

The Relationship between Resilience and Sustainability in the Organizational Context—A Systematic Review

Max M. Weber 

Department of Accounting and Information Systems, TH Aschaffenburg University of Applied Sciences, 63743 Aschaffenburg, Germany; maximilian.weber@th-ab.de

Abstract: Crises such as the global COVID-19 pandemic and crisis-related factors such as the continued rise in commodity prices continue to have a tremendous impact on organizations. Organizational sustainability, understood as the ability of organizations to survive and thrive in the short and long term, depends on organizational resilience. This study bridges the literature on resilience and sustainability in the organizational context, covering the last 35 years of research, to provide a broader understanding of how organizations, adverse events, and organizational sustainability interrelate. In this paper, we perform a systematic review of the literature from 1985 to 2021, which we supplement with a content analysis, recent empirical findings, and a citation network analysis. We investigate connections between these two fields and identify studies on how the measures of or actions associated with organizational resilience and sustainability can complement or substitute for each other with regard to organizational performance. In addition, we develop an extended framework for categorizing the studies we consider here and the relationships between resilience and sustainability they examine. Our analysis identifies works that bridge the streams of research on organizational resilience and sustainability but also reveals gaps in the literature that open avenues for future research. Overall, most of the ‘bridging’ studies emphasize that the two fundamental concepts are interdependent and regard organizational resilience as a component of organizational sustainability.

Keywords: complementarity theory; organizational resilience; organizational sustainability; systematic review



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1. Introduction

Sustainability is often defined and conceptualized in the literature through the triple bottom line (TBL) of environmental, social, and economic systems [1–6]. The term ‘triple bottom line’ highlights the need to balance economic prosperity, social equity, and environmental quality in order to achieve sustainability [3] (p. 624). There are similar references in the literature to the economic, environmental and social ‘pillars’ of resilience [7–10].

Research on the related concept of resilience has advanced considerably in the last 35 years and continues to grow. There is a general upward trend in studying resilience and sustainability jointly, which suggests that the approaches and goals associated with each are similar [5]. Such research, however, is still nascent. Although, as [11] (p. 20) states, ‘there is a great need for operational definitions and metrics for resilience and sustainability in economic, ecological, and societal systems’, there is still a lack of consensus on how the concepts of resilience and sustainability should be defined and used [5]. The authors in [10] have called on researchers to more closely integrate environmental, social, and economic knowledge, particularly in view of the increasing need for resilience related to climate change. In this context, Ref. [12] recently presented an approach to promote sustainable innovation in organizations that aims to identify the climate risks organizations face and develop appropriate actions to improve their resilience. According to [13], there is growing global interest in organizational resilience and regional social sustainability; however, there is a lack of current research on the links between organizational resilience and regional social sustainability.

There are significant differences between the various definitions and uses of the concepts of resilience and sustainability, both within the field of social–ecological systems studies [10,14,15] and between different disciplines [5], such as economics, environmental science, and climate science [10]. In the social–ecological systems studies, there are many commonalities between the theoretical and empirical approaches to resilience and sustainability, whose aim is to explain system dynamics, improve strategic competencies, and incorporate multiple perspectives [15].

The concept of ‘resilience’ emerged in the business and management literature in the 1980s, when researchers began to examine how organizations might respond to external threats [16]. ‘Sustainability’, in turn, was first used prominently as a business term in the 1987 report of the World Commission on Environment and Development, which defined sustainable development as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ [17] (p. 41).

Organizational resilience and sustainability experienced tremendous transition due to the dot-com crash in 2000, the global financial crisis in 2008, and years of rising energy prices. In addition, the tense situation in the commodity market and the associated price increases present organizations with particular challenges. Regardless, organizations continue to face sustainability-related challenges with increasing relevance, such as green advertising [18] and challenges that directly impact purchasing behavior, such as increasing environmental awareness, environmental concerns, and related changes in environmental attitudes [19]. The impact of digital transformation on the sustainability and resilience of organizations is also becoming increasingly important [20]. In the face of persistent environmental challenges, such as climate change, natural catastrophes, the resulting legislative requirements, and, more recently, pandemics, the context of organizational sustainability has been changing, as questions of how to prevent or mitigate climate change are now overshadowed by questions of what factors determine organizational resilience.

The theoretical literature bridging resilience and sustainability is scarce [21]. Existing reviews of the literature on resilience and sustainability cover broader areas, such as environmental management applications [5] and social–ecological systems [10]; or narrower topics, such as the built environment [22,23] or urban planning [24]. The authors in [25] reviewed the literature focusing on the relationship between sustainability and resilience capabilities and business continuity management (BCM). However, to the best of our knowledge, there are no reviews of the literature on resilience and sustainability that explicitly bring together these two topics in the context of organizations. Various authors note that, in the context of organizations, resilience and sustainability are typically studied as two separate, independent topics [14,15]. However, there are authors who recently started to link these two literature streams. For instance, Refs. [9,26,27] all applied multidisciplinary approaches in the field of strategic management. Several scholars have called for joint research on resilience and sustainability in the fields of business resilience [28], strategic management [2,29], systems thinking [30], or resilience in the built environment [22].

The present review responds to these calls by taking a step towards closing the gaps between the literature on resilience and sustainability in the organizational context. Our aim is to provide an overview of the current state of research and identify potential links between the literature on organizational resilience (hereafter ‘resilience’, unless otherwise specified) and organizational sustainability (hereafter ‘sustainability’, unless otherwise specified). First, we review the literature on resilience and sustainability and develop our own working definitions of resilience and sustainability based on the existing definitions in the literature. Next, we identify studies in the literature on resilience that address sustainability and studies in the literature on sustainability that address resilience. We investigate connections between these two fields, and following [31], which calls for a deeper understanding of the organizational actions associated with resilience, we identify research on how the measures of or the actions associated with resilience and sustainability can complement or substitute for each other with regard to organizational performance. To classify the works we consider here, we develop an extended framework based on [5,22,23].

The organizations that the studies in our review cover are business firms, excluding other types of entities, such as public organizations and nongovernmental organizations (NGOs).

Our findings support the idea that resilience depends on multifaceted response mechanisms to environmental turbulence, which may be linked to other response mechanisms, particularly those related to sustainability. The lack of research on these links, as well as the increasing relevance of both topics, motivates the present study. By integrating the two concepts in a conceptual framework, we deepen the understanding of each concept and offer further insight into their potential to help organizations respond appropriately to economic, ecological, and social change.

This paper contributes in three ways to the literature on resilience and sustainability in the organizational context. First, we bridge these two types of literature by reviewing analytical conceptualizations and definitions of resilience and sustainability, as well as empirical findings, in the organizational context. We supplement this review with a content analysis and comprehensive citation network analysis to reveal the links between the two types of works in the literature. In addition, based on the respective literature, we provide integrated definitions of resilience and sustainability in the organizational context. Second, we develop an extended framework for categorizing the relationships between resilience and sustainability. We show how measures of or actions associated with resilience and sustainability complement or substitute for each other with regard to organizational performance and propose initial approaches to applying complementarity theory [32,33] to explain the interrelation between sustainability and resilience. Third, we reveal gaps, such as potential but unexploited complementarities between measures of resilience and sustainability, and provide avenues for future research.

2. A Framework for Studying the Relationship between Resilience and Sustainability in the Organizational Context

The relationship between the concepts of resilience and sustainability depends on the definitions of these two terms [14]. However, there are a variety of definitions of the two terms in the literature. In addition to aspects such as the fundamental increase in resilience and sustainability in the context of organizations and the resulting impact, such as on organizational performance, the consideration of legal and regulatory aspects of both concepts is becoming increasingly important in both separate and joint contexts. The author of [34] discusses the relationship between resilience and sustainability, focusing on both concepts in the context of the law. In addition to a critical examination of theoretical approaches to sustainability, particularly in environmental law, and approaches to resilience, this work illustrates a new theoretical possibility for the study of resilience in the context of sustainability law.

In the course of our review, we identified various frameworks or models for the joint study of resilience and sustainability in the literature on ecological–economic systems [14]; environmental management applications [5]; the built environment [22,23]; civil infrastructure systems [35]; and other contexts, such as industrial dairy processes [36].

