Crisis Leadership in Tourism and Hospitality: a science mapping analysis and PRISMA protocol

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Abstract | The volatile nature of 21st century tourism underscores the urgent need for immediate and effective crisis leadership. Given tourism's susceptibility to crises, from natural disasters to geopolitical conflicts, this topic is paramount for ensuring resilience and growth. This study aims to identify prevailing themes, authors, trends, and knowledge gaps and enrich the understanding of crisis leadership and crisis management differences, offering valuable insights into future research. "What are the prevailing themes, challenges, and future directions in tourism crisis leadership?" is the research question. The study delves into a science mapping analysis utilising the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol to map the existing literature on tourism crisis leadership. A bibliometric analysis employing R Studio and Bibliometrix software facilitates a rigorous assessment of publication trends, networks and evolution, ensuring a reliable research process. Findings reveal a scarce literature landscape and a notable gap in the knowledge of tourism crisis leadership. This study underscores the need for crisis leadership in the complementarity of crisis management and highlights the increasing severity, frequency, and global effects of crises. It strongly advocates future research focusing on several players. Despite limitations, the study offers valuable insights for academia and the sector.

Keywords | crisis leadership, crisis, tourism and hospitality, crisis management, PRISMA

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1. Introduction

The world, in the last 25 years, has evolved to be even more globalised, interconnected, and interdependent, registering high levels of change, augmented challenges levels with the evolution of transport, reducing barriers in transit of people, goods and services, open borders, new technological advancements, agreements between nations, unified decision-making institutions and organisations, such as United Nations and European Union. At the same time, collaborative networks grow, and equipment and technologies develop quickly, with communications and social networking spreading without borders, bringing people, cultures, and systems together like never before. Consequently, risks, threats, and challenges grow, creating a world that is excessively volatile, uncertain, unpredictable, ambiguous, complex, and vulnerable in the 21st century (Silva, 2016).

The 21st century is marked by numerous extreme events and hazards, both natural and man-made, which create chaotic situations with severe impacts, driving significant change and triggering crises that deeply affect nations, organisations, economies, sectors, and emotions (Milano & Koens, 2022; Ritchie, 2004; Zheng et al., 2022).

Changes create new systems, tools, models, procedures, and new ways of living, acting, trading, and thinking. Effective leadership is crucial to coping with change, significant challenges, chaotic and complex scenarios, implementing strategies, and exerting influence with vision and values (Gordon & Yukl, 2004; Silva, 2016; Yukl & Gardner, 2020).

Tourism is one of the most recognised resilient sectors due to its continuous growth and development and tremendous capacity to restore after crises (World Tourism Organisation - UNWTO, 2023, 2024). However, crises inevitably affect the sector. This is due to its widespread transnational and so complex globally interconnected system (Williams et al., 2022; Williams & Baláž, 2015; Zheng et al., 2022). It is hugely vulnerable to instability, especially to harmful, widely impactful events, hazards and disasters, provoking large and all types of shockwaves (Ritchie & Jiang, 2019, 2021; Sönmez, 1998; Sönmez et al., 1999; Tarlow, 2014), demonstrating sector still needs effective strategic leadership, a key factor to minimise success outcomes.

Crises arise from various contexts, are unexpected, unimaginable, usually undesirable, and often create unmanageable situations with instability, occur temporarily, although impel changes and are plenty of significant challenges (Boin et al., 2017; Glaesser, 2008; Hewitt,

1983; Scott et al., 2007; Scott & Laws, 2006). Frequently, it originates from dwelling in chaotic situations of the scarcity of information and resources, causing anxiety, fear, stress, and the need for a quick response and decision-making under high-pressure levels (Ioannides & Gyimóthy, 2020).

Only effective leadership can minimise a disturbing situation with a high perception of risks, planning to prevent and reduce negative impacts, finding opportunities, and producing the necessary changes with conscious decision-making. Crisis management, in the sense of prevention operations in the arena, is a primary responsibility of crisis leadership. However, closely related concepts of crisis leadership and crisis management are sometimes confused; they are different fields. Different leadership resources and national culture influence and create different crisis management practices in tourism destinations (Boin & 't Hart, 2003; Campiranon & Scott, 2014; Campiranon & Taylor, 2006; Laws et al., 2007).

Crisis leadership studies are older than crisis management focus. However, they are hugely scarce in the tourism and hospitality field. In this sense, this study of tourism crisis leadership aims to systematically evaluate and analyse the literature in the field and provide essential insights about primary authors leading publication, which variables, the most important themes, trends and clusters, crucial to allow primary research developed under post-doctoral study and to contribute to a deeper understanding of crisis leadership and management. It is even more relevant when crises become more frequent, severe, and global.

"Only by moving leadership investigation, beyond management, will tourism be able to consider different skills, a new way of working, alternative strategies, that will enable organisational development, and for the sector and communities overall " (Benson & Blackman, 2011, p.1149). "Crisis leadership is even more important today than in the past" (Firestone, 2020, p.12).

The review article will compare and address fundamental definitions of crisis, crisis leadership, and crisis management. Throughout the science mapping analysis and PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol, findings will be presented and discussed, highlighting the domain's main topics, stating limitations, and indicating future research directions.

2. Tourism crisis leadership and crisis management

The tourism and hospitality sector plays a notable role worldwide. It is one of the fastest-growing and highly resilient sectors, and it is highly coveted due to its significant contribution to the global economy, providing employment, fostering cultural exchange, enhancing the quality of life, reducing inequalities in gender gaps, promoting global understanding, and stimulating peace.

The sector is critical to the economy, accounting for a significant share of GDP, 10.4% in 2019 (pre-pandemic year), recording 1.5 billion international arrivals, and generating 7% of worldwide trade. It is the third largest export sector registered in 2019, with 6.8% of total exports that created 319 million jobs, representing 10% of global employment globally; 1 in 10 people is employed in the tourism and hospitality value chain. In 2023, the sector contribution was 3.3 trillion direct contributions, with international receipts reaching USD 1.4 trillion, recovering to about 93% of pre-pandemic levels and in some regions, such as Europe, already over 2019 levels in the first semester of 2024 (UNWTO, 2024; WTTC - World Travel & Tourism Council, 2021).

In 2024, a full recovery to pre-pandemic levels and the creation of 348 million jobs worldwide are expected. In the first quarter, international arrivals reached 97% of 2019 with solid demand. Global air passenger numbers exceeded pre-pandemic levels by 2%, and global domestic air traffic exceeded 9% (UNWTO, 2024).

The tourism value chain is the backbone (World Bank, 2019). It comprises all services and activities involved in creating, producing, promoting, communicating, and consuming tourism products, such as attractions, accommodations, transportation, tour operators, travel agents, food and beverages, infrastructure, accessibility, retail, and related support services. This tourism system is a globally interconnected network, encompassing the demand side, regions of origin, transit, and destinations, alongside the supply side (Leiper, 1979).

Nevertheless, the significant global interdependence of stakeholders among such complex value chain, operating without borders, in all geographies diversity and cultures with different and specific risks and challenges, makes the sector one of the most vulnerable to instability. Seasonality exposition, dependence on disposable income sensitive to downturns, and quality of service dependent on human performance and competencies, with vast levels of technology necessities from airlines to borders control, distribution of products, and enhanced customer

experiences are some factors causing instability (Gössling et al., 2020; Jiang et al., 2019; Ritchie & Jiang, 2021; Sönmez et al., 1999).

The 21st century was one of too many excesses and extremes. It suffered from many disruptive events and hazards, causing high levels of uncertainty, unpredictability, instability, changes, and a massive diversity of crises to cope with (Jiang et al., 2019; Milano & Koens, 2022). The impact of such crises as terrorism, natural disasters, pandemics, geopolitical conflicts and wars, and cyberattacks, among others, destroyed economies and caused unprecedented disruptions.

COVID-19 caused declining of 74% of international arrivals globally in 2020. Occupancy rates dropped to historic lows. Political turmoil and security threats can produce a sharp decline in tourism consumption and consumer confidence, changing tourism flows, as expressed during the Arab Spring with a 90% drop in tourism affecting all regions (Global Rescue & WTTC, 2019; Higgins-Desbiolles et al., 2019; Milano & Koens, 2022; Sigala, 2020). Terrorism, geopolitical conflicts and wars, change flows and patterns, causing extreme loss of cultural and historical places, reap lives, cause chaos, fear, anxiety, global economic downturns, and high cost of supply materials and goods, to which tourism is no exception (Neumayer, 2004; Ritchie, 2004; Sönmez, 1998; Tarlow, 2014; Wang & Ritchie, 2012).

So many crises have seriously affected tourism, creating the most diverse risks and challenges. Leaders from all levels and activities are slugging to cope with decision-making, to solve and mitigate crisis impacts while provoking innovation and motivating change (Silva et al., 2024; M Yildiz et al., 2023). In the past, tourism has had to cope with risks and changes from economic instability, health crises, natural disasters, geopolitical instability, terrorism, and environmental sustainability (Korstanje, 2016; Korstanje & Seraphin, 2020; Ritchie, 2004, 2008; Sigala, 2020).

Nonetheless, the future can include some more risks and challenges frequently plaguing the sector, such as technological disruptions, cyberattacks, changes in consumer behaviour, highly globalised competition in services, products, and destinations, and a myriad of regulations and procedures changes (Buhalis et al., 2023; Yeoman & McMahon-Beattie, 2020; Yeoman et al., 2022).

These facts highlight crisis leadership's greater responsibility in tourism for mitigating and inhibiting negative impacts to cope with change and maximise positive outcomes and effects (Silva, 2016). Moreover, to ensure tourism continues on a robust path to recovery and growth,

continuing to innovate and adapt, and making continuously significant contributions to economic, social, and practical spheres.

Crisis leadership and crisis management are sensitive research fields, as they directly involve human lives, impacting individuals and communities, and triggering complex emotions such as fear, insecurity, anxiety, depression, sadness, confusion, resistance to change, and exposure to high risks. These emotions are highly related to crisis impacts, effects, and challenges. Considering this, leaders in all organisations – whether public or private, large or small, and across any sector or nation – must be deeply aware of their significant responsibility to improve outcomes for everyone involved in the value chain.

Due to tourism and hospitality recognised vulnerability (Ritchie & Jiang, 2021; Zheng et al., 2022) as a strongly connected system acting globally, dependency on human-place-time relationship has been revealed to be one of the most complex and notable domains to study and learn from facts of past crises research. The knowledge from past strategic and C-level leaders aiming to contribute to better decision-making, planning and response, as well as from operational managers executing previous crisis management plans, and coping with challenges and demands, can give important lessons and insights for better dealing with present and new challenging realities.

Tourism is often halted in its operations, suffering from many internal and external irregularities, with more or fewer effects, for short or long periods, local or global, that usually originate some changes, stimulating transformation, readjusting, or redesign. Crises impact differently depending on their emergence, shape, scale, and place (Hopkins, 2021). That is why it is crucial to understand what is inherent to the crisis concept and differentiate crisis leadership from crisis management, although completely interdependent and complementary fields and roles.

