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Sustainability and Resilience Organizational Capabilities to Enhance Business Continuity Management: A Literature Review

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Abstract: Although organizational sustainability and organizational resilience are critical dynamic capabilities for business continuity management, especially in times of crisis such as the COVID-19 pandemic, there are few studies that analyze the relationship between these three concepts to understand risks management. For this reason, our study analyzes these relationships to contribute to a better understanding of the subject and to propose future lines of research. We use bibliometric and content analysis, based on the Web Of Science and Scopus databases, during the period between 1998 and 13 May 2021. Main findings indicate that there is a bidirectional relationship between organizational sustainability capabilities and organizational resilience capabilities, but there is not enough evidence of their relationship with business continuity management. Additionally, results allow us to infer that there are four groups of relationships between them: (1) From Risk Management to Business Continuity Management and Organizational Resilience; (2) Resilience and Business Continuity practices; (3) Business Continuity contribution to Innovation and Sustainability; (4) Dynamic Capabilities for Organizational Sustainability and Organizational Resilience to enhance Business Continuity Management. Moreover, different stages were identified to understand the impact of organizational sustainability capabilities and organizational resilience capabilities on business continuity management facing disruptive events.

Keywords: organizational sustainability; organizational resilience; business continuity management; capabilities; bibliometric analysis; systematic literature review

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1. Introduction

According to the World Economic Situation Report (WESR) 2021 [1], the COVID-19 pandemic has been identified as a once-in-a-century crisis, in which uncertainty is a constant and difficult choices must be made to protect employment and productivity, exposing systemic vulnerabilities at an economic level. As a result, the role of Sustainable Development Goals [SDG] is highlighted, as safeguards and drivers of resilience for countries, business and communities, in order to develop competencies against future crises. "There is clearly no sustainable development without resilience and there is no resilience without sustainable development. Building economic, social and environmental resilience must guide the recovery from the crisis" [1].

In 2020, the gross world product fell by approximately 4.3% (developed economies shrunk by 5.6% and developing ones by 2.5%), 2.7 billion workers were affected (about 81% of the world's workforce), the aggregate unemployment rate in the Organization for Economic Cooperation and Development (OECD) reached 8.8% by April 2020, and fell to 6.9% in November 2020 (unemployment rate record highs: 27% in Nigeria, 23% in India, 21% in Colombia, 17% in the Philippines, and above 13% in Argentina, Brazil, Chile, Saudi Arabia, and Turkey). During the second and third quarters of the year, an average of approximately 420 million full-time equivalent jobs were lost. The number of people living

in poverty was expected to increase by 131 million in 2020 alone, representing a poverty headcount ratio of over 9%. International tourism plunged by 70%, with estimated losses of US$ 1.1 trillion (creating an emergency for many developing countries). Global and domestic supply chains shocked out, and global trade in goods and services is estimated to have declined by 7.6%. As a result, the path towards recovery requires a commitment to the SDGs from governments, businesses, and communities, in order to build resilience to future economic, social, and climatic shocks. It is through the development of a firm's capabilities to respond, absorb, and transform to changing circumstances, that Organizational Resilience [OR] is built and contributes to Organizational Sustainability [OS].

OS can be defined, in terms of time, as a capability for being competitive now and in the future, considering that it has an impact on the Triple Bottom Line [TBL] principles (economic, social, and environmental) [2] and its perspective has evolved to include ethical and technological aspects [3]. In addition to this, OS capabilities and OR capabilities are related whenever critical resources and full recovery strategies of organizations are established to recover from disruptions, in order to protect their value propositions [4].

OR is a multidisciplinary concept studied from psychology, ecology, economics, emergency management, sustainable development, and supply chain risk management [5,6]. The concept evolves and has been established as an organizational capability to avoid, absorb, respond to, and recover from situations that may affect its survival [7], or a meta-capability that articulates other ordinary and dynamic capabilities in their different stages: anticipation, copying, and adaptation [8]. Findings related to OR capabilities point out anticipation as a capability related to preparation and resource availability, based on ecological, resource-based, and legitimacy theories [8].

Business Continuity Management [BCM] initiatives are defined to preserve or create value, and an interaction with organizational business models is established by doing so, to improve them and respond to disruptive events [9]. Recent studies have put forward the organizational capability approach for BCM [10], explaining why it is critical to develop OR and OS capabilities in order to prepare for, respond to, and recover from disruptive events [11] and how they promote the implementation of BCM practices.

Nowadays, OS and OR challenges have increased strategic requirements associated with the development of organizational capabilities, especially those required to maintain organizational balanced relationship with the TBL [12–14]. The contributions of OS capabilities and OR capabilities to impact BCM is suggested but not explicit, as may be observed in OR [15–20] and OS [21] foundations. Nevertheless, the value of their interaction has been established ever since interest in OR emerged, especially in the field of supply chain management [4,22–24]. Clarifications about OR called the attention of researchers and practitioners [5] associated with organizational preparedness [25], community resilience [17,26], and resilience process systems involving Business Continuity [BC] and OS approaches [27].

The relationship between OS capabilities and OR capabilities has been studied through organizational awareness and decision-making for global challenges and uncertainty. Frameworks to understand how these capabilities interact and contribute to Sustainable Development [SD] have been identified [28]. Nevertheless, the interaction between OS capabilities and OR capabilities, to impact BCM, has not been sufficiently studied, although it has gained interest in recent years [4,23,27,29]. Consequently, there is still a wide field of research to be explored, ranging from the determination of OS capabilities and OR capabilities [30,31] to the validation of existing frameworks in different types of sectors [32], organizations such as SMEs [33], and developing countries [34,35].

In this paper, we identify relationships between OS and OR and how they impact BCM, as well as highlight future lines of research. We used Bibliometric Analysis to identify how the body of knowledge has evolved. Moreover, we used a Systematic Literature Review [36] to identify organizational capabilities that develop OS, OR, and BCM. This literature review focuses on: (1) relationships between OS capabilities and OR capabilities, (2) findings in the literature that draw relationships between BCM and organizational

capabilities, and (3) the main contributions for understanding relationships between OS capabilities and OR capabilities to impact BCM.

As a result of the literature review, there is no evidence of articles that have studied the relationship between OS capabilities and OR capabilities and BCM from bibliometric analysis and systematic literature review methodology perspectives. Our main contributions are the following: (1) to describe what is being said about the relationship between OS capabilities and OR capabilities, which impact BCM, from 1998 to 13 May 2021; (2) the main papers, countries, journals, and authors for the above constructors, through bibliometric analysis, using VOSviewer software, and papers found in the Web of Science and Scopus databases; (3) to propose cluster analyses to identify relationships and trends in the body of knowledge using Bibliometric Analysis and VOSviewer software; (4) content analysis from the selected papers according to their relevance on the matter using Systematic Literature Review; (5) to provide insights about OS, OR, and BCM relationships for researchers and practitioners, in order to expand the body of knowledge and improve their practice, respectively.

This paper is organized as follows: the next Section 2 presents the description of the methodology used for this literature review, followed by Section 3 where the main findings for OS, OR, and BCM and their relationship are presented. Subsequently, Section 4 presents the results of the literature review; the last Section 5 finishes the paper with the conclusions of this study and opportunities for further research.

2. Methodology

2.1. Literature Selection and Data Sources

Two types of analyses, bibliometric analysis [37] and systematic literature review [36], were used to perform this research. Bibliometric analysis aims to understand the evolution of the body of knowledge and to identify main authors, papers, countries, journals, and institutions from a bibliometric perspective [38]. The systematic literature review methodology aims to understand how the concepts evolved, using the papers selected after the systematic literature review process analysis. The databases used for the analysis were Scopus (www.scopus.com) and Web of Science (www.webofknowledge.com) accessed on 13 May 2021, this databases are frequently used by researchers across various disciplines, especially for management research [39]. The former "is the largest abstract and citation database of peer-reviewed literature: scientific journals, books, and conference proceedings" [40], and the latter "is the world's most trusted publisher-independent global citation database" [41].

2.2. Literature Review Protocol and Inclusion Criteria

The systematic literature review process involves planning, conducting, and reporting activities [36]. During the planning phase, we (1) considered issues regarding the impact of OS capabilities and OR capabilities on BCM, in order to embed BCM into organizational culture [42]; (2) we established the following research question: What is the relationship between OS capabilities and OR capabilities with BCM?; (3) we developed and validated the review protocol. Table 1 shows the literature review protocol.

Table 1. Literature review protocol.

