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STRATEGIC RESILIENCE: A SYSTEMATIC REVIEW OF LEADING LITERATURE

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ABSTRACT

Topicality: The concepts of resilience, organizational resilience, and strategic resilience in management science have been gaining more and more attention in recent years. Strategic resilience, in general, can be understood as the capability to turn threats into opportunities. The overarching concept of organizational resilience describes the capability to respond to changes or adversity; however, the concept of strategic resilience is still underrepresented in research and not clearly distinguished within organizational resilience.

The research aim: This paper aims to conduct a systematic literature review to develop a shared understanding of the concept of strategic resilience in business and management research. Furthermore, a future research agenda is provided from these findings.

Methodology: The review examines the leading publications with the search term 'strategic resilience' in the ScienceDirect and Institute of Electrical and Electronics Engineers (IEEE) databases with a Boolean search. In total, 73 publications across 45 publication sources from 1979 to 2021 are used.

Findings: Research on the resilience of companies and systems seems to trend upwards. Publications are concentrated primarily in journals with an environmental or sustainable background. The publications view resilience in terms of the cause of resilience, fields where resilience is applied, or the concept of resilience and strategic management itself.

Novelty: Analyzing the existing research shows that strategic resilience can prepare a response to unforeseeable challenges or opportunities in a company by pursuing an ambidextrous organization that exploits operational resilience and explores strategic resilience to build organizational resilience.

Keywords: resilience, strategic resilience, organizational resilience, uncertainty, organizational ambidexterity, dynamic capabilities

Paper classification: literature review

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INTRODUCTION

In recent years, the idea of resilience, or organizational resilience for companies, has been getting more and more attention to explain why some companies are fit for challenges and some are not (Hillmann and Guenther, 2021). Two significant events have occurred in recent years, which took many companies by surprise and created obstacles for them to thrive: the financial crisis starting in 2008 and the COVID-19 pandemic starting in 2019. Both events disrupted supply chains, created uncertainty, and shook companies and even whole economies to their core (Hughes et al., 2020). However, not all countries or companies have suffered the same from these two disruptions. Some companies, like Zoom or Delivery Hero, have thrived and expanded their business extensively under these circumstances (Financial Times, 2021). However, what preconditions do these thriving companies have when many other companies suffer? Can a particular capability be detected in these firms, making them more resilient to face this adversity?

Resilience is described in literature as the characteristic "to respond more quickly, recover faster or develop more unusual ways of doing business under duress than others" (Linnenluecke, 2017). Researchers are getting more involved in resilience research as are practitioners and international organizations like the European Union (EU). In 2020, the European Commission (EC) also adapted the idea of resilience to business and installed the 'Recovery and Resilience Task Force' to combat the effects of the COVID-19 pandemic (EC, 2021). Before 2020, the idea of resilience in the EC was focused on the humanitarian perspective to deal with stresses and shocks from "violence, conflict, drought, and other natural disasters" (EC, 2016). On the other hand, the EU Institute for Security Studies focuses more on resilience as "[…] the capacity to absorb and recover from any type of stress or shock" (Gaub et al., 2017) and, lastly, the European Commission's Joint Research Centre (JRC) defines resilience as societies which can react to shocks or changes by resisting, adopting or transforming the system (Manca, 2017). However, even in the EU, a standard definition is non-existent, and the existing definitions are reactive and not proactive to strategically preparing for upcoming disturbances. Moreover, in an uncertain and ever-changing world, reactiveness is not enough.

The idea of resilience rose in popularity in research and business exposure after the COVID-19 crisis struck. However, like the EU, many publications are focused on companies' operational recovery and response-ability and not proactive adaptation. As a result, the strategic aspect of resilience, preparing and strengthening the company's business idea to withstand or even thrive during such adversity, is neglected in most companies and research. This review identifies this gap in the organizational resilience literature and distinguishes the strategic from the operational aspect. The research aims to conduct a systematic literature review to develop a concept of strategic resilience, including a subcategory of organizational resilience, in business and management research and propose a research agenda for further investigation. For this analysis, existing knowledge in influential publications on strategic resilience is identified by a systematic literature review, further emphasizing opportunities to combine and develop general knowledge on organizational resilience and describe pathways for a future research agenda. Literature reviews for organizational resilience are more common (Linnenluecke, 2017; Duchek, 2019; Hillmann, 2020; Williams et al., 2017; Raetze et al., 2021) and are not included in this literature selection due to this paper's focus on strategic resilience.

After this introduction, section two of this paper continues with the theoretical background of resilience, organizational resilience, and operational and strategic resilience. Then, after discussing the methodology in section three of this paper, the research examines the leading publications with the search term 'strategic resilience' in the ScienceDirect and Institute of Electrical and Electronics Engineers (IEEE) databases in section four. From this analysis, future research trends, which

include promising research trends and routes for a future research agenda of strategic resilience in business and management studies, can be extrapolated. Furthermore, the current state of research on strategic resilience is discussed in section five. Finally, this paper ends with a conclusion.

