CHAPTER 4

Resilience and Capabilities Adopted by Enterprises to Cope with Disruptive Events

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4.1 Introduction

Businesses confront multiple risks and challenges throughout their life cycle as a result of disruptive events such as financial crises, world wars, and pandemics, which have a considerable impact on their economic performance, leaving them vulnerable [1]. The current economic depression, which stems from the SARS-CoV-2 health epidemic that erupted in 2019, has thrown businesses into disarray, revealing massive social and economic costs at the local and macro levels around the world [2–4]. As a

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result, these types of disasters, as well as everyday problems like resource constraint [5], the lack of resources optimization [6], little investment in technology [7], market segments [8], low performance in innovation [9–11], lack of expertise [12], or high taxes [13], have an impact on businesses.

A significant term in the preceding context is resilience, which is described as a company's ability to dynamically reinvent its strategy and business model in response to changes in the environment. A resilient company can effectively change its strategy, business model, management system, governance structure, and decision-making direction, recognize and adapt to changing risks, tolerate interference with major revenue sources, and gain a competitive advantage by changing its strategy, business model, management system, governance structure, and decision-making direction [14].

The capability of an organization to deal with obstacles and find solutions to problems determines if it is resilient or not [15]. Therefore, the disruptive events in organizations' daily lives make us rethink the elements that allow companies to be resilient and survive. At the World Economic Forum, the SARS-CoV-2 concern was brought up, emphasizing the need for businesses to review their plans, including aspects such as 3R resilience, response capability, and the likelihood of reconfiguration [16].

In general, firms must be aware of both internal and external changes. The institutional theory states that an organization's adaptive potential is dependent not only on its internal capabilities but also on its external environment (for example, the social, political, and economic) [17]. In addition, the dynamic capabilities theory asserts that an organization's ability to respond to rapidly changing environments is based on its ability to integrate, build, and reconfigure internal and external competencies [18, 19].

Moreover, Nassim Taleb's black swan theory, also known as the black swan theory of events, indicates that unexpected occurrences, also known as disruptive events, have a significant socioeconomic influence and three characteristics: They are explainable and foreseeable because (i) they are an atypical case, (ii) they entail a severe impact, and (iii) they cause us to rationalize their presence in retrospect [20]. These three theories are the foundation of this research.

4.1.1 Problem Statement

The most common management issue is that firms do not plan for and implement the necessary capabilities to deal with disruptive events; that is, unexpected conditions or events place them in a position where they are unable to survive. For example, due to the terrorist attack on September 11, 2001, the United States government closed the country's borders and all incoming and outgoing flights. The impact it had on the supply lines was disastrous, and Ford Motor Co. had to idle several assembly lines as trucks loaded with components arrived late from Canada and Mexico [21, 22]. Although, there are studies such as the one developed by Giancontti and Mauro [15], which notes the constant changes that force businesses to seek effective survival strategies, and the one developed by Sanchi et al. [21], which proposes a conceptual framework for improving organizational resilience. Both studies analyze the survival or failure of firms under crisis, emphasizing that no universal principles exist to determine whether capabilities are sufficient for organizational resilience in the face of disruptive events.

It is worth mentioning that Mexico's response to the SARS-CoV-2 crisis in terms of economic policy has not been enough, unlike other countries in Europe or the American continent, such as Canada and the United States, which have immediately and extensively strengthened their economies in the face of the pandemic.[1] On the other hand, the World Bank expects that the global GDP per capita will fall by 6.2% this year,

[1] In Europe, from the European Parliament, the Commission, and the European Central Bank, response funds have been created to deal with, corona bonds for financing, a European rescue fund, and others that have only been put on the table like the Marshall Plan for public investments, European unemployment fund, minimum income, tax cut, to name a few. Monetary policy and macro-prudential policies have been essential to facilitate favorable financing conditions for all sectors of the economy. The cuts in monetary policy rates, the easing of the conditions under which banks can obtain liquidity and the reduction of bank reserves of liquidity, and capital have helped guarantee the flow of credit, especially towards small and medium-sized companies.

According to his minister, Justin Trudeau, Canada has authorized an emergency cash injection package that addresses direct relief for residents and businesses, as well as tax deferrals.