Approach	**Research String**	
Literature Search	**Article Title, Abstract and Keywords.**	
	Justification Approach	Search Equation
Research Strings	***OS capabilities and OR capabilities*** Sustainability and Resilience are wide concepts, and we are interested in them from an organizational perspective [43,44] and specifically from a capability perspective, using a resource-based view theory approach. We use "?" considering that there is a difference in spelling between British and American English. We use the sustainability concept because we are looking for a management capacity [45].	1. "organi?ational sustainability" AND "capabilit*" 2. "organi?ational resilience" AND "capabilit*"

Table 1. *Cont.*

Approach	Research String	
Literature Search	**Article Title, Abstract and Keywords.**	
	BCM relation with Sustainability "OR" Resilience Connections between BCM and the wide Sustainability [46] or Resilience [47] concepts, show how their relation evolves independently. Looking for relationships between OS capabilities and OR capabilities with BCM.	3. "business continuity" OR "continuity management" AND "sustainability" 4. "business continuity" OR "continuity management" AND "resilience"
	BCM relation with Sustainability "AND" Resilience Connections between BCM and the wide Sustainability and Resilience concepts [23], show how their relation evolves collaboratively, only in order to understand backgrounds OS capabilities and OR capabilities interaction with BCM.	5. "business continuity" OR "continuity management" AND "sustainability" AND "resilience"
	BCM "AND" Capabilities Business Continuity Management concept is used, because we look for a holistic management process and its managerial implications to build OR and OS. Specifically, we want to identify connections with organizational capabilities.	6. "business continuity" OR "continuity management" AND "capabilit*"
Document type	"article" and "review".	
Subject areas	• Scopus database: "BUSI". • Web of Science database: "MANAGEMENT OR BUSINESS".	
Data range	All years (cut-off: 13 May 2021).	
Unit of analysis	Relevant articles and reviews whose main content focus on the search strings and links between them.	

Records from 2021 were included, considering that COVID-19 was a trigger for the development of OS capabilities and OR capabilities, as well as for the implementation of BCM practices worldwide [48]. Research strings were run twice to increase the reliability of the study. Finally, we identified 275 potentially relevant articles.

The conducting phase followed these steps: (1) introducing the formula in the Scopus and Web Of Science search tool and exporting the results to csv format; (2) reviewing the results and looking for similar papers on both search tools (Total: 275; Scopus: 158; Web Of Science: 117); (3) selecting unique papers (187 total, 54 for both searches tools, 87 only for Scopus, 46 only for Web Of Science, 88 duplicated titles); (4) screening for inclusion papers using the inclusion criteria (64); (5) identifying additional papers (6) performing forward and backward searches; (6) assessing quality by reviewing introductions and conclusions from papers that match inclusion criteria (60); (7) extracting data using content analysis; (8) analyzing and synthesizing data, and (9) developing this paper. Figure 1 shows the process we followed and papers related to the conducting phase.

Systematic literature review inclusion criteria allows researchers to identify relevant articles [36]. We selected papers whose (1) titles, (2) abstracts, and (3) content were related to the research concepts. Papers that referred to OS capabilities, OR capabilities, and papers that referred to BCM were selected, and their content was analyzed (64). We included papers from forward and backward searches (6). We excluded papers that did not meet the quality criterion in their introductions and conclusions (11). Finally, the outcome of the selection process led us to review 60 articles, from the 275 we collected.

Papers were classified according to the corresponding search equation concept, as follows: OS Capabilities (1); OR Capabilities (2); OS and BCM (3); OR and BCM (4); OS, OR and BCM (5); BCM (6). Selection criteria can be seen as a limitation for being considered an omission for other relevant literature. Nevertheless, choosing the systematic literature review approach allowed us to introduce relevant literature because of the reference analysis.

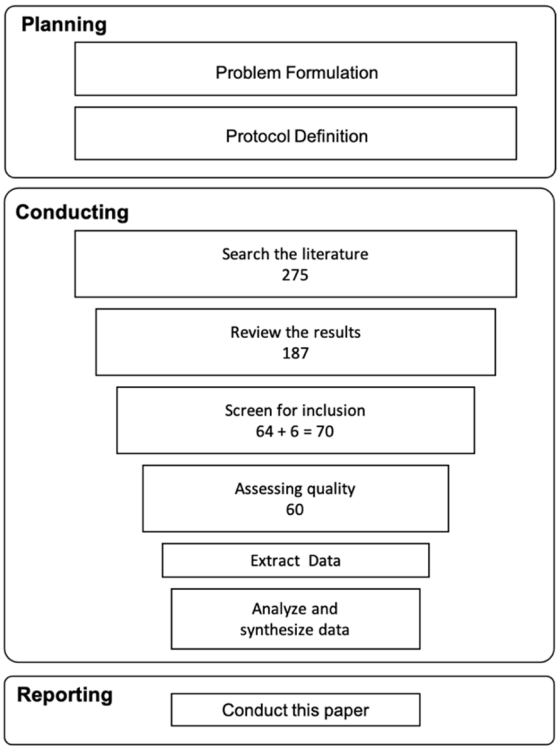

Figure 1. Systematic Literature Review Process.

For this research, we used VOSviewer software, and data exported for both databases was lauded using co-occurrence of authors' keywords and full counting method, with a minimum number of co-occurrences of 3 authors' keywords, and a minimum cluster size of 6 items. Results from the analysis were used for next section to clarify OS capabilities and OR capabilities relationship with BCM. Then is Section 4, with the bibliometric and contest analysis results. The last Section 5 concludes the paper with the findings of this study and opportunities for further research.

3. Literature Review

Our research pillars are related to OS capabilities and OR capabilities and their relationship with BCM. Existing literature related to these concepts and their constructors supports the methodology used for the literature review protocol and analysis. Literature review is presented in this section, using the 60 articles selected as a result of the literature review process.

3.1. Organizational Sustainability Capabilities

OS capabilities can be defined as "the information required by an enterprise to integrate essential capabilities and flexibility into its future architecture", for its development "organizational, environmental, and economic dimensions are essential, because each dimension reflects the capacity of a firm to develop its business sustainability competence" [49], ethical and technological aspects are required as well [3].

OS capabilities are related with stakeholder and resource-based view theories, since they respond to an organizational commitment with economic, social, and environmental aspects [50]. From a dynamic capability point of view [51], OS capabilities minimize potential stakeholders conflicts and contribute to organizational (Managerial), environmental (Re-imagining, redesigning, recycling, reduction, and reuse applications), and economic (Market-driven) competencies to enhance organizational performance [49].

It is important to notice that state-of-the-art OS capabilities denote their relevance at an organizational level to respond to disruptive events, and their relationship with OR capabilities has been observed and documented [35,52–54]. Specially, through strategies for

critical resource allocation and organizational recovery from disruptions, to protect value propositions [4]. Nevertheless, their relationship with BCM has not been established, even though its relevance is recognized on a managerial level, to contribute with organizational performance during unexpected events [28,52].

3.2. Organizational Resilience Capabilities

OR capabilities can be defined as ordinary [32,53] and dynamic [31,54–56]. OR capabilities respond to ecological, resource-based view and legitimacy theories [8]. They have been studied from a process management approach, using phases associated with the unexpected event: before (anticipation), during (coping), and after (transformation) [8]. This is because, as a dynamic process, resilience has two different paths and three different stages, which require specific organizational capabilities.

Resilience process's first path is through absorption capabilities, in which redundancy, robustness, and agility are core capabilities. The second path uses adaptation-related capabilities and, to this end, resourcefulness, adaptability, and flexibility are the core capabilities. As for stages, proactive resilience capabilities are required for before the event; absorptive and adaptive capabilities are deployed during the event; reactive resilience capabilities stand out after the event [57].

OR capabilities increase organizational performance during unexpected events [31,32,44,53,58,59], anticipation, and sensemaking. OR capabilities appears without a time reference [60], showing the relevance of defining and developing different capabilities that strengthen OR.

In terms of OR capabilities, their relationship to OS capabilities has been established and documented [34,61,62]. They are related to BCM through crisis management [63–66]. Moreover, a wide body of knowledge suggests a relationship between OR capabilities and BCM [31,32,44,53,55,60]. Nonetheless, the interaction between OS capabilities and OR capabilities to impact BCM is not explicitly defined, though it has become evident that their interaction could enhance the performance of firms during disruptive events.

3.3. Business Continuity Management

BCM has evolved from the 1970s as a technical and operational risk response to disruptions, contributing to OR safeguarding stakeholders' interests [67]. Business Continuity Management is the "holistic management process that identifies potential threats to an organization and the impact those threats, if realized, can cause on business operations, and provides a framework for building organizational resilience with the capability of an effective response that safeguards the interests of key interested parties, reputation, brand and value-creating activities" [68] (p. 4). BCM is related to knowledge management and dynamic capabilities, enhancing organizational performance during crises [69]. Ordinary business continuity capabilities have been identified as (1) serious management commitment, (2) continuity strategy, (3) plan development and execution, (4) training and counselling, and (5) periodic reporting [70]. Business continuity dynamic capabilities could represent a socio-technical ability to respond to and recover from contingencies [9], as well as ensure loss prevention and respond to systemic disaster risk [71].