THEORETICAL BACKGROUND

The concept of resilience has been prevalent in science and society for many years. Originally, resilience stems from the Latin word 'resiliens' and is about the idea of rebounding from some event (Iborra et al., 2020). This concept has been transferred to different fields to mean "resist and respond to a shock (internal or external) and recover once it has occurred" (Annarelli and Nonino, 2016). This was first used in ecology, i.e., how an "ecological system responds to exogenous disturbance" (DesJardine et al., 2017), and then transferred to other disciplines like finance, engineering, psychology, and socioecology (DesJardine et al., 2017) with slight differences in the definitions for each specific discipline. Dealing with uncertainty and unforeseen events and recovering from them is also a very important field of studies in business management science. Therefore, resilience is slowly transitioning into business with publications about the reasons for companies' survival during adversity or constant uncertainty (Morais-Storz et al., 2018). In business, however, many researchers address the concept of resilience in the context of organizational resilience (e.g., Belalcázar et al., 2017; Hillmann and Guenther, 2021; Slagmulder and Devoldere, 2018).

Organizational resilience is a concept which analyses how specific companies deal with uncertainty or even drastic or sudden events like the outbreak of COVID-19 and the subsequent collapse of international supply chains or the financial crisis starting in 2008 (Iborra et al., 2020). Moreover, Linnenluecke (2017) extends the idea of organizational resilience to why some companies are more prepared for or successful during such adversity than others. However, the definition of organizational resilience is still fuzzy, and different researchers include different aspects of it. The definitions include different inputs like resilience as the organization's capability (Annarelli and Nonino, 2016), a unique characteristic (Belalcázar et al., 2017), and resilience as an ability (Hillmann and Guenther, 2021; Gunderson and Pritchard, 2002) or as "abilities, actions and behaviors" (Iborra et al., 2020). They also include the output of resilience as follows: "face disruptions and unexpected events in advance" (Annarelli and Nonino, 2016), successfully cope with and return to a normal state (Belalcázar et al., 2017), "anticipatorily innovate and do it repeatedly" (Teixeira and Werther, 2013), bounce back (Lampel et al., 2014), "to maintain functions and recover fast" (Hillmann and Guenther, 2021), keeping a "long-term sustained performance" (Battisti et al., 2019), "anticipating, dealing with and recovering" (Meyer, 1982), "absorptive, adaptive, and restorative" (Cook et al., 2016), and to "persist" and "regenerate and maintain existing organization" (Gunderson and Pritchard, 2002). For these definitions, different triggers for the need for resilience are also given: "disruptions and unexpected events" (Annarelli and Nonino, 2016), "internal and external changes and events" (Belalcázar et al., 2017), adversity (Hillmann and Guenther, 2021) and disruptions (Gunderson and Pritchard, 2002).

These definitions pose similarities and differences in how resilience is created or achieved, even in what resilience is (capabilities vs. characteristics), whether resilience is more a reactive (persist, regenerate and recover) or proactive (anticipating and adaptive) instrument. Due to these differences, Iborra et al. (2020) try to differentiate between three states of resilience: (1) organizational resilience dealing with events that damage stability and security, (2) organizational resilience as an outcome including "resisting and also responding and recovering" and (3) strategic resilience defined with "resilience inputs at the firm level, or which firm capabilities allow firms

to resist and recover". However, Iborra et al. (2020) concluded that scarcity could be observed on the strategic level of organizational resilience. Contrary to that, Vidal et al. (2014) split organizational resilience into operational and strategic resilience. Operational resilience is the ability of a company to respond to adversity and recover from internal and external shocks (Vidal et al., 2014). In contrast, strategic resilience is a response to an opportunity (Morais-Storz and Nguyen, 2017) or "a continuously anticipating and adjusting to deep, secular trends that can permanently impair the earning power of a core business. It is about having the capacity to change before the case for change becomes desperately obvious" (Hamel and Välikangas, 2003). This is in line with Välikangas's (2016) later definition of strategic resilience as "a characteristic of a progressive, robust pursuit of an opportunity in a competitive environment so that the exploration contributes to the organization's capability to adapt to change without requiring or resulting in a financial or other crisis".

Sammut-Bonnici (2015) defines strategic management as "the process of evaluation, planning, and implementation designed to maintain or improve competitive advantage" and operations management as the "decision-making and problem solving that involves the application of operations research and management science (OR/MS) quantitative methods to support the efficient and effective allocation of scarce resources associated with an organization's operation" (Mentzer et al., 2008). To sum it up, operational management deals with the tasks at hand after a crisis has struck, and strategic management prepares a company for this crisis and creates the means to thrive during adversity and secure a long-term competitive advantage. This can be transferred to resilience as well. In summary, keeping this in mind, the four dimensions of resilience can be defined as follows: (1) resilience as the ability of a system to absorb, adapt and recover from internal or external adversity; (2) organizational resilience as the capability of managers to react absorptively, adaptively, and restoratively to uncertainty and unexpected events; (3) operational resilience as the capability of managers to exploit the given resources to maintain functions and recover from adversity; (4) strategic resilience as the (dynamic) capability of managers to explore opportunities and threats to prepare the company strategically to ensure long-term sustainability.

