino and Paoloni (2021) show that female managerial skills have a positive effect on the ability to adapt to change, the promotion of new ideas, and the building of strong stakeholder relationships.

Cluster 6 (turquoise); Pandemics response and leadership competencies: The COVID-19 outbreak is becoming the most actual conceptual component of the crisis literature. In other words, the impact of the pandemic on the crisis leadership literature has been immense, and it has resulted in a rapid increase in the interdisciplinarity of the crisis leadership literature. Diverse responses to pandemics have prompted a global examination of leadership competencies (Dirani et al., 2020). Research in this cluster reports that leaders' competencies during pandemics impact work performance (Bartsch et al., 2020), job satisfaction (Tao et al., 2022). A group of researchers has also focused on how to deal with a crisis, especially how to change business models to fit the new circumstances (Kraus et al., 2020).

Cluster 7 (orange); Change and leadership development: The research in this cluster focuses on how leadership can be developed, especially in times of change. Studies on the leadership characteristics (Leslie and Canwell, 2010; Kashmiri et al., 2017) and how to develop them (Chambers et al., 2010) constitute the focus of this cluster.

Public Administration: According to Figure 4, the PA literature showed a five-cluster structure that differed conceptually from the BA.

Co-occurrence cluster 1 (red); Disasters and political leadership: The largest cluster on crisis leadership within the field of public administration focuses on disasters and emphasizes political and presidential leadership. These studies examine political leaders' responses (i.e., blame management; Boin et al., 2010), characteristics such as toxic leadership (Grant-Smith and Colley, 2018), ethical traits (Yeo and Jeon, 2021),

decision-making (Galaz et al., 2011) during different types of crises such as disasters (Boin et al., 2010), pandemics (Christensen and Lægreid, 2022), or ecological crises (Galaz et al., 2011). Given its strong association with crisis management, the center cluster's positioning of ethical leadership seems logical. Ethical management has become an issue for the public sector, especially in the wake of the financial (Lager, 2010) and administrative scandals (Mastracci, 2017). These studies emphasize the role of ethical leadership in making efficient decisions in times of crisis (Knox et al., 2022; Slagle et al., 2022).

Co-occurrence cluster 2 (green); Policy making and public management: One of the focal points of the second largest cluster is the new public management in times of crisis, including COVID-19 pandemic as well as budget impasses (Young et al., 2020). The cluster also includes themes such as issues related to policy-making during crises (Lee et al., 2020; Karine Pereira et al., 2020), post-crisis issues such as learning from the crises (Schiffino et al., 2017). Another topic in this cluster is sense-making in crisis processes (Glenn et al., 2020). Studies reveal the effects of sense-making on understanding (Lu and Xue, 2016) and responding to crises (Moynihan, 2012).