The previously referenced literature provides useful information on the state-of-the-art and benefits of OS capabilities, OR capabilities, and BCM concepts. Moreover, to the best of our knowledge, there is no evidence of research studies that integrate these concepts and analyzes its interactions. This is the main reason we use bibliometric analysis and systematic literature review, aiming to fill the existing gaps in the interaction between them, and to contribute to the body of knowledge that explores these concepts.

4. Results

The body of knowledge on OS, OR, and BCM behavior has increased constantly every year since 2018. That is the main reason we conducted this literature review using two methodological perspectives. On one hand, we have systematic literature review analysis, which allows researchers to synthesize and to verify hypotheses, and thus evaluate a body

of knowledge from a desirable area [36]. On the other hand, we implement bibliometric analysis because it is widely used in SD research, enabling the identification of tendencies and leading journals, authors, and regions, followed by the opportunity to identify research directions and cooperation [37]. This section presents the results of both methodologies.

4.1. Most Cited Papers Analyses

Back in 1998, Mallak established the importance of managers using tools and frameworks that involve principles related to resilience, including a personnel and organizational level [44]. Sheffy and Rice subsequently associated the flexibility of the essential elements of the supply chain with increasing OR [22]. They proposed that building a resilient enterprise requires a strategic initiative that involves risk management and business continuity to increase companies' competitiveness [22]. Along that line, Craighead et al. established the need to incorporate mitigation capabilities (warning and recovery) in order to guarantee supply chain business continuity [24].

Consequently, Bhamra et al. noticed the importance of identifying organizational susceptibilities to disruptions in order to define OR capabilities and BCM response [5]. Paulraj proposed that sustainable supply management and sustainable practices that involve organizational suppliers and clients contribute to OS and OR [50]. This is aligned with the proposal of Ates et al. for developing change management capabilities in SMEs to support OS and OR [58].

A couple of years later, Chopra and Sodhi found that strategies for reducing supply chain fragility (segmenting and regionalization) are related to disruptive risk using business continuity plans [72]. In addition to this, Sahebjamnia et al. proposed a framework integrating business continuity and disaster recovery practices to increase organizational performance during disruptive events to enhance OR [19]. In addition, Torabi et al. proposed a resource allocation model for a pre-event and post-event phase to increase OR [73]. Table 2 presents the 10 Most Cited Papers and their contributions to the body of knowledge. Papers are organized by total citations.

Table 2. 10 Most Cited Papers.

Author	Title	Contribution	Country	Journal	Year	TC	SE
Sheffi, Y.; Rice Jr., J.B	A supply chain view of the resilient enterprise	Flexibility is required for supply chain resilience. Risk management and BCM increases companies competitiveness [22].	United States	MIT Sloan Management Review	2005	780	OR and BCM
Craighead, CW, et al.	The severity of supply chain disruptions: Design characteristics and mitigation capabilities	Recovering and warning capabilities as mitigation capabilities guarantee Supply Chain Business Continuity [24].	United States	Decision Sciences	2007	623	OR and BCM
Bhamra R., et al.	Resilience: The concept, a literature review and future directions	Organizational susceptibilities to disruptions and OR context lead to BCM practices [5].	United Kingdom	International Journal of Production Research	2011	448	OR and BCM
Paulraj, A	Understanding the relationships between internal resources and capabilities, sustainable supply management and organizational sustainability	Sustainable Supply Management (SSM) and sustainable practices contributes to OR. Suppliers and Clients should implement those sustainable practices [50].	United States	Journal of Supply Chain Management	2011	239	OS Capabilities
Torabi S.A., et al.	Resilient supplier selection and order allocation under operational and disruption risks	Resources allocation for a pre-event and post-event phase contributes to OR [73].	Iran	Transportation Research Part E: Logistics and Transportation Review	2015	164	OR and BCM

Table 2. *Cont.*

Author	Title	Contribution	Country	Journal	Year	TC	SE
Chopra, S. and Sodhi, MS	Reducing the Risk of Supply Chain Disruptions	Strategies for reducing Supply Chain fragility (segmenting and regionalizing) are related with disruptive risk using business continuity plans [72].	United States	MIT Sloan Management Review	2014	157	OR and BCM
Mallak L.	Putting organizational resilience to work	Principles for resilience from a personnel and organizational level contributes to OR [44].	United States	Industrial Management	1998	122	OR Capabilities
Ates A. and Bititci U.	Change process: A key enabler for building resilient SMEs	OS and OR in SMEs requires change management capabilities [58].	United King-dom	International Journal of Production Research	2011	108	OR Capabilities
Sahebjamnia, N. et al.	Integrated business continuity and disaster recovery planning: Towards organizational resilience	Business Continuity and Disaster Recovery need an integrated approach, to control OR levels [19].	Iran	European Journal of Operational Research	2015	101	OR and BCM

Note: TC = Total Citations, SE = Search Equation.

Figure 2 shows the evolution of OS capabilities, OR Capabilities, and BCM Average Citation Body of Knowledge by total citations. The numbers were normalized to provide a perspective on the distribution of citations from an average perspective.

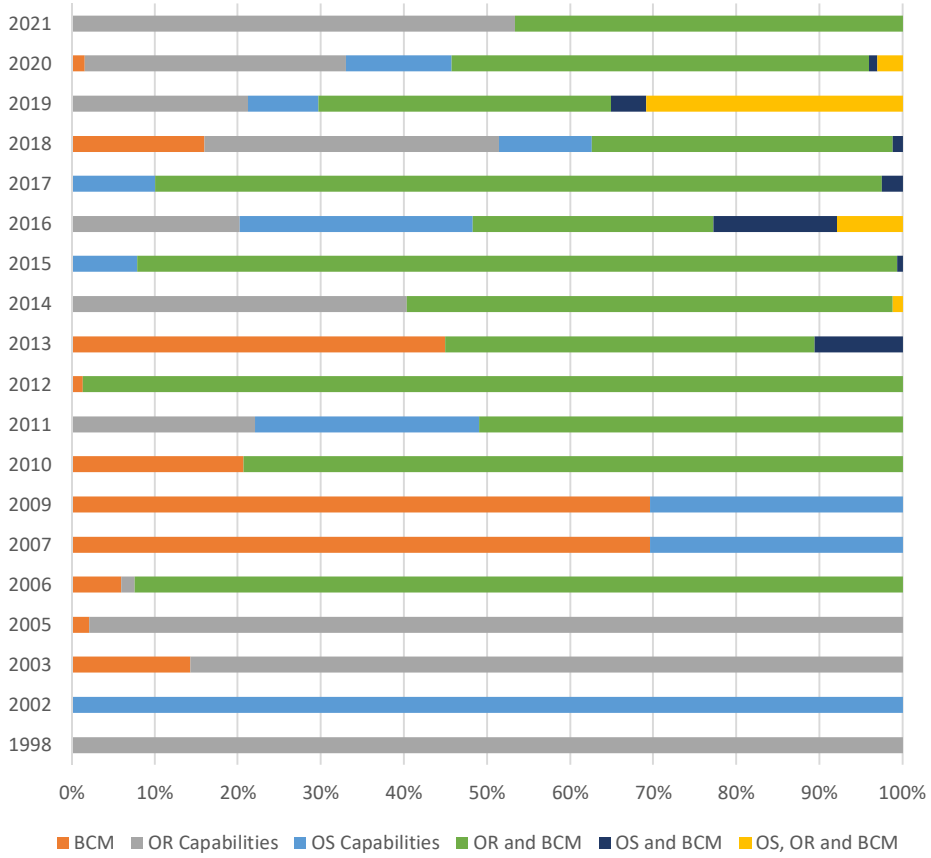

Figure 2. OS capabilities and OR capabilities and BCM Average Citation.

The citation behaviors show us the interest of the scientific community in OS capabilities and OR capabilities and their relationship to BCM. The results show that the

emphasis on the interaction between OS, OR, and BCM (yellow) increased from 2015, and that contributions to that interaction, between wide concepts of sustainability and resilience with BCM, could be valuable for researchers and practitioners. OR capabilities (grey) have been in organizational agendas since 1998, but it was not until 2018 that they have gained sustained interest.