METHODOLOGY

This article is based on a systematic literature review, taking in the leading publications on strategic resilience. The ScienceDirect and the Institute of Electrical and Electronics Engineers (IEEE) databases are used for this review. With these two databases, publications from two fields – the general business direction (ScienceDirect) and a more technical perspective (IEEE) – are included to get a holistic overview of strategic resilience. However, in both databases, specific prerequisites are chosen to fit the aim of this review. A Boolean search is conducted to find articles with the search term 'strategic resilience' in abstracts, titles, and keywords. In IEEE, the search is specified as 'strategic resilien*' in the business and management field. The asterisk is used to include alterations like resilience, resiliency, and resilient. The search in ScienceDirect is similar; however, the search term 'strategic AND resilience' in the business and management field combines strategy with resilience. Again, alterations like resilient, resiliency, and strategy are used to refine the search operation. The combination of both search terms is crucial in order to get publications including both. Otherwise, many similar concepts are found due to common usage of the phrases 'strategic' and 'resilience'. However, this search operation is still expected to be quite diversified in the chosen articles' research fields. This is in line with this review's research aim to

create a general understanding of strategic resilience and how it can be distinguished from similar concepts.

In total, 237 articles are found in the IEEE database and 48 are found in ScienceDirect. The result from ScienceDirect must be checked by searching for 'strategic AND resilience' in all research fields without focusing on business and management due to the low outcome of relevant articles. Without the focus, 416 articles are found. In the next step, the abstracts of these articles are reviewed if the article fits this review's analysis. Excluded articles primarily use resilience in general terms and are not connected to a strategic component, or they are papers related to a strategic topic in general which incorporates resilience as a general term but not as a business-related concept. Furthermore, some articles are excluded due to no connection to business or management and no further evolvement of the concept of resilience. As an example of this cleaning process, Iwaniec et al. (2020) mentioned resilience several times in their paper, but mainly as a tandem to sustainability and not as its own concept. After this cleaning process, 17 out of 237 articles from IEEE and 53 out of 416 from ScienceDirect are left over for closer examination.

Besides this systematic collection of publications, other influential or leading publications might be available, i.e., not captured by these search criteria. Therefore, further articles in the area of strategic resilience are added to this review by hand. These hand-picked articles might be missed with the search criteria because they do have not the word 'resilience' or anything similar in the title, abstract, or keywords; are books or book chapters that are not indexed in these databases; or are not in the category of business and management in the given databases. One example of a manually added publication is Välikangas (2016), a book chapter titled "Strategic Resilience" in the book The Palgrave Encyclopedia of Strategic Management. This publication was missing because it is a book chapter, but it is highly relevant for this review. These extra publications are added due to the author's knowledge of these publications or using co-citation to find them. In total, only three publications are added by hand. Yet adding publications manually is problematic because it shows that further important publications might be missing. These missing publications comprise a limitation for this research.

After the selection process is done, the articles for this review are analyzed, and the definition of strategic resilience is extracted. Also, if the article has no direct definition of strategic resilience, the definition for resilience in the article is analyzed, and potential similarities or differences to strategic resilience are reviewed. In the end, a holistic view of strategic resilience in these publications can be extracted. In total, 73 publications across 45 publication sources over 42 years (1979 to 2021) are used as a data set for this review. The cut-off point for this research is May 31, 2021, including publications in press with online availability.

FINDINGS

The publications analyzed in this paper range in their publication dates from 1979 to 2021. The year 2021 is only half represented in this timeframe due to the cut-off date of May 31. The publication date statistics presented in Figure 1 show a steady increase in the popularity of strategic resilience or publications with topics in the strategic resilience field.

