

Strategic Management of Organizational Resilience (SMOR): a Framework Proposition

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Abstract

Purpose – To present and describe the Strategic Management of Organizational Resilience (SMOR) framework, as well as to analyze it based on the strategies used by four Brazilian organizations in this current time of intense vulnerability due to the worldwide pandemic triggered by COVID-19 at the beginning of 2020.

Theoretical framework – Organizational resilience and related management practices.

Design/methodology/approach – A literature review; bibliometrics relating to organizational resilience; the SMOR theoretical framework; an analysis of this framework within four Brazilian organizations, based on qualitative research and interviews, aiming to identify the strategic actions adopted by these organizations before and during COVID-19.

Findings – The organizations analyzed, which were different sizes and from different sectors, presented common points directly linked to the dimensions of SMOR: systematic analysis of scenarios; partnerships with stakeholders; systematic sharing of information; decision-making ability; financial management; rapid response and learning ability.

Practical & social implications – The research contributes to understanding how organizations can improve their culture of resilience and, therefore, deal more assertively with vulnerabilities and disasters of different natures. The COVID-19 pandemic has forced the world and organizations to reinvent themselves. In this context, the SMOR framework aims to provide a more detailed understanding of environmental risk / vulnerability management.

Originality/value – The SMOR framework helps organizations with different levels of complexity to understand their strengths and weaknesses, assess internal and external scenarios, and systematically analyze their processes, with the aim of strategically managing their respective resilience.

Keywords – Strategic management of organizational resilience, environmental variability and adversity, environmental uncertainty and risk, organizational adaptation and flexibility, COVID-19.

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I Introduction

Organizations are complex networks of people, places, and resources that are susceptible to different crises, mostly related to the unpredictability of their environment. However, some organizations are better prepared to handle these adversities and environmental variability because they are more resilient, which favors their 'adaptive cycle' (Ponomarov & Holcomb, 2009, p. 126).

Relevant studies on this topic emphasize that organizational resilience results from management strategies that determine or modify the skills, abilities, and attitudes of professionals, aligned with environmental and corporate values, among other factors (Jiang, Lepak, Hu, & Baer, 2012; Jiménez-Jiménez & Sanz-Valle, 2007; Lengnick-Hall, Beck, & Lengnick-Hall, 2011; Seeck & Diehl, 2017).

In addition to these strategies, organizational resilience considers some specific company abilities: (i) the ability to anticipate, based on flexible monitoring of scenarios (Hollnagel, 2008); (ii) a systematic approach to risk management, with flexible allocation of resources, which helps to respond to or prepare for disruptive events (Burnard, Bhamra, & Tsinopoulos, 2018); (iii) understanding and management of social and environmental vulnerabilities (Gaillard, 2007; Lee, Vargo, & Seville, 2013); (iv) quick response and decision-making capacity in turbulent environments (Pavlou & El Sawy, 2011), based on interorganizational relationships, managing business continuity through the mobilization and reconfiguration of operational resources (Wicker, Filo, & Cuskelly, 2013); (v) attention to reputational impacts inside and outside the community (McManus, 2008), requiring effective communication management; (vi) the ability to learn from experience and collaborate with people and companies operating in the same sector, so that they can manage unexpected challenges (Lee *et al.*, 2013); and (vii) implementation of new practices and adjustments to current practices with effective change management (Hamel & Välikangas, 2003; McManus, 2008), which can be facilitated with creative problem-solving routines (Lengnick-Hall *et al.*, 2011).

Despite the various abilities attributed to organizational resilience, the literature presents insufficient discussions about how organizations are structured to handle various situations and adversities. This is particularly because it is a construct with highly complex processes (Irigaray, Paiva & Goldschmidt, 2017) and there is a lack

of consensus on what resilience actually means and what its components are, especially considering it is seen as a result – when organizations recover from disruptive events. There is a lack of understanding of what organizations effectively do and how organizational resilience can be achieved (Duchek, 2020).

In order to minimize these gaps, this study aimed to propose a framework for the model called 'Strategic Management of Organizational Resilience' (SMOR), based on its Portuguese version *Gestão Estratégica de Resiliência Organizacional* (GERO), developed in Brazil. The study intends to analyze it based on the strategies adopted by four organizations in Brazil at a time of high vulnerability due to the COVID-19 pandemic outbreak in early 2020. COVID-19 is the disease caused by SARS-CoV-2, a virus from the coronavirus family, which is found in different animal species. In late 2019, the virus was first identified in Wuhan, China, and COVID-19 was transmitted person to person, infecting populations worldwide (<https://coronavirus.saude.gov.br/sobre-a-doenca>, accessed on March 8, 2020). Among other symptoms, the virus causes respiratory diseases, which can lead to patient death.