The authors in [14] illustrate four different possible ways in which resilience and sustainability interrelate in the context of ecological–economic systems. The authors in [5] (p. 1276) identified three generalized frameworks for managing resilience and sustainability that dominate the literature on applied environmental management: (1) resilience as a component of sustainability, (2) sustainability as a component of resilience, and (3) sustainability and resilience as separate conceptual objectives. Similarly, in their review of the relevant literature, Refs. [22,23] identified four ways in which resilience and sustainability interrelate in the built environment: (1) the two concepts are considered synonyms and are used almost interchangeably, (2) resilience is considered a component of sustainability, (3) sustainability is considered a component of resilience, and (4) resilience and sustainability are regarded as two separate but complementary concepts [22] (pp. 1161–1162). Based on a quantitative framework developed by [35] for integrating sustainability and resilience into the civil infrastructure system, Ref. [36] proposed a model for optimizing resilience

and sustainability in industrial dairy processes. The model is based on environmental, economic, social, technological, and political aspects that determine manufacturing resilience and sustainability, and it can be adopted in different contexts, such as other industrial production systems.

In the literature on organizational resilience and organizational sustainability, there is no framework that can be specifically applied to examining the relationship between resilience and sustainability in the organizational context. To close this gap, we developed an extended framework for categorizing the relationships between organizational resilience and sustainability in the literature, based on [5,22,23], as depicted in Figure 1.

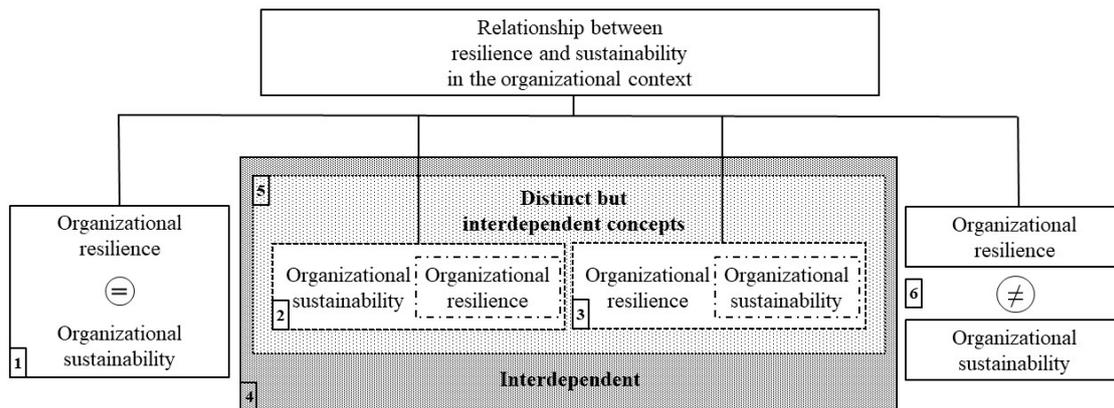


Figure 1. Extended framework for studying the relationship between organizational resilience and sustainability.

Our framework offers six different ways to categorize the relationship between organizational resilience and sustainability: (1) organizational resilience and sustainability regarded as identical concepts, (2) organizational resilience regarded as a component of sustainability, (3) organizational sustainability regarded as a component of resilience, (4) organizational sustainability and resilience treated as interdependent concepts, (5) organizational sustainability and resilience treated as distinct but interdependent concepts, and (6) organizational sustainability and resilience regarded as completely independent concepts.

3. Research Design and Methodology

The main objective of our paper is to systematically identify research in the literature on sustainability that addresses resilience and vice versa, that is, research in the literature on resilience that addresses sustainability. Additionally, we summarize and categorize prior isolated systematic reviews of these types of literature and consider the findings of relevant empirical studies.

The procedure for conducting a systematic literature review has been described in previous studies (e.g., [37]). Here, we follow the research protocol which is based on the PRISMA (the Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines proposed by [37]. This research protocol requires that authors describe the search strategy, define the criteria for including and excluding sources, and outline the review process. We chose to follow [37] because its guidelines seem appropriate for the problem at hand, i.e., the systematic review and identification of relationships between the two types of literature.

We began by conducting a scoping study to gain an overview of the relevant literature on resilience and sustainability in the organizational context and to define our research questions, scope, and search criteria [37]. This involved searching manually for existing reviews in the literature on organizational resilience and sustainability. We present the results in Section 4. In the first step, we derived the following research questions: (1) How

is organizational resilience defined and conceptualized in the theoretical and empirical literature? (2) How is organizational sustainability defined and conceptualized in the theoretical and empirical literature? (3) Are there any publications that link the two literature streams? (4) Are there studies in each type of literature that address both resilience and sustainability?

In the second step, we defined the search criteria: we selected the relevant databases and defined the search boundaries, the period we cover, and the search terms. To search the literature, we used the databases EBSCO (Business Source Complete) and ScienceDirect. The scope of our search encompassed academic English-language publications in the fields of business, management, and sustainability, including working papers in the SSRN data library. Our selection of articles covered the period from 1985 to 2021 and included peer-reviewed academic journals. We chose this period because ‘sustainability’ as a business concept has its origins in the 1987 report of the World Commission on Environment and Development [17], and the concept of ‘resilience’ emerged in the business and management literature in the 1980s [16]. We considered peer-reviewed publications in both high- and low-ranking academic journals to ensure that our search was as objective as possible and considered the approaches of differently rated academic journals in the areas of business, management, and sustainability. In selecting publications, we considered the journals’ rank in the VHB-JOURQUAL3 ranking. If no evaluation based on the VHB-JOURQUAL3 ranking was available, a selection was made based on the respective impact factor of the journal.

In the preliminary search, described above, we used the Boolean operator ‘AND’ and searched for articles featuring both the common search terms ‘organizational resilience’ AND ‘organizational sustainability’, including the variant spelling ‘organisational’. As this search returned relatively few results, we decided to use the additional search terms ‘business’, ‘corporate’, ‘enterprise’, and ‘firm’ and searched each stream of the literature separately. To search the resilience literature, we used again the Boolean operators ‘AND’ and ‘OR’ and looked for ‘organizational’ OR ‘organisational’ OR ‘business’ OR ‘corporate’ OR ‘enterprise’ OR ‘firm’ AND ‘resilience’. To search the sustainability literature, we similarly looked for ‘organizational’ OR ‘organisational’ OR ‘business’ OR ‘corporate’ OR ‘enterprise’ OR ‘firm’ AND ‘sustainability’. We tested other search terms, such as ‘organization’, ‘resiliency’, ‘resilient’, and ‘sustain’, but those yielded less useful results.

In the third step, we defined the exclusion criteria and decided to exclude all papers whose title or abstract was not related to resilience or sustainability in the organizational context. Finally, in the last step of the search, we reviewed the references of the articles in our sample to locate publications we might have missed, taking into consideration the limitations of snowball sampling or chain referral sampling, as [38] explained them. In addition, we read and analyzed the sampled articles to decide which studies to include in the next phase of our study. Figure 2 shows the stepwise process of selecting studies based on specific inclusion and exclusion criteria to obtain the final number of publications for analysis. The PRISMA checklist is presented in the Supplementary Materials.

The refined sample contained 196 publications. We performed a citation network analysis, using measures such as eigenvector centrality, to highlight the communities that emerged, illustrate interconnectivities and gaps in the network, and graphically identify the most-cited articles and the articles that bridge the two types of literature on resilience and sustainability. The purpose of performing a citation network analysis was to ensure that our overview of the literature was complete and that we did not omit any relevant communities, as well as to identify gaps that provide avenues for future research. A detailed guide for the citation network analysis following [39] can be found in Supplementary Material S1. Table 1 provides an overview of the metrics we used to analyze the citation network.