So far, tourism and hospitality crisis research has mainly focused on management, operational and tactical dimensions (Hopkins, 2021; Laws & Prideaux, 2006; Mitroff & Kilmann, 2021; Paraskevas et al., 2013), with few interests and publications on political and strategic dimensions such as leadership of organisations, businesses, products, or destinations.

2.1. Crisis concept

There is no universally accepted definition of crisis (Lalonde, 2004). The term has its origins in "*krisis*", a Greek word, meaning "decision" and "turning point". In Asian characters from

Japan, the word "*kiki*" means simultaneous the same "ki" for "danger" and "ki" for "opportunity". It is a reflex of the Tao's philosophy, thinking in crisis as everything where there are always opposites; what can be chaotic for one side can be an opportunity for another player or area. Crisis has a paradoxical nature (Bao, 2011).

The crisis concept is frequently equated with terms such as disaster, emergency, catastrophe, incident, and event. However, unlike crisis, these terms are standardised by ISO 2009 or UNISDR 2009 (ISO, 2009; Pursiainen, 2018; Rohland & García-Acosta, 2020; UNISDR Disaster Risk, 2008).

Experts in crisis leadership (Boin & 't Hart, 2003; Boin et al., 2017; Riggio & Newstead, 2023; Stern, 2017; UNWTO, 2011; Wu et al., 2021) and in crisis management (Faulkner, 2001; Glaesser, 2008; Hall et al., 2020; Laws & Prideaux, 2006; Ritchie, 2004; Sönmez et al., 1999; Tarlow, 2014) posits crises can come from: i) inside an organisation or destination, resulting from errors in decision making, constraints from materials, equipment, human resources, procedures or from suppliers; or from ii) outside when hazards, accidents, disasters occur, such as natural catastrophes, tsunamis, hurricanes, earthquakes, floods, pandemics, or political, economic, technological recessions and instability, terrorism, cyberattacks. They can be categorised as natural or man-made, short-term or long-term, physical or digital, local or global.

Therefore, it is necessary to set boundaries to understand better the crisis concept that best fits this research and crisis leadership, governance, and decision-making. A definition is presented based on a large diversity of crisis research offering different visions, theories, types of events or sectors (Coombs & Holladay, 2010; Coombs, 2022; Laws & Prideaux, 2013; Mitroff, 2004; Pizam & Mansfeld, 2006)

A crisis is a part of life, taking multiple forms, from individual or local to collective or global challenges, threats, and opportunities resulting from a change or disruption from an unpredictable, undesirable, mostly unfortunate temporary situation or event that creates instability, uncertainty, and anxiety. It compels good planning, training, and learning and requires accelerated decision-making, response, and aftermath evaluation.

What is consensual about the crisis concept is the fact that it is an unavoidable fact of any reality, especially in modern societies; crises can always happen (Boin et al., 2018; Mitroff, 2004). Crises "will continue to bring new challenges that test the strength of leaders" (Kane et al., 2021, p.899) from all sectors, organisations and nations.

With their inherent concepts of vulnerability, threat, risk, chaos, and fear, crises also carry the seed of transformation. More severe crises can cause disruption, adverse impacts, abrupt change, disorder, and instability (Lee et al., 2024). However, they also present the chance to renew, readjust, reformulate, and innovate. This transformative potential allows us to turn adversity into an opportunity for a more sustainable system, processes, procedures, and products (Sigala, 2020).

Crises can develop quickly and cause shockwaves of negative impacts, requiring preparation, training, and a quick and effective response from individuals and leaders to mitigate the eventual harmful consequences (Firestone, 2020; Klann, 2003). This fact highlights the need for leaders "who are prepared for crisis as a way of life" (Firestone, 2020, p.12) and are aware that a massive profusion of crises can happen and no "one-size-fits-all" strategy and response is possible.

Several types of crises appear in the literature review (Coombs, 2007; Jiang et al., 2023; Parsons, 1996; Pearson & Clair, 1998; Pearson & Mitroff, 1993). A singular crisis demands diverse actions and can register specific phases, steps and actions needed. Crises can be i) emerging crises that can be slower and prevented; ii) persistent crises, existing and/or extending over long periods; iii) immediate crises, unpredictable, even if somehow expected. Moreover, Coombs (1998) states that can have three: 1) Pre-crisis, the prevention phase; 2) Crisis, the moment of event occurrence; and 3) Post-crisis, the aftermath.

Every crisis is unique, but it always presents an opportunity for learning and growth. It is always possible to learn from crises (Bundy et al., 2017; Kane et al., 2021), and leaders should not ignore the lessons learned from past crises (Silva et al., 2024). This emphasis on learning from past crises empowers leaders and equips them with the potential for growth and improvement.

2.2. Crisis leadership with complementary crisis management

Crisis leadership is vital in the tourism sector, as it mitigates impacts, guides recovery, fosters sustainability and innovation, and offers reassurance and stability during turbulent times.

Facing a century where crises are a constant, negative, more global, and the entire world "goes through some form of crisis on a fairly regular basis" (Firestone, 2020, p.7), "crisis leadership is even more important today than in the past" (Firestone, 2020, p.12). "There is no situation in which leadership is more important than during a crisis, and yet crisis leadership is a relatively

underdeveloped field" (Riggio & Newstead, 2023, p.221; Wu et al., 2021), particularly in tourism research, in which only since 2020 has started to take the first steps.

Decision-making and the capacity to exert influence at the top levels of any organisation, sector, or destination are known factors and core competencies that can highly impact an entire value chain. Responsible strategic leadership, specifically in crisis contexts, is vital in promoting development and is the pathway to sustainable growth (Silva, 2016; Yildiz et al., 2023). It "emerges as a pivotal factor in mitigating vulnerability" (Dong et al., 2023, p.1). It "stands as a cornerstone in fortifying the resilience in the face of crises" (Şimşek & Kalıpçı, 2023, p.1).

A crisis can bring a high degree of chaos, instability, and high levels of stress, moving people away from having the capacity to think clearly and with sense and reason, making it challenging to perform the simplest tasks. A crisis situation "can contribute to ineffective or even counterproductive behaviour" (Klann, 2003, p.11), putting in evidence the importance of having effective crisis leadership, able to "turn the chaos of a crisis into the promise of opportunity and lead people from the turmoil of crisis into the successful perseverance of a resilient, learning organisation" (Klann, 2003, p.72).

Effective crisis leadership can bring key contributions to tourism, from 1) preparedness and planning, 2) developing a comprehensive crisis management plan, 3) implementing early warning systems, 4) maintaining clear, transparent and consistent communication to reduce panic, and 5) making informed and timely decisions to ensure the safety of all, 6) fostering a culture of adaptability, 7) investing in recovery, 8) involving collaboration and cooperation with the community and 9) sharing resources. Leaders 10) motivate employees to maintain morale, support them, and recognise their value to success and growth, allowing human capital retention and well-being. Only effective crisis leadership can reduce stress and quickly turn complex scenarios into normality (Boin & 't Hart, 2003).

Zaleznik (1981) and Senge (2006) pointed out that leaders and managers, leadership and management, although intertwined, are considerably different. Cunha et al. (2016) and Rego and Cunha (2020) corroborate, expressing that leaders and managers have different roles, main objectives and duties, more notably in crisis contexts (Table 1).

Table 1. Crisis Leadership versus Crisis Management

Parameter	Crisis Leadership	Crisis Management
Focus	Vision, direction, values, cope with change, influence, motivation and inspiration during crises	Readiness, execution, choosing and training teams, simulations, implementation of plans and procedures
Scope	Broad, strategic, long-term	Specific, tactical, short-term
Approach	Proactive, Adaptive, flexible, innovative	Reactive, Procedural, structured, systematic
Role	Leader as a visionary, a model and a motivator	Manager as coordinator and executor
Timeframe	Ongoing, evolving with the crisis before, during and after	Immediate, focused on resolution and recovery
Outcomes	Idea of knowledge and security. Long-term recovery and growth. Transformation and innovation. Do the right things. Efficacy.	The idea of Capacity and Courage. Short-term stabilisation restores normalcy and control. Do the things right. Efficiency
Tasks	Setting vision, building coalitions, partnerships, dialogue with peers and official institutions, inspiring action	Executing plans, managing resources, training and managing teams, ensuring compliance

Source: Own elaboration (based on Zaleznik, 1981 and Cunha et al., 2016)

Crisis management involves tactics and the "how" to immediate recovery, executing operational tasks more efficiently. It focuses on identifying and fixing the problems immediately (Mitroff et al., 2013; Mitroff & Kilmann, 2021). Crisis leadership is about strategies and the "why" moving forward following a vision, exerting influence and power, negotiating, motivating teams, inspiring the whole system under its responsibility, handling better crisis negative impacts and challenges, and to be able deal with changes, preparing to seize opportunities to readjust, reset, and redesign if necessary (Boin et al., 2017; Liu et al., 2023; Liu et al., 2021; Senbeto & Hon, 2021; Wan et al., 2022).

As Boin and t' Hart (2003) assert, crisis management is of great importance. Nevertheless, it is not enough to cope with and solve the effects and stop the shockwaves of crises. At some point, crisis management needs indications and follows strategies and visions of crisis leadership. Leadership and management are similar in some activities; however, they entail a unique set of tasks with different leading roles, need different skills, behaviours, and competencies, and can have different (managers' short-term versus leaders' long-term) goals (Gordon & Yukl, 2004;

Yukl & Gardner, 2020). Nevertheless, leaders and managers do not substitute one another, as they have different and valuable contributions; they are complementary (Zaleznik, 1981).

Based on vision, values, and objectives, leaders should assess the risks, read the context, and make crucial decisions about which strategies and plans to implement, which method to adopt, and who will lead when a crisis incident happens with what kind of team. After making decisions, they must communicate with teams, peers, and stakeholders (Hao et al., 2020; Wardman, 2020).

Crisis leadership needs to deliberate efficiently and speedily while reinforcing internal and external communications, providing comprehensive direction, and maintaining a strict connection with the stakeholders (Senbeto & Hon, 2021; Yildiz et al., 2023) and the several teams working from gathering data, analysis and providing information. Teams focused on operational and technical tasks in fighting the crisis, to teams that evaluate the process, finding solutions, learning and readapting the system to keep forward alive and well (Coombs & Holladay, 2010; Hao et al., 2020; Pursiainen, 2018). "Leaders do the right things, managers do the things right" (Bennis & Nanus, 1985, p.33).

3.   Methodology

In science, a high degree of transparency when reporting, reproducibility, and objectivity are the main parameters for carrying out any reliable research. In line with this proposition, a science mapping analysis, a bibliometric technique, as a systematic literature review, was adopted as the research method for this study. It is the method applied to interpreting and evaluating all available research in a specific field. It allows exploration and discovery to contribute to understanding (Kraus et al., 2022; Page et al., 2021; Pessin et al., 2023).