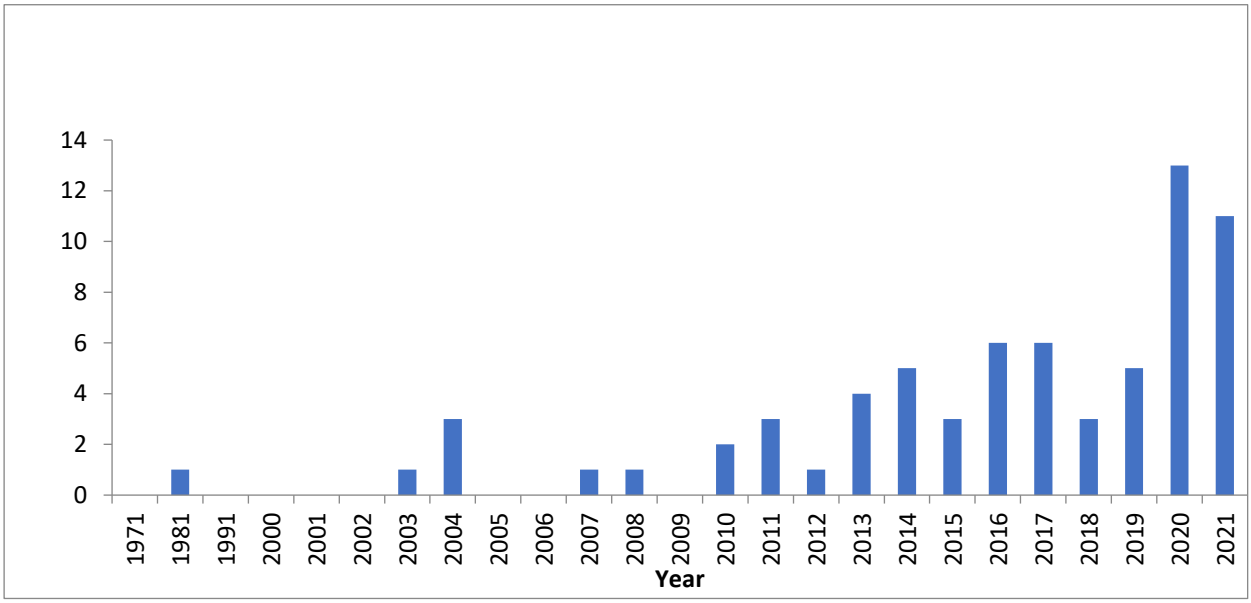

Figure 1 **Publications per year**

Source: Created by the author with data from ScienceDirect and IEEE

About one-third (24) of all publications were published in 2020 and 2021, with the most in 2020 (13), followed by 2021 with 11 articles. Nevertheless, 2021 is only considered for five months, so that further growth can be expected. This high concentration of very recent articles points to a great interest in the topic of strategic resilience. In general, besides some weaker years, steady growth from 2007 to 2021 can be seen. However, the topic of resilience seems to have been frequently researched since the start of the COVID-19 pandemic at the end of 2019/beginning of 2020, as seen in the following publications: Ding and Li (2021) on national response strategies and innovations, Sharma et al. (2020) on the impact on supply chain decisions, Le and Phi (2021) on strategic responses, and Fathy El Dessouky and Al-Ghareeb (2020) on human resource and organizational resilience during COVID-19. Besides COVID-19, there are publications on supply chain resilience (Shin and Park, 2021; Shi and Mena, 2021; Shashi et al., 2020), climate change adaption (Birchall and Bonnett, 2021), operational resilience in power systems (Parise et al., 2021), the resilience of cities (Colding et al., 2020; Acuti et al., 2020), urban resilience (Wardekker et al., 2020), and the resilience of SMEs (Iborra et al., 2020). Another considerable number of publications can be seen in 2003 and 2004, before the financial crisis struck in 2008, including publications about strategic reconfiguration (Wu and Busch, 2003), building long-term success with strategic values (Karani, 2004), resilience for high-tech corporations (Watanabe et al., 2004) and CEO innovation (Verloop, 2004). As a result, the topicality of strategic resilience in research is evident.

The articles reviewed are found across 45 different sources of publications. The journal with the most articles (8) is Cities, a two-star journal according to the Academic Journal Guide (2018) by Chartered ABS. This journal is followed by Industrial Marketing Management, with five articles. This is a three-star journal. Table 1 shows the distribution of articles in the journals in this review.

Table 1

Number of articles in a journal

Journal	Number of entries	ABS 2018 category
Cities	8	Planning and environment (2*)
Industrial Marketing Management	5	Marketing (3*)
Business Horizons	4	General management, ethics and social responsibility (2*)
Journal of Business Research	4	General management, ethics and social responsibility (3*)
Technological Forecasting and Social Change	3	Social sciences (3*)
IEEE Transactions on Engineering Management	2	Operations and technology management (3*)
Electronic Commerce Research and Applications	2	Information management (2*)
Futures	2	Social sciences (2*)
Long Range Planning	2	Strategy (3*)
Socio-Economic Planning Sciences	2	Operations research and management science (2*)

Source: Created by the author with data from ScienceDirect and IEEE

It is noticeable that strategic resilience is published quite diversely in different journals. This might be a result of the broad search terms of this analysis. On the other hand, the journal Cities presents eight articles focusing on resilience in infrastructure and other urban systems. However, considering the journals besides Cities, the general topic of the journals varies from general management, technology, social sciences, and strategy to particular research fields like marketing and operations. Some of these journals focus on more environmental or social responsibility topics. This might explain the occurrence of many articles in the Cities journal like Acuti et al. (2020), a publication about how companies can contribute to the resilience of regions from the perspective of United Nations (UN) sustainable development goals (SDGs) (UN, 2015). On the other hand, a lack of publications in specialized journals in the strategic management field like the Strategic Management Journal or Global Strategy Journal is noticeable. However, Long Range Planning has two entries in this analysis with Iborra et al. (2020) on ambidexterity for resilience in SMEs and Nair and Sarin (1979) on the resilience of different strategic plans and how resilience can be measured and adopted by top management.

Overall, a conclusion can be drawn that strategic resilience is spread across the whole business field and not just concentrated in publications in specialized journals. This is not unexpected due to the abovementioned overarching usage of the term resilience in several scientific fields. However, a concentration in journals within the environmental and social responsibility field can be concluded from this analysis. Unfortunately, due to the search terms and limitations, further publications in this field might be missed, so that a conclusive summary of journals is not possible.