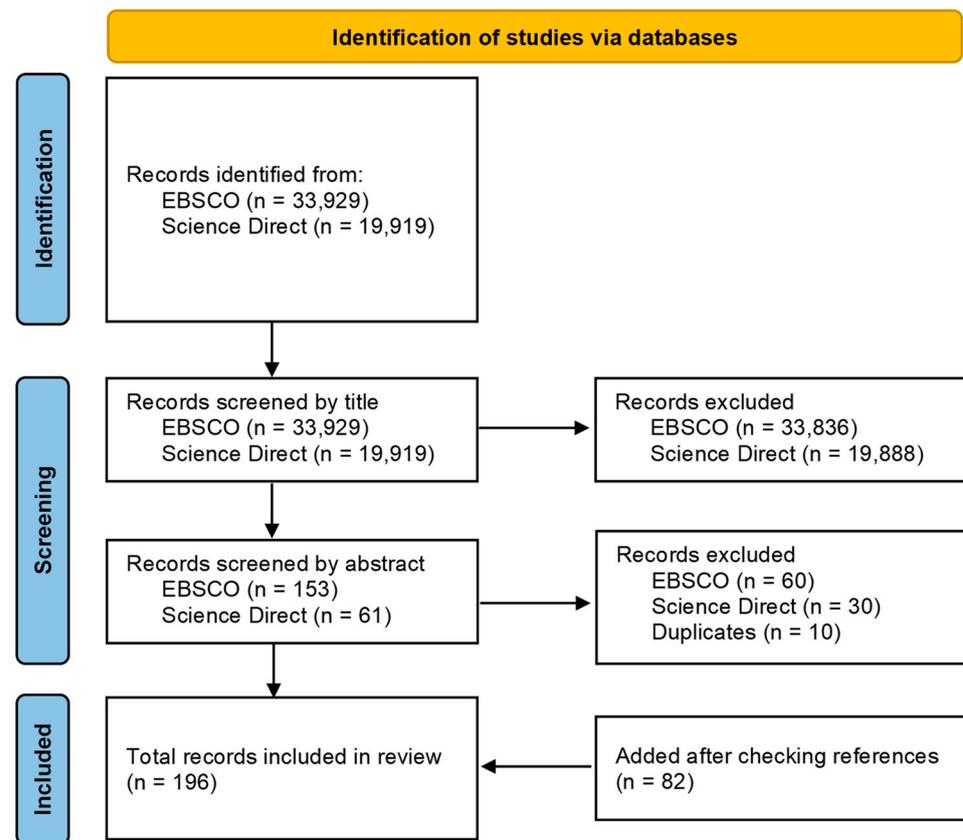


Figure 2. Identification, screening, and selection of studies following the PRISMA guidelines.

Table 1. Description, explanation, and value of the metrics used in citation network analysis.

Metric	Description	Explanation	Value
<i>HITS</i>	Calculates hubs distribution and authority measures.	Hyperlink-induced topic search (page authority on the Web).	$1.0^{\circ} \times 10^{-4}$
<i>Eigenvector Centrality</i>	Calculates the directed sum of change in terms of the eigenvector centrality with 100 iterations.	[0, 1] indicates which nodes exert influence on other nodes.	0.0488
<i>Average Path Length</i>	Calculates the directed path length and diameter of the network.	The diameter is the maximal distance between two nodes.	Average path length = 1.7607; Diameter = 5
<i>Modularity</i>	Randomized edge-weighted community creation.	[-1, 1] indicates how a network is structured and the density of connections between nodes.	0.844

4. Results

4.1. Descriptive Analysis

Figure 3 shows the number of relevant publications in the fields of organizational resilience and sustainability that our literature research yielded. As we can see, the number of publications on organizational resilience has been increasing since 2008. This is in line with the findings of [16,40–42]. We also see that the number of publications on organizational sustainability began to rise as early as 2005, while the number of publications linking the two research streams started to increase in 2014. This finding is in line with [5], which identified a general upward trend in the joint occurrence of the terms ‘resilience’ and

‘sustainability’ in the environmental management literature in recent years. Table 2 shows how the identified publications are distributed among various journals.

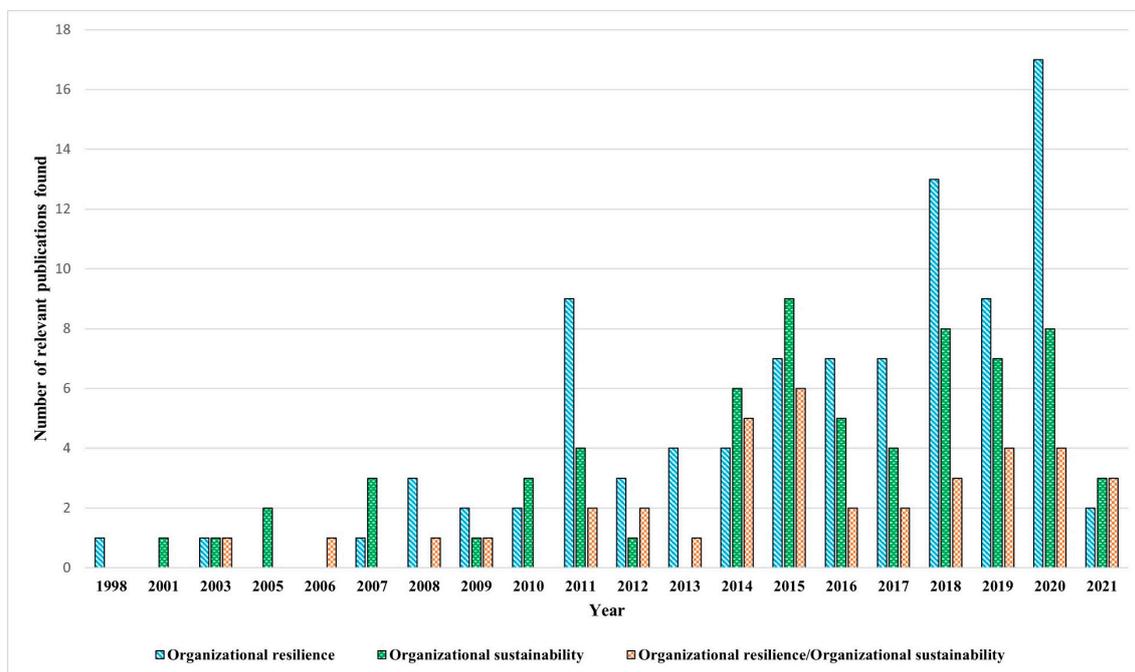


Figure 3. Temporal distribution of the identified publications in the literature on organizational resilience and sustainability between 1985 and 2021 (total: 196).

Table 2. Distribution of the identified publications (total: 196) among various journals in the fields of organizational resilience (OR) and organizational sustainability (OS).

Journal	Number of Publications	Category
<i>International Journal of Production Research</i>	10	OR/OS
<i>Journal of Cleaner Production</i>	10	OS/OR
<i>Business Strategy and Environment</i>	8	OS/OR
<i>Sustainability</i>	8	OR/OS
<i>Journal of Business Continuity and Emergency Planning</i>	6	OR
<i>Business Horizons</i>	5	OR/OS
<i>Long Range Planning</i>	4	OS/OR
<i>Ecology and Society</i>	3	OR/OS
<i>European Management Journal</i>	3	OR/OS
<i>Futures</i>	3	OS
<i>International Journal of Production Economics</i>	3	OR
<i>Journal of Contingencies and Crisis Management</i>	3	OR
<i>Applied Psychology: An International Review</i>	2	OR
<i>Brazilian Business Review</i>	2	OR
<i>Business Research</i>	2	OR
<i>Corporate Social Responsibility and Environmental Management</i>	2	OS
<i>Global Business and Organizational Excellence</i>	2	OS/OR
<i>International Journal of Management Reviews</i>	2	OR
<i>Journal of Business Ethics</i>	2	OS
<i>Journal of Business Research</i>	2	OS/OR
<i>Journal of Business Strategy</i>	2	OS/OR

Table 2. Cont.

<i>Journal</i>	<i>Number of Publications</i>	<i>Category</i>
<i>Journal of Public Relations Research</i>	2	OR
<i>Natural Hazards Review</i>	2	OR
<i>Omega</i>	2	OR
<i>Organizational Dynamics</i>	2	OS/OR
<i>Public Management Review</i>	2	OS/OR
<i>Science of the Total Environment</i>	2	OS/OR
<i>Strategy and Leadership</i>	2	OS/OR
<i>Sustainability: Science, Practice, and Policy</i>	2	OS/OR
<i>Total Quality Management and Business Excellence</i>	2	OS
<i>Others</i>	94	OS/OR
Total	196	

Most of the studies in our sample were published in the *International Journal of Production Research* (10 studies), the *Journal of Cleaner Production* (10 studies), *Business Strategy and Environment* (8 studies), and *Sustainability* (8 studies).