The United States Congress passed three stimulus packages to contain the impact on households and businesses. New laws were passed in April and June to improve the effectiveness of the programs included in the three fiscal packages. The Federal Reserve slashed interest rates to zero percent, and used a variety of policy instruments—some existing and some new—to keep financial markets running.

more than double that recorded in the monetary crisis of 2008; this, contraction puts the survival of companies even more at risk. The difficulty arising from SARS-CoV-2 crisis is determining what competencies companies acquired to survive.

4.1.2 Research Questions

What capabilities did companies take to face the impact of SARS-CoV-2?

How are companies surviving the economic crisis caused by SARS-CoV-2?

4.1.3 Research Purpose

This research aims to review the literature on the resilience capabilities adopted by companies to face disruptive events, using the current economic crisis caused by SARS-CoV-2 as a case study.

4.1.4 Justification

Natural catastrophes, pandemics, and economic depression are examples of sudden extreme events that pose a serious threat to a company's survival. Unexpected events in a firm's economic environment can have substantial effects and, in the long term, cause problems with an organization's resilience capability [23].

Developing organizational resilience has become a major concern for businesses, which have expressed a greater desire to improve their capability to handle unexpected business interruptions and ensure their long-term viability, which entails confronting risks and threats to protect critical business assets, whether physical, intangible, environmental, or human [24].

Enterprises that have a spread leadership structure and workforce, as well as the ability to react to change, are better equipped to handle crises. However, more research is needed to understand how to strengthen a company's resilience from a business strategy [14].

Organizations must examine the many stages of reaction involved in a crisis, establish a crisis management strategy before, during, and after the critical situation, and limit the negative effects of the disruptive event to comprehend and handle a crisis, and be able to work for a controlled recovery, evaluating the actions taken by the organization [15, 21].

4.1.5 *Study Limitations*

Organizations must consider a variety of conditions and markets, as well as their geographic breadth and economic sector (manufacturing, commercial, services). It is also necessary to undertake a more in-depth retrospective study in order to establish which competencies are most suited to various business sizes.

4.2 Literature Review

4.2.1 *Organizational Resilience*

Organizations must be effective and produce the results for which they were created. In addition, they need to achieve their goals effectively, which means that decisions must be made in the proper sequence, at the proper time, and with the right intensity. In the long term, a well-managed organization must adapt to its external environment [25–27].

On the other hand, there are different key economic indicators of an industry's prospects for expansion or contraction; market size and growth rates often vary markedly by region and demographic segment. Observing external conditions can support managers pinpoint the various growth opportunities and their limits [28, 29]. Consequently, the challenges that an organization faces have ramifications in both its specific (micro) and general (macro) external environments, as well as its internal operations because it affects itself directly or indirectly [4, 30]. For this reason, organizations have been subjected to numerous adjustments since their inception in order to streamline operations and fulfill goals [31, 32]. Companies use a variety of strategies to achieve continuous improvement, including ISO quality management and quality assurance standards, lean manufacturing, SWOT analysis, balanced scorecard, and six sigma, among others [33].

However, being resilient is the ability of a system to adapt to new risk environments, which means the capability for continuous reconstruction, keep up a positive adjustment under challenging conditions, and absorb disruptions to capitalize on events that potentially threaten organizational survival, transforming them into opportunities to maintain the positive performance of the organization [29, 34–41].

The term resilience has increasingly been seen in the research literature. Resilience is studied in various fields, with its earlier origins in the field

of ecology. In management, the ability of a corporation to renew itself through innovation, change, and reinvent itself by changing its reactions to political, social, economic, and competitive influences or difficulties is known as organizational resilience [29, 42]. A resilience vision focuses on a company's ability to withstand disruptions. Some researchers call strategic resilience the ability of a company to dynamically reinvent its business model and strategies as circumstances change [43, 44].

Resilient enterprises can effectively adjust their strategy, business, management system, governance structure, and decision-making direction; identify and adapt to changing risks; tolerate interference in their main revenue drivers; and create advantages [14].

4.2.2 Disruptive Events

Negative consequences caused by disruptive events emphasized the need to address efficient management and promote resilience [40]. Studies that have conducted literature on the topic of resilience caused by a disruptive event provided a review in its widest context and later its application within the organization [45–47]. Disruptive events are random events that occur as a result of internal and external factors that have a detrimental impact on a system's operations [22]. Quantifying the cost of a disruptive event means knowing how much it costs to implement preventive and corrective actions to overcome this issue [22, 41].