Lastly, this paper examines the keywords of the publications analyzed. In total, 329 keywords, on average 4.5 keywords per article, are used. Due to this large number of keywords, the author

cleaned them to create a more general overview of the keywords. In addition, all keywords were manually reviewed, and groups were formed or additions scrapped to create a more conclusive overview.

All keywords with four or more mentions are shown in this analysis, in total eleven. The most used keyword is ‘resilience’, followed by ‘strategic management’ and ‘supply chain management’. All eleven keywords with their number of occurrences can be seen in Figure 2. The two top keywords are both a description of the search term. However, ‘resilience’ is used 22 times, nearly double the second keyword ‘strategic management’. Furthermore, ‘organizational resilience’ can be sorted into ‘resilience’ so that 29 occurrences are present in this data sample. Likewise, ‘strategy’ can be sorted into ‘strategic management’ with 17 overall occurrences. This might lead to the conclusion that resilience is more generally present. The keyword ‘resilience’ is present together with ‘strategic management’ in three publications (Iborra et al., 2020, Birchall and Bonnett, 2021 and Hughes et al., 2020). It is noteworthy that these three articles were quite recently published, in 2020 and 2021. From this, a rising linkage between strategic management and resilience might be extracted. Otherwise, some publications use resilience without connecting it with strategic or operative resilience. This might lead to a literature gap due to no definitions and differentiation of these into two resilience concepts. Furthermore, both hand-picked publications combine both keywords with the book chapter by Välikangas (2016) on strategic resilience and Vidal et al. (2014) on using the Delphi method to compress eleven factors for strategic resilience.

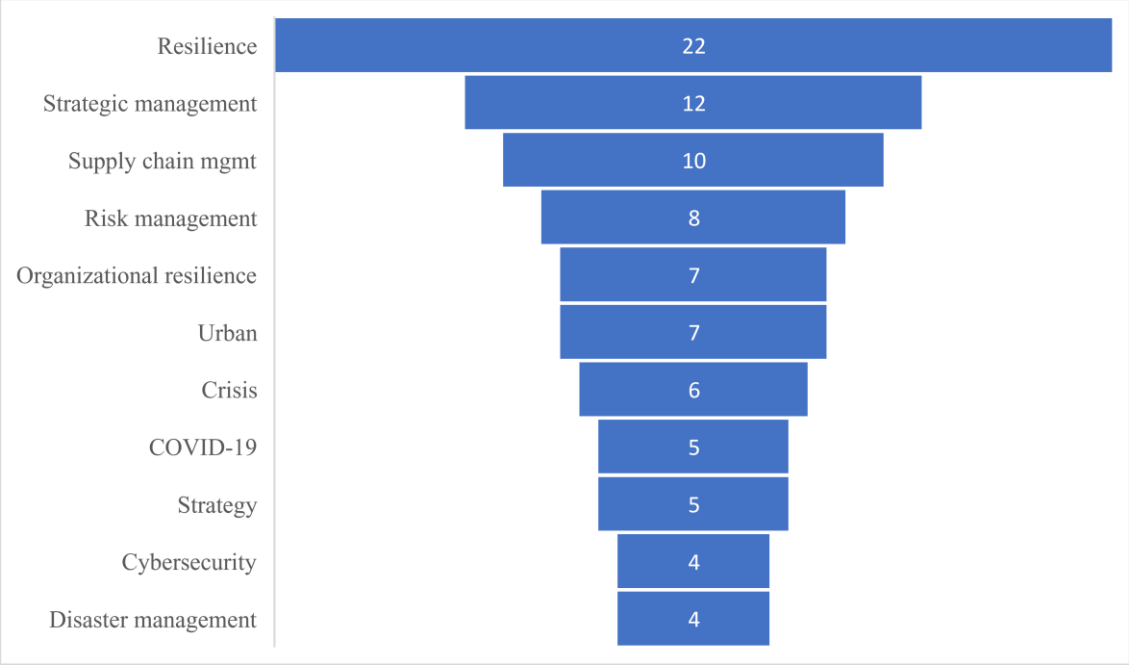

Figure 2 **Distribution of keywords**

Source: Created by the author with data from ScienceDirect and IEEE

Besides the two main keywords, the rest can be categorized as well. For example, the keywords ‘COVID-19’, ‘crisis’, and ‘disaster management’ can be sorted into the cause of resilience or the uncertainty about what resilience is needed for. On the other hand, ‘supply chain management’, ‘urban’ and ‘cybersecurity’ can be sorted into the fields where the concept of resilience is applied. Lastly, ‘risk management’ is sometimes interchangeably used for building resilience or dealing

with changes. As an example of this, Slagmulder and Devoldere (2018) analyzed the possibility of companies transforming under uncertainty and how strategic risk management can increase the resilience of companies to respond to uncertainty, which describes the idea behind strategic resilience fittingly.