As evidence synthesis, the state-of-the-art methodology is designed to maximise comprehensiveness and representativeness, minimising subjectivity and bias risk, and choose to follow the guidelines of the PRISMA 2020 protocol (preferred reporting items for systematic review and meta-analysis). This reporting protocol ensures that review methods and findings cope with parameters referred to and recommendations from scientific rules and experts, enhancing transparency and reproducibility (Higgins-Desbiolles et al., 2019; Moher et al., 2009).

According to the authors, a periodic review of research on a specific field allows for acknowledgement of the state-of-the-art (the available databases, annual scientific production,

most relevant authors, affiliations, journals, most cited documents, what is already known, and trends), as well as to find eventual gaps and new contributions to advancements of the field. It allowed to find the selected proposition for the ongoing post-doctoral research, stating that tourism is one of the most affected sectors on the regular basis crises derived from unprecedented and serious irregularities or events.

While most studies and authors in the field of tourism crises concentrate on crisis management, particularly the phases, plans, and strategies that form the basis of crisis response models, this study takes a unique approach. Recognising the dearth of research on the sector's strategic leadership in crisis management, crisis leadership, the study focuses on this aspect. In doing so, it fills a significant gap in the literature, particularly concerning the tourism industry's operation and distribution subsector.

This essay on scientific mapping analysis has the research question: What is the current state-of-art of research on crisis leadership? The main objectives are i) to identify key themes, trends and gaps in the literature, ii) to understand the evolution of the research over time, iii) to identify influential authors, journals, articles, thematic maps, and eventual networks and clusters.

For PRISMA protocol, the basis of this essay, the steps are indicated by Liberati et al (2009): i) Definition of research question or a proposition; ii) Definition of inclusion and exclusion criteria such as period and language; iii) Identification of databases and related articles through databases; iv) Duplicates elimination; v) Records screening for eligibility and selection; vi) Assessment of eligibility of articles; vii) Inclusion of studies in the qualitative and quantitative analysis; viii) Document process with a flow chart; ix) Summarize the findings.

A bibliometric analysis was steered to guide the knowledge of tourism crisis leadership. For exploring the research patterns previously published in a specific database collection period, bibliometric analysis is one of the most trusted methods for allowing statistical and mathematical techniques, leading to the exploration of the research area (Tranfield et al., 2003).

The first step was to search electronic databases for relevant peer-reviewed publications. The databases chosen were the most renowned for the field, namely Scopus from Elsevier (SCP) and Web of Science (WOS) from Clarivate, and are among the most renowned in the fields (Foroudi et al., 2021). Scopus contains more than 94 million records, more than 27 million articles, 27.8 thousand active peer-reviewed journals, 330 thousand books (Elsevier Scopus, 2024), and Web of Science contains more than 92 million records, 22 million peer-reviewed journals, 151 thousand books (Web of Science, 2024).

More than one database was selected to be inclusive and to cover a wide range of production, years, and fields, thereby broadening the scope while reducing the journals exclusively indexed in one database. The selected keywords were carefully chosen to ensure limiting a precise and comprehensive search and results within a specific domain. "Crisis* leadership" AND "tourism" OR "hospitality" OR "tourism and hospitality" were used to search in titles, abstracts, and keywords, regardless of the nature of the crisis, sector or geographical focus.

The period option was not restricted to allow knowledge of the total production registered and to recognise the first year of production indexed to each database. This was important to compare with the sector's crisis management field and both crisis leadership and crisis management in all sectors. These parameters denoted when, where, and who initiated interest in the field.

The journals were not restricted to tourism and hospitality but allowed all scientific production for a broader spectrum of perspectives. The literature selected needed to meet the following criteria: i) Published in peer-reviewed journal, indexed to databases Scopus and Web of Science; ii) Comprises two keywords of search, as indicated above, in titles, abstracts, and/or full text; iii) Published in English language; iv) Words in singular or plural as crisis or crises (an asterisk in crisis*); v) All fields possible; vi) All journal fields; vii) No limitation of year or period of production; viii) The studies presenting primary or secondary data; ix) Articles, extended abstracts, books, book chapters, conference papers; x) Remaining publications such as newspapers and non-academic magazines are excluded; xi) Duplicated literature (same publication type from different database platforms) were removed and not considered; xii) Screening document to assure keywords and focus match with the core of the publication and the field selected: tourism crisis leadership.

The articles "published in English have a higher number of citations than those published in other languages (…). This may result because English articles are accessible to a larger audience" (Di Bitetti & Ferreras, 2017, p.123). This results in English being the primary language of most prominent academic databases and most reputable academic journals, justifying the language choice of the post-doctoral research and this study. English as the primary language was chosen to ensure the broadest possible dissemination of the research findings and align with the language of the most influential academic publications in the field.

Therefore, with the current review process protocol, scientific criteria of objectivity and replicability are confirmed. The search carried out on 20 July 2024 identified 17 records. This

is a significantly low number of publications compared to crisis management in tourism, with 1430 publications in both databases (819 in SCP, 611 in WOS for Tourism crisis management versus 12 in SCP, 5 in WOS for tourism crisis leadership). Databases were exported to CSV and BIB format. Collected databases have been merged using R and R Studio programming to give a unified tag. After that, the records identified were verified, and five duplicates were removed through a systematic process of comparing publications to ensure the integrity of the data.

During the manual screening of full papers, two more registers were immediately excluded, as they were proceedings conference books with aggregated or unidentified authors and reporting errors in the database when exporting. This meticulous screening process resulted in a final set of consolidated databases for tourism crisis leadership, which included ten publications relevant to the study's objectives: seven articles, one book chapter, and two conference papers.

The data was then analysed using R 4.4.0, RStudio 2024.04.2 Build 764, and Bibliometrix programming (biblioshiny library) (Aria & Cuccurullo, 2017), proceeding to quantitative and descriptive analysis of the number of authors, first author, first journal, affiliations, countries, types of publications. Quantitative analysis was applied to frequent words, trends, thematic maps, factorial analysis of networks and clustering. Descriptive and thematic analyses allow some categorisation, classification schemes, and plots. It also shows conceptual perspectives within the domain literature landscape.

The publications were categorised by research topics, subsectors, analysis type, and possible clusters and networks verified. In addition, databases were created, consolidated, and analysed with Excel for subsequent bibliometric analysis, and tables and graphics were created. A PRISMA flow diagram (Figure 1) was created, representing the protocol's reporting steps. The earliest article was published in 2020 and indexed in Scopus. Findings in the next section will report the results in detail.
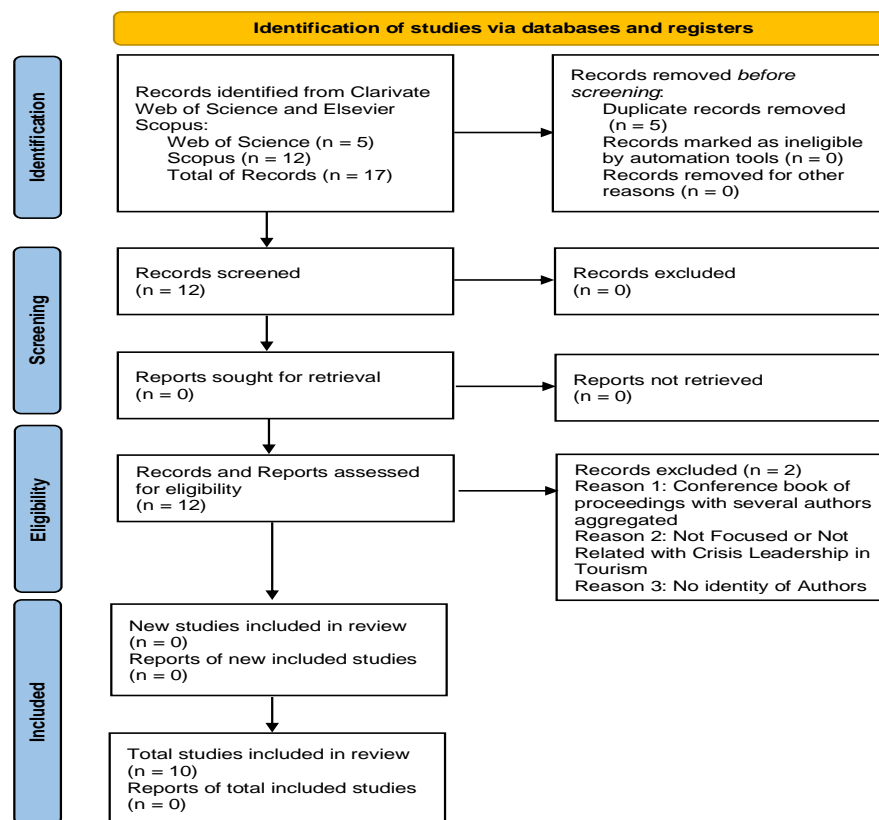
Identification of studies via databases and registers

Identification

Records identified from Clarivate Web of Science and Elsevier Scopus:
Web of Science (n = 5)
Scopus (n = 12)
Total of Records (n = 17)

Records removed *before screening*:
Duplicate records removed (n = 5)
Records marked as ineligible by automation tools (n = 0)
Records removed for other reasons (n = 0)

Screening

Records screened (n = 12)

Records excluded (n = 0)

Reports sought for retrieval (n = 0)

Reports not retrieved (n = 0)

Eligibility

Records and Reports assessed for eligibility (n = 12)

Records excluded (n = 2)
Reason 1: Conference book of proceedings with several authors aggregated
Reason 2: Not Focused or Not Related with Crisis Leadership in Tourism
Reason 3: No identity of Authors

Included

New studies included in review (n = 0)
Reports of new included studies (n = 0)

Total studies included in review (n = 10)
Reports of total included studies (n = 0)

Figure 1. PRISMA 2020 flow diagram

Source: own elaboration (based on Haddaway et al., 2022; Page et al., 2021)

4. Results and Discussion

Science mapping analysis with PRISMA protocol, the methodology chosen for this publication, reflects the scarce interest from tourism and hospitality in crisis leadership. The findings show the main focus on tourism crisis management, even when some publications have objectives, literature reviews, or results connected with leadership. There is confusion and even misunderstanding about the difference between management and leadership in crisis contexts and response.

The findings expressed forward are organised as follows: a) knowledge of research sources, distribution, citation, period and local of production; b) the most relevant scholars, affiliations, clusters, and networks; c) thematic predominance of words and domains, trends and the growth of "crisis leadership in tourism" outputs; d) analysis of final outputs about research methods,

research aim, a key element, relationship with crisis leadership, future research indications that can contribute to developing domain research and understanding to fulfil gaps in tourism and crisis field of study.

The number of publications over the years has been distributed with greater emphasis in 2023. This growth trend is a hopeful sign for the future of crisis leadership in tourism and hospitality. It is expected that from now on, there will be even greater emphasis on this theme than was between 2020, the date of the first publication, and the first half of 2024, yet the average growth rate in these years is 71%.