The most cited papers show us that interest is growing, and contributions from empirical research will be useful. Moreover, the relationship between OR and BCM (green) calls for attention as of 2007, and has been maintained from 2009 until nowadays. This relationship is supported in supply chain management, and SMEs need to enhance organizational performance for high-uncertainty environments. Nonetheless, the OS and BCM (dark blue) relationship appears in 2013 and stands annually from 2015, supported by the organizational need to preserve environmental, societal, and economic performance, during disruptive events, through stakeholder interaction.

The starting point of interest in OS capabilities (light blue) is 2002, but it is not until 2015 that they remain, consequently, with OS and BCM analysis. Finally, BCM concept relation with capabilities shows a flashing interest, which appeared in 2003, and increasing interest is evident in 2021, with a strong presence in the body of knowledge, allowing us to conclude that contributions to this area can enhance organizational performance during disruptive events, particularly when a relationship with OS capabilities and OR capabilities is established. Finally, the relationship between OS capabilities and OR capabilities with BCM is observed for the first time in 2014, from a supply chain risk management perspective [23], reappearing in 2016, proposing an incident sequence approach [29]. After that, it appeared again in 2019 for supply chain management resilience, and, in 2020, was associated with the evolution of Process System Resilience (PSR) [4].

4.2. Annual Papers and Distribution of Citations

Citations started in 1998 with the relationship between OR and organizational capabilities. From that moment, principles and disciplines related with OR capabilities have been established as the need for individuals, as decision-making actors, that can influence organizational performance during a crisis [44]. After seven years, through an MIT paper in 2005 with 780 citations, the most cited paper in this body of knowledge, an explicit relationship was established between OR and BCM from a process management perspective [22].

Later on, the relationship between OR and BCM stands out through warning and recovery capabilities, categorized as mitigation capabilities, for a supply chain management perspective [24], motivated by legislation and standardization processes related to the adoption of BCM practices [67]. In addition to this, the relationship between OR and BCM is identified through dynamic capabilities, such as change management for adaptation purpose [56]. Finally, Hillman clarifies the academic disciplines related to OR, and the relationship with business continuity appears in foundational case studies that cover resilience from a survivability, resumption, and restoration perspective. Business continuity is seen as a source or metric for resilience, and the BCM system is seen as part of the integrated resilience management system [55].

Similarly, the starting point of the relationship between OS and BCM involves a sustainable supply chain approach, pointing out relational capabilities as a catalyzer when a response that involves stakeholders is needed and a solid link with them is required [50].

Following that approach, the relationship of OS and OR with BCM had a starting point in 2014, looking for a way to strength supply chain risk management for business continuity using a case study methodology [23], and was defined in 2016 using two different approaches. First, a firm-centric or a community-centric posture was used from a community resilience perspective [17]. Second, an incident resilience planning framework approach was used, incorporating time-performance phases: (1) Reaction (Minimum operational capability), (2) response (Minimum sustainable capability), and (3) restoration (Learning and adaptive capabilities).

Once the relationship between OS and BCM was established, the role of top management was studied and comes out as particularly important for the adoption of practices, pointing out that leadership is the main internal driver of OS [74]. It was found that the OS interpretation of managers is associated with adaptability and continuity practices because they contribute to maintaining economic, social, and environmental performance [74]. Figure 3 summarizes annual papers and citations and shows how the relationship between research concepts evolves.

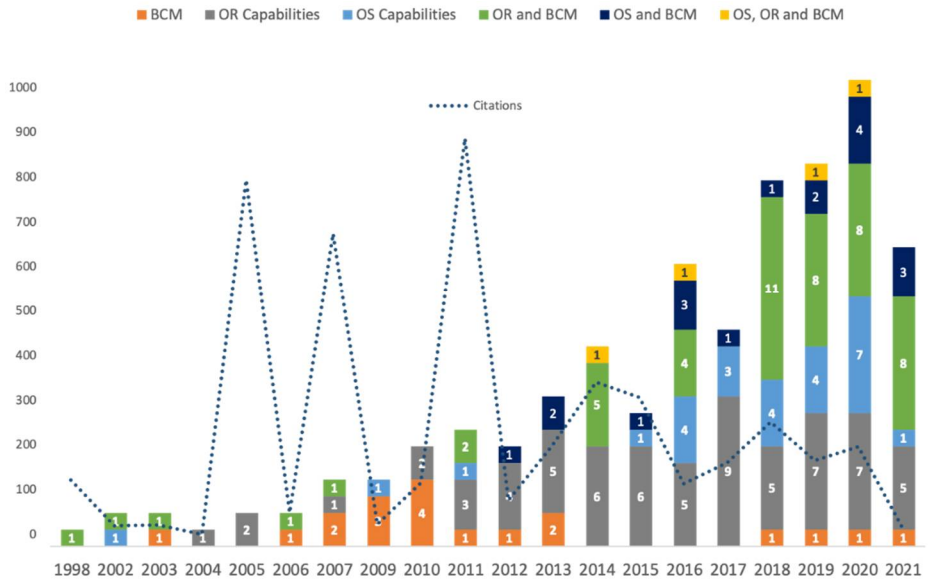

Figure 3. Annual Papers and Citations.

The growth of publications is not constant, and stationarity can be identified in years such as 2011 [5], with a notorious interest in the OR and BCM interaction. Nonetheless, in 2014, interest in OR Capabilities [31,59] and their relationship with BCM [72] was distributed equally, and the OS, OR, and BCM interaction appeared for the first time [75]. Subsequently, in 2016, interest was stirred up [29], and it was only until 2019 that has been retained.

4.3. Cluster Analysis

One of the primary advantages of bibliometric analysis is mapping the co-occurrence of concepts in the body of knowledge. This co-occurrence analysis using authors' keywords and the full counting method enables researchers to improve their capacity to understand results. For this paper, "3" occurrence of words was selected in order to have a broader vision of the field of research [76], and of the 612 keywords, 45 met the established threshold. After this, no significant keywords were removed from the analysis. As a result, four dominant clusters were identified. Figure 4 shows the relationship between these clusters.

As presented in Figure 4, correlations between OS, OR, and BCM are established, but not with a strong correlation. Additionally, the corresponding colors of the clusters in Figure 4 are red (first cluster), green (second cluster), blue (third cluster), and yellow (fourth cluster). It is interesting that the word "Organizational Sustainability", having been such as important concept, does not appear in the 45 keywords that meet the criteria of 3 co-occurrence authors' keywords. This is because we are interested in OS Capabilities concept, and in the body of knowledge, this concept appears in 2002, 2009, 2011 [50], and it is finally, in 2015, that the interest in this concept remains until nowadays, as it is shown in Figure 3. Cluster analyses draw lines of research that are presented in Section 5.

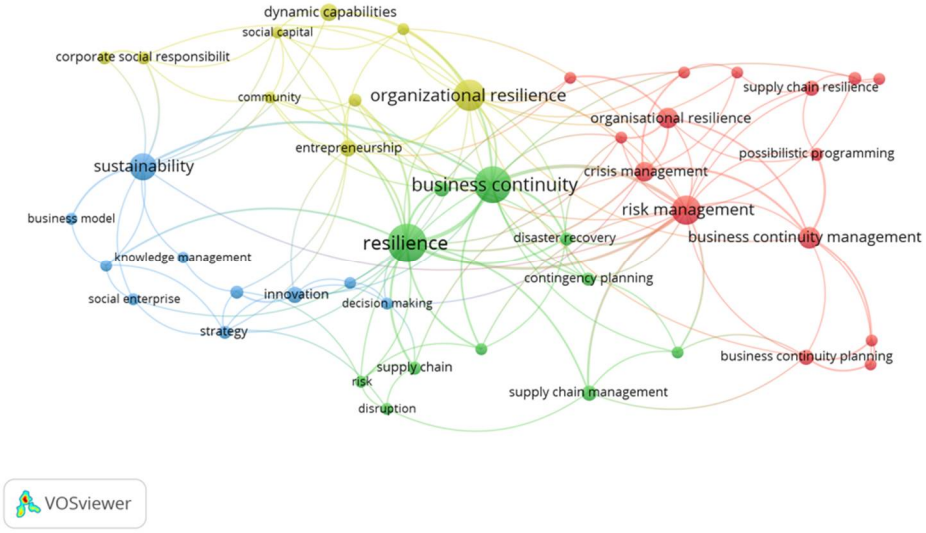

Figure 4. Domain clusters.

4.3.1. First Cluster (Red): From Risk Management to Business Continuity Management and Organizational Resilience

The first cluster has 15 concepts related to "Risk Management," "Business Continuity Management" and "Organizational Resilience." We named this cluster *From Risk Management to Business Continuity Management and Organizational Resilience.* In this cluster, the concept of risk management is associated with OR capabilities through resource management, emergency and crisis management, and for disruptions with business continuity and disaster recovery management [77]. Additionally, BCM is presented as a firm's enabler, for effective responses to business disruptions [19], that contributes to OR [69] and to OS [78]. Table 3 shows First Cluster keywords, occurrences, and link strength.