4.2. Citation Network Analysis

Our citation network analysis yielded 9403 publications. As the HITS metrics in Table 1 show, most research papers were not linked to other papers in the network. These papers were not dominant within the visible surface web, and their value tended to be zero [43]. Each parameter starts with a value of 1 and is normalized into [0, 1], which can be interpreted as probabilities. The eigenvector centrality, which represents the influence of a node within the network, was very low (see Table 1), indicating that these research papers had very little influence on each other. The diameter of the network was 5, and the average path length was 1.7607, which, according to [44], suggests that the nodes in the network were relatively close to each other. The modularity, which represents the weights of the edges, was strong, with a value of 0.844 [45]. This means that the connections between the nodes were very dense, and there was clustering in the network. Table 3 displays the publications whose degree was greater than 2; the number of times they were cited; and their authority, eigenvector centrality, and betweenness centrality values. The publications are sorted in descending order according to the number of times they were cited. To determine the number of citations, we conducted a search using Google Scholar in April 2022.

In terms of modularity, we identified 58 communities. Figure 4 shows the five communities with the highest scores, that is, the five communities with the highest modularity in the network. The degree of the network was greater than 2, and the size was equal to the significance in eigenvector centrality.

Table 4 shows the most representative publications (i.e., the two largest nodes in each community in Figure 4) in each of the five communities, the number of citations per publication, the number of publications in each community, and the percentage of the total citation network that these publications represent. To determine the number of citations, we conducted a search using Google Scholar in April 2022.

Table 3. Number of times cited, authority, eigenvector centrality, and betweenness centrality of the relevant publications.

<i>Publication</i>	<i>Cited by</i>	<i>Authority</i>	<i>Eigenvector Centrality</i>	<i>Betweenness Centrality</i>
[46]	79,130	0.0109	0.0493	149
[47]	16,807	0.0554	0.4124	–
[48]	13,877	0.0027	0.1713	458
[49]	6782	0.0114	0.1869	476
[50]	5151	0.6147	1.0	3045
[17]	4751	0.0053	0.1375	–
[51]	3575	0.1047	0.9731	476
[52]	3320	0.0025	0.2596	390
[53]	3312	0.1741	0.4023	–
[54]	2951	0.0708	0.2128	1197
[55]	2585	0.0574	0.2484	–
[56]	2390	0.0237	0.2302	683
[57]	2034	0.0180	0.1998	–
[58]	898	0.0129	0.1627	–
[59]	645	0.0421	0.4551	381
[60]	547	0.0195	0.0934	–
[61]	532	0.0231	0.4639	–
[2]	454	0.0022	0.1209	2067
[62]	423	0.0189	0.1860	313
[63]	290	0.0184	0.3738	–
[40]	258	0.0508	0.2050	2126
[64]	199	0.0433	0.2145	139
[65]	111	0.5310	0.9134	1345
[66]	51	0.1342	0.6237	–
[22]	34	0.0105	0.4359	–
[67]	22	0.2676	0.8483	–
[68]	15	0.2433	0.6208	–
[69]	10	0.0180	0.1656	1743

Table 4. Descriptive statistics for the publication in each community.

Community	Number	Color	Number of Publications	Percentage of the Total Citation Network (%)	Representative Publication(s)	Number of Times Cited
Organizational Resilience	I	Yellow	577	6.14	[67]	22
					[65]	111
Resilience (General)	II	Turquoise	422	4.49	[70]	1557
					[71]	1081
Corporate Sustainability	III	Green	387	4.12	[72]	34
					[73]	108
Organizational Resources	IV	Blue	386	4.10	[46]	79,130
					[74]	1278
Sustainability (General)	V	Pink	360	3.83	[75]	965
					[76]	1614

With 2133 of the total 9403 publications (nodes), the five communities with the highest score jointly constituted 22.68% of the entire citation network. The most representative publication (cited 111 times) was Reference [65]; therefore, the *Organizational Resilience* community (6.14% of all publications in our sample), of which it is part, had the highest score and ranked first (yellow nodes in Figure 4).

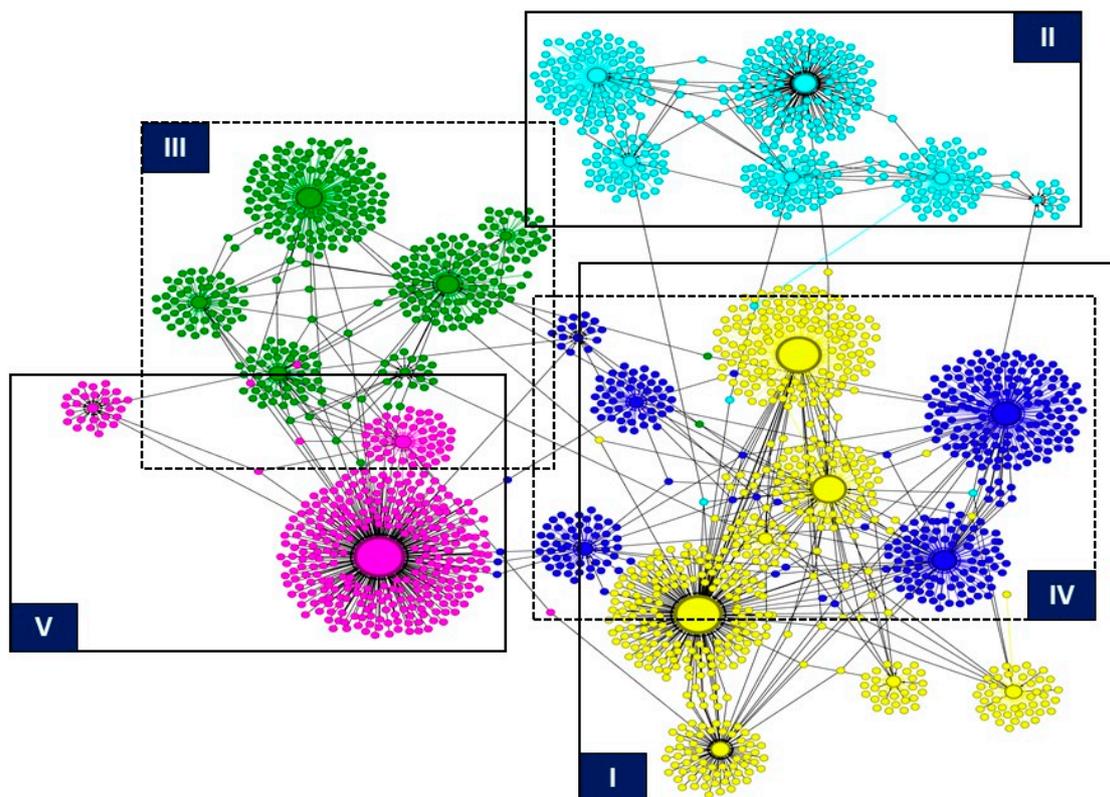


Figure 4. Graphical illustration of the citation network. The colors represent the top five modularity communities. Yellow (I), *Organizational Resilience*; turquoise (II), *Resilience (General)*; green (III), *Corporate Sustainability*; blue (IV), *Organizational Resources*; and pink (V), *Sustainability (General)*.

The most representative publications in the community of *Resilience (General)* were [70], which was cited 1557 times, and [71], which was cited 1081 times. This community ranked second and comprised 4.49% of all publications in our sample (turquoise nodes in Figure 4). As the literature on organizational resilience is part of the literature on general resilience [16], it would be conceivable to merge the first and second communities into one large community. The community with the third-highest score (4.12% of all publications in our sample) comprised articles on *Corporate Sustainability* (green nodes in Figure 4), the community with the fourth-highest score (4.10% of all publications in our sample) represented research on *Organizational Resources* (blue nodes in Figure 4), and the community that ranked fifth (3.83% of all publications in our sample) comprised works on *Sustainability (General)* (pink nodes in Figure 4). As the literature on organizational sustainability is a subset of the overall literature on sustainability [77], it would also be conceivable to merge the third and fifth communities into a single community. The fundamental purpose of this citation network analysis is to provide a solid base for further research. The five highest-scoring communities our analysis identified reflect the thematic distribution of the articles we collected through our search (see Section 3).