Regarding the publications which use 'COVID-19', 'crisis' and 'disaster management' as a trigger for an event or a change, these publications describe different ways to deal with uncertainty by strengthening resilience through strategic human resource management (Fathy El Dessouky and Al-Ghareeb, 2020), using the CERT Resilience Management Model (Mehravari, 2013), national and business response strategies to COVID-19 (Ding and Li, 2021), seizing market opportunities by the process of market-shaping (Nenonen and Storbacka, 2020), relationship management (Zafari et al., 2020), the organizational ecology theory for fast-growing companies (Cuellar-Fernández et al., 2021), implementing Strategic Business Continuity Management (Niemimaa et al., 2019) or using the Improvisation Readiness Index Score developed by Hughes et al. (2020). Furthermore, different businesses affected by sudden changes are analyzed, such as hotels during COVID-19 (Le and Phi, 2021), survival in e-commerce (Cuellar-Fernández et al., 2021), the healthcare infrastructure (Norazam, 2018), or even locations like Thessaloniki after the refugee crisis (Gemenetzi, 2017), or Rotterdam (Wardekker et al., 2020), or whole industries in Australia after bushfires in 2003 (Cioccio and Michael, 2007).

The second set of keywords can be sorted into applications for resilience in different fields like 'supply chain management', 'urban' and 'cybersecurity'. Supply chain management is the object of various research regarding improving the resilience of these supply chains. Especially with the blockade of the Suez Canal in early 2021 and COVID-19, many international supply networks are disrupted. Shi and Mena (2021) argue that resilience regarding operational and financial criteria in supply chains must be improved; furthermore, investigations into the influence of resilience on supply chains' responsiveness to disruptions (Rajesh, 2016) and how these can be managed with a framework (Sáenz et al., 2018) and the responsibility of leaders managing resilient capabilities in a supply chain network (Shin and Park, 2021) are prevalent in the publications analyzed. Furthermore, cybersecurity is the research topic of several publications. These address cybersecurity management in general (Althonayan and Andronache, 2019); cybersecurity applied to the North American Power Grid (Khurana, 2011) and the Department of Homeland Security, the Department of Energy, and the US Postal Service (Mehravari, 2013); and strategic responses to "cyberattacks on normal business operations" (Appiah et al., 2020). Lastly, the keyword 'urban' is used differently for creating resilience in ecosystems by urban green spaces (Chen et al., 2017), using the resilience theory to tackle climate change threats in a "dynamic relationship between local scale adaptation policy development, integration and implementation" (Birchall and Bonnett, 2021) and urban resilience in cities from the point of view of companies (Acuti et al., 2020) or urban policymakers (Wardekker et al., 2020; Davidson et al., 2019). To sum up, most publications using the keyword 'urban' are primarily about cities or infrastructure and not the resilience of companies. Besides the three given keywords, other application fields found in this keyword analysis, but with less than four entries, are human resource management (3), asset management (2), digitalization (2), tourism (2), and SMEs (2). Table 2 presents the eleven most used keywords and the respective articles for this review.

Table 2

Keywords and respective authors

Keyword	Authors
Resilience	Annarelli & Nonino, 2016; Mostofi Camare & Lane, 2015; Caralli et al., 2010; Cárdenas et al., 2016; Castán Broto et al., 2014; Chen et al., 2020; Cook et al., 2016; Fitzgibbons & Mitchell, 2021; Heydari, 2017; Hughes et al., 2020; Iborra et al., 2020; Karani, 2004; Khurana, 2011; Niemimaa et al., 2019; Rajesh, 2016; Sáenz et al., 2018; Shah & Axelsen, 2016; Shashi et al., 2020; Vidal et al., 2014; Wu & Busch, 2003; Zafari et al., 2020; Zobel, 2011
Strategic management	Althonayan & Andronache, 2019; Appiah et al., 2020; Birchall & Bonnett, 2021; Caralli et al., 2010; Chen et al., 2017; Hughes et al., 2020; Iborra et al., 2020; Le & Phi, 2021; Nenonen & Storbacka, 2020; Slagmulder & Devoldere, 2018; Weigand et al., 2014; Wu & Busch, 2003
Supply chain management	Annarelli & Nonino, 2016; Rajesh, 2016; Sáenz et al., 2018; Sáenz et al., 2018; Sharma et al., 2020; Shashi et al., 2020; Shi & Mena, 2021; Shin & Park, 2021; Shin & Park, 2021; Zafari et al., 2020
Risk management	Althonayan & Andronache, 2019; Caralli et al., 2010; Cardenas et al., 2016; Ciumasu, 2013; Mehravari, 2013; Shah & Axelsen, 2016; Slagmulder & Devoldere, 2018; Stanganelli, 2008
Organizational resilience	Annarelli & Nonino, 2016; Appiah et al., 2020; Cuellar-Fernández et al., 2021; Fathy El Dessouky & Al-Ghareeb, 2020; Huang & Wang, 2017; Lampel et al., 2014; Lengnick-Hall et al., 2011
Urban	Acuti et al., 2020; Birchall & Bonnett, 2021; Chen et al., 2017; Davidson et al., 2019; Davidson et al., 2019; Wardekker et al., 2020; Wardekker et al., 2020
Crisis	Fainshmidt et al., 2017; Gemenetzi, 2017; Hughes et al., 2020; Le & Phi, 2021; Nenonen & Storbacka, 2020; Zafari et al., 2020
COVID-19	Ding & Li, 2021; Fathy El Dessouky & Al-Ghareeb, 2020; Hughes et al., 2020; Le & Phi, 2021; Sharma et al., 2020
Strategy	Burström et al., 2021; Le & Phi, 2021; Slagmulder & Devoldere, 2018; van Dijk, 2021; Weigand et al., 2014
Cyber-security	Althonayan & Andronache, 2019; Appiah et al., 2020; Mehravari, 2013; Trim & Lee, 2010
Disaster management	Cioccio & Michael, 2007; Le Roux, 2014; Mehravari, 2013; Niemimaa et al., 2019

Note: Duplicate mentions of publications result from the author's grouping and cleaning of keywords of the individual publications.