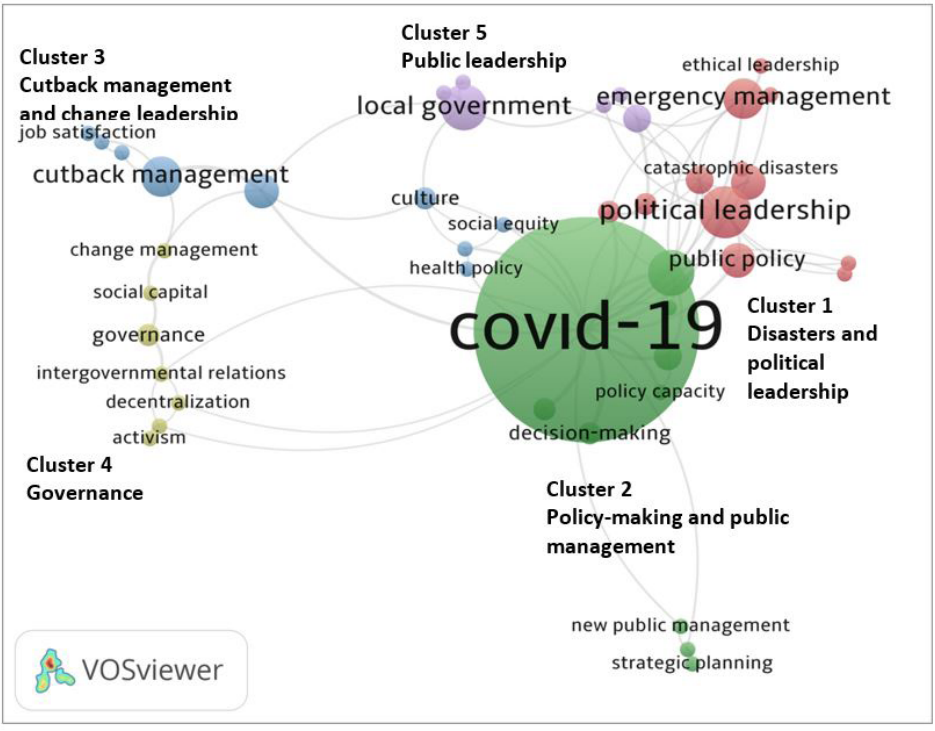


Figure 4: Co-occurrence of keyword network: Public administration

Co-occurrence cluster 3 (blue); Cutback management and change leadership: The financial repercussions of crises necessitate that government agencies conduct cutbacks, which are associated with the concept of change in the sphere of public administration (i.e., Schmidt et al., 2017). Research show that cutbacks influence the leadership behavior of public managers (Schmidt and Groeneveld, 2021) and attitudes such as trust in public institutions (Zanini et al., 2022). Instead of focusing on the financial aspect of cutback, Caperchione and colleagues (2014) suggest a more proactive reexamination of management and cultural variables.

Co-occurrence cluster 4; (yellow) Governance: In times of crisis, it is unsustainable for the public sector to implement a specified emergency management plan and delegate responsibility to a few policy experts and decision makers (Mintzberg and Alexandra 1985). Governance ensures that everyone in an organization follows acceptable decision-making processes and that the interests of all stakeholders are protected. The research in this cluster emphasizes the importance of effective governance strategies in various crises such as COVID-19 pandemic (Ansell et al., 2021) and Katrina crisis (Farazmand, 2017). Research in this context focuses on multilevel governance (Bello-Gomez and Sanabria-Pulido, 2021) and municipal leaders (Plaček et al., 2021) which will incorporate local governments during the crisis era.

Co-occurrence cluster 5 (purple); Public leadership: This cluster is located near the central clusters (Cluster 1 and 2) and is characterized by administrative and bureaucratic leadership studies. Alam (2020) addresses the dysfunctional characteristics of administrative leadership in Bangladesh during the COVID 19 period, stating that the tendency of administrative leaders for reactive engagement, coupled with some structural constraints, led to dysfunctional crisis management. In one of their most influential papers, Boin and Hart (2003) argue that, while crisis management is a challenging task for political and bureaucratic leaders, crises provide critical possibilities for reform.

4.3. Variations in Intellectual Background: Co-citation Analyses

Co-citation networks of references and sources were studied to illustrate the relationships between the two domains.

Business Administration: The co-citation of references of BA articles generates three clusters (Fig 5). Co-citation networks illustrate the theoretical underpinnings of crisis leadership in BA literature through three key clusters. *Cluster 1 (red)* includes 23 documents and is the most fundamental cluster in terms of laying the groundwork for crisis leadership theoretical approaches. This cluster contains generic crisis management process (Bundy et al., 2017) constituents, such as preparedness (Pearson and Clair, 1998; Pearson and Mitroff, 2019) communication and reputation (Coombs and Holladay, 2002; Coombs, 2007), and consequences of crises (Hermann, 1963). In addition,