4.1. Comparative analysis

Before merging and screening, the records extracted on 20 July 2024 from both databases were compared first, highlighting the crucial role of research in crisis leadership. This research is integral to understanding and addressing the gaps in the field. "No situation in which leadership is more critical than during a crisis, yet crisis leadership is a relatively underdeveloped field" (Riggio & Newstead, 2023, p.221).

Findings from databases (DB), expressed in table 2, reveal: a) The Scopus database (SCP) has the highest number and share of publications in tourism crisis leadership and management compared to the Web of Science (WOS). However, WOS has older records in tourism crisis management (CMT), from 1975 to the Scopus, the first year of 1980. The opposite is verified in tourism crisis leadership (CLT), with Scopus having records in 2020 and WOS in 2021.

The domain crisis leadership, having records on peer-reviewed databases, is older in the WOS database (1964) compared to crisis management (1966) and Scopus (1977). Crisis management in Scopus opposes WOS, presenting records from 1967 that are older than those from crisis leadership, with records later in 1977. The numbers are all higher in Scopus than WOS: This significantly reveals that Scopus has a predominance of publications indexed in both domains and for general fields and tourism.

Table 2. Crisis Leadership versus Crisis Management databases records

Domain focus	N. SCP	Share SCP	N. WOS	Share WOS	DB merged share SCP	DB merged share WOS	First Year		TOP1 year (number)		TOP2 year (number)	
							SCP	WOS	SCP	WOS	SCP	WOS
Crisis Leadership in Tourism	12	**3,13%**	5	**1,95%**	**71%**	29%	2020	2021	**2023 (4)**	2023 (3)	2024 (3)	One each year
Crisis Leadership	384	..	256	..	**60%**	40%	1977	1964	**2023 (77)**	2021 (53)	2022 (55)	2022 (47)
Crisis Management in Tourism	819	**4,83%**	611	**6,60%**	**57%**	43%	1980	1975	2022 (161)	2021 (144)	2023 (132)	2022 (118)
Crisis Management	16939	..	9259	..	**65%**	35%	1967	1966	2022 (1664)	2022 (1033)	2023 (1616)	2022 (1000)

Source: Own elaboration

Concerning tourism crisis leadership, it is possible to verify the scarcity of records (17 with five duplicates), and the beginning appeared only in 2020 in SCP (total of 12) and later in WOS, 2021 (total of 5). Strangely, these records are not in line with records for research on crisis leadership in other sectors beginning in WOS in 1964 (256 since then) and SCP in 1977 (384)., even if less significant in number of records in both DB comparing with crisis management domain (SCP =16939 and WOS = 9259).

At first glance, authors have prioritised operational tasks and compliance with plans over the years or created models, frameworks, and guidelines to be realised in the face of crisis rather than the activity and relevance of leadership roles and mission. Even so, crisis management appears to have focused on tourism only in 1975 (WOS) versus 1966 for generic crisis management domains. Hermann (1963) is considered the father of the crisis management domain. However, it was Faulkner (2001) who drew the first tourism crisis management framework and indicated the first stages or phases of a crisis that influenced other future studies. The phases of crisis are non-consensual, and neither framework, with several authors, identified three to six phases. The debate is still ongoing (Pennington-Gray, 2018).

4.2. Descriptive analysis: Citation Analysis

After merging both databases, removing duplicates, and eliminating records after screening and verifying eligibility, ten publications with 46 variables were included to proceed with science

mapping analysis with R and RStudio programming and imported to Bibliometrix with the Biblioshiny library. Tables and figures were own elaboration using the indicated software.

Between 2020 and the first semester, until 20 July 2024, 27 authors of 10 publications were submitted for analysis (Table 3). Database characteristics are expressed in figure 2. The records resulting from the keywords, to identify the articles and limiting search and results, "Crisis* leadership" AND "tourism" OR "hospitality" OR "tourism and hospitality", searched in title, abstracts and keywords, regardless of the nature of crisis, sector or place focus indicates that 70% of publications are from articles, 20% conference papers and 10% books. It reveals a heavier emphasis on peer-reviewed articles, underscoring a trend toward formal channel publication within academia.

The field research areas are 70% related to business economics and science technology, environmental ecology, and social sciences, each representing (40%). The records of the database are cited in macro fields in tourism, hospitality and leisure publications (20%), public relations and communication (60%), and job satisfaction (20%) correlation studies.

These facts underline the broad applicability and interdisciplinary nature of crisis leadership studies, as well as the tourism field, corroborating Jafari and Ritchie (1981) and Tribe (1997).
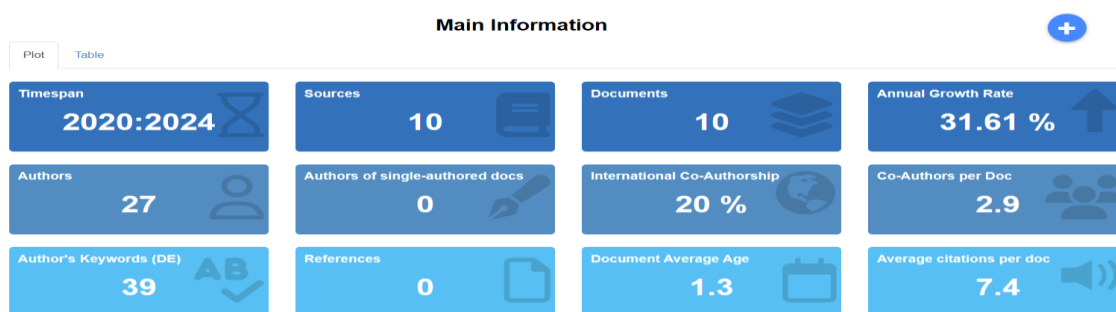

Figure 2. Database results description of science mapping analysis using bibliometrix

Source: Own elaboration

Table 3. Science mapping analysis of crisis leadership in tourism and hospitality

Date	Author	Type of publication and Title DOI	Keywords and Research Method & Sub-sector	Research Aim	Findings and Key Elements	TC
2020	Korstanje M.E.; George B.	Book chapter: Safety, Fear, Risk and Terrorism in the Context of Religious Tourism Doi: 10.1108/978-1-83867-905-720201006	• Crisis; Leadership. Religion; Security; Spirituality; Terrorism • Exploratory study about **Religious Places**	Examine the nature of security that provides safety for religious tourists.	Touristification of places of worship is often the cause of distress in many communities. Historically, religions have inspired applicable leadership practices. Key elements: terrorism and type of tourism	Cit. 5
2021	Senbeto D.L.; Hon A.H.Y.	Article: Development of employees resilience in technologically Turbulent environments: probing the mechanisms of consonance–dissonance and crisis leadership Doi: 10.1108/IJCHM-11-2020-1263	• COVID-19; Crisis Decision-Making; Crisis Leadership; Crisis Response Strategies; SCCT • Multi-source data from the service employees and their immediate superiors in **hospitality**	The study aims to examine the impact of technological turbulence on employee resilience on cognitive dissonance theory and through a process of consonance and dissonance.	This study finds that employee openness and resistance to change mediate the association between technological turbulence and employee resilience. Crisis leadership efficacy strengthens the relationships (direct and indirect, through openness and resistance to change) between technological turbulence and employee resilience. Key Elements: human resources, technology, cyberattacks	Cit. 29
2022	Wan Y.K.P.; Li X.; Lau V.M.-C.; Dioko L.D.	Article: Destination governance in times of crisis and the role of public-private partnerships in tourism recovery from Covid-19: The case of Macao Doi: 10.1016/j.jhtm.2022.03.012	• COVID-19 pandemic; Crisis leader; Governance; Macao; Public-private partnerships; Tourism Recovery • Through qualitative interviews with key informants from major **associations and government** related to tourism	Examines how Macao adopted public-private partnership governance to aid the recovery of its tourism industry. Investigates the roles of government and the crisis leader in post-Covid tourism recovery, the changes in consumer markets, and collaborative efforts of tourism business sectors and destination marketing organisations.	To recover from the crisis speedily, a responsive mode of governance that can draw on different stakeholders' efforts is required. Provide suggestions for industry partners regarding how they can act and respond to crises more effectively Key elements: Governance and pandemics	Cit. 36
2023	Kachniewska M.; Para, A.	Article: Feminine vs. Masculine: Expectations of Leadership Styles in Hotels during the COVID-19 Pandemic Doi: 10.3390/su151310602	• crisis management; COVID-19; hospitality; leadership; leadership style • Mixed methods approach, focus groups and semi-structured interviews. The interviews were conducted in 35 **hotels**	In hotels, an up-to-date and innovative contribution to leadership and staff turnover in the hospitality industry from the perspective of transformational leadership theory.	While leadership has long been associated with masculine attributes, the COVID-19 crisis was a critical time for leaders to assume transformational leadership and move towards the soft aspects of management (feminine or androgynous leadership styles). Transformational leadership helps improve the organisation's effectiveness through greater staff involvement, empowerment, and lower employee turnover. Key elements: gender and covid-19	Cit. 2
2023	Yildiz, M.; Pless, N.; Ceyhan, S.; Hallak R.	Article: Responsible Leadership and Innovation during COVID-19: Evidence from the Australian Tourism and Hospitality Sector Doi: 10.3390/su15064922	• corporate social responsibility COVID-19; crisis leadership; innovation; Sustainable Development Goals: Tourism and hospitality • Corpus linguistics study based on high-volume **media websites** Reporting tourism and hospitality news on leadership and innovation.	Draws on stakeholder theory and responsible leadership theory to examine a) the challenges industry leaders face as a result of COVID-19 and b) their innovative responses in light of their responsibilities to stakeholders and society	Despite the challenges that leaders faced, some transcended self-interest or integrated self-interest with consideration for the interest of others and formed partnerships with other stakeholders, resulting in win-win solutions. Found evidence of leaders who 1) responded to the needs of owners, employees, customers, and community stakeholders and 2) developed not only incremental innovations but substantial ones benefiting stakeholders in business and society. Responsible leadership is a pathway for transforming tourism into a more sustainable one. Key elements: innovation, leadership, and covid-19	Cit. 1