Source: Created by the author with data from ScienceDirect and IEEE

In summary, from this literature review, an outcome can be determined. First, in recent years, especially in the current COVID-19 pandemic, research on the resilience of companies and systems seems to trend upwards. Nevertheless, this trend was also prevalent before 2019. Second, the publications are concentrated primarily in journals with an environmental or sustainable background. However, the general topics of the journals vary a lot, so that resilience still seems to be widespread and not confined to one field. Lastly, the keyword analysis shows that most of these publications view resilience in terms of its cause, fields where resilience is applied, or the concept of resilience and strategic management itself.

RESULTS AND DISCUSSION

The findings of this review show that strategic resilience is still scarcely recognized in research. Most articles deal with operational consequences of adversity and how to recover from these shocks. Just a few articles deal with the idea of strategically preparing and how a company must be set up to be prepared for shocks or to mitigate them. Some articles deal directly with the idea of strategic resilience (Annarelli and Nonino, 2016; Vidal et al., 2014; Välikangas, 2016, Khurana, 2011), whereas other authors either deal with the more operational aspect of resilience (DesJardine et al., 2017; Lampel et al., 2014; Acuti et al., 2020) or use a similar concept with the same general idea as strategic resilience (Battisti et al., 2019; Teixeira and Werther, 2013; Zafari et al., 2020; Hughes et al., 2020). Most of the publications analyzed try to find a solution for how organizations can deal with adversity or prepare for it. Some introduce models and prerequisites for this resilience, and some differentiate which capabilities are needed in the leadership, employees, and business models. Also, there seems to be a particular focus on creating resilience in supply chains by mindfulness management of relationships (Zafari et al., 2020) or by implementing risk management practices for supply chains (Sáenz et al., 2018).

The publications on strategic resilience exhibit a great variety of topics, knowledge, and concepts within different research fields. From this review, it can be ascertained that one major idea and similar concepts should be explored, and a future research agenda should be discussed. The idea is the ambidexterity of resilience; after this is addressed, similar concepts to strategic resilience from different research streams will be discussed – how they can be used to find and develop a generalized definition for strategic resilience. Then, avenues for future research will be explored, including how these can improve companies' understanding of strategic resilience.

Ambidexterity

The publications reviewed investigate the strategic and operational aspects of resilience. Both aspects are crucial. However, on their own, surviving and exploiting existing capabilities during adversity (operational resilience) or exploring opportunities and threats and preparing for crisis (strategic resilience) do not constitute feasible ways to maintain or create a competitive advantage. Both aspects must be aspired to simultaneously. Nevertheless, allocating resources to both aspects of organizational resilience might be costly for the organization. In the end, striving for organizational ambidexterity by allocating resources to exploiting and exploring (O'Reilly and Tushman, 2008) can lead to a more robust outcome. Managers in operational resilience need to exploit the existing resources by managing costs and profit during adversity and create a culture of efficiency, low risk, and quality (O'Reilly and Tushman, 2004). On the other hand, in strategic resilience, a forward-looking attitude of exploration with an innovative and growth-orientated strategic intent and a risk-taking and flexible culture (O'Reilly and Tushman, 2004) is needed to respond to opportunities (Välikangas, 2016).

To summarize, leadership or organizations need dynamic capabilities (Teece, 2007) to sense and seize opportunities and threats and transform their business into a resilient state by pursuing an ambidextrous organization exploiting operational resilience and exploring strategic resilience. However, this organizational state must be achieved not by seeing organizational resilience as a standalone function but by including it in several functions, for example, supply chain management, risk management, finance, and human resource management. It can then be seen as an overarching strategic function of the organization.

Similar concepts

In reviewing the publications, three recently published concepts similar to strategic resilience stand out: business continuity, mindfulness, and strategic improvisation. All three concepts entail similar ideas and definitions in comparison to strategic resilience.

First, Niemimaa et al. (2019) introduced the idea of business continuity management and defined it as "a company's socio-technical ability to withstand and restore from intra- and extra-organisational contingencies". The focus lies further not only on recovering from disasters but on the "approach to proactively manage preparations and response to incidents" (Niemimaa et al., 2019), which comes close to the definition of strategic resilience. However, this research highlights the impact of business models and how these must be utilized to create resilience. The article concludes with an approach to building strategic business continuity management by "(1) sustaining the continuity of the company business model (value preservation) and (2) evaluating and modifying the business model (value creation)". Value preservation has similarities with operational resilience, while value creation has more similarities with strategic resilience.