Table 3. Firs Cluster Keywords, Occurrences and Link Strength.

Items	Keywords (Occurrences; Link Strength)
15	Risk Management (19; 30); Business Continuity Management (10; 14); Organisational Resilience (9; 10); Crisis Management (8; 13); Supply Chain Resilience (5; 4); Business Continuity Planning (4; 7); Possibilistic Programming (4; 6); Supply Chain Risk Management (4; 4); Emergency Management (3; 6); Iso 22301 (3; 6); Organizational Learning (3; 5); Risk Assessment (3; 5); COVID-19 (3; 4); SME (3; 4); Risk Analysis (3; 2).

This cluster shows the evolution from a risk management approach that introduces awareness capabilities into organizational culture, calling for a response to disruption events using BCM practices, especially for supply chain management [24]. It is interesting how the role of crisis management emerges in this cluster as a mediator between BCM and OR [67,79]. This cluster trend is related to supply chain resilience [72], using possibilistic programing [80] for supply chain disruptions, such as COVID-19, and enhancing organizational learning capabilities [69].

4.3.2. Second Cluster: Resilience and Business Continuity Practices

The second cluster (Green) has 11 concepts surrounding "Resilience" and "Business Continuity." We named this cluster *Resilience and Business Continuity Practices*, meaning the cluster emphasis is on the relationship between resilience and business continuity through organizational practices, how they interact with supply chain management [4], contingency planning [30], disruptions [24], and when these elements are in place, how the relationship with OR frequently appears [19,81]. Table 4 shows the Second Cluster keywords, occurrences, and link strength.

Table 4. Second Cluster Keywords, Occurrences and Link Strength.

Items	Keywords (Occurrences; Link Strength)
11	Resilience (32; 44); Business Continuity (29; 43); Disasters (5; 8); Disaster Recovery (4; 11); Supply Chain (4; 7); Contingency Planning (4; 7); Supply Chain Management (5; 8); Disaster Preparedness (3; 7); Risk (3; 6); Disruption (3; 4); Supply Chain Disruptions (3; 6)

This cluster shows the evolution from a business continuity approach, using disaster and contingency planning practices [30], for building resilience [5], and its relationship with social capital development in order to enhance OR and BCM, especially in SMEs [33].

4.3.3. Third Cluster: Business Continuity Contribution to Innovation and Sustainability

For the third cluster (Blue) analysis, "Sustainability" and "Innovation" emerge with 10 concepts surrounding them. We named this cluster *Business Continuity contribution to Innovation and Sustainability*, taking into account that business continuity strategies stimulate innovation and, at the same time, preserve sustainability [27,32]. Additionally, this cluster reveals organizational needs for management practices aligned with an organizational strategy to support sustainability [50] and how they lead to innovation [62,82]. Moreover, knowledge management [34] and business model awareness [61] are related to the sustainable performance of firms [32]. Table 5 shows Third Cluster keywords, occurrences, and link strength.

Table 5. Third Cluster Keywords, Occurrences and Link Strength.

Items	Keywords (Occurrences; Link Strength)
10	Sustainability (16; 15); Innovation (6; 8); Strategy (4; 7); Management (4; 6); Stakeholders (3; 6); Decision Making (3; 5); Social Enterprise (3; 4); Business Model (3; 3); Strategic Management (3; 3); Knowledge Management (3; 2)

This cluster shows the evolution from organizational and entrepreneur Corporate Social Responsibility [CSR] practices [83] to sustainability practices [61]. Particularly, it is identified that sustainability practices lead to dynamic capabilities [62] and social capital development [84].

4.3.4. Four Cluster: Dynamic Capabilities for Organizational Sustainability and Organizational Resilience to Enhance Business Continuity Management

Finally, the fourth cluster (Yellow) involves "Organizational Resilience", "Dynamic Capabilities", and "Entrepreneurship." We named this cluster *Dynamic Capabilities for Organizational Sustainability and Organizational Resilience to enhance Business Continuity Management*. This result links entrepreneurship [33], social capital [48], community [17,26], and CSR [74] with the fact that OR requires dynamic capabilities [35] when adaptation is the expected outcome of OR [31]. These dynamic capabilities are related with OS [32] and BCM through OR [8]. Table 6 shows Fourth Cluster keywords, occurrences, and link strength.

Table 6. Four Cluster Keywords, Occurrences and Link Strength.

Items	Keywords (Occurrences; Link Strength)
9	Organizational Resilience (21; 23); Dynamic Capabilities (7; 6); Entrepreneurship (6; 13); Corporate Social Responsibility (4; 7); Disaster (4; 7); Sustainable Development (4; 3); Community (3; 9); Social capital (3; 9); SMEs (3; 7)

This cluster shows the evolution from business continuity, resilience, and CSR practices to OR developing dynamic capabilities [64,85]. It especially emphasizes the interaction between OR and sustainability through dynamic capabilities [35] and social capital development [48].

4.4. Cluster Density and Overlay Visualization

Intertwining between concepts is shown using density visualization. In Figure 5, the heat map reveals how keywords interact and concentrate, highlighting "Resilience", "Business Continuity", "Organizational Resilience", "Sustainability", and "Risk Management." This is interesting because the role of risk management in business continuity, OR, and sustainability remains, even though this concept is not used in any of the search equations. As Herbane mentioned [67], the relationship of risk management with BCM and OR is linked to crisis management [86]. In addition, its relationship with OS comes from the business continuity and supply chain management perspective [72]. Figure 5 presents cluster density co-occurrence.

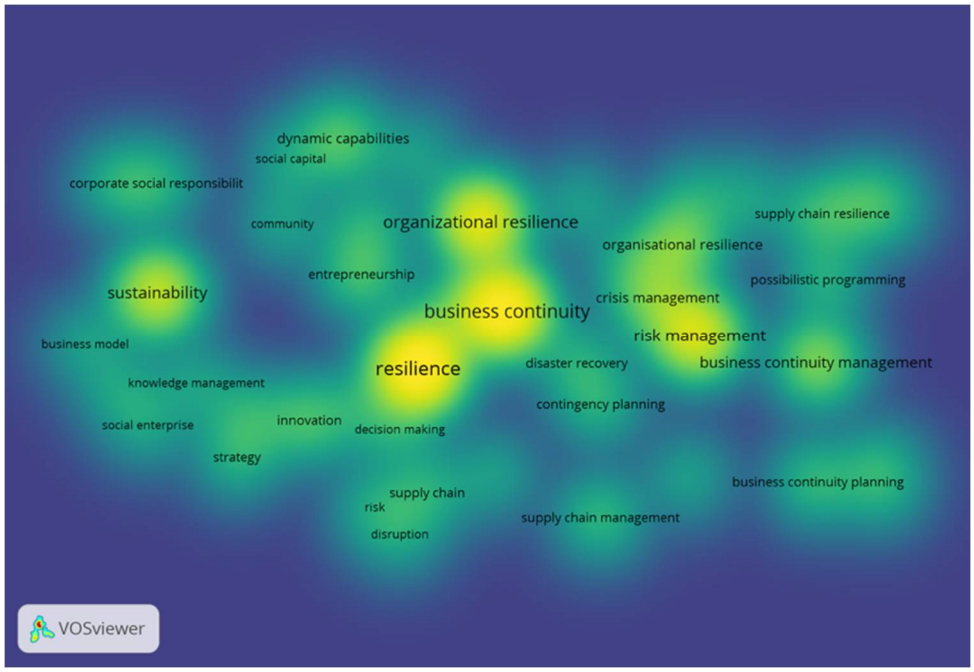

Figure 5. Cluster density co-occurrence.

The evolution of the body of knowledge can be seen in Figure 6. From 2014 to 2019, as the threshold was set for a minimum of 3 co-occurrences of authors keywords, looking to understand OS capabilities and OR capabilities relationships with BCM, papers began meeting that criterion in 2014, the paper published that year discussed the importance of implementing supply chain risk management practices to respond to business continuity events, and at the same time, what is the importance of full collaboration, through supply network partners, to secure the supply chain [23].

The evolution of the relationship between OS, OR, and BCM, looking to understand the relationship between OS capabilities and OR capabilities with BCM, appeared between 2016 and 2018. This relationship was built around resilience, sustainability, and risk management. The relationship between OR and BCM was established through risk management and sustainability through business continuity practices. As may be seen in Figure 6, future lines of research are associated with dynamic capabilities, supply chain resilience, social capital, and organizational response to disruptive events (yellow spots that represent thresholds of authors' keywords).