4.3. Resilience in the Organizational Context

The literature on resilience in business and management can currently be divided into five disciplinary perspectives, i.e., ecology, safety and reliability, engineering, positive psychology and organizational development, and strategic perspectives. These five perspectives are associated with different ontologies, tools, and methods for studying organizational resilience [78]. As researchers tend to combine ideas from several of these perspectives, in the literature, organizational resilience currently is ‘an umbrella concept that loosely [encompasses] a set of diverse organizational phenomena’ [78] (p. 879).

4.3.1. Reviews of Research on Organizational Resilience

Our manual search for existing reviews of the literature on organizational resilience identified a few quite different reviews. The authors in [40] examined how various studies define resilience, as well as studies that focus on specific research areas and on the strategic and operational applications of resilience. The authors in [79] conducted a thematic review of the empirical literature from both the healthcare sector and other sectors to synthesize evidence on organizational resilience. The authors in [80] provided a literature review of the resilience literature in its broadest context and its application at the organizational level. The authors in [41] developed a new framework for organizational resilience that introduced a dynamic perspective on firm resilience. The author of [81] reviewed various studies in specific areas of resilience and various definitions of the concept. The author also developed a capability-based framework for research on resilience. The authors in [42] provided a comprehensive overview of conceptual frameworks for developing and improving organizational resilience. Recently, Ref. [78] examined why the concept of organizational resilience is ambiguous, as critics point out, and the various disciplines that shape this concept. In another recent study, Ref. [82] provided a systematic review of the literature on organizational resilience, focusing on specific aspects, such as construct development, taxonomies, and measurement. The authors also analyzed existing measurement scales and conceptualizations of relevant constructs, decomposed definitions of organizational resilience into distinct components (i.e., entity, property, key attributes, and associated domains), and developed a conceptual integrative model of organizational resilience. The authors in [31] recently extended the work of [82] by conceptually comparing resilience with robustness and antifragility.

In contrast to [41], who focused on the dynamic perspective of organizational resilience, and [81], whose framework was based on three successive stages of resilience (i.e., anticipation, coping, and adaptation), Ref. [82] focused on the behaviors that enable organizations to respond resiliently to adversity, learn, and grow. The authors in [83] proposed a framework for studying organizational resilience in the context of management control systems that are based on beliefs systems. The author of [16] examined how the concept of resilience has evolved over time in various streams of business and management research. The authors in [84] reviewed various definitions of organizational resilience in research published between 2000 and 2017. They also proposed a four-stage maturity model of resilience that organizations develop over time by improving their capabilities to cope with disruption.

4.3.2. Definitions of Organizational Resilience

In the literature, there were multiple definitions of resilience in the organizational context [82,84], and we listed them in Supplementary Materials S2. These definitions ranged from broad ones (e.g., [85]) to abstract ones (e.g., [11]) to specific ones (e.g., [86,87]). Some authors describe organizational resilience as a capacity (e.g., [11,21,83,86]) or a capability (e.g., [40,88,89]), while others perceive it as an ability (e.g., [81,90–93]) or a property (e.g., [94]), using the four terms almost synonymously. Some definitions include adaptability as an essential component of organizational resilience (e.g., [11,92,95]); other definitions additionally include the ability to anticipate adversity (e.g., [81,86,90]). The author of [11] focused on the aspect of growth as a capacity of resilience, as did [92], who also identified sustainability as a factor that creates growth opportunities. Other authors focused on the surviving (e.g., [84,87,96,97]) and thriving aspects of organizational resilience (e.g., [93,98]).

In the absence of a universal definition of organizational resilience in the literature, we propose the following working definition, which is based on the definitions our search identified:

Organizational resilience is the organization's ability to anticipate, cope with, and adapt to contingencies and changes within the organization and its environment so as to survive in the short term and thrive in the long term when faced with expected and unexpected adverse events.

This definition combines a proactive, a reactive, a short-term, and a long-term perspective and encompasses the essential components of the definitions that we included in our Supplementary Materials. In addition, we add components that are missing from the definitions found in the literature but which we believe are essential components of organizational resilience (e.g., ‘changes within the organization’ or ‘expected events’).

4.4. Sustainability in the Organizational Context

Sustainability was first mentioned in a business or organizational context in the 1987 report of the World Commission on Environment and Development [17]. However, it only recently came to embrace all dimensions of sustainability, including performance and stakeholder engagement [99]. According to [100], the main challenge for organizations is deciding which measures and initiatives to choose so as to address the challenges that sustainability presents. As there are significant differences between the approaches various organizations adopt [101], it is important to classify them [100] and identify their components. To achieve sustainability, an organization needs to become adaptive, innovative, self-aware, and resource-driven. It also needs to use innovative measures and create novel models for responding to current and future challenges [102].

4.4.1. Reviews of Research on Organizational Sustainability

Our manual search for existing reviews of the literature on sustainability in the organizational context identified six quite different reviews that we discuss below. The authors in [59] reviewed the diverse empirical literature relating to sustainability-oriented innovation and developed a summary conceptual framework in which sustainability-oriented innovation practices and processes can be mapped. The authors in [101] highlighted the following factors as the main internal and external determinants of the approach to sustainability that family businesses adopt: temporal orientation (long-term vs. short-term), corporate governance, firm size, relationship with stakeholders, image, and reputation. The authors in [103] discussed the literature on corporate social responsibility research in small- and medium-sized enterprises (SMEs), with the aim of understanding the history and research patterns of the last 20 years.

The authors in [77] presented a review of the theoretical frameworks and tools used in various instrumental and descriptive studies on the business case for corporate sustainability. The authors showed that the business logic for adopting strategies of corporate sustainability is often poorly understood, which they attributed primarily to a lack of descriptive research in this area. The author of [104] highlighted the state of knowledge on the dynamics of organizational change with respect to environmental, social, and financial sustainability. The author noted that many studies have examined the influence of organizational antecedents on the extent and stages of organizational change in terms of sustainability and that the effects of learning, organizational culture, and leadership on the change process have attracted more attention in the literature. Finally, [30] conducted a review of the literature on systems thinking as a theoretical lens for studying sustainability management in the organizational context. The authors noted a marked increase in publications on systems thinking and sustainability management in relation to a range of topics, including economic, political, social, and ecological issues. They furthermore showed that earlier research in this area was largely fragmented and absent from mainstream management journals.

4.4.2. Organizational Sustainability from a Systems Perspective

On the basis of the idea that ‘business development represents a symbiotic, intertwined relationship with the time, space, and place in which the business operates’, Ref. [102] (p. 69) argued that systems theory can offer new insights into sustainability in the organizational context. Organizations are systems that are nested within larger macro-systems. The authors in [105] differentiated between systems at the macro-, meso-, and micro-levels. In this context, organizations are located at the micro-level, while the macro-level encompasses

the totality of economic performance. The meso-level is a natural link between the micro- and macro-level, as the rules and institutions of the micro-level usually have consequences at the macro-level [105]. For economic, societal, and ecological systems to remain in balance at the macro-level, resources must be distributed over time at the micro-level [2,100].

From a systems perspective, organizations are part of a larger network of stakeholders who adopt collective strategies to optimize their network [89]. An organization can be viewed as a system of long-term cooperative relationships between various groups of stakeholders, including managers, employees, customers, clients, investors, and suppliers, as well as the broader societies (cities, states, or nations) in which the organization is located or sells or provides goods and services. Even future generations can be regarded as stakeholders [106].

Again, from a systems perspective, sustainability is ‘the ability of systems to persist, adapt, transform or transition in the face of constantly changing conditions’ [30] (p. 871). According to [95] (p. 5331), ‘a sustainable enterprise is one that continues to grow and adapt in order to meet the needs and expectations of its shareholders and stakeholders’, and, as a system, it can be regarded as a component of the overall socioeconomic system. Unlike financially motivated organizations, which typically focus on the interests of shareholders, sustainability-oriented organizations tend to engage in financial, social, and environmental activities that serve the interests of a broader range of stakeholders. Such organizations display their values through the way in which they treat employees and the environment, as well as in the way that they do business [7].