Date	Author	Type of publication and Title DOI	Keywords and Research Method & Sub-sector	Research Aim	Findings and Key Elements	TC
2023	Chaskar, A.; Upadhyay, S.	Article: Why some hotels get it right and others do not: Perspective of situational crisis communication theory towards crisis response strategies Doi: 10.1111/1468-5973.12477	• COVID-19; Crisis leadership; Crisis response strategies; Intention to respond: SCCT • Examines the hotels' crisis responses to a Victim crisis cluster based on the intention to respond using Situational Crisis Communication Theory	The role of crisis leadership in an organisation's intention to respond effectively.	Denial and bolstering strategies are to be prominent. Key elements: crisis communication, strategy and covid-19	Cit. 0
2023	Chaskar, A.; Upadhyay, S.	Conference article: Effective Crisis Response to COVID-19 in Tourism and Hospitality: The Intersection of Crisis Leadership and Crisis Decision-Making Doi: 10.1016/j.procs.2023.07.026	• COVID-19; Crisis Decision-Making; Crisis Leadership; Crisis Response Strategies; SCCT • Situational Crisis Communication Theory and Review (SCCT) of **hotels**	Explore the intersection of crisis leadership and crisis decision-making in COVID-19. Review the elements of crisis leadership in tourism and hospitality and highlight its role in shaping an effective and informed crisis response.	The COVID-19 pandemic poses significant challenges for the associated stakeholders. Effective crisis response is an essential tool for mitigating the negative impacts of the ongoing crisis. Crisis leadership in tourism and hospitality plays an essential role in shaping an effective and informed response. Key elements: decision-making and covid-19	Cit. 0
2024	Kukul, Y.; Thakur, K.; Jena, L. K.	Article: Exploring Crisis Leadership During COVID-19: A Case Study on OYO Doi: 10.1177/22785337221148812	• COVID-19; Crisis Decision-Making; Crisis Leadership; Crisis Response Strategies; SCCT • Case study narrative on organisational crisis management in the face of a setback and the role of leaders and empowered employees to navigate it	The case explores the steps the OYO leadership team took to mitigate the challenges faced by the COVID-19 pandemic.	The resilient leadership response to the crisis, his unwavering involvement in keeping the company afloat, and several people-centric initiatives undertaken for different stakeholders are outlined and given importance to decentralised and distributed leadership to face a crisis. Key elements: crisis leadership and covid-19	Cit. 0
2024	Belias D.; Trihas N.; Ntalakos A.	Conference article: Crisis Leadership, Group Dynamics and Change Management: A Literature Review and Future Perspectives Doi: 10.1007/978-3-031-54342-5_13	• Change management; Crisis leadership; Group dynamics; **Hospitality industry**; Literature Review • A literature review that synthesises theoretical insights and empirical findings.	To investigate the influence of crisis leadership on group dynamics/change management and the proposal of several tools to measure the above relationship	Literature on Crisis Leadership in Tourism is fragmented and seems to approach this subject from a subjective approach without proposing a theoretical and practical model that can measure the connection between the variables of crisis leadership, group dynamics and change management. Key elements: change management and crisis leadership	Cit. 0
2024	Silva, M.J.; Costa, C.; Lemos, F.F.; Guerra, R. & Gonçalves, E.	Article: Tourism and hospitality leadership in times of crisis: critical moderators Doi: 10.25145/j.pasos.2024.22.029	• Crisis leadership; Crisis; Tourism and Hospitality; Organisations; Moderator Factors • Several complementary methods and techniques. An empirical study applying a survey using semi-structured interviews with leaders in the **tourism sector**	To contribute to a deeper understanding of crisis leadership and crisis management in disruptive scenarios, tourism, and hospitality. To enrich crisis leadership research and to capitalise on learning and developing research to help mitigate the future negative impact of another crisis.	A different type of leadership is needed, with a solid capacity to deal with uncertainty, vulnerability, and complex, chaotic contexts and to make urgent, quick decisions. Leaders who effectively manage the moderators during crises can contribute to the tourism and hospitality industry's resilience and recovery. Effective tourism and hospitality leadership in crises requires a combination of strategic foresight, adaptability, strong communication, stakeholder engagement, and a commitment to sustainable and innovative practices. Key elements: critical moderators and crisis leadership	Cit. 0

Source: Own elaboration

A citation analysis is performed to estimate how widely accepted and impacted a publication is. This analysis reveals how often others cited a specific publication (Wut et al., 2021) and also whose publications are more popular and significantly contribute to the body of knowledge of a particular area of study. Citing someone in an essay means that there are, at some point, relations in domain research or with semantic relations, which means someone before could have approved empirical and/or strictly peer-reviewed study observing to be considered in a specific field of study.

The most cited authors, publications, and journals are shown in figures 3 and 4. The top ten most relevant authors contributing to tourism crisis leadership reveal that two authors have two publications, co-authored Chaskar and Upadhyay (2023) and the rest one each author. However, they are not the most cited authors. The most cited publications are from Wan et al. (2022), with 36 title citations, followed by Senbeto and Hon (2021) with 29. Publications and authors from 2024 do not have citations due to their recent works.

Wan's study emphasising governance and public-private collaboration resonates due to its actionable insights on better coping with crises, showcasing the practical high value of solid leadership partnerships in the tourism value chain.

The article of Wan et al. (2022) received considerable attention because it reflects an analysis of governance and public-private partnership, which were crucial to coping with crisis impacts and helping enterprises seize the moment. It provided suggestions regarding how to act in a crisis.

Most Global Cited Documents

Plot | Table

Show 10 rows ▼ | Excel   Search:

Paper	DOI	Total Citations	TC per Year	Normalized TC
WAN YKP, 2022, J HOSP TOUR MANAGE	10.1016/j.jhtm.2022.03.012	37	12.33	1.00
SENBETO DL, 2021, INT J CONTEMP HOSP MANAGE	10.1108/IJCHM-11-2020-1263	29	7.25	1.00
KORSTANJE ME, 2020, TOURISM, TERRORISM AND SECURITY: TOURISM SECURITY-SAFETY AND POST CONFL DESTINATIONS	10.1108/978-1-83867-905-720201006	5	1.00	1.00
KACHNIEWSKA M, 2023, SUSTAINABILITY	10.3390/su151310602	2	1.00	2.67
YILDIZ M, 2023, SUSTAINABILITY	10.3390/su15064922	1	0.50	1.33
BELIAS D, 2024, SPRINGER PROC BUS ECON	10.1007/978-3-031-54342-5_13	0	0.00	
KUKUL Y, 2024, BUS PERSPECT RES	10.1177/22785337221148812	0	0.00	
CHASKAR A, 2023, J CONTINGENCIES CRISIS MANAGE	10.1111/1468-5973.12477	0	0.00	0.00
CHASKAR A, 2023, PROCEDIA COMPUT SCI	10.1016/j.procs.2023.07.026	0	0.00	0.00
SILVA MJ, 2024, PASOS	10.25145/j.pasos.2024.22.029	0	0.00	

Previous 1 Next

Figure 3. Most globally cited authors, publications and journals

Source: Own elaboration

The most cited journals align with the most cited authors and titles (Figure 3); at the top is the Journal of Hospitality and Tourism Management, followed by the International Journal of Contemporary Hospitality Management and Sustainability (Switzerland). Regarding the index, the H-index indicates the balance between productivity-scientific production and the impact of the citation. The G-index is the distribution of citations in publications by a researcher or scientific journal. The M-index measures the impact of a scientific career.

Sources' Local Impact

Source	h_index	g_index	m_index	TC	NP	PY_start
INTERNATIONAL JOURNAL OF CONTEMPORARY HOSPITALITY MANAGEMENT	1	1	0.250	29	1	2021
JOURNAL OF HOSPITALITY AND TOURISM MANAGEMENT	1	1	0.333	36	1	2022
SUSTAINABILITY (SWITZERLAND)	1	1	0.500	2	1	2023
SUSTAINABILITY (SWITZERLAND)	1	1	0.500	1	1	2023
TOURISM, TERRORISM AND SECURITY: TOURISM SECURITY-SAFETY AND POST CONFLICT DESTINATIONS	1	1	0.200	5	1	2020

Figure 4. Most relevant journals cited

Source: Own elaboration

The countries of production are fascinating, with Portugal (5) as the place with the most numbered publications and affiliated authors, followed by India (4), Greece (2), Argentina (1), Austria (1), Poland (1), Switzerland (1) and Turkey (1). However, the countries most cited are Hong Kong (29), Argentina (5), Poland (2) and Australia (3).

The results reveal a geographic and temporal concentration of tourism crisis leadership research. It is still concentrated in specific regions, with significant contributions from Portugal, Hong Kong, and India. It can expose vulnerabilities in a large number of countries and an urgent need for strategic leadership and networks across international borders. Small island states and geopolitically unstable areas with unique tourism dynamics are not represented, opening an avenue to future research directions.

4.3. Bibliometric quantitative analysis: Thematic predominancy

Three Field Plots were produced using Sankey plots from R Programming and bibliometrix to know the relationship between the three fields. The first column is for keywords, the second for

authors, and the third for journals on the first plot (Figure 5). The following plot indicates the relationship between the title, keywords, and abstracts from left to proper column disposition (Figure 6). They express what was indicated in the analysis before. Relating themes and total counting keywords indicating the main focus. The journal with the most production is the Journal of Contingencies and Crisis Management, which differs from the most cited journal, the International Journal of Contemporary Hospitality Management.
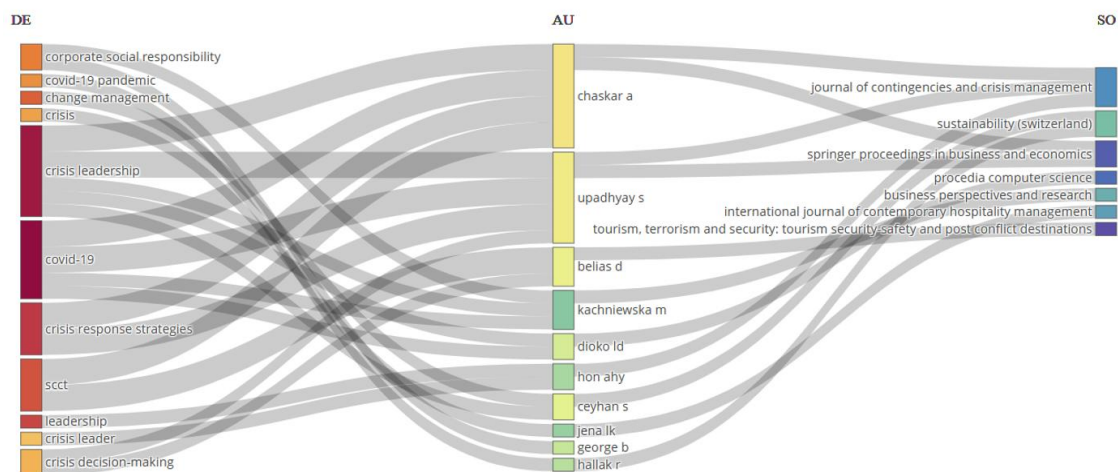
Figure 5. Three-Field Plot of Keywords (1st column), Authors (2nd), Journal sources (3rd)