crisis and leadership were fundamentally related (James and Wooten, 2005; Wooten & James, 2008; Hannah et al, 2009; James et al., 2011) based on the organizational context (Boin and Hart, 2003; Boin et al., 2016), and behavioral (Staw et al., 1981; Kahn et al., 2013) or cognitive processes (Weick, 1993). References of case study research (Eisenhardt,1989; Yin, 2009) is also included in the periphery of this cluster. The majority of the literature in *Cluster 2 (green)* focuses on leadership types with a particular emphasis on charismatic leadership. In addition to conceptual studies of charismatic leadership (Conger & Kanungo, 1987; Gardner and Avolio, 1998; Shamir et al, 1993; Awamleh and Gardner, 1999; Fiol et al., 1999), this cluster places a strong emphasis on the topic of "crisis and charismatic leadership" (Pillai, 1996; Pillai and Meindl, 1998; Hunt et al., 1999; Bligh et al., 2004). Leadership classics including transformational (Burns, 1978; Bass, 1985) and authentic (Avolio and Gardner, 2005) leadership ideas are included in *Cluster 3 (blue)*. Methodological issues (Podsakoff et al., 2012) and well-known works on multivariate analytic methods (Hu and Bentler, 1999; Baron and Kenny, 1986; Fornell and Larcker, 1981) are also located in the cluster's perimeter.

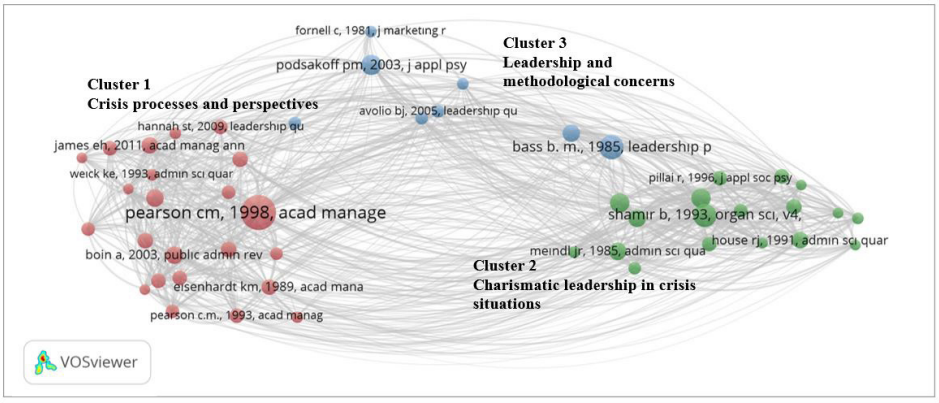


Figure 5: Co-citation network of references of business administration.

Public Administration: The co-citation of references in PA domain generates five clusters (Fig 6). *Cluster 1 (red)* is the largest cluster, with 14 articles. This cluster focuses on major crisis processes, including the role of public sector in disasters (Farazmand, 2017; Kapucu and Van Wart, 2006) and pandemics (Moon, 2020), governance (Ansell and Gash, 2008; Christensen et al., 2016) and coordination (Kapucu, 2005, 2006; Comfort, 2007; Moynihan, 2008, 2009), decision-making (Comfort et al., 2020), and emergency managers (Waugh and Streib, 2006; Van Wart and Kapucu, 2011). *Cluster 2 (green)* with 13 publications presents the crisis framework. This cluster contains papers that constitute the conceptual context for the crisis, and mostly influenced by Boin and his peers. "The Politics of Crisis Management" by Boin and colleagues (2005), which has a significant impact on crisis leadership in a variety of fields, plays a key role in

this cluster. *Cluster 3 (blue)* consists of 13 items that emphasize leadership (Burns, 1978; Bass, 1985) in crisis circumstances (i.e., Boin and Hart, 2003; Boin et al., 2013). Again, the article "Public leadership in times of crisis" by Boin and Hart (2003) plays a pivotal role in this cluster, as well as the wider literature on crisis leadership. In addition, crisis leadership appears to emerge in COVID-19 context (Ansell et al., 2021). *Cluster 4 (yellow)* is the most specific cluster with 8 items that focus on cutback management (i.e., Levine, 1979; Behn, 1980; Kiefer et al., 2015). *Cluster 5 (purple)* is the smallest and covers public policy concerns in times of political crises (Baumgartner and Jones, 1993), disasters (Boin et al., 2010) or pandemics (Weible, 2020).