The SMOR framework was developed based on cognitive, behavioral, and contextual capacities identified by Lengnick-Hall, Beck, and Lengnick-Hall (2011), and strategic organizational factors mentioned by Ho, Teo, Bentley, Verreyne, and Galvin (2014). Both studies focus on human resource management. The framework also includes resilience capacities, which contribute to the recovery and adaptation of an organization in situations of uncertainty. This framework aims to strategically guide organizations in resilience management, without emphasizing specific actions for each adversity, and by focusing on three particular dimensions: (i) the environmental dimension, for a better understanding of the external environment; (ii) the organizational behavioral dimension, which includes the anticipation, response, and learning abilities that organizations will need to develop or improve; and (iii) the individual behavioral dimension, which considers the behaviors of professionals that contribute to organizational resilience. These three dimensions are supported by organizational practices, which are understood to be systematic strategic actions that contribute to enhancing the tactics proposed in each dimension of the SMOR model, especially in times of adversity such as during the COVID-19 pandemic, which has forced organizations around the world to reinvent their processes, products, and services.

2 Theoretical framework

2.1 Individual resilience and organizational resilience

The first academic studies about resilience were conducted around 60 years ago by Norman Garmezy, a pioneer in investigations into risk and resilience in children of schizophrenic parents (Coutu, 2002). His concept has been used to explain psychosocial phenomena in individuals and groups that overcome adverse scenarios (Barlach, Limongi-França, & Malvezzi, 2008).

Initially mentioned as a personality trait, individual resilience has been studied in the fields of psychiatry and psychology as an internal factor, without considering ecosystem contexts (Waller, 2001). Today, few authors categorize resilience as a personal trait (Barlach *et al.*, 2008); it is now studied as one's adaptation to one's environment (Waller, 2001).

In the corporate environment, individual resilience was studied by Mallak (1998), who identified the advancement of technologies and the autonomy and empowerment of workers in the late 1990s as creating pressure on individuals within organizations. In specific decision-making situations, without adequate training, these workers had to develop resilience, quickly adapting to the current scenario and tolerating the psychological stress resulting from constant transformations (Mallak, 1998).

Organizational resilience uses some of the concepts described above, but in the corporate universe. It focuses on how companies manage their vulnerabilities and adapt to rapid changes (Lee *et al.*, 2013). According to researchers such as Hollnagel (2008) and Sutcliffe (2011), the quality of resilience in an organization can be defined according to the development of capacities to: (i) understand tensions, maintaining operations despite adversities; (ii) respond to various adversities and threats, based on increased internal capacity to absorb vulnerabilities, without collapsing; (iii) flexibly monitor what is happening through systematic analysis of scenarios; (iv) anticipate pressure and disruption, with a view to the future; and (v) learn and grow from previous episodes.

Some authors claim that an 'analytical distinction' (Vogus & Sutcliffe, 2007, p. 3419) must be made between problem anticipation, which refers to preventing and predicting potential adversities, and resilience, which is the ability to handle adversity after it occurs (Weick, Sutcliffe, & Obstfeld, 1999). Many organizations tend

to focus on only one of these aspects, usually problem anticipation (Weick *et al.*, 1999).

Organizational resilience has been described as both a proactive and passive measure: (i) it is a proactive measure when organizations create internal processes and structures that support the development of 'latent resilience' (Somers, 2009, p.21), with organizational environments favoring adaptability and proper improvisation; when organizations manage their risks, based on the mitigation of vulnerabilities; and when organizations develop response planning and early warning systems, allowing them to take proactive actions (Sawalha, 2015); (ii) it is a passive measure when it involves adaptation to new scenarios and risks 'connected to economic rationality' (Longstaff, 2005, p.20), as well as recovery after a crisis or disaster (Sawalha, 2015).

Organizational resilience involves much more than effective risk management or business continuity management (Commonwealth of Australia, 2011). It also requires a 'responsive and adaptive culture' (Commonwealth of Australia, 2011, p. 10) whose focus is on protection, performance, and adaptation. Thus, organizations must understand how they will address adverse events and situations.