Source: Own elaboration
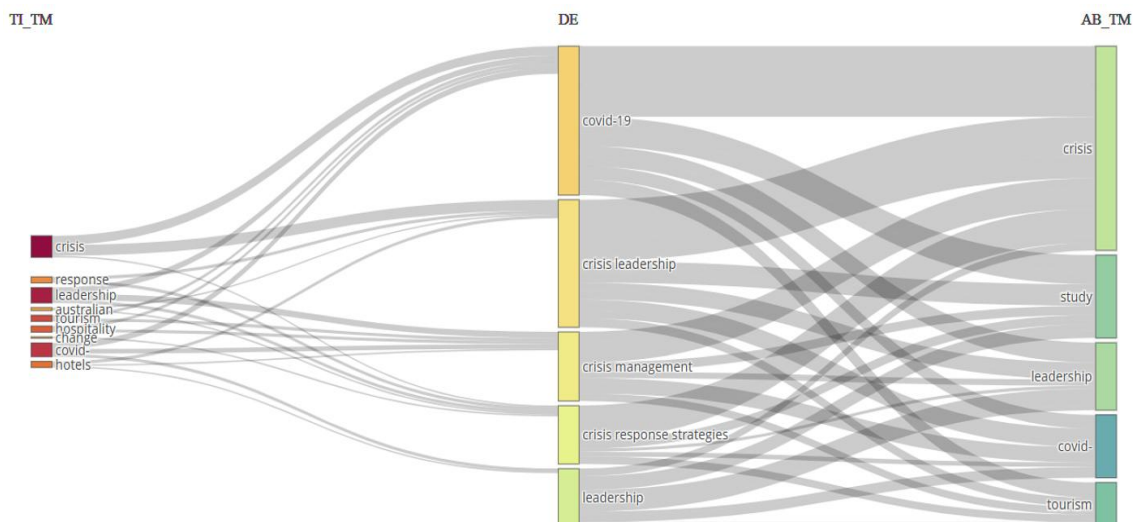
Figure 6. Three-Field Plot of Title (1st column), Keywords (2nd), Abstracts (3rd)

Source: Own elaboration

Both results make it possible to find relevance in COVID-19, crisis leadership and crisis management. By order of keywords relevance, shown in the word cloud from fifty words, explaining the author's concern, COVID-19, leadership, hospitality, crisis decision-making, and tourism development are more highlighted in the tourism crisis leadership field (Figure 7). A strategic approach, innovation, tourism markets, tourist behaviour, changes, and sustainability (sustainable development goals and corporate social responsibility) are highly connected and significant to the research domain with the thickness connection. Sustainability indicates a growth in relevance in the most recent studies.

Sustainability has gained prominence, pointing to a sector-wide acknowledgement that future resilience and service depend on sustainable practices, not only for the sector but also for human beings globally. This is a relevant theme for future research. Topics of innovation and tourism market adaptation represent a shift towards resilience and high levels of adaptability of organisations facing crises and irregularities.

Figure 7. The cloud of the most prominent words

Source: Own elaboration

To implement any strategy to cope with crisis, disruption and change, effective crisis leadership highly demands a specific leader profile to ensure a better and more sustainable future in post-crisis challenges (Silva, 2016; Yukl & Gardner, 2020).

The study's trend topics are based on researchers' abstracts. The most significant issues continue with the words crisis, leadership, and management, although the trends indicate that research in resilience, technological events, and employees is of notable importance.

4.4. Factorial Analysis, Clusters and Networks

Factorial analysis of the homogeneity of the keywords within the network was carried out. Multiple Correspondence Analysis (MCA) is one of the methods based on categorical data, which recognises keywords, titles, or abstracts in a map structure of clusters (Aria & Cuccurullo, 2017). Factorial analysis and cluster mapping identify dominant thematic clusters within crisis leadership in tourism. The significance of abstract words within a cluster is represented in figure 8. Responsible leadership, crisis management, the pandemic, tourism, and hospitality denote a strong connection.
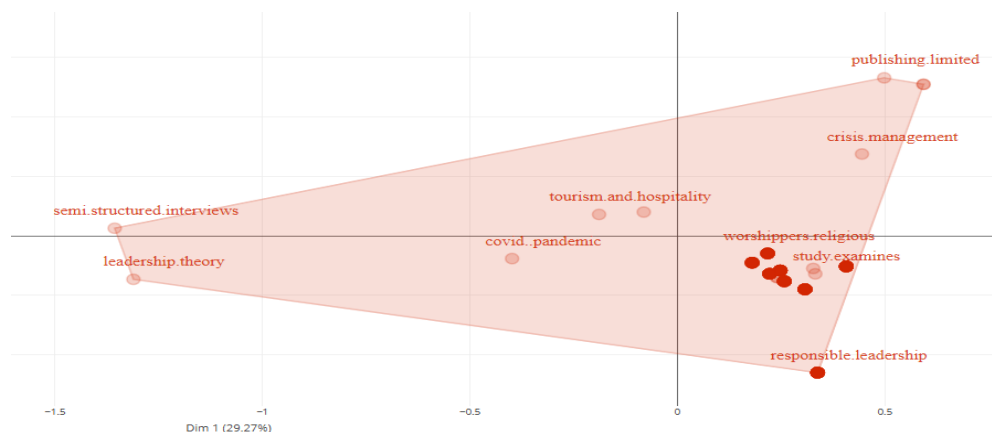
Figure 8. Factorial analysis: multiple correspondence analysis within authors' abstracts

Source: Own elaboration

Multidimensional scaling (MDS) can help us to create a map of similarities, proximities, and connections, enabling the visualisation of the networks and clusters of published works on a particular topic. The higher the intensity of the thickness of the lines and nodes in the co-citation and relationship, the higher the relevance. The size of the bubbles represents the relevance; the more significant is the most relevant. The colour of the bubbles denotes to which cluster they belong. The proximity indicates the more or less intensity of the connection and linkage (Aria & Cuccurullo, 2017).

The thematic map indicates that the literature on crisis leadership in tourism is highly related to COVID-19 and started publications only in 2020. This is the central focus of the publications. Nevertheless, there are three main clusters in connection, in the most prominent order: i) the cluster of leadership, tourism development, tourism management, strategic approach, innovation, and the relationship between stakeholders. Cluster I, can be labelled as strategic leadership and stakeholder engagement, indicating a significant approach to collaborative

leadership for long-term resilience, especially while crisis contexts; ii) crisis leadership, crisis response strategies, decision-making, leadership response. Cluster II is crisis response and decision-making, indicating the need for leaders prepared to navigate the complexities of rapid and unpredictable crises; iii) tourist behaviour, crisis management, change, hotel industry, surveys and questionnaires. Cluster III, tourism and hospitality specific focus indicate the need to particular attention to tourist behaviour and crisis management practices. Research mainly focuses on the hospitality subsector, indicating a remarkable gap in other subsectors that could open an interesting future research expansion on all other tourism subsectors.

These records indicated a predominance of studies in the hospitality sub-sector (60%), explaining the significance of the cluster hotel industry, tourist behaviour and crisis management (Figure 9). When performing a factorial analysis, the topics dendrogram are in line with the results previously indicated, giving particular emphasis to the methodology applied to hotels and a few outside this sub-sector. One was related to religious places (Korstanje & George, 2020), one was based on DMO, associations and government offices (Wan et al., 2022), and another one to media websites (Yildiz et al., 2023). One publication is dedicated to diverse value chain players (Silva et al., 2024).

Clusters strongly emphasised COVID-19 as central research drivel, with the pandemic acting as a case study for understanding the full spectrum of crisis leadership impact. Several authors (Gössling, Scott, Hall, et al., 2020; UNWTO, 2021) corroborate that COVID-19 was an unprecedented, transversal, and longest-lasting crisis in tourism, with notable shockwave types.
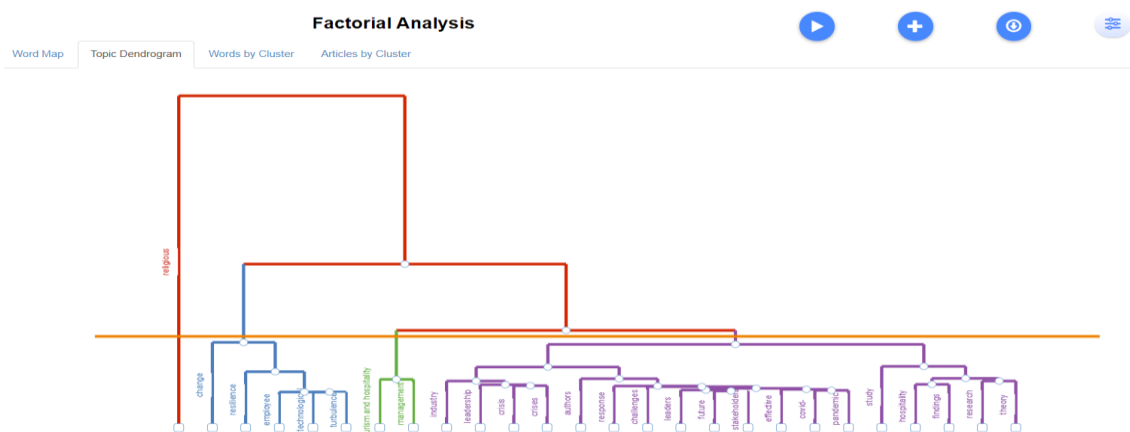

Figure 9. Factorial analysis of key themes and focus clusters

Source: Own elaboration

Further findings indicate that the most selected research methods are qualitative, including interviews, focus groups, exploratory studies, case studies, and literature reviews. While the approaches offer in-depth insights, they also underscore the need for quantitative and mixed-methods studies to assess other measurable impacts of crisis leadership strategies. It would also be interesting to include longitudinal analyses and cross-regional comparisons methodologically, which could yield actionable insights into effective strategic leadership practices in diverse tourism regions and contexts.

Seventy per cent of the records chose the COVID-19 pandemic as a crisis type, 10% technological crises, 10% terrorism, and 10% referred to several and all sorts of crises with a more holistic vision. The core domains of publications considering period order and fundamental themes correlation: terrorism-type of tourism; human-resources-technological crises-cyberattacks; gender-covid; decision-making-covid; crisis communication-strategy-covid, crisis leadership-moderator factors-general crisis.

After the detailed screening, it is also possible to identify linkages with tourist behaviour, changes in demand and flows, sustainability questions, and what can be interesting future research indications in further studies.

The findings denote the authors' need for other types of crises in analysis, resulting from tourism's hugely recent production and attention to the crisis leadership domain and the beginning of a comprehensive difference between crisis management and crisis leadership by tourism researchers and practitioners. In the literature review about the crisis that affects tourism, at least in the last 25 years, it was possible to verify that tourism suffers from constant events and hazards triggering the value chain. Table 4 represents the crises that affect tourism, and scientific publications report them, mainly in crisis management.