Next, one concept from supply chain management can be translated into strategic resilience: mindful management of relationships during crises from Zafari et al. (2020). They define mindfulness as "a form of management that includes action but also cognitive openness and awareness of threats" (Zafari et al., 2020), which is different from the definition of strategic resilience. However, they conclude that mindfulness can "improve the resilience capacity of firms by supporting the anticipation of signals and preparing for a crisis or attempting to mitigate against them before they escalate" (Zafari et al., 2020). This improvement of resilience is mostly the strategic aspect of resilience, so that the input of mindfulness, along with cognitive capabilities and behavioural capabilities (Zafari et al., 2020), can further help to define strategic resilience.

Lastly, Hughes et al. (2020) proposed the idea of strategic improvisation, which included organizational resilience in their 10C Strategic Imperative Framework for improvisation readiness as a strategic imperative. Improvisation readiness is defined as "a means to allocate resources through judgment to deliver on strategic intent under uncertainty. It reflects a resilience to uncertainty that provides a pathway to strategic actions, and such strategic actions are very often different or innovative in nature to the traditional" (Hughes et al., 2020). The strategic actions mentioned can be seen as strategic resilience capability, which prepares or empowers a company to face such uncertainties. From this definition, innovation and strategic actions can be transferred to the concept of strategic resilience. Hughes et al. (2020) see organizational resilience as an imperative for improvisation by adding organizational climate and collaboration.

Research Agenda

The analysis of this systematic literature review reveals four main research trends. First, the capabilities needed for strategic and operational resilience must be defined. Research is available on operational resilience and what is needed to recover from a shock or to deal with it operationally. However, which critical factors influence strategic resilience is mostly lacking. Vidal et al. (2014) examine the factors promoting strategic resilience by getting expert opinions using the Delphi technique. This study examines the following factors: leadership, the capacity for change, organizational culture, organizational learning, the human factor, creativity, and risk management. However, further studies on these factors and their influence on resilience are needed. Also, these factors are extracted from practitioner experts. In the next step, these should be combined with data from companies to see if companies with high resilience factors are more resilient to uncertainty and unexpected changes than companies with low outcomes.

From this, the question of how to measure strategic resilience arises. Some researchers focus on finding measurements for resilience, but a general understanding is still missing. This might come from the obstacle that many publications (Lampel et al., 2014; Battisti et al., 2019) investigate the crisis first and analyze in retrospect which companies are resilient or might lack resilience. This is more in line with the operational aspect of resilience. However, from a strategic point of view, research is needed on what enables resilience and how these resilient capabilities can be measured in companies. Cook et al. (2016) attempt to find a measure for the cost of resilience and conclude that "three elements: (i) systemic impact (SI); (ii) total recovery effort, and; (iii) resilience-enhancing investments" must be considered for this.

After researching the input factors of strategic resilience and how they can be measured, another topic for research is the impact of high strategic resilience. As a hypothesis, statistically resilient companies should be more persistent in their business activities, maybe even show a superior performance or return. A future avenue for research might be examining if companies with high strategic resilience deal successfully with and thrive during crisis and uncertainty. Especially during these uncertain times, more insights into sustainability and survivability in companies would be helpful. Strategic resilience might be a defining factor for this.

Lastly, further research on the ambidexterity of resilience and how strategic resilience and operational resilience influence each other might lead to further development in this field. A topic that should be investigated especially is how a company's leadership must be equipped to cope with this exploration and exploitation and how this ensures strategic development. For example, Iborra et al. (2020) separated operational resilience into the capability of robustness to "remain safe and stable" and flexibility as the strategic resilience to "cope and adapt" to distress. Thus, operational and strategic resilience need to go hand in hand.

In conclusion, these research avenues are promising for developing the idea of strategic resilience. Furthermore, the ongoing COVID-19 pandemic can also be utilized for this research since it comprises the most considerable shock and uncertainty since 2008, and research about business during uncertainty is currently plentiful.

CONCLUSIONS

Dealing with uncertainty and facing crises or adversity has been getting more and more common in recent years. Mainly due to the COVID-19 crisis, many companies are finding it a challenge to survive. In this crisis, many companies face dire consequences or are unprepared and unable to face the challenges, whereas some companies thrive. This might result from the strategic preparedness of these companies.

1. This review focuses on resilience, especially strategic resilience, as a possible basis for companies to survive. A review of 73 publications across 45 publication sources in 42 years poses a comprehensive overview of different fields and ideas and how strategic resilience can be defined and used.
2. However, many publications do not mention strategic resilience directly but similar concepts or overarching concepts like resilience or organizational resilience.
3. Nevertheless, a solid definition and concept of ambidexterity of organizational resilience can be extracted from these publications. However, due to the methodology and limitations, further publications might contribute to this topic that are not part of this review.

4. In conclusion, the article provided the following: an overview of the topic of strategic resilience and its aspects, a comprehensive definition of strategic resilience, a general concept of an ambidextrous resilient organization using dynamic capabilities, an exploration of similar concepts and, lastly, a future research avenue with a research agenda.

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