The theory of the black swan understands a disruptive event like an unexpected situation that has consequences on the company's performance. These events are called black swans and are unpredictable events beyond what is normally expected of a situation and have potentially severe consequences [48, 49]. In this review, disruptive events are assimilated as black swan events. Black swan occurrences are distinguished by their exceptional rarity, tremendous impact, and broad acceptance; they were predictable in retrospect. Despite the last characteristic, it is observed that even robust modeling cannot prevent a black swan event. As for the consequences, black swan events can cause catastrophic damage to an economy by negatively impacting markets and investments [50, 51].

The economic depression caused by SARS-CoV-2 is the disruptive event used in this research to address the research problem. As organizations relate to different stakeholders, such as suppliers, manufacturers, customers, or shareholders, any significant disruption event affects company performance. Therefore, that increases the impact caused on the economy and the likelihood of organizations facing risks [52].

4.3 Methodology

The method applied is the systematic literature review. It is argued that the systematic review provides the most efficient and high-quality method for identifying and evaluating large literature. Consequently, it allows for minimizing bias and subjectivity. The objective is to identify scientific contributions to a field or question and present the results in a descriptive way [53].

For a literature review to be effective has to (a) analyze and synthesize quality literature methodically, (b) be a good foundation for the research topic, (c) provide the basis for the selection of a particular research methodology, and (d) demonstrate that the research to be done contributes to the body of knowledge or advances the knowledge base of the research field [54].

The following criteria were used: be an article published in a journal. Thus, other publication forms (conference proceedings, books, newspaper articles, unpublished works) were not considered. Four databases were consulted to identify studies allowing to achieve the aim of this research: Science Citation Index (Web of Science), JSTOR, EBSCO, and Emerald. The search was conducted from the start of the pandemic in 2019 through December 2021. Resilience, capabilities, enterprises, organizations, and firms have been used as keywords within the search function. One hundred ninety-three relevant articles were retrieved for an in-depth analysis of the main topic, entire articles were examined, and some did not match the inclusion criteria. After that, there were 105 studies that met these criteria.

4.4 Results

So far, this literature study has looked at resilience from the standpoint of a business. This research looks at the impact of the SARS-CoV-2 crisis in the enterprise dimension to notice what capabilities companies adopted to survive the crisis. The identification of resilience capabilities for companies is shown in Table 4.1. When considering the general features of analyzed studies, it was found that capabilities identified by researchers and the most prevailed are adaptability, agility, collaboration, decreased vulnerability, diversification, dynamic capabilities, flexibility, innovation, knowledge and learning abilities, and reconfiguring organizational resources.

There are three dominant capabilities found in the 105 selected articles: flexibility, innovation, and knowledge and learning abilities. They are followed by the capabilities of adaptability, agility, collaboration, diversification, and reconfiguration of organizational resources found together in 60% of the selected articles. Furthermore, the capabilities decreased vulnerability, and the dynamic capabilities represented around 10% of the total articles.

The organizations that have been analyzed in the selected studies include companies from various sectors such as manufacturing [55–60], financial market [14, 61–63], state enterprises [64, 65], sand service companies, [66–69]. By the firm's size, the sample covers small and medium size enterprises [24, 58, 70–73] and large corporations [68, 74]. As well as in several geographical areas among which are China [14, 55, 57, 59, 75, 76], Romania [24], Italy [61, 77–81], Turkey [69, 82–84], Iraq [70], Vietnam [64, 85–89], Croatia [45], United States of America [90–92], Spain [62, 66, 93–96], Jordan [58, 72, 97], Bangladesh [98, 99], Portugal [100, 101], Arab Emirates [68, 102], Israel [73, 103], Norway [104, 105], and Pakistan [60, 106–108].

Two case studies were found, one in Asia [39] and the other in Portugal [100]. The statistical model predominating is structural equation methods [45, 55, 60, 68, 98], but also researchers use others such as least squares [57, 90], linear structural relations [75], panel vector autoregression [59], and Pearson correlation [73]. Meanwhile, the use of qualitative methodologies is lower [93, 109–112], compared to the use of quantitative ones which is greater [14, 22, 24, 45, 55, 57, 68, 71, 77, 90, 98, 100, 113, 114].