Table 4. The central crisis affecting tourism in the 21st century

Time	Event and Date	Places Affected	Category
2000	Philippine Terrorism Attack (Dec 30)	Philippines (Manila)	Terrorism
2001	9/11 Attacks (Sep 11)	USA (New York, Washington D.C., Pennsylvania)	Terrorism
2002	Bali Bombings (Oct 12)	Indonesia (Bali)	Terrorism
2002	European Floods (Aug)	Europe (Germany, Austria, Czech Republic)	Natural Disaster

Time	Event and Date	Places Affected	Category
2002	Mount and Food Disease Outbreak	UK and Europe	Health Pandemics
2002	Kenya Bombings (Nov 28)	Kenya (Mombasa)	Terrorism
2003	SARS Outbreak	Asia (China, Hong Kong, Singapore)	Health Pandemics
2004	Hilton Taba Resort Bombing (Oct 7)	Egypt (Taba)	Terrorism
2004	Indian Ocean Tsunami (Dec 26)	Southeast Asia (Indonesia, Thailand, India)	Natural Disaster
2004	Madrid Train Bombings (Mar 11)	Spain (Madrid)	Terrorism
2005	London Bombings (Jul 7)	UK (London)	Terrorism
2005	Hurricane Katrina (Aug 23-31)	USA (New Orleans and Gulf Coast)	Natural Disaster
2006	Avian Flu Outbreak	Global	Health Pandemics
2008	Global Financial Crisis	Global	Economic Downturn
2010	Iceland Volcano Eruption (Apr)	Iceland	Natural Disaster
2011	Japan Earthquake and Tsunami (Mar 11)	Japan	Natural Disaster
2011	Portuguese Financial Crisis	Portugal	Economic Downturn
2013	Typhoons in Asia	Philippines, Vietnam, China, Japan	Natural Disaster
2014	MH370 Disappearance (Mar 8)	Malaysia, Global	Transportation Disaster
2015	Nepal Earthquake (Apr 25)	Nepal	Natural Disaster
2015	Russian Plane Crash (Oct 31)	Egypt (Sinai Peninsula)	Transportation Disaster
2016	Zika Epidemic (Jan)	Latin America and the Caribbean	Health Pandemics
2016	Dengue Fever Outbreak	Asia, Americas, Africa	Health Pandemics
2017	Barcelona Terror Attack (Aug 17)	Spain (Barcelona)	Terrorism
2017	Portuguese Wildfires (Jun, Oct)	Portugal (Pedrógão Grande)	Natural Disaster
2018	Typhoon Mangkhut (Sep)	Philippines, Hong Kong, China	Natural Disaster
2018	Manchester Arena Bombing (May 22)	UK (Manchester)	Terrorism
2018	Petersburg Metro Attack (Apr 3)	Russia (St. Petersburg)	Terrorism
2018	Marriott International data Breach (from 2014-2018)	Global	Cyber Attack Data Breach
2018	British Airways data Breach	Global	Cyber Attack Data Breach
2019	Notre Dame Fire (Apr 15)	France (Paris)	Technological Failures
2019	Hong Kong Protests	Hong Kong	Political Instability
2020	COVID-19 Pandemic	Global	Health Pandemics
2020	Beirut Explosion (Aug 4)	Lebanon (Beirut)	Technological Failures

Time	Event and Date	Places Affected	Category
2022	Russian Invasion of Ukraine (Feb)	Ukraine, Europe	Political Instability
2023	German Airports Cyber Attack (Feb 16)	Germany	Cyber Attack Data Breach
2023	Hamas Attack on Israel and War (Oct 7)	Middle East	Geopolitical Conflicts
2023	MGM Hotels Cyber Attack (Sep 12)	Global	Cyber Attack Data Breach
2024	Japan Earthquake (Jan 1)	Japan	Natural Disaster
2024	Extreme weather events	Global	Climate Change
2024	Microsoft global outage (Jul 19)	Global	Technological

Source: Own elaboration (based on WTTC (2019), CrisisGroup watch (2024))

In line with Pursiainen (2018, p.3), it is possible to denote that crises in modern times are different from crises in the past, "they are non-linear, trans-sectorial and trans-boundary, and associated with unknown origins and remedies". Several types of crises were detected to affect tourism, and some publications emphasised the moments and researched several impacts, challenges and points of view.

For a long time, crisis management was the most researched domain in tourism, with approaches classified as belonging to middle-level activities (Pursiainen, 2018) from more operational and daily management roles. Crisis leadership is more related to the C-level, belonging to the top levels of decision-making roles and activities. It is more proactive, thinking about long-term life. A comparative analysis can show the differences between leadership and management.

Therefore, the first publication on tourism crisis leadership (Korstanje & George, 2020) indexed in the most prominent database is dated 2020, the years the world needed the most strategic leadership and efficiency to cope with the crisis considered the most severe since the least, after World War II, in addition to profuse terrorist attacks worldwide.

Concerning terrorism, Tarlow (2014) and Sönmez (1998) posit that one of its main targets is tourism and tourist destinations, as the ideology of terrorism sees it as a mode of neo-colonialism or a threat to their traditions, religious convictions and social norms. Tourists are chosen intentionally as the symbolism they carry from Western cultures, primarily high profile and hugely valuable for economies and societies, with the potential of significant diffusion by media and social networks worldwide. Terrorism is improving abilities and sophistication, acting virtually through cyberattacks, causing all types of disruptions in several systems,

especially connected with operations and supply chains (Baker, 2014; Chaskar & Upadhyay, 2023; Korstanje & George, 2020; Paraskevas, 2022).

Currently, the world and tourism are affected by impactful geopolitical conflicts such as the Ukraine-Russia war (from February 22nd) and the Israeli-Gaza war (from October 7th). These conflicts led to increased inflation, energy costs, shortage in supply of products, shortage in production, increased fuel costs, rise in food prices and transports, rise in interest rates, provoking economic crisis, the rise of the cost of living, declining quality of life, changing demand, patterns and flows. Those crises and events threaten growth, peace, sustainability, and life itself (UNWTO, 2024). Crisis leadership, again, is a crucial activity to stability and development; it is an ongoing in-between crisis, and crises are temporary situations.

Regarding the collaboration network, the findings denote a usual link in social and intellectual structure between the authors Chaskar and Upadhyay, with a predominance of co-authoring scientific production in the domain (Figures 10 and 11). The next cluster of closeness with some intensity of co-collaboration is between Yildiz, Pless, Ceyhan and Hallak, who usually have publications together. Wan, Li, Lau, and Dioko are in the same intensity cluster; therefore, they have the highest cited publications (33). A third cluster is similar in less significance and number of productions; the rest of the authors have fewer publications. Although Senbeto and Hon is at the top of that cluster, having one of the most cited (29) publications worldwide, we can expect a growing partnership and relevance in tourism crisis leadership.

Notable co-authorship records highlight certain countries and their affiliated higher education institutions as leading contributors to global research on tourism crisis leadership.
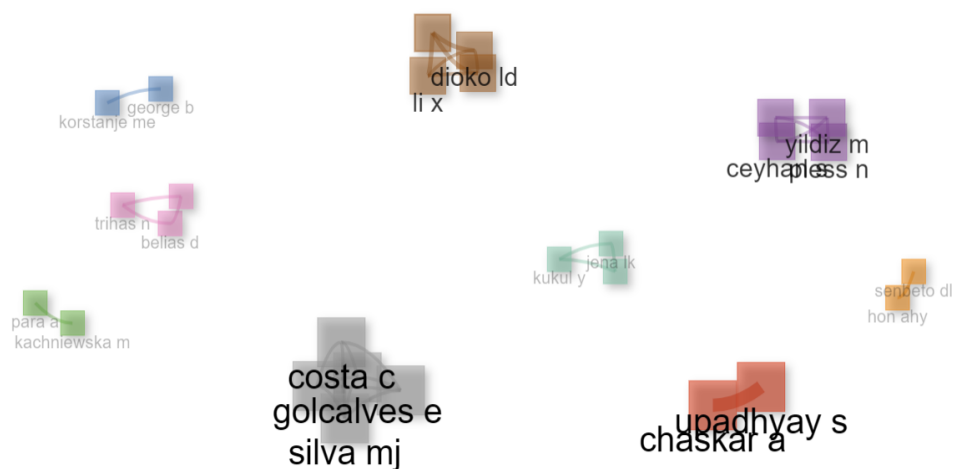

Figure 10. Collaboration Network of Authors and higher education institutions
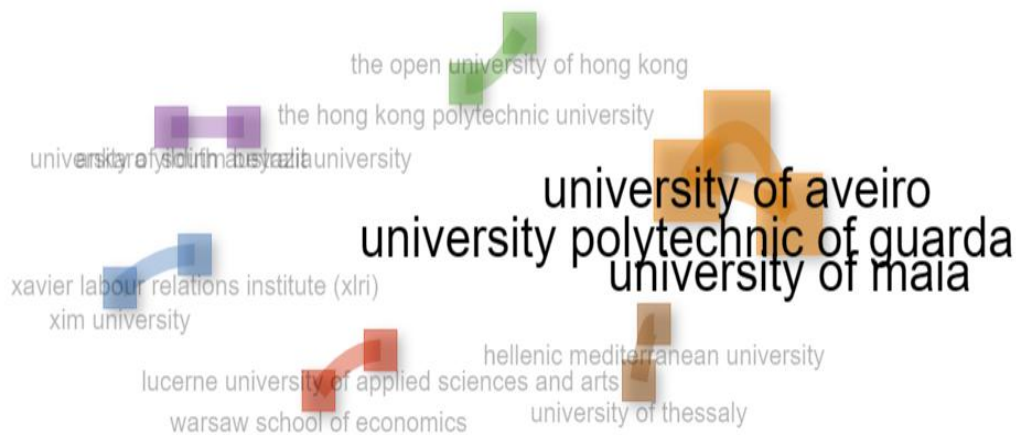
Source: Own elaboration

Figure 11. Collaboration Network of higher education institutions

Source: Own elaboration

Concerning the reference networks and connections between the database of science mapping analysis for tourism crisis leadership, it is possible to identify the most cited authors and publications. The blue bubbles indicate that most records are based on relevant authors for the crisis domain, such as Coombs, W.T., Bundy, J., Connor, S.B., or Barbe, D. (Figure 12). Barbe has several publications, with another notable author of crisis management, Pennington-Gray, which is connected mainly with crisis communications and media.
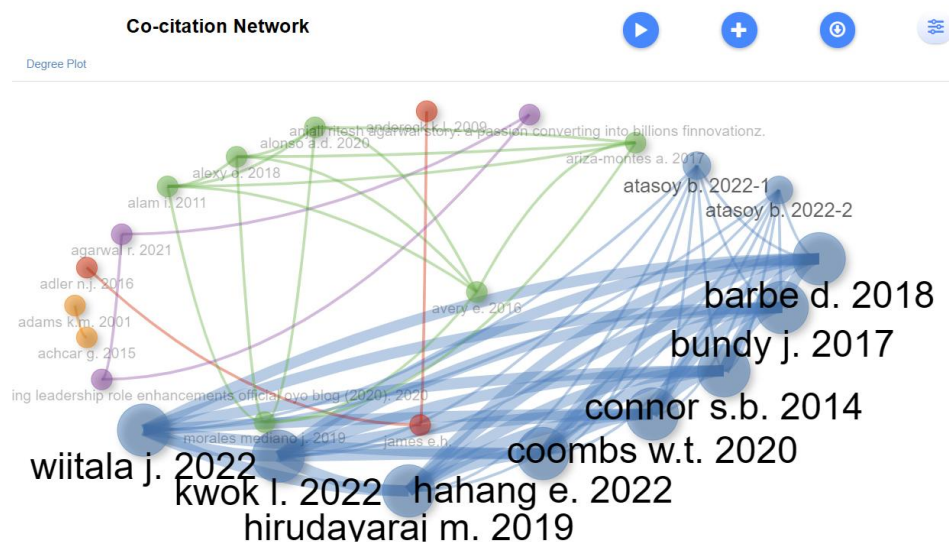

Figure 12. Co-citation Network

Source: Own elaboration

The authors notably current, with most research concentrated between 2014 and 2022, particularly in 2022. A surprising finding is the absence of well-known and current figures in crisis research, particularly in crisis management (Faulkner, 2001; Pennington-Gray, 2018; Ritchie, 2004; Sönmez et al., 1999; Tarlow, 2014) over the years, in the field of tourism crisis leadership.