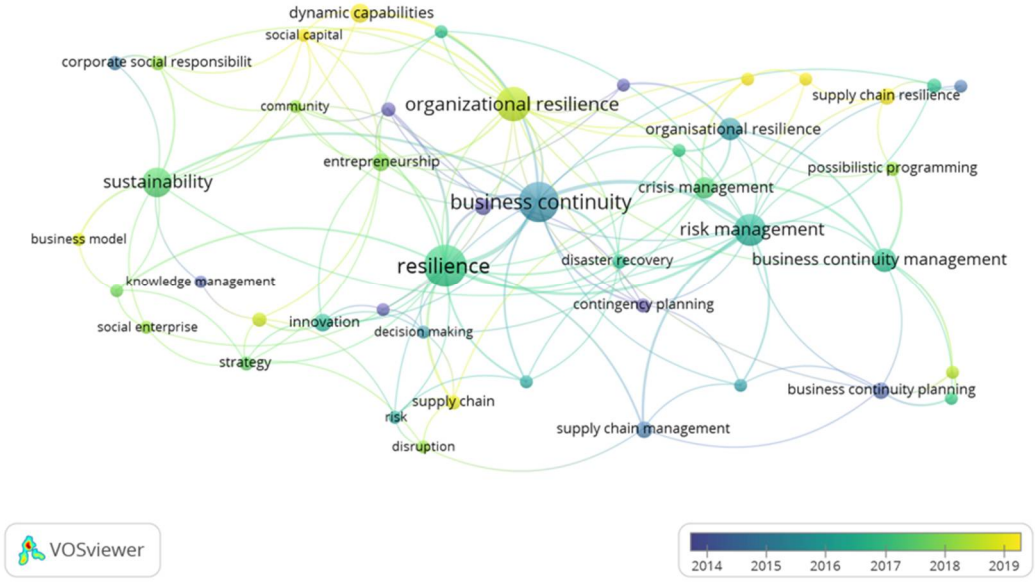

Figure 6. Clusters Overlay Visualization.

4.5. Main Countries and Journals

Bibliometric analysis and systematic literature review methodologies seek to achieve a knowledge and understanding of the field of research, and by doing so, scholars and practitioners made decisions about their research interests. The top 10 Countries reveal that, of total papers, the United States, United Kingdom, and Germany represent 34% of the total contribution for the body of knowledge. The most cited paper from each country, with its corresponding search equation, are related to identify which concepts are more relevant. For each country, we sought Country Classification [CC] using the United Nations World Economic Situation Prospect for 2021 [1], looking for trends in developed and developing countries. Table 7 shows the results.

Table 7. Top 10 Countries by Total Papers.

Country	TP	TC	BKC	Most Cited Paper	SE	CC
United States	36	2205	19%	A supply chain view of the resilient enterprise	OR and BCM	Developed
United Kingdom	17	945	9%	Resilience: The concept, a literature review and future directions	OR and BCM	Developed
Germany	10	143	5%	A digital supply chain twin for managing the disruption risks and resilience in the era of Industry 4.0	OR and BCM	Developed
Australia	9	154	5%	The Resilience Architecture Framework: Four organizational archetypes	OR Capabilities	Developed
India	6	17	3%	Mapping the human resource focused enablers with sustainability viewpoints in Indian power sector	OS Capabilities	Developing
Poland	6	14	3%	Developing the functionality of a mobile decision support system	BCM	Developed
Indonesia	6	7	3%	Trade secret protection on globalization era	OS and BCM	Developing
Iran	5	345	3%	Resilient supplier selection and order allocation under operational and disruption risks	OR and BCM	Developing

Table 7. *Cont.*

Country	TP	TC	BKC	Most Cited Paper	SE	CC
Canada	5	66	3%	How Firm Responses to Natural Disasters Strengthen Community Resilience: A Stakeholder-Based Perspective	OR and BCM	Developed
Spain	5	64	3%	The impact of risk management on the frequency of supply chain disruptions A configurational approach	OR and BCM	Developed

Note: TP = Total Papers, TC = Total Citations, BKC = Body of Knowledge Contribution By Number of Papers, SE = Search Equation, CC = Country Classification.

The Most Cited Papers from the United States, United Kingdom, and Iran are included in Table 2, which shows the 10 Most Cited papers in this body of knowledge. Paper titles show the interest in the relationship between supply chain management and OR for developed countries, and OS from developing ones. From a search equation perspective, something interesting comes up when the CC is considered. First, the most cited papers in developed countries are related to OR and BCM (71%), BCM (14%), and OR capabilities (14%). This shows how the OR and BCM relationship is in countries' agendas, and a capability approach is established. Second, the most cited papers in developing countries, corresponding to the search equation, are distributed between OR and BCM [5,17,22,73,87,88], OS and BCM [89], and OS Capabilities [90], which shows an interest in understanding the relationship between OS capabilities and OR capabilities with BCM. These observations contribute to future lines of research, which involves developing countries, using descriptive and empirical studies, related to the interaction between OS capabilities and OR capabilities with BCM, to enhance firms' performance during disruptive events.

Figure 7 shows BKC per Country by Number of Papers. As may be seen, even though the participation of developing countries is 46%, its total average of papers is very low compared to developed countries. This is interesting because future lines of research can lead to increasing the contributions of developing countries' experiences to this body of knowledge.

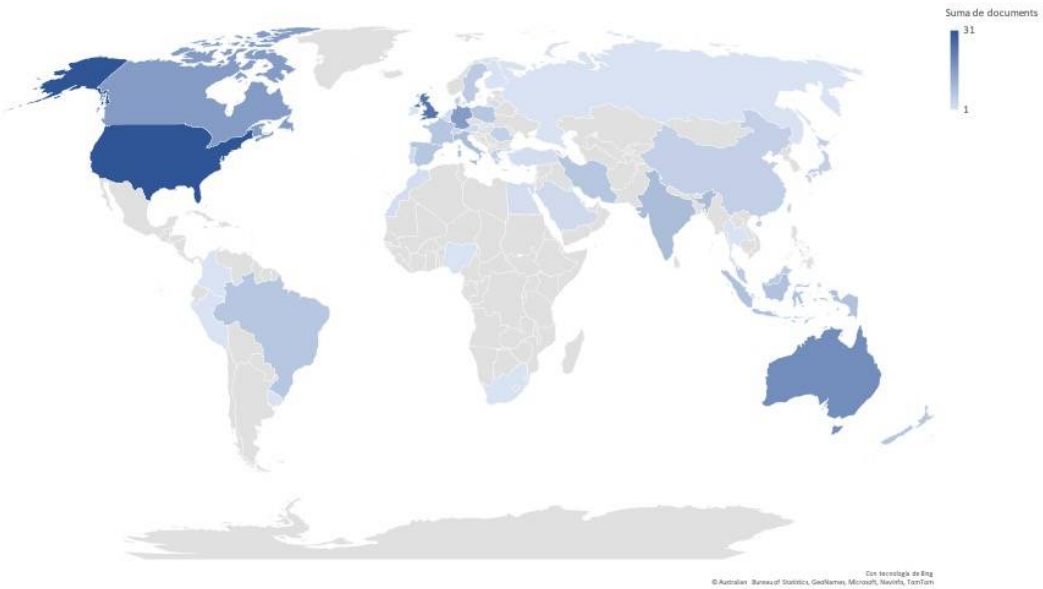

Figure 7. BKC per Country by Number of Papers.

The Top 10 Journals are organized by their total paper contribution and total citation, which ranks the International Journal of Production Research in first place. The most cited paper from this journal points out the importance of clarifying the concept of resilience,

its gaps and research opportunities [5], and is included in this research as the Third-most cited paper. It is important to highlight that the CiteScore Percentile was obtained from the Scopus database, except for the International Journal of Entrepreneurial Behavior & Research CiteScore Percentile, which was not found in Scopus, and was obtained using the InCite Journal Citation Report from the Web of Science database. The Ad-Minister Journal CiteScore Percentile was not found in either of the two databases used for this research. Table 8 shows the results.

Table 8. Top 10 Journals.