Our own search confirms the findings of [30], which observed a marked increase in publications on systems thinking and sustainability management in relation to a range of topics; our own search identified a number of studies that addressed organizational sustainability from a systems perspective.

4.4.3. Definitions of Organizational Sustainability

As [2] noted, there are several definitions of sustainability, some broad and vague, and others narrow and specific. Our own results confirm this observation. In the following, we discuss the overlaps between the definitions of organizational sustainability our search identified and the importance of each definition in the literature. A detailed list of these definitions, sorted by year of publication, is provided in Supplementary Materials S3 and shows which dimensions of sustainability each definition highlights and whether it focuses on the short, medium, or long term. Some of the definitions of sustainability listed in Supplementary Materials S3 emphasize business sustainability (e.g., [2,28,92,107]); others emphasize corporate sustainability (e.g., [77,89,108]), enterprise sustainability (e.g., [85,95,109,110]), or firm sustainability (e.g., [27]), using the terms almost synonymously. These definitions range from broad (e.g., [85,92,107]) to abstract (e.g., [108]) to specific ones (e.g., [27]). Some definitions emphasize all three pillars of sustainability (e.g., [27,92]), while others highlight one specific dimension, such as economic sustainability (e.g., [2,107]). Moreover, some definitions include a temporal aspect (e.g., [2,85,107]), highlighting trade-offs between costs and benefits in the short and long term as the key to achieving both business and societal sustainability [86]. Other definitions stress the preservation of capital (e.g., [27,108]), organizational growth (e.g., [28,89,108]), or organizational survival (e.g., [107]) as primary outcomes of sustainability. Some authors describe sustainability in the organizational context as an organizational capacity (e.g., [85]) or ability (e.g., [2,107]) or as a reactive response to specific organizational issues or needs (e.g., [2,77]). Some definitions include the organization’s ability to anticipate adversity [110].

The variety of available definitions shows that there is no universally accepted definition of organizational sustainability. As the authors of [111] (p. 165) argue, ‘a good conceptual definition should identify the set of fundamental characteristics or key attributes that are common (and potentially unique) to the phenomenon of interest’. In the absence of a universal definition of organizational sustainability, we propose the following working definition, which is based on the definitions our search identified:

Organizational sustainability is the organization's ability to survive, continue business, and grow by creating, maintaining, and enhancing positive economic, environmental, and social value, performance, and outputs in both the short and long term.

The proposed definition encompasses organizational survival, persistence, and growth in both the short and the long term, as well as the economic, environmental, and social dimensions of sustainability. We believe that this definition is comprehensive in that it includes the core elements of the definitions we consider in our study.

4.5. Linking Organizational Resilience and Organizational Sustainability

Research that is based on multidimensional concepts and addresses resilience and sustainability simultaneously has been emerging in recent years in various disciplines, such as strategic management. For instance, several studies indicate a close relationship between resilience and sustainability in the built environment and highlight the lack of an integrative conceptual framework for bringing these two concepts together [22,23]. In general, resilience and sustainability are considered to be mutually reinforcing [112]. However, they may also involve trade-offs [28]. From the stakeholder perspective, resilience, as opposed to sustainability, may be more or less desirable, depending on a system's status [113].

4.5.1. The Relationship between Resilience and Sustainability in the Context of Business

During our review, we identified promising approaches to bridging the research on resilience and sustainability in the following areas (see also Supplementary Materials S5): sustainable business excellence (SBE; e.g., [114]), sustainable enterprise excellence (SEE; e.g., [109,115]), sustainable enterprise innovation (SEI; e.g., [85]), business model innovation (BMI), and sustainable business model innovation (SBMI; e.g., [116,117]).

Below, we categorize the relevant publications (see Supplementary Materials S4) according to our extended framework (see Figure 1).

4.5.2. Categorizing Relevant Publications According to the Extended Framework for Studying the Relationship between Organizational Resilience and Sustainability

Based on our extended framework for categorizing the relationships between organizational resilience and sustainability, Supplementary Materials S4 lists the relationships between organizational resilience and sustainability that we identified in the literature during our review.

(1) Organizational resilience and sustainability regarded as identical concepts:

We found no publication that viewed organizational resilience and sustainability exclusively as interchangeable concepts. Only [14,15] theorized that the two terms have been occasionally used interchangeably.

(2) Organizational resilience regarded as a component of sustainability:

In this category, we include studies that regard resilience as an antecedent of or prerequisite for organizational sustainability and studies arguing that organizational resilience impacts sustainability (see also Supplementary Materials S6). We identified several authors who linked organizational sustainability, adaptability, and resilience (e.g., [30,100,102,118]). Some authors specifically addressed the aspect of organizational culture with regard to the relationship between organizational resilience and sustainability (e.g., [83,87,94]). Other authors regard organizational sustainability as a product of organizational resilience (e.g., [41]) or organizational resilience as a source of sustainability (e.g., [87,91]), and some authors explored the relationship between organizational sustainability and various aspects of organizational resilience or various actions, practices, properties, or capabilities associated with resilience (e.g., [26,81,88–90,95,96,107,119]). Certain studies specifically addressed the temporal aspect of such relationships (e.g., [2,42,120,121]), while others developed conceptual models or frameworks that integrate aspects of organizational resilience to improve sustainability (e.g., [85,92,115,122]). Finally, some authors regarded the concept of organizational resilience as a component of the concept of sustainability in very specific

areas, such as regional sustainability (e.g., [13]). Overall, we found that the majority of studies we classified according to our extended framework treated the concept of organizational resilience as a component of the concept of organizational sustainability.

(3) Organizational sustainability regarded as a component of resilience:

This category comprises publications (see Figure 1) that regard the concept of organizational sustainability as a component of the concept of resilience. We included studies that view sustainability as an antecedent of or prerequisite for resilience and studies according to which sustainability has an impact on organizational resilience (see Supplementary Materials S7).

Overall, the category of studies that regarded sustainability as a component of resilience, according to our framework, comprised a small number of diverse studies. The majority of these theorized the relationship between organizational resilience and sustainability. One exception was [86], which provided empirical evidence that practices of sustainability contribute to organizational resilience.

(4) Organizational sustainability and resilience treated as interdependent concepts:

We found several studies (e.g., [9,27,123]) that viewed resilience and sustainability in the organizational context as interdependent concepts (see Figure 1). Refs. [27,123] examined how the concepts of resilience and sustainability were interrelated in the context of organizations, which the authors viewed as complex adaptive systems. Adaptive capacity, i.e., ‘the ability of a system to evolve in order to accommodate perturbations or to expand the range of variability with which it can cope’ [124] (p. 32), fundamentally differentiates strategically resilient systems or organizations from non-resilient ones [27]. Refs. [27,123] discussed the combined benefits of resilience and sustainability and proposed an approach to help decision makers proactively leverage both. The authors distinguished between operational and strategic resilience and suggested that, while operational resilience promotes specialization and optimization, strategic resilience favors diversification. In [27] (p. 308), the authors argued that, while ‘operational resilience is needed to deliver short-term sustainability, strategic resilience is required for longer-term sustainability (and vice versa), and [...] flourishing organisations need a proactively managed blend of both qualities across these different time spans’.

Both [27,123] suggested that organizations are more likely to gain a competitive advantage if they treat resilience and sustainability as interdependent factors. They also argued that an efficient system is invariably more sustainable if it is resilient, because adaptivity is inherent in the strategic dimension of resilience and allows organizations to respond to change and regulate boundaries, goals, and functions more effectively in the long term [123]. Furthermore, because sustainability and resilience are interdependent, resilience can help managers translate sustainable thinking into practical approaches to achieve real strategic and competitive advantages [27].