In this sense, the Commonwealth of Australia (2011) defined four levels of maturity in organizational resilience: (i) decline, when the organization believes an adverse situation can stop its operations; (ii) survival, when resilience is reduced after an incident; (iii) recovery, when the capacity for resilience allows an organization to recover quickly and effectively; and (iv) improvement, when the focus of organizational resilience is on improving different aspects such as reputation, market share, team morale, and future risk management. Sawalha (2015) added a fifth level of maturity to the Commonwealth of Australia (2011) model, called 'culture of resilience' (p. 2), the highest level in this model, which refers to cultural adaptability in the face of unexpected events.

Organizational resilience is a multidimensional phenomenon (Lee *et al.*, 2013) related with managing uncertainties. Organizations handle these uncertainties in different ways (Lee *et al.*, 2013): (i) by increasing robustness to withstand adverse situations and maintaining focus without operational shutdown or degradation (Bruneau *et al.*, 2003; Tierney, 2003; Wicker *et al.*, 2013); (ii) by understanding their operational environment, including threats and opportunities (McManus, 2008); (iii) by responding quickly to unexpected situations and

developing a learning culture (Lee *et al.*, 2013); (iv) by acting fast in order to identify problems, mobilize resources, and prioritize processes, reaching goals according to schedule (Bruneau *et al.*, 2003; Tierney, 2003); (v) by expanding replaceable systems or elements that meet functional requirements in case of operational shutdown or redundancy (Bruneau *et al.*, 2003; Tierney, 2003); and (vi) by improving current capacity, which involves greater storage of resources, contributing to future learning, among other processes (Vogus & Sutcliffe, 2007).

The concepts of organizational resilience, organizational adaptability, and improvisation (the ability to respond without prior planning) overlap, considering they do not involve learning and growing when faced with challenges. Organizational resilience indicates evolution to a new condition, where those involved are consciously prepared for unplanned situations (Ma, Xiao, & Yin, 2018). It is 'more similar to the ability to recover after destruction than to the ability to resist unexpected events and crises' (Ma *et al.*, 2018, p. 255), since recovery involves learning.

2.2 Organizational resilience according to management dimensions

To identify how different authors have analyzed organizational resilience according to management dimensions, a bibliometric analysis was conducted, evaluating theoretical and empirical articles published from 2000 to 2019 in the database. These articles discuss organizational resilience, more precisely its dimensions, and how it was analyzed in the study period. The Web of Science database is commonly used in bibliometric studies due to its 'broad coverage of social science publications' (Serra, Ferreira, Guerrazzi, & Scaciotta, 2018, p. 5) from the most important international journals in the field.

In total, 133 theoretical and empirical articles were selected using the search terms "*Organization* Resilien**" OR "*Organisation* Resilien**" in the "topic" field (title, abstract, and keywords) and then they were analyzed. The research areas chosen were management, business, industrial engineering, and interdisciplinary social sciences. The starting date was 2000, because no article from before that was found, and the end year was 2019, when this article was developed.

In order to identify 'similarity, complementarity, overlap or even opposition of ideas in relation to the authors mentioned' (Grácio & Oliveira, 2014, p. 6), a

citation and co-citation analysis was conducted using the Bibexcel software, which is compatible with files exported from the Web of Science database.

This bibliometric analysis helped fill some gaps identified in the systematic literature review conducted by Linnenluecke (2017), which analyzed articles on resilience in business and management from 1977 to 2014 and identified few ideas regarding generalizable principles for the development of resilience and few empirical insights to detect resilience for facing future adversities.

Our review indicates a considerable increase in the number of empirical studies in the last five years. These propose processes to enhance and improve organizational resilience, as well as adopting a proactive perspective, based on past learning, process innovation, redundancy, flexibility, financial and relational reserves, and metrics that identify potential risks (Andrew, Arlikatti, Siebeneck, Pongponrat, & Jaikampan, 2016; Burnard *et al.*, 2018; Cotta & Salvador, 2020; Păunescu & Mátyus, 2020; Sawalha, 2015; Su & Linderman, 2016).

We also summarized the most relevant authors/articles from the past 20 years comparing the concept of organizational resilience to some management dimensions and specific process capabilities. Regarding these authors, 20 of them are frequently cited in the 133 articles analyzed. Others are more recent and therefore do not have high numbers of citations, but they conduct an in-depth analysis of resilience. Frequent co-citation (two or more authors cited together) in the 133 articles reveals the most relevant researchers in the field. The higher the frequency is of co-citation, the closer the relationship is between the authors (Grácio & Oliveira, 2014).