Journal	TP	TC	BKC	CiteScore Percentil	Most Cited Paper		
					Title	TC	SE
International Journal of Production Research	8	715	4%	94%	Resilience: The concept, a literature review and future directions	448	OR and BCM
Disaster Prevention and Management	6	85	3%	62%	Resilience and adaptation of small and medium-sized enterprises to flood risk	37	OR and BCM
Decision Sciences	4	663	2%	86%	The severity of supply chain disruptions: Design characteristics and mitigation capabilities	623	OR and BCM
Technological Forecasting and Social Change	4	41	2%	96%	Collaborative foresight: Complementing long-horizon strategic planning	31	OR Capabilities
Supply Chain Management	4	38	2%	96%	Digging deeper into supply risk: a systematic literature review on price risks	26	OR and BCM
Journal of Contingencies and Crisis Management	3	52	2%	73%	Exploring Crisis Management in UK Small- and Medium-Sized Enterprises	36	OR and BCM
International Journal of Production Economics	3	44	2%	98%	Building organizational resilience in the face of multiple disruptions	37	OR and BCM
International Journal of Entrepreneurial Behavior & Research	3	40	2%	96%	How entrepreneurial resilience generates resilient SMEs	18	OR Capabilities
Journal of Cleaner Production	3	16	2%	98%	Mapping the human resource focused enablers with sustainability viewpoints in Indian power sector	9	OS Capabilities
Ad-Minister	3	2	2%	-	Disaster Risk Management and Business Education: The Case of Small and Medium Enterprises	2	OR and BCM

Note: TP = Total Papers, TC = Total Citations, BKC = Body of Knowledge Contribution.

As it can be seen, Journals' most cited papers contribute to OR understanding and development and elaborate around its relationship with risk management and BCM. This result is consistent with this research's First Cluster analysis and presents a future research line associated with OS capabilities and OR capabilities relationship with BCM and its impact on firm's performance.

It is important to mention that, even though the most cited paper from this research is from MIT Sloan Management Review, this Journal contributes with 2 papers in this research's body of knowledge. For this Top 10 Journal analysis, total paper contribution was prioritized.

4.6. Main Contributions to Concept Relationships

4.6.1. Evolution of the Body of Knowledge of OS Capabilities

OS capabilities respond to a sustainable supply management need (2011) and a business model requirement to survive (2016). This evolution presents strategic (cost efficiency and business model) and knowledge management approaches. Both contribute to organizational learning from past events (2018) in order to increase OS capabilities and maintain competitive advantage, as well as preserve the balance with the TBL (2019). For this analysis, search equation results from OS capabilities were used. Table 9 shows the Evolution of the Body of Knowledge of OS capabilities.

Table 9. OS Capabilities Body of Knowledge Evolution.

Authors	Year	TC	Organizational Sustainability Capabilities
[50]	2011	239	Sustainable supply management (SSM) as a relational capability associated with OS performance pillars (economic, environmental and social).
[61]	2016	1	Mitigation capability is required for business model survival when its ability to opt out and incorporate another business (model) is required.
[62]	2018	20	Knowledge management capabilities are required to improve the firm's Green Absorptive Capacity (GAC),
[34]	2018	1	Knowledge management capabilities is correlated with organizational outcomes for sustainable competitive advantage.
[28]	2019	4	Development of OS capabilities as a Business contribution for global challenges and Sustainable Development (SD).
[52]	2019	1	Knowledge management capabilities involved in the Organizational Learning (OL) process and dimensions (social, technological and market learning) that contribute to OS (economic, societal and environmental performance), and its relationship with institutional pressure.

The OS capabilities concept contributes 14% of the papers and 9% of the total citations in this body of knowledge. In order to understand the OS capabilities relationship with BCM, search equation results associated with OS and BCM, as well as OS, OR, and BCM, were used. The future OS capabilities lines of research consider empirical and academic approaches. The determination, examination, and validation of these capabilities at the organizational level should be explored for SD contributions.

4.6.2. Evolution of the Body of Knowledge of OR Capabilities

OR capabilities are associated with the organizational response to uncertainty (1998), Sustainable Business Excellence, and strategic response (2003 and 2006). This conversation evolved into dynamic capabilities and SMEs arenas in 2011, looking for a response to turbulent environments and extreme events. It is interesting to see how system dynamics appeared after a strategic and performance approach, looking to establish an operational foundation for OR capabilities that involves individual and organizational levels (2004). From 2016, specific OR capabilities began to be identified as contributing to OR, mainly from process management practices, according to the resilience process stages (2016 to 2021). Search equation results from OR capabilities were used for this analysis. Table 10 shows the Evolution of the Body of Knowledge of OR capabilities.

The OR capabilities concept contributes 27% of the papers and 17% of the total citations in this body of knowledge. In order to understand the OR capabilities relationship with BCM, search equations results associated with OR and BCM, as well as OS, OR, and BCM, were used. Future lines of research are oriented to validate existing frameworks and capabilities at an empirical level, in different sectors/industries, organizations such as SMEs, and developing countries.

Table 10. OR Capabilities Body of Knowledge Evolution.

Authors	Year	TC	Organizational Resilience Capabilities
[44]	1998	122	Adaptive and problem-solving capabilities are related with organizational response to uncertainty.
[53]	2003	18	Sustainable Business Excellence (SBE) capabilities for periods of stability and environmental turbulence.
[64]	2006	47	Adaptation capabilities for highly dynamic environments, and a strategic response (intentional or unplanned) is needed for concrete world situations.
[58]	2011	108	Change capabilities related with OR for turbulent environments.
[65]	2011	87	Flexibility and adaptation capabilities for Small and Medium Enterprises (SME) to respond to extreme events.
[31]	2014	63	OR capabilities are dynamic, and when OR is a desirable system characteristic they contribute to adaptability.
[59]	2014	21	Highly affectively committed employee (individual), and organically structured department (organizational level) capabilities enhance OR by absorbing and managing environmental changes.
[32]	2016	14	Improvement, innovation, sensing and responsiveness capabilities sustain high-quality performance in environmental uncertainty.
[66]	2018	5	Adaptability, agility, flexibility, improvisation, recovery, redundancy and robustness are capabilities related with OR.
[56]	2018	13	Preparedness and response capabilities are related with detection, activation, and response elements for OR.
[91]	2018	2	Adaptive learning capabilities contribute to enhance organizational emergency response.
[8]	2020	32	OR capabilities are distributed in the resilience process stages as follows observation and identification (anticipation), accepting (coping), reflection and learning (transformation).
[92]	2020	8	Financial reserves, redundancy, and positive relationships capabilities are related with OR.
[63]	2020	2	OR capabilities are distributed in the resilience process as follows observation and identification (anticipation), sensemaking (coping), reflection looking to learning (transformation).
[57]	2020	11	Two different paths can be followed for OR. One, using absorption capabilities, for which core capabilities are redundancy, robustness and agility. The other one path, through adaptation capability which core capabilities are resourcefulness, adaptability and flexibility.
[55]	2020	2	OR capabilities are dynamic, and they respond to different disciplines that are involved in OR.
[60]	2021	3	Anticipation and sensemaking capabilities are related with the conceptual domains of OR, and with stability in times of disruption.

4.6.3. OS Capabilities and OR Capabilities to Impact the Evolution of the Body of Knowledge of BCM

OS capabilities and OR capabilities that impact BCM are associated with business supply chain risk management (2014), followed by an incident management sequence approach that covers capabilities for the restoration phase (2016). This conversation evolved into a suggested framework for vulnerabilities and capabilities to protect firms' profits in 2019. Finally, in 2020, a systems-based resilience approach that contributes to BCM was introduced. Table 11 shows OS capabilities and OR capabilities to impact the Evolution of the Body of Knowledge of BCM.

Table 11. OS capabilities and OR capabilities to impact the Evolution of the Body of Knowledge of BCM.

Authors	Year	TC	OS Capabilities and OR Capabilities to Impact BCM
[23]	2014	4	Robustness, resilience, agility and flexibility capabilities contribute to Business Supply Chain Risk management (SCRM).
[29]	2016	18	Learning and adaptive capabilities are associated with the restoration sequence after an incident.
[4]	2019	26	A framework is proposed to identify vulnerabilities and capabilities to balance eroding profits and organizational exposure to risk.
[27]	2020	4	Recovery capabilities from a systems-based resilience approach contributes to BCM performance.

OS, OR, and BCM concepts contribute 3% of the papers and 1% of the total citations in this body of knowledge. Search equation results from OS, OR, and BCM were used for this analysis. Research lines for these concepts are oriented to determine how OS capabilities and OR capabilities interact to impact BCM, using existing frameworks as a reference, and evaluating performance in different sectors and organizations such as SMEs in developing countries.

5. Conclusions and Future Lines of Research

This paper aims to present findings for bibliometric analysis and systematic literature review methodologies for OS capabilities and OR capabilities to impact BCM. This section offers conclusions and limitations, as well as future research agenda. This literature review may benefit the scientific community for future studies, and practitioners for incorporating practices, when BCM must be aligned with OS capabilities and OR capabilities.