Therefore, as science mapping analysis could reveal, publications and authors' emphasis on tourism crisis leadership is highly scarce, opening opportunities to explore many questions and topics in the future.

5. Conclusions, limitations and future research directions

Over the past twenty-five years, the world has become more linked, globalised, and interdependent. Throughout this time, there have been notable breakthroughs in transportation, a significant decrease in barriers to the flow of people, products, and services, and the opening of borders. There are many advantages to globalisation and technology growth and development.

Nonetheless, some risks and vulnerabilities come along with it. Nations' increased interconnectedness and interdependence mean local issues can quickly escalate into global challenges. Consequently, navigating the 21st century requires robust strategies and cooperation to manage the heightened levels of volatility and uncertainty, where essential collaboration between crisis leadership and crisis management in complementary contribution is vital. The future will depend on adapting to these changes and working collaboratively to address the multifaceted challenges that lie ahead and trigger the whole system.

The tourism and hospitality industry, a cornerstone of the global economy, faces unprecedented challenges in the face of crises, such as terrorism, natural disasters, geopolitical conflicts, pandemics and cyberattacks. This article has explored the critical aspects of crisis leadership and crisis management, highlighting the distinct yet complementary roles to cope with future crises and achieve the tourism sector's goals and sustainable growth. The myriads of risks and challenges that emerge during turbulent times stand out. Effective crisis leadership is paramount in navigating these uncertainties and ensuring the resilience and sustainability of tourism.

Crisis leadership and crisis management in tourism and hospitality literature recognise that a significant number and severity of events, incidents, hazards, and disasters can produce complex, difficult-to-manage, and severe crisis scenarios. It is consensual that the better a crisis

is led and managed, the better and more sustainable the future of the organisation, sector, and destinations.

This research highlights the need for adaptive crisis leadership strategies in tourism and hospitality sector. These strategies, which encompass risk management, agile and notable decision-making, and effective communication, complement the roles of crisis managers in operational control and execution. The review article compared and addressed fundamental definitions of crisis, crisis leadership, and crisis management, with a comparative analysis of each domain, providing valuable insights for the industry and academia.

The findings, along with a methodological approach of science mapping analysis, utilise the PRISMA protocol to systematically review and map the existing literature on tourism crisis leadership.

The results of this study reveal a significant gap in the body of knowledge of tourism crisis leadership despite the considerable attention given to crisis management. Confusion persists between management and leadership roles, especially in crisis contexts, where both overlap but are objectively focused differently and serve distinct functions. While several crisis management models and frameworks exist, there is a clear need for more research and analysis of leadership in a crisis context. This includes its roles, contributions to responding to and solving crises, and designing new and better organisations, profits, products, and services.

This scarcity in crisis leadership-oriented research highlights a critical and dangerous gap, as effective crisis leadership is essential for navigating the complex crises worldwide in a hugely vulnerable and exposed tourism and hospitality sector.

This fact underscores the urgent necessity of crisis leadership in the complementarity of crisis management to achieve better goals effectively and efficiently, especially to cope with extraordinarily severe and harmful effects of impactful crises. Leaders must be equipped to anticipate crises, respond swiftly to evolving situations, and foster a culture of resilience, flexibility, capacity to change, and sustainability. Meanwhile, managers ensure that the operational response to crises provides recovery and returns to normalcy as soon as possible.

Crisis leadership is essential for guiding organisations and nations through the uncertainty and disruption of crises. It is about the "why" moving forward with efficacy. Influential leaders focus on strategies with efficacy. Crisis leaders are vital in strategic decision-making, ensuring the organisation and nation can thrive in an unpredictable post-crisis environment. In contrast,

crisis management focuses on the operational aspect of handling crises and on "how" to solve short-term issues efficiently.

The need for further academic inquiry into crisis leadership in tourism and hospitality is not just noted but also stressed. The potential impact of future research, which should focus on adjusting the sector, exploring the impacts of crises on strategic leadership effectiveness, and assessing the long-term implications of crisis-induced changes in sector practices, behaviours and products, is promising.

However, the consistent increase in publications, particularly in 2023, suggests growing recognition of crisis leadership importance and greater awareness of differences with crisis management. It indicates a 71% average annual growth rate in studies from 2020 to mid-2024. This trend signals an optimistic outlook for tourism crisis leadership research and for crucial contribution to help solving and coping with crises evolving in nature, globally and intensity.

A comparative evaluation of the Scopus and Web of Science databases reveals that Scopus maintains a lead in the volume and recency of crisis leadership publications. While Scopus records for tourism crisis leadership begins in 2020, Web of Science adds entries in 2021. Although crisis management is older in Web of Science, Scopus shows more indexed publications in both domains.

The findings indicate that the subsector mainly studied is the hospitality industry. This shows an expressive gap in current research in considering other subsector pillars of the Tourism Satellite Account for analysis, such as attractions, transportation, operation and distribution, entertainment activities, and others. Comparative studies across sub-sectors, fostering other players of the value chain, and focusing only on hospitality (as has been the case until now), across different geographies and types of crises, would provide deeper insights into effective crisis leadership strategies and help destinations' readiness.

This narrow focus and dominance of the hospitality subsector limits understanding of how leadership practices might vary across the tourism system's interconnected components and provides a plethora of future research directions.

Influential frameworks in crisis leadership, such as Faulkner (2001), provided foundational stages of crisis response in tourism. Still, the exact structure continues to vary, keeping emphasis on tactical responses rather than strategic leadership decision-making and plans.

Research in this domain can make a transformative contribution. Researchers can help sector leaders develop more effective strategies to anticipate, respond to, and recover from crises and

redesign the sector for a sustainable future by advancing theoretical frameworks and practical tools for crisis leadership and management.

This research contributes to i) a theoretical understanding of crisis leadership approaches integrating with management; ii) expanding the concept of the sector resilience and vulnerability, indicating practical solutions and strategies to sector maintaining resilience in crisis contexts; iii) providing the state-of-art tourism crisis leadership research that revealed a severe gap on literature landscape, that needs to be solved, by efforts to provide advances in the field; iv) contribute with an integrated definition of crisis adapted to crisis leadership domain, v) indicates several future research direction, as crisis leadership on tourism and hospitality suffers from a lack of interest in opposition of other sectors and domains.

Tourism leaders must prioritise sustainability, embrace new technological developments, and formulate plans to minimise risks from outside threats to maintain and enhance the sector's strengths while overcoming weaknesses. Inclusivity-focused strategies, where every stakeholder is valued and integral to the industry's success, will be critical to capitalising on the growth potential.

This essay's practical management and leadership implications point out strategies for leadership to seize in tumultuous times and those anticipated in the future. Some essential implementing strategies are needed for tourism leadership to navigate the challenges of an unpredictable environment, such as:

(i) Diversification and market adaptation, reducing dependence on specific regions, as well as types of tourism, adapting to changing consumer preferences, and being able to innovate and work with niches;

(ii) Enhance visitor experience and safety with health and safety measures and protocols, using digital tools and channels to more engagement and personalisation of customer travel experience;

(iii) Crisis management and preparedness to respond effectively to hazards, disasters, emergencies, irregularities, incidents and crises, ensuring staff is well-trained, communities informed, and all prepared to respond and recover. Aligned with a strategic vision for recovery, innovation and sustainability;

(iv) Strategies for the integration of crisis leadership and management. Tourism leaders should adopt an integrated approach, ensuring that operational readiness is

complemented by strategic leadership capabilities to guide the sector successfully through evolving and constant challenges;

(v) Strategic collaboration and leadership, fostering public-private partnerships to address shared goals and challenges, advocating for supportive policies and regulations aiming for a better and sustainable sector and touristic destination;

(vi) Cross-sector collaboration and stakeholder engagement to build crucial and significant resource sharing, pooling diverse perspectives, mutual support and coordinated responses during crises while engaging with local communities and organisations;

(vii) Embrace technological innovation through digital transformation and leverage artificial intelligence (AI) and big data. This will not only enhance the efficiency of operations but also significantly improve the quality of service and customer experience, paving the way for a more promising future in the tourism and hospitality sector;

(viii) Promote sustainability, encouraging more eco-friendly practices and investing in infrastructures resilient to climate change, minimising environmental impacts;

(ix) Promote inclusivity and equity, not just as a strategy but as a core value. By promoting equal opportunities and women in leadership roles and involving communities in development and decision-making processes, we can inspire a more inclusive and equitable tourism and hospitality sector;

(x) Economic resilience is not just a goal but a necessity. By establishing reserves and insurance mechanisms to cushion against economic downturns, promoting local sourcing, and ensuring the benefits of tourism are widely and fairly distributed, we can build a more stable and resilient tourism and hospitality sector.

The academic and practical implications of this study are expressive. The findings reveal a fertile study area, calling for increased academic attention and investment in university tourism leadership programs and research authors.

Some limitations of the research can be indicated. Only articles, book chapters, and conference papers with peer review were integrated for the science mapping analysis. Future research can open to a broader range of publications. The publications were exclusively in English; future research can open to other primary languages. The publications originated on two databases that, despite being the most relevant to the tourism sector, can be integrated with more

databases. The sample size of the present study was significantly small, impelling a new study later to verify the evolution of the field of crisis leadership in tourism.

In conclusion, as the tourism and hospitality sector continues to navigate an era of persistent volatility and unpredictability, prioritising the development of crisis leadership research and scholars and practitioners receiving and applying its inputs is more crucial than ever to build a sector capable of withstanding the risks and challenges of turbulent times. The insights from such research will enhance theoretical understanding and offer practical solutions and ideas to safeguard the future of tourism and hospitality.

In a world marked by volatility, crisis leadership in tourism is not just a temporary measure to cope with crises but a continuous necessity to achieve sustainable growth and safeguard the sector's long-term stability. Tourism crisis leadership is a keystone in safeguarding tourism's future and serving as a model for other sectors navigating an uncertain future.

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