The authors in [9] contributed to both the literature on organizational resilience and the literature on organizational sustainability by developing an exploratory conceptual model that treats resilience and sustainability as two interdependent concepts, alongside the concepts of strategic agility and digitalization. The authors noted that the possible correlation between these concepts justifies a holistic multidimensional view of resilience, similar to the concept of sustainability being based on three pillars, namely the environment, economy, and society. The framework that [9] proposed takes into consideration the complexities and interactions that organizations face when addressing resilience and sustainability and could therefore help us understand the dynamics and interplay between these concepts, their cascading effects, and the potential trade-offs and synergies associated with combining resilience and sustainability [9].

In summary, according to our own framework, the few studies that consider resilience and sustainability in the organizational context as interdependent concepts are exclusively theoretical in nature. This finding highlights the need for more empirical work on the interdependence between organizational resilience and organizational sustainability.

- (5) Organizational sustainability and resilience treated as distinct but interdependent concepts:

We found several studies (e.g., [21,28,93,125]) that considered resilience and sustainability in the organizational context as distinct but interdependent concepts (see Figure 1). In [8], the author theorized the impact of a changing environment on the capacity of organizations for resilience, regarding sustainability and resilience as two distinct but mutually reinforcing concepts. The author argued that, because sustainability and resilience are closely interconnected, organizations cannot pursue separate strategies for each. The more sustainable an organization is, the better its ability to thrive, and conversely, the more resilient an organization is, the greater its ability to persist. Resilient organizations recognize signals of change early and respond quickly to maintain performance and continuity. At the same time, their planning horizon must be long enough to support their sustainability efforts [125]. In [28], the author also argued that, as a living system, an organization needs to strive for resilience in economic, environmental, and social terms, which define the three core dimensions of sustainability.

The authors in [21], who compared conceptual and analytical models of resilience in development organizations, considered resilience theory and sustainability science to be inextricably linked, acknowledging, however, that according to [15], there are theoretical arguments for treating them separately. The authors justified the decision to consider resilience and sustainability to be closely intertwined with examples of unsustainable practices, such as large-scale deforestation or the loss of coastal wetlands. Such practices, they argued, exacerbate the negative impact of environmental and other types of disasters and put non-resilient systems on undesirable and unsustainable development paths. Furthermore, the authors of [21] (pp. 647–649) state that, in contrast to sustainability, resilience, i.e., ‘the capacity of people, communities, or systems to prepare for and to react to stressors and shocks [...] is not an end in itself, but a means to limit vulnerability and promote sustainability’. An earlier study [93] (p. 1) defined sustainability and resilience as ‘sister’ concepts, suggesting that the author views them as interdependent but distinct.

In summary, the few studies that consider resilience and sustainability in the organizational context as interdependent but explicitly distinct concepts are also exclusively theoretical in nature, like the studies in the previous category of our framework. This finding also points to the need for more empirical work on the interdependence between organizational resilience and organizational sustainability.

- (6) Organizational sustainability and resilience regarded as completely independent concepts:

We identified only a few studies that, according to our extended framework, regard organizational resilience and sustainability as explicitly different concepts (e.g., [126,127]). This finding is in line with the earlier systematic literature search and co-citation analysis of the authors of [40], who, at the time, found only one publication that explicitly linked resilience (specifically in the context of supply chains) and sustainability but did not consider these concepts to be interdependent.

Although the authors of [126] recognized that, together, the concepts of sustainability and resilience may address the full range of relevant problems across all levels, they suggested that each is more suitable for addressing specific types of problems at specific levels. Resilience, in particular, the authors argued, can provide a framework for managing specifically multiple highly uncertain systems, each operating at their characteristic temporal and spatial scales, and addressing the challenges that sustainability poses [126]. Sustainability, on the other hand, provides a framework for translating feedback into meaningful action through policy making [126].

4.5.3. The Complementarity between Resilience and Sustainability in the Organizational Context

As the overview of our framework shows, in much of the examined literature, organizational resilience is regarded as a component of organizational sustainability, or vice

versa. To further specify and understand how these two concepts are interrelated, we draw on the complementarity theory, according to which a set of resources are complementary if the return on one of the resources increases in the presence of the other resources [32,33]. We begin by examining complementarities between resilience and sustainability measures and capabilities in the organizational context in both types of literature. In this study, the term ‘measures’ is synonymous with other terms used in the reviewed literature, such as ‘actions’, ‘practices’, and ‘tools’. In the same way, the term ‘capabilities’ encompasses similar terms, such as ‘characteristics’, ‘traits’, ‘attributes’, ‘aspects’, and ‘abilities’. Table 5 provides an overview of the measures we identified as complementary in the literature and the respective study. In Supplementary Materials S8, we list publications indicating that particular measures of resilience or sustainability and performance have potentially complementary effects.

Table 5. References to complementarities between resilience and sustainability in the organizational context.

Author	Year	Journal	OR and OS Measures as Complements or Substitutes	Accounting-Related Factors
[121]	2009	Kingston University Research Repository	–	Business performance
[96]	2011	International Journal of Production Research	Complements	Change management
[122]	2012	Procedia CIRP 3	Complements	Change management
[126]	2013	Ecology and Society	Complements	Change management
[27]	2014	Journal of Strategy and Management	–	Strategic decision making
[15]	2014	Ecology and Society	Complements/Substitutes	Adaptation/transformation
[125]	2014	Solutions	Complements	Performance/strategy
[128]	2014	Journal of Business Strategy	Complements	Performance/strategy
[8]	2015	Book Chapter (Resilient by Design)	Complements	Performance/strategy
[86]	2015	Strategic Management Journal	Complements	Business performance
[115]	2015	International Journal of Productivity and Performance Management	Complements	Business performance
[107]	2017	International Journal of Wine Business Research	Complements	Business performance
[26]	2017	International Journal of Climate Change Strategies and Management	Complements	Dynamic capabilities
[5]	2018	Science of the Total Environment	Complements	Environmental management systems
[89]	2020	Journal of Cleaner Production	Complements	Business performance
[29]	2020	Sustainability	Complements	Performance/strategy
[9]	2021	Sustainability	Complements	Strategy
[119]	2021	Environment, Development and Sustainability	Complements	Profitability

Our search identified various authors who discussed complementary effects between resilience and sustainability in the organizational context (e.g., [5,15,126]). However, there is a lack of empirical research on the implications of the complementary effects between measures of organizational resilience and sustainability, except Reference [119]. The authors of [119] provided empirical evidence that capabilities such as predicting (i.e., anticipating) crises and disruptions or being able to restore a disrupted system, both of which indicate organizational resilience, have a positive effect on both the social and economic aspects of the organization’s sustainability. In summary, the authors showed empirically that, in the organizational context, various aspects of sustainability and capabilities associated with resilience interact with and complement each other.

Some studies provided some empirical evidence on the potentially complementary effects of various combinations of resilience and sustainability measures on organizational performance (e.g., [26,29,86,89,107]). Other studies (e.g., [9,115]) proposed models that seek to explain the complementary effects of resilience and sustainability in the organizational context. The majority of studies, however, only broadly discussed the potential complementarities between various measures of organizational resilience and sustainability, without going into detail (e.g., [27,121,128]). Consequently, there is a need for more empirical research on the potential complementary effects of various measures of resilience and sustainability on organizational performance.

5. Discussion

The purpose of this paper is to examine the interrelationship of resilience and sustainability in the organizational context. Our analysis of the literature on organizational resilience and sustainability shows that increasingly more studies integrate measures of resilience into research on sustainability or measures of sustainability into research on resilience. We contribute to both types of literature, organizational resilience and sustainability, by providing a systematic review of how these two concepts are defined in relevant studies. To supplement our review, we conducted a citation network analysis, as well as a content analysis, of the relevant empirical studies. We furthermore provide our own integrative definitions of organizational resilience and organizational sustainability which we believe will help future research on the interrelation of sustainability and resilience in the organizational context. To aid such research further, we also developed an extended framework for categorizing the relevant studies that reveals current gaps in the reviewed literature. We also drew on complementarity theory [32,33] to identify studies that treated various measures of organizational resilience and sustainability as complementary or as substitutes for each other and the complementary effects of resilience and sustainability measures on organizational performance.