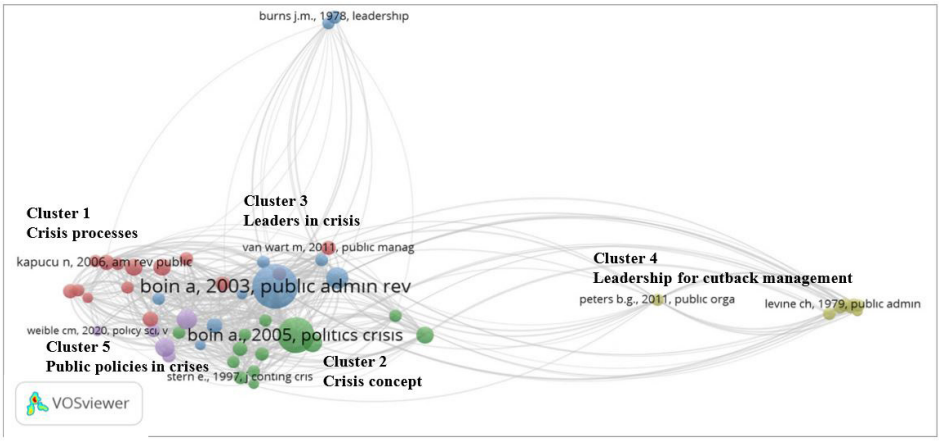


Figure 6: Co-citation networks of references of public administration

Co-citation Network of Sources: Co-citation networks of sources were examined to determine if the intellectual structure of crisis leadership differs between the two domains (Fig 7). For BA, co-citation analysis of sources reveals four clusters in crisis leadership literature. The largest cluster with 20 sources (red) is comprised of the most influential business and management journals covering a broad range of research subjects, i.e., Academy of Management Journal, Academy of Management Review, Journal of Business Ethics, Journal of Management Studies, Organizations Science. Besides, Leadership Quarterly and Journal of Applied Psychology lead a second cluster (green) of 15 sources, which are primarily focused on psychological and behavioral themes. A third cluster with 9 items (blue) is focused on leadership and organizational issues. Last, the fourth cluster with 6 items (yellow), led by Administrative Science Quarterly focused on organizational themes related to communication, public relations and public administration. For PA, total citations and total ink strengths indicate that while the top co-cited sources (i.e., Public Administration Review), are primarily from the public administration domain (blue and red clusters), a cluster of sources with significant link strength is largely from the business administration domain (green cluster), i.e.,

Leadership Quarterly, Journal of Business Ethics, Academy of Management Review, Academy of Management Review etc. Further, co-citation of sources of PA includes a crisis-focus cluster (yellow cluster), and newspapers (purple cluster).