As can be seen, the concept of resilience became an urgent term due to disruptive events [172]. Although adaptability, agility, and flexibility are typically classified as supporting traits of resilient businesses, they can help organizations recover more quickly from this predicament and absorb the impact of environmental shocks [14, 24, 41, 56, 75, 77].

Collaboration capability can enhance the resilience of organizations. Being collaborative is an enhanced resilience strategy in which at least two groups or individuals with different viewpoints investigate the others' activations to evaluate accuracy or validity. Implementing collaboration actions can be detected quickly enough to mitigate adverse consequences [119, 121, 125, 126].

The concept of decreasing vulnerability [43, 45, 46, 90, 173] is linked to the feeling of need, such as lack of financial resources, lack

Table 4.1 Capabilities acquired by organizations to be resilient

Capability	*Meaning*	*Articles related to the capability*	*Scope*
Adaptability	The ability of an organization to adapt to its surroundings and recover after a disruptive event is known as adaptability [41]	[14, 24, 39–41, 45, 55, 64, 102, 115–117]	[14] Studies approach and regression analysis based on the Chinese stock market [39] Qualitative study using case organization, PU Corp, a company in Asia [40] A literature survey to review the existing literature on supply chain resilience [41] A review of the literature on resilience, enterprise resilience, and extended enterprises [55] The structural equation model (SEM) was used to perform studies with Chinese employees in 31 companies across nine industries, including manufacturing, finance, education and training, and others [64] State capital enterprises in Vietnam using SEM [24] Micro and small enterprises in Romania. A questionnaire-based survey was used. An exploratory factor analysis was employed [70] Iraqi micro, small and medium enterprises use qualitative interviewing used as the approach, toking an abductive approach [77] Italian small family firms using Ordinary Least Squares regression [45] Empirical research was carried out on a convenience sample of 502 respondents from the Republic of Croatia, using Structural equation modeling [102] In Riyadh, Saudi Arabia, a study was conducted with 445 responses from male and female businesses [115] Related evidence is given in the contribution to three important supply chain competencies in the post-COVID-19 business environment from the standpoint of purchasing and supply management

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Table 4.1 (continued)

Capability	*Meaning*	*Articles related to the capability*	*Scope*
			[116] A conceptual model was created. Using survey data from 98 individuals of the Peruvian coffee supply chain, the model was tested using partial least square regression. Also performed was a fuzzy-set qualitative comparative analysis (fsQCA) [117] A conceptual framework is suggested to study the ability of a service firm to make adaptations to pandemic conditions
Agility	Agility refers to a company's capacity to respond quickly to changes in the environment [41]	[14, 23, 39–41, 56, 64, 74, 75, 77, 115, 116, 118]	[14] Ídem [39] Ídem [40] Ídem [41] Ídem [56] A bibliometric investigation of the robustness of industrial systems in the Industry 4.0 Era [64] Ídem [74] A case study in Russia boarding meetings with customers and interviews with subsidiary management [75] The study was conducted in China, with linear structural relations as the tool for data analysis, in companies that have adopted enterprise social media at work [77] Ídem [115] Ídem [116] Ídem [23] SEM was used to study a sample of 213 small retail businesses in the Emilia Romagna area of Italy [118] From an analysis of the location of households with the disease

Capability	*Meaning*	*Articles related to the capability*	*Scope*
Collaboration	Collaboration is a working practice whereby individuals work together for a common purpose to achieve business benefits. Collaboration is the ability to share information with business partners [41]	[39, 40, 71, 119–126]	[39] Ídem [40] Ídem [71] In small and medium-sized enterprises (SMEs), using fuzzy cognitive maps with managers and entrepreneurs who operated in the Lisbon metropolitan area [121] This paper identifies a third type of resilience, called meso-level resilience. Multiple supply networks collaborate on short to medium-term supply concerns, resulting in meso-level resilience [122] Based on a thorough literature analysis of peer-reviewed studies published in 2020, a framework for the impact of the COVID-19 epidemic on supply chains has been developed [123] The authors conducted focus groups with seven members of the World Fair Trade Organization Asia from six countries: Thailand, Bangladesh, Nepal, India, the Philippines, and Indonesia [124] Qualitative information from Bosnia and Herzegovina's SMEs [125] Using quantitative operational data obtained from JD.com in China [126] Face-to-face interviews from the qualitative phase were further analyzed through a questionnaire survey within Lagos and Abuja, Nigeria [119] Qualitative resilience assessment approaches are categorized as conceptual frameworks and semi-quantitative indices, and several quantitative resilience assessment approaches [120] In the fields of management and modeling and simulation, quantitative secondary resources such as scientific publications, relevant literature, and journals, as well as qualitative research methods, are used