5.1. Conclusions

This paper maps research for the relationship between OS capabilities and OR capabilities with BCM using the Scopus and Web of Science database for the analysis, with a period covering all the years up to 13 May 2021. As a result, 275 documents were found and used for bibliometric analysis and systematic literature review purposes. Papers were classified according to search equation results, with the corresponding concept as follows: OS Capabilities; OR Capabilities; OS and BCM; OR and BCM; OS, OR and BCM; BCM.

For the bibliometric analysis methodology, 612 keywords were identified, and 45 met the threshold criteria (co-occurrence of 3 authors' keywords). These were used to create clusters. The VOSViewer software was used for cluster analysis, as well as for institutions and the main contributions of countries.

For the systematic literature review methodology, 60 papers were selected, content analysis was applied, and the relationship between the concepts was established. Its results were used for a deeper understanding of bibliometric analysis results.

A chronological analysis showed us that the starting point for this Body of knowledge analysis was 1998. Nevertheless, it was only in 2017 that a constant growth of papers could be seen (2017 = 13; 2018 = 22; 2019 = 23; 2020 = 28; 2021 = 18). This behavior shows how relevant the research is for these concepts' interaction to respond to highly uncertainty environments. As may be seen in 2021, the organizational response to COVID-19 was researched from a descriptive and explicative perspective, looking for insights that can contribute to organizational performance [48,92–95].

The most cited papers for this research present a growing interest in the relationship between OR and BCM [5,19,22,24,72,73] and the development of OR Capabilities [44,72] and OS Capabilities [50]. A citation analysis revealed how OR capabilities have been in organizational agendas from 1998, but it was not until 2007 that its relationship with BCM (OR and BCM) appeared, contributing to supply chain management and SMEs' needs to enhance organizational performance for high-uncertainty environments. Similarly, interest in OS capabilities began in 2002 and reappeared in 2015, with a growing interest in contributing to organizational performance, maintaining TBL balance. Likewise, BCM relationship with capabilities shows a flashing interest, appearing in 2003 and reappearing in 2021, with a strong presence in the body of knowledge. The relationship between OS and BCM appeared in 2013 and, from 2015, the interest in this relationship remains until nowadays, supported in the organizational need to preserve environmental, societal, and economic performance during disruptive events through stakeholder interaction. Finally, the relationship between OS, OR, and BCM is observed for the first time in 2014, associated with supply chain management requirements, and in 2016 with an incident sequence approach for resilience planning. It reappeared in 2019 with the same interest in supply chain management from a resilience perspective and associated with the evolution of process system resilience in 2020. These concepts' interaction from a citation perspective shows a growing interest in how the development of OS capabilities and OR capabilities is

required to respond to disruptive events, and how their contribution to BCM requires a deeper understanding to enhance firms' performance.

The cluster analysis provided 4 clusters. The first cluster, *From Risk Management to Business Continuity Management and Organizational Resilience*, shows the evolution from a risk management perspective, setting organizational roots for awareness capabilities, followed by a BCM approach to develop response and recovery capabilities for disruptive events, and leading to OR capabilities for anticipation, coping, and transformation stages in the resilience process, building a meta-capacity. The second cluster, *Resilience and Business Continuity Practices*, involves disaster and contingency planning practices to enhance organizational responses, especially on SMEs response to disruptions using existing frameworks that contribute to OR. The third cluster, *Business Continuity contribution to Innovation and Sustainability*, proposes highlighting the role of BCM as an organizational value preserver (OS) or creator (innovation) through strategic management and organizational practices, when an interaction with the business model is required. The fourth cluster, *Dynamic Capabilities for Organizational Sustainability and Organizational Resilience to enhance Business Continuity Management*, associate entrepreneurship, social capital, community and CSR with dynamic capabilities, and their contribution to firms' performance in high-uncertainty environments. Dynamic Capabilities for OS and OR are established as a desirable organizational resource. Four cluster analyses presented the relevance of concept interaction research, which will contribute to the understanding of the relationship between OS capabilities and OR capabilities with BCM, and how this relationship contributes to organizational performance by determining OS capabilities and OR capabilities that are identified, but not associated with BCM, responding to research calls from authors that have pointed out the importance of these interactions [23,25,26,80,82,88].

The cluster density analysis showed the role of risk management in the foundations of the OS, OR, and BCM relationship. It remains an important constructor even though this concept is not used in any of the search equations. Additionally, cluster overlay visualization shows the chronological evolution of the relationship between OS, OR, and BCM, with risk management as a catalyst for BCM and intermediary between BCM and resilience. Finally, the relationship between BCM and sustainability was established through business continuity practices. This density behavior shows how the interaction between OS, OR, and BCM is gaining relevance, highlighting the relation between these concepts with OS capabilities, OR capabilities, and BCM. Emerging lines of research that contribute to identifying the interactions between OS capabilities and OR capabilities with BCM should involve a supply chain resilience, dynamic capabilities, and innovation approach.

The main countries and journals for this research body of knowledge were identified using total documents and citations. The United States, United Kingdom, and Germany were the Top 3 countries. The most cited papers from each country show how the OR and BCM relationship is in countries' agenda. These results exhibit a present interest in developed and developing countries in the interaction between OS capabilities and OR capabilities, and especially when these capabilities are related to disruptive events that require an organizational response through BCM practices. Additionally, the tendency of developing countries shows an interest in OS and OR interactions with BCM, and OS capabilities identification and development, in order to respond to disruptive events.

The Top 10 Journals results show the International Journal of Production Research, Disaster Prevention and Management, and Decision Sciences as leading journals. The most cited papers analysis sets out an interest in OR understanding and development, elaborating on its relationship with risk management and BCM. Moreover, OS capabilities are related with human resource management and how it contributes to SD. Journals results show that lines of research related to the interaction between OS capabilities and OR capabilities with BCM can contribute to actual interest in OR and BCM for enhancing organizational performance in unexpected events, and to the development of OS capabilities for SD.

Discussions surrounding OS capabilities and OR capabilities to impact BCM allow for identifying the relationship between organizational dynamic capabilities for OS and OR, to impact BCM. Links between OR capabilities and BCM are related to system availability needs, effective response, and cost management. The contribution of OS capabilities and OR capabilities to BCM is established through stakeholder needs, cost risk efficiency, and process requirements. This relationship enhances firms' absorption, adaptive, survival, and recovery capacities when an unexpected event occurs.

Limitations to this research could be selection criteria for considering that relevant subject areas could be included. However, content analysis led us to relevant literature. Additionally, we did not differentiate specific capabilities for firm types (SMEs or large firms). Finally, capability categories were not discriminated in the research string, so ordinary and dynamic capabilities were identified using content analysis.

5.2. Future Research

According with the bibliometric analysis results, using cluster analyses, some proposed research lines and methodologies called our attention. The first cluster, *From Risk Management to BCM and Organizational Resilience* line of research involves: (1) examining the effect of recovery or warning capabilities in the organizational performance of social corporate responsibility using a case study methodology [4,72]; (2) quantitatively measuring OR using an integrated BCM approach for multiple disruptions [18,19] and validating adaptive capabilities to different risks and hazards [77]; (3) validating impacts related to implementation cost for a multi-objective BCM [27] that contributes to OS [78].

The second cluster, *Resilience and Business Continuity Practices* lines of research are related to: (1) exploring the effects of network collaboration in SMEs' OR performance [5]; (2) identifying specific emergency and disaster recovery capabilities to enhance organizational performance after a disruptive event [30]; (3) examining OR performance after a crisis in SMEs using existing OR types (Attentive Interventionists, Light Planners, Rooted Strategists, and Reliant Neighbors) [33]. Lines of research from the First and Second cluster could be addressed by an exploratory factor analysis and longitudinal case study.

The third cluster, *BCM Contribution to Innovation and Sustainability* line of research is associated with sustaining quality performance in different sectors/industries using existing frameworks [32]. This line of research could be explored using case study analyses for firms that have implemented innovation processes or contribute to the innovation ecosystem in their area of influence.

The fourth cluster, *Dynamic Capabilities for OS, OR, and BCM* lines of research are related to: (1) researching the relationship between sustainability reports and sustainability practices and dynamic capabilities for OS [35]; (2) identifying differences between the offence (adaptation) or defense (resistance) approach for OR to disturbance [31]; researching the relationship between the introduction of sustainability reporting practices in organizational social capital and consumer behavior after a crisis [48]. This line of research could be addressed using an exploratory factor analysis and case study approach to determine the social capital relationship.

Finally, an additional line of research line was identified from the content analysis results, and it is related with the interaction of OS capabilities, OR capabilities, and BCM to enhance a firm's performance [69,78] in light of disruptive events, such as COVID-19 [93], using an exploratory factor analysis and longitudinal case study.

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