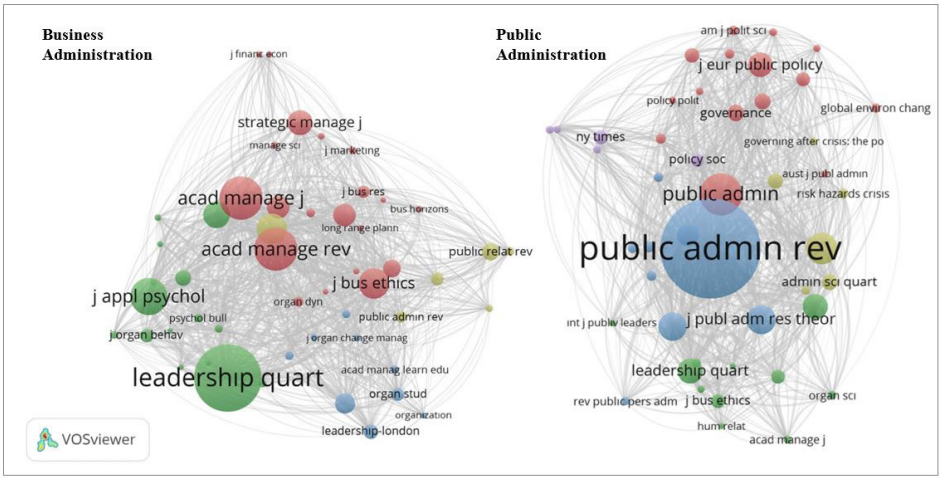


Figure 7: Co-citation network of sources.

Discussion and Conclusion

Crisis leadership is a central component of the crisis management literature (James et al., 2011). In this study, we examined the conceptual and intellectual evolution of crisis leadership in the two key management disciplines; business administration and public administration. First, the publication effort in both domains is increasing. Since the first papers appeared (1990 for BA and 1993 for PA), the publication rate (average annual growth) has increased (12.55_{BA}; 8.82_{PA}), even more rapidly during the past five years (27.79_{BA}; 25.99_{PA}). A significant contributing aspect to this growth is the recent surge in global crises. Indeed, COVID-19 has become an important study topic in both domains. Global difficulties that increase the demands placed on political and public leaders may explain the recent phenomenal expansion of the PA domain. Accordingly, this tendency may intensify in the near future. Second, we showed that the total number of citations per year is decreasing for both domains. This is largely due to the quantitative rise in the number of papers. This tendency is expected to turn into a qualitative rise in the medium term. Third, we demonstrated that both domains have a variety of contributors and journals. Due to the importance and urgency of crisis leadership topics, leading journals have made room for them.

The second major contribution of the research was the results of the science mapping. First, the co-occurrence analyses revealed that, in general, BA scholars relies more

heavily on leadership theory, with the majority of research on this subject focusing on examining various leadership approaches. In this domain, each cluster of co-citations concentrated on unique leadership approaches and continued on related themes. Responsible leadership, ethical leadership, charismatic leadership, and transformational leadership were some of the examples. Besides, gender research was a unique cluster in this domain. In contrast, PA literature has evolved with a concentration on crisis and disaster types. Political leadership in times of impactful disasters, policy making and public managers as leaders, cutbacks and change leadership, governance and multi-layer administrative skills, and public leadership characterized by administrative and bureaucratic effectiveness were among them. Second, we examined the intellectual background and focused on variations in both domains. In the business administration domain, the co-citation network created three distinct clusters. The first one was the theoretical foundations of crisis management literature. The second cluster was centered on basic leadership and the third co-citation cluster indicates that a certain amount of research in crisis leadership is related to charismatic leadership. PA co-citations network showed a somewhat different outlook. The first and second clusters were the theoretical foundations, again, but this time with a special emphasis on disasters and emergency management processes, which sounds quite coherent thinking together with the co-occurrence analysis results. The third cluster was similar to the second cluster of BA, which stresses leadership foundations. The research focused on cutback management was conducted in a PA specific cluster. The last one was focused on policy concerns in crisis and disaster situations. We also analyzed sources to understand the patterns of intellectual variance. Four clusters in BA showed a similar pattern to co-citation of documents. The first one included the general and most influential business administration journals. The second cluster of sources included behavior-related journals. The third was comprised mostly of leadership journals, and the last cluster included journals publishing on communication and administrative issues. In the PA domain, intellectual roots show that the top co-cited sources were primarily PA sources. Yet, the second largest cluster contained business journals. The third cluster contained crisis-related journals and newspapers. As outlined up to this point, the general overview of science mapping shows that although there seems to be a certain interaction between the conceptual roots and intellectual patterns of the two domains on crisis leadership, there were certain variations. Overall, the BA field was found to have a stronger influence on crisis leadership. Even while PA scholars have developed a distinct body of research due to its emphasis on crisis events, it has progressively shifted toward examining PA-originated leadership theories in terms of behavioral characteristics. However, it should be noted at the end that the literature on crisis leadership in the two domains may be expected to converge in the near future because of the impact of global crises such as COVID-19, whose influence spans all aspects of organizational issues. Consequently, despite their unique boundaries, as illustrated in this study, the