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Table 4.1 (continued)

Capability	*Meaning*	*Articles related to the capability*	*Scope*
Decreased vulnerability	Vulnerability is defined as being at risk and the likelihood of having disruptions [41]	[45, 46, 90]	[45] In the Republic of Croatia, an online survey using SEM methods [46] A knowledge visualization index for pandemic vulnerability was created [45] Ídem [90] Using the data collected from people who had dined in a restaurant in the USA, a structural equation model was conducted with the Partial Least Squares method
Diversification	Diversification refers to a business strategy involving multiple product types, sale types, and brand categories [14]	[14, 57, 62, 63, 127–134]	[14] Ídem [57] Sampling 1434 Chinese manufacturing firms amidst the COVID-19 crisis, our two-stage least squares (2SLS) regression analyses [62] Thirteen portfolio strategies in the Spanish financial market (Ibex 35) during the COVID-19 pandemic by using three standard financial metrics [63] The data used were taken from the Compustat Bank Fundamentals Quarterly database using two estimating equations [127] In Caspian Basin, using annual data from the United Nations Conference on Trade and Development for each country from 2007 to 2018 method measure diversification index [128] Markowitz diversification techniques for cryptocurrency portfolios [129] Geographic diversification of the supply chains of Japanese Firms [130] The sample of this study consists of real estate firms listed in the Chinese A-share stock market that trade on the Shanghai Stock Exchange and the Shenzhen Stock Exchange

Capability	*Meaning*	*Articles related to the capability*	*Scope*
			[131] Using the Morgan Stanley Capital International daily stock indices data and the Carhart and the GARCH [132] The paper is an attempt to build a conceptual theory based on the combination of literary and phenomenological juxtaposition [133] Using wavelet coherence analysis in time–frequency space, the dependency between AI & Robotics equities and traditional and alternative assets is examined [134] This study used a combinatory methodology to examine how 124 Brazilian SMEs arranged their working capital and levels of dependent on clients and suppliers before and during the pandemic
Dynamic capabilities	An organization's and management's ability to integrate, build, and reconfigure internal and external skills in response to quickly changing circumstances [27]	[18, 58, 59, 98, 135, 136]	[18] The work was based on conversations with other participants of the Technological and Economic Dynamics Project at the International Institute of Applied Systems Analysis in Luxemburg, Austria [58] 43 semi-structured interviews with entrepreneurial resource providers, owners, and managers of many small and medium-sized firms across various industrial sectors in Jordan were used to obtain qualitative data [59] China's manufacturing industry uses the panel vector autoregression PVAR model [98] SMEs in Bangladesh using SEM [135] The theoretical framework is known as dynamic capabilities [136] An overview of the interconnections between the elements of the economic system that corporations use to chart their profit paths

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Table 4.1 (continued)

Capability	*Meaning*	*Articles related to the capability*	*Scope*
Flexibility	Flexibility is described as an organization's capacity to respond quickly and effectively to changing demands from its environment and stakeholders [41, 125, 137]	[14, 38–41, 70, 99, 116, 118, 125, 138–145]	[14] Ídem [38] Using a large-scale survey during the COVID-19 pandemic conducted by the Brazilian government to public or private sector and self-employed individuals, and control for industry-sector-interview-location [39] Ídem [40] Ídem [70] Ídem [99] The impact of COVID-19 on graduate employment in Bangladesh has a negative influence on family income and, subsequently, the economy of the country [41] Ídem [116] Ídem [118] Ídem [125] Ídem [138] Chinese A-share listed companies on the Shanghai and Shenzhen stock exchanges were analyzed with regression [139] Literature review [140] The study's methods included scientific literature analysis and synthesis, as well as a critical discussion based on the references presented [141] In Yogyakarta, Indonesia, a qualitative study design was adopted, which included semi-structured interviews with five creative industry-based enterprises. In SMEs, the data was examined using theme analysis with MaxQDA 2020 [142] Using the dynamic capability view to examine the relationship between firm innovation and a firm's response to supply chain disruptions