Our results show that, currently, only a few studies bridge the two types of literature, organizational resilience and sustainability. In that regard, our review is a step towards closing the gap between these two types and providing insights into managing resilience and sustainability at the organizational level. First, we compared our working definition of sustainability at the organizational level with our working definition of organizational resilience. Both definitions are based on the pool of relevant definitions in the literature. Both definitions emphasize short-term and long-term organizational survival and prosperity and regard sustainability and resilience as organizational abilities. However, in contrast to our working definition for organizational resilience, which only refers to the organizational environment in general terms, we take into consideration the economic, ecological, and social aspects of resilience, in line with the three pillars of sustainability. Some of the definitions that our search identified also drew parallels between resilience and sustainability. For example, Ref. [92] described a concrete connection between sustainability and organizational growth. The authors of [21,96] also referred to sustainability in their definition of resilience, though only in general terms, while [109,110] directly associated sustainable organizations with resilience.

Second, our search identified a number of studies in the literature on organizational resilience that drew links to research on sustainability and vice versa. Our analysis shows that sustainable business excellence and innovative models of sustainable business are emerging themes in the literature, and the respective studies (e.g., [114,116,117]) promise to bridge these fields of research.

Third, because of a lack of integrative frameworks for organizing relevant studies, we developed an extended framework for categorizing research that bridges the fields of organizational resilience and sustainability, based on the work of [5,22,23]. Our analysis of 62 publications shows that most studies that bridge the two fields emphasize the relationship between organizational resilience and sustainability. This emphasis tends to become stronger when natural disasters or crises occur, whose impact on society and

the global economy extends to organizational resilience and sustainability [119]. We expect that the COVID-19 pandemic will increase this tendency, as well as the number of publications on organizational resilience, sustainability, and the links between these two concepts. Among existing studies that bridge the respective literature types, most regard organizational resilience as a component of sustainability. This finding is in line with the definition of sustainable enterprises as ‘enterprises that are robust and resilient’, which Reference [110] (p. 277) offers. Our findings are also in line with those of [5], which identified resilience as a component of sustainability and provided one of the current three broad frameworks for organizing research on sustainability and resilience with regard to environmental management. The number of studies that regard either organizational sustainability as a component of resilience or the two concepts as completely separate is much smaller, and, conversely, we found no study that treats these concepts as completely interchangeable.

Fourth, drawing on complementarity theory [32,33], we identified studies that broadly discuss complementarities between organizational resilience and sustainability or between various measures of organizational resilience and sustainability. Most of these works, however, do not specify the complementary effects they discuss, leaving many questions unanswered. The amount of empirical research bridging the fields of organizational resilience and sustainability, however, remains small. Although some authors, such as [119], provided empirical evidence on the complementary effects of various measures of organizational resilience and sustainability, the fundamental question of whether the effects of organizational sustainability increase when complemented by the effects of resilience and, vice versa, whether the effects of organizational resilience increase when complemented by the effects of sustainability remains unanswered. Our analysis also identified studies that discuss the complementary effects of various measures of resilience and sustainability on organizational performance. Some of these studies also provide empirical evidence for these effects (e.g., [86,107,128]).

5.1. Contributions and Limitations of This Study

With this systematic review, we contribute to calls for further research on organizational resilience and sustainability (e.g., [2,22,28–30]). The authors of [29] called on scholars to explore non-financial performance indicators that are associated with organizational sustainability and can help increase organizational resilience. The authors of [2] called on scholars who focus on sustainability to integrate into their research resilience as a measure of organizational performance that can capture not only an organization’s profitability at a given moment but also its sustainability over time. The author of [28] (p. 221) stated that ‘the resilience perspective has important implications for companies that wish to become more sustainable than they currently are’; in a similar vein, Ref. [30] encouraged research on integrated organizational sustainability reporting, as well as on its implications for organizations, industries, and value chains and for the resilience of social–ecological systems. These authors call on scholars to examine the impact of social–ecological systems on strategies of organizational adaptation and to consider how building social–ecological resilience can impact organizations. Finally, Ref. [22] called on researchers to incorporate sustainability and resilience into organizational design to develop innovative solutions that integrate these two concepts also in practice.

This paper also has certain limitations that need to be addressed. First, we limited our search to the EBSCO and ScienceDirect databases and to the areas of business, management, and sustainability. Although we used the snowball sampling technique to identify citations to publications our search did not capture, we cannot rule out that we missed relevant works. Future research might address this limitation by using additional databases and search terms. A second limitation might be that our study does not include research on resilience management, sustainability management, and sustainability and environmental management control systems. However, these areas could provide insights into promoting and improving resilience and sustainability in the organizational context. Third,

given that, like most literature reviews, our review can only provide meta-analytical or theoretical insights, future research could focus on empirical approaches to the topics we investigated here.

5.2. Avenues for Future Research

The contributions and limitations of our study provide several avenues for future research. As there is a lack of empirical research that brings together measures of organizational resilience and sustainability, future studies could use mixed-method approaches, combining quantitative, qualitative, cross-sectional, and longitudinal methods, to examine how these measures interrelate. For instance, according to [129], longitudinal studies conducted in times of crises might yield insights that are not available in times of normal change. Similarly, future research could examine these relations within a single industry or across different industries.

Following Reference [78] (p. 927), which described the concept of organizational resilience as a so-called ‘umbrella concept’, a relevant future research question might be whether the concept of organizational sustainability can also be regarded as such an ‘umbrella concept’. A second relevant research question might be whether organizations that base their strategy on sustainability measures are more resilient than organizations that do not. Another interesting research question might be whether managerial focus shifts from sustainability to resilience measures when a crisis occurs and, if so, how and to what extent. In this context, the impact of the legal and regulatory aspects of both concepts (see [34]) should also be considered.

Linking the triple bottom line of sustainability to the triple bottom line of organizational resilience could be another fruitful area for future research. To further identify complementarities between measures of organizational resilience and sustainability, researchers could divide measures of organizational resilience into their ecological, economic, and social components. In addition, they could investigate how individual components of such measures are interconnected and how they influence each other. In this context, researchers could differentiate between the dimensions of resilience [9], based on the differentiation between the three core dimensions of sustainability (i.e., the environment, economy, and society) to capture the interdependencies and complementarities between the two concepts more accurately. Similarly, investigating the impact of individual components of resilience on sustainability, such as anticipation, coping, and adaptation [81], could be a fruitful area for future research. Another promising possibility might be to explore emerging themes, such as digitalization or digital transformation [20] and agility [9], that link research on organizational resilience and sustainability.

6. Concluding Remarks

The COVID-19 pandemic and crisis-related factors, such as the continued rise in commodity prices, are having tremendous impacts on organizations. In this context, the study of resilience and sustainability in the organizational context is becoming increasingly important. The views that our research identified on the relationship between resilience and sustainability in the organizational context range from regarding resilience and sustainability as completely different concepts to isolated views that the two concepts are interchangeable. A majority of studies view organizational resilience as a component of sustainability or, conversely, organizational sustainability as a component of resilience.

The results of our study reveal several tensions between the two concepts. However, this does not mean that efforts to combine organizational resilience and sustainability are unsuccessful; instead, it highlights the need to understand the two concepts better in order to integrate them successfully. Similarly, developing an integrative framework for resilience and sustainability in the organizational context does not mean that one concept trumps the other, but that, together, these concepts provide a more comprehensive understanding of the issues to which they relate than each concept alone can do. To the best of our knowledge, we are the first to conduct such a systematic review of the relevant

literature, develop an extended framework for categorizing research on organizational resilience and sustainability, and use complementarity theory [32,33] to show how measures of organizational resilience and sustainability complement each other and what joint effects they have on organizational performance. In that respect, we regard the present study as a fruitful source of future research on how organizations can improve their resilience and how they can be best supported in their efforts to implement practices that promote their sustainability. Our study is therefore also a call for further qualitative and quantitative empirical research that will help bridge the gap between the fields of organizational resilience and organizational sustainability.

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Abbreviations

Business continuity management (BCM): ‘In an organisational context, business continuity management (BCM) has evolved into a process that identifies an organisation’s exposure to internal and external threats and synthesises hard and soft assets to provide effective prevention and recovery’ [147].

Nongovernmental organization (NGO): ‘Nongovernmental organizations (NGOs) are typically mission-driven advocacy or service organizations in the nonprofit sector. There are large and small NGOs operating around the world and organized for just about every imaginable purpose’ [148].

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