two domains are expected to grow increasingly interconnected. Some examples of this have already appeared. While type-sensitive crisis management strategies were in place until the 2000s, the shaping effect of context on crisis management began to emerge in 2007 with the economic crisis that affected all types of organizations, private and public, around the world (Thach, 2012). Beyond financial turbulence, this effect has become even more pronounced with the world-wide ecological crises, refugee crises, and COVID-19 pandemics. Considering the recent war in eastern Europe, the number of external factors to which a business or governmental institution is vulnerable has expanded. Recent research also shows that the context not only moderates but also determines leadership behavior (Stoker, Garretsen, and Soudis, 2019).

The study has its own limitations. First, we selected articles published in SSCI and ESCI databases, which means that we did not cover grey literature. Grey literature, such as proceedings, working papers, etc. can give signs of the evolution of literature (Linneluecke, Marrone and Singh, 2020). Besides, a bibliometric coupling can show the research front (Small, 1999), which is not mentioned in this study, as we focused on conceptual roots and intellectual patterns. The variations in the research fronts of the two domains can yield rewarding research designs. Bibliometric approaches have some limitations due to the nature of data of their bibliographic databases (see Zupic and Cater, 2015), such as the analysis presenting a static outlook. In future research, the data collection can be separated into several time periods in order to better understand the evolution of the domains.

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Appendix: Most Local Cited References

Business Administration		
	Documents	**Local citation**
1.	Pearson, C. M., & Clair, J. A. (1998). Reframing crisis management. Academy of management review, 23(1), 59-76.	84
2.	Bass, B. M. (1985). Leadership: Good, better, best. Organizational dynamics, 13(3), 26-40.	50
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8.	Weick, K. E. (1993). The collapse of sensemaking in organizations: The Mann Gulch disaster. Administrative science quarterly, 628-652.	33
9.	Burns, J. M. (1978). Leadership. New York: Harper & Row.	32
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Public Administration		
	Documents	**Local citation**
1.	Boin, A., & Hart, P. T. (2003). Public leadership in times of crisis: mission impossible?. Public administration review, 63(5), 544-553.	40
2.	Boin, A., Hart, P. T., Stern, E., & Sundelius, B. (2005). The politics of crisis management: Understanding public leadership when it matters most. Cambridge University Press.	30
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5.	Boin, A., Hart, P. T., & McConnell, A. (2009). Towards a theory of crisis exploitation: Political and policy impacts of framing contests and blame games. Journal of European Public Policy, 16(1), 81-106.	13
6.	Kingdon, J. W., & Stano, E. (1984). Agendas, alternatives, and public policies (Vol. 45, pp. 165-169). Boston: Little, Brown.	13
7.	Boin, A., Hart, P. T., & McConnell, A. (2008). Governing after crisis: The politics of investigation, accountability and learning. Cambridge University Press.	11
8.	Comfort, L. K. (2007). Crisis management in hindsight: Cognition, communication, coordination, and control. Public Administration Review, 67, 189-197.	11
9.	Waugh Jr, W. L., & Streib, G. (2006). Collaboration and leadership for effective emergency management. Public administration review, 66, 131-140.	11
10.	Ansell, C., Boin, A., & Keller, A. (2010). Managing transboundary crises: Identifying the building blocks of an effective response system. Journal of contingencies and crisis management, 18(4), 195-207.	10