Capability	*Meaning*	*Articles related to the capability*	*Scope*
			[143] [144] explores how employees work directly with COVID-19 patients participating in job crafting amid a pandemic crisis [145] Propose policies that can lessen the negative effects of this pandemic on food assistance
Innovation	A new or enhanced product or process (or a combination thereof) that differs significantly from the unit's prior products or processes and has been made available to potential users (product) or put into use by the unit is referred to as innovation (process) [146]	[14, 16, 59, 68, 73, 91, 98, 100, 118, 123, 147–151]	[14] Ídem [16] Using financial and non-financial factors, the quantitative model was implemented in the Andean area [59] Ídem [68] Regression analysis of large corporations, SMEs, and households in the United Arab Emirates [91] Multiple regression analysis based on a sample of 61 R&D employees of UK and US technology-based firms [98] Ídem [100] The business sector in Portugal through seven case studies [73] Small businesses in the industry sectors in Israel that employ between 10 and 50 employees, using Pearson correlation coefficients [118] Ídem [123] Ídem [149] This study explores how companies reacted to top-down-initiated social innovation and entrepreneurship activities. It focuses on China, and it collects data from companies involved in the production of medical masks and the provision of solutions for nucleic acid tests [150] Discusses the potential value of digital technologies in enhancing global value change in MNEs and SMEs

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Table 4.1 (continued)

Capability	*Meaning*	*Articles related to the capability*	*Scope*
			[147] A mixed-methods approach is used, with quantitative data from the OPSI framework on the number of innovative ventures. Then, in a second phase, qualitative data from each project is examined in order to assess each initiative's open data innovation possibilities [148] Identify and discuss ten technologies playing a major role in the COVID-19 crisis [151] Qualitative method, interviews with Technological Research and Innovation Institutions, whether private or public
Knowledge and learning abilities	Facts, information, and abilities acquired via experience or study, as well as a theoretical or practical comprehension of a subject, are all examples of knowledge [152, 153]	[60, 61, 76, 78, 79, 85, 92, 105, 112–114, 114, 155–164]	[60] Data was collected from 610 randomly selected employees in the manufacturing firms of Pakistan using SEM [61] Using the forecast of Italian GDP growth for 2021 and 2022 published by the International Monetary Fund, including financial, political, and public health information available to the global economic analysts [76] An assessment of worldwide scientific co-production networks reveals Chinese organizations' growing importance and knowledge intermediation profile [78] In Italy, during the COVID-19 emergency, within the current institutional communication of politics [79] A point of view about growth and the capability to incorporate innovation, and quantity and quality of investment in education and knowledge, in Italy and their interrelation with the structure of the productive system [85] Research was conducted in the Vietnamese context via a questionnaire survey using SEM [92] During the COVID-19 outbreak, an online poll of 490 full-time employees from various industries in the United States was undertaken

Capability	*Meaning*	*Articles related to the capability*	*Scope*
	Enterprise Learning involves the people, process, culture, instructional content, and enabling technologies to deliver a holistic training strategy and maximize learning outcomes across the organization [154]		[105] A sample of 4854 knowledge-based entrepreneurial ventures was retrieved from a database of registered firms in Norway, analyzed by Tobit regression [112] The method is a qualitative case study of 22 employees from various geographically of an organization within one business sector, namely logistics [113] Data from a quantitative survey in the context of the venture capital-driven innovation ecosystem [114] A multivariable logistic regression model was used to conduct a cross-sectional survey of 140 adult citizens of Onitsha city in March 2020 [156] The method used is based on a comparative analysis of the deliberate and emergent knowledge strategies based on criteria like time perception, systems thinking, type of knowledge, type of changes, and complexity [157] A critical literature review method, finding five themes and related topics [159] Using content analysis, 1053 employees and 290 managers of knowledge work in Denmark responded [164] During the pandemic lockdown, an online cross-sectional survey was conducted among knowledge workers in Norway, and the results were evaluated using a range of approaches, including an independent sample t-test, a one-way Anova test, and linear regression analysis [155] Five basic repurposing principles are discussed, as well as the lessons they contain for managers in a variety of industries and organizations who must quickly innovate in the face of disasters [158] From a knowledge perspective, this analysis based on the classic four-quadrant "conscious–competence" framework- work examines the current state of the COVID-19 crisis. It draws on qualitative current media reporting limited to international, fact-checked pandemic coverage

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Table 4.1 (continued)

Capability	*Meaning*	*Articles related to the capability*	*Scope*
			[160] An integrated literature review based on the PRISMA methodology [161] A set of operational guidelines for healthcare organizations to launch effective countermeasures against such crises using effective knowledge management practices [162] A total of 19 papers collected published in Organization Science explore how organizations learn from crises [163] The study provides a paradigm for MSMEs to create an online knowledge ecosystem and a standalone text analytics tool, both of which are developed using advanced data analytics design science research approach
Reconfigure organizational resources	The firm's resources are the tangible and intangible assets that it can develop and efficiently govern. Employee talents, equipment, and the organization's aggregate skills are all examples of resources [15, 165]	[18, 19, 136, 155, 166–171]	[18] Ídem [19] Ídem [136] Ídem [155] Ídem [166] The longitudinal qualitative study deployed semi-structured interviews with nine owner-managers analytical procedures were used in small firms & small to medium-sized United Kingdom enterprises [167] Resources challenge equilibrium framework across system levels to facilitate service ecosystem well-being [168] The efficiency analysis approach is applied to a sample of Indonesian Islamic banks from 2014 to 2019 [169] Case study approach with a multi-criteria decision-making model in India [170] A theoretical sampling method was used in five companies in Italy that operate in diverse industries (three in automotive, one in printing, and one in rubber and plastic products manufacture) [171] Conceptual paper using the Ability-Motivation-Opportunity framework

of provisions, lack of experience, competition, risk, and others, adopting organizational capabilities could help to decrease vulnerability, acquiring resilience capabilities the sentiment of needing something can be handled in a better way.

Another way to deal with disruptive events is by adopting diversification capability; influenced by the economic trajectories of local economies. Organizations can adapt their vision, considering the shock event as an opportunity to diversify their products and services. Diversity is of great significance to social and economic stability and development, and some studies [14, 57, 62] have concluded that diversification helps enhance resilience. Considered that more diversified products and services become resilient [14, 57, 62, 63, 127, 128].

The strength of the dynamic capabilities of a business determines the degree of alignment of business resources, including its business model. To achieve this, organizations must be able to continuously detect opportunities, periodically transform aspects of the organization, and reposition themselves in a proactive way to deal with even newer threats and opportunities as they arise [27, 136].

One of the most critical issues in the literature review is the capability of innovation that helps to be more resilient [100, 147, 151]. Product innovations entail technological innovation and market innovation, and they are a major source of profit for businesses [174–176]. More flexibility to adjust to disruptive occurrences can be acquired through innovation [177].

Above all, people learn from a disruptive event, increasing firm knowledge. As knowledge grows, its accumulation produces more knowledge, which helps to improve processes or procedures, and applied knowledge, which derives from diverse products. The growing importance of knowledge as an economic resource has been reviewed from many angles, giving rise to slightly different meanings, each of which tends to emphasize different aspects, but learning from disruptive events [78, 92, 158, 162, 164] generates innovative ideas that help firms rethink on the capabilities they can build to be resilient.

Also, companies need to reorganize themselves to adapt to disruptive events. The reorganization has been proposed as a key dynamic capability. Organizational restructuring and organizational reconfiguration of resources are associated with positive performance, so in dynamic environments, reconfiguration turns positive [166–168, 170, 171]. The reallocation of resources can assist pay greater attention to what is vital

in disruptive occurrences because the current structure of the firms is related to the past. Through these detected resilience capabilities (Table 4.1), firms embraced the crisis to deal with the effects of the pandemic event [14, 16, 35, 178].

4.4.1 Theoretical Implications

The extant literature provides some evidence on capabilities adopted by the enterprises to be resilient and deal with disruptive events. The theoretical mainstays are the institutional theory, the dynamic capabilities theory, and the black swan theory. Although these theories emphasize the positive aspects with which organizations can face adverse situations or maximize the use of their resources, it is recommended that more theories be included to have a holistic perspective.

Also, it should be emphasized that the resilience capabilities detected are not exclusive. A longitudinal study analyzing the events that put organizations at risk would help to understand what other capabilities have helped organizations to survive to have better handling of the situation. In addition, there are capabilities highly dependent on each other. Furthermore, it is necessary to find which of them are more appropriate depending on the company characteristics, such as size, sector, and context.

4.4.2 Practical Implications

Managers or people in positions of leadership in businesses, as well as other stakeholders, can use the study's findings to better deal with disruptive events and manage their recovery. Enterprises must be prepared to plan for short- and long-term scenarios, recognize the scope of the situation, implement capabilities, determine the actions to be taken in response to various scenarios that could be caused by disruptive events, adapt their organizations, and promote a resilient attitude.

Furthermore, organizations must examine the numerous conditions and markets in which they operate, as well as their geographical reach, specifically the country and economic entity to which they belong.

4.5 Conclusions

There are diverse ways of seeing resilience in the business world, but all of them agree on the company's survival and overcoming the circumstances of an unexpected event. Enterprises must develop and implement capabilities to recover and maintain their organizational viability. Organizational capabilities, as indicated by Teece in his work 2018 Business models, dynamic capabilities originate in part from learning, integrating resources, and using complementary assets from a theoretical standpoint. Many capabilities become routines, and some are only available to the top management team.

Enterprises are exposed to a broad risk and an unpredictable future characterized by both internal and external disruptive events due to several causes such as financial crises, world wars, pandemics, and others more common like scarcity of resources, lack of resources optimization, little investment in technology, market segments, low performance in innovation, lack of expertise, and high taxes. By developing resilience, organizations can decrease the degree of risk they are exposed to and increase their ability to adjust to uncertain events.

Finally, the research and capabilities used by enterprises to deal with the impact of SARS-CoV-2 in this literature review are as follows: adaptability, agility, collaboration, decreased vulnerability, diversification (products or services), dynamic capabilities, flexibility, innovation, knowledge and learning abilities, and the reconfiguration of organizational resources. Therefore, resilient organizations can cultivate these capabilities under challenging conditions to find subsistence opportunities.

Some of these capabilities are frequently identified as attributes (adaptability, agility, collaboration, flexibility), others as skills to be acquired (decreased vulnerability, reconfiguration of organizational resources), and others that involve more complex processes to be implemented (dynamic capabilities, innovation, diversification, knowledge and learning abilities).

It is also feasible to take a better approach to the problem and choose the capability that best meets our organizational needs by classifying the sorts of disruptive events. Furthermore, after the most vulnerable organizational areas have been recognized, measures must be made to relieve the strain.

In the literature exploration, we cannot speak of a profitable sector that has not been affected by the SARS-CoV-2 in extremity; all business sectors on a global scale were affected. Enterprises need to identify

the internal characteristics and external influences which make them vulnerable to events.

To survive the economic depression caused by SARS-CoV-2, organizations studied here achieve desirable resilience through related opportunities with their products or services; they, also use internal collaboration to form decision-making teams to deal with the emergency. Therefore, some strong enterprises adopt strategic deviance, while weaker enterprises diversify. Also, some organizations use operational flexibility to deal with the disruption event, and some make changes in the reconfiguration of their resources.

Moreover, suppliers' payment conditions showed a direct relationship with enterprise resilience capability, with lower use of debt capital, as well as managers developed solutions for fulfilling and maintaining customer relationships arising from the inability to resume production in the short term.

On the other hand, enterprises should demonstrate, openness to product innovation and adaptation to respond to the disruptive event. This can be accomplished through investments in R+D, educational institution collaborations for the development of new products, and national innovation systems, among other things.

Organizations face several difficulties, and resilience capabilities are a critical tool for preparing for changes that may jeopardize their survival. Connecting systems, people, processes, and information, allows an enterprise to become more responsive to the dynamics of its environment.

Finally, the application of organizational resilience, requires the commitment of corporate governance, improving infrastructure, efficient use of technology, and resources available to support its implementation. Increasing resilience entails putting to use the resources and capabilities that businesses already have or can develop in order to deal with a disruptive event. Enterprises must design a plan to address the problem, determine the priorities, assess the financial impact, and reclassify the sources.

Future Work

Processes, systems, technology, and infrastructure should all be investigated further to make them more resilient. Analyze businesses in various domains and conduct cross-comparisons to improve the proposed framework.

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