Table 1 shows the authors selected as described above and the dimensions addressed in their articles.

Risk management

Poor understanding of risks has been the cause of organizational failure to predict a crisis. In fact, the distinction between risk and uncertainty was intensely discussed in the interwar period and vigorously advocated by two important economists: Frank Knight (Chicago) and John Keynes (Cambridge). Measurable uncertainty or risk refers to 'our incomplete knowledge of the world, or about the connection between our present actions and their future outcomes' (Kay & King, 2020, p.13). Uncertainty can be resolved through its management, that is, by systematically identifying potential factors that

Table 1
Organizational resilience: management dimensions

References	Risk management	Understanding of vulnerabilities of a system	Learning capacity	Change management / reinvention / improvisation	Ability to anticipate / proactive search for resources	Ability to adapt (behavior and resources)	Management of financial volatility / financial reserves	Response capacity
Mallak (1998)				✓		✓		✓
Coutu (2002)		✓		✓		✓		✓
Hamel & Välikangas (2003)				✓	✓			
Sutcliffe & Vogus (2003)			✓			✓		✓
Tierney (2003)		✓			✓	✓		✓
Bruneau <i>et al.</i> (2003)		✓	✓	✓		✓	✓	✓
Christopher & Peck (2004)	✓	✓						✓
Lengnick-Hall & Beck (2005)		✓	✓	✓		✓		✓
Sheffi & Rice (2005)	✓	✓			✓	✓		✓
Gittell, Cameron, Lim, & Rivas (2006)						✓	✓	
Gaillard (2007)		✓				✓		
Vogus & Sutcliffe (2007)	✓		✓	✓		✓	✓	
Hollnagel (2008)			✓		✓			✓
McManus (2008)	✓	✓	✓	✓		✓		✓
Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum (2008)	✓	✓	✓			✓	✓	
Ponomarov & Holcomb (2009)	✓	✓	✓			✓		✓
Powley (2009)			✓	✓		✓		✓
Somers (2009)	✓			✓	✓			
Lengnick-Hall, Beck, & Lengnick-Hall (2011)			✓	✓	✓	✓		✓
Bhamra, Dani, & Burnard (2011)	✓	✓	✓	✓	✓	✓		✓
Burnard & Bhamra (2011)	✓	✓	✓	✓	✓	✓		✓
Kantur & Isery-Say (2012)		✓			✓	✓	✓	✓
Lee <i>et al.</i> (2013)		✓	✓	✓		✓		✓
Wicker, Filo, & Cuskelly (2013)	✓			✓	✓	✓		✓
Pal, Torstensson, & Mattila (2014)			✓	✓		✓	✓	✓
Sawalha (2015)	✓	✓	✓			✓		
Ortiz-de-Mandojana & Bansal (2016)	✓	✓			✓	✓	✓	✓
Burnard, Bhamra, & Tsinopoulos, (2018)	✓		✓	✓	✓	✓		✓

Source: Data collected by the authors.

can interrupt businesses and adopting practices to help protect the current environment.

According to Kay and King (2020), ‘radical uncertainty’ (p. 14) does not allow management because we simply do not understand it. It is characterized by dimensions such as ‘obscurity, ignorance, vagueness, ambiguity, ill-defined problems, or a lack of information’

(p. 14), and not all of these can be corrected in the future. This is very similar to the experience the world is currently undergoing with COVID-19.

Risk management differs from resilience (Ortiz-de-Mandojana & Bansal, 2016), since the former assumes risks can be identified, while the latter seeks to understand how organizations prepare for or react to the unexpected.

While risk management seeks to protect the *status quo*, resilience involves adapting the environment to changes (Ortiz-de-Mandojana & Bansal, 2016).

Vulnerability management

Vulnerability was first described as a 'quantitative degree of potential loss in case of a natural risk' (Gaillard, 2007, p.522). When using the concept in a social context, vulnerability refers to how susceptible to loss organizations are when a certain risk arises (Gaillard, 2007). Resilience, on the other hand, is based on the levels of tolerance and the procedures adopted to handle and survive adversities (Sawalha, 2015). Thus, resilience can be considered the 'positive side of vulnerability' (Sawalha, 2015, p. 348).. When comparing these two themes, other authors suggest that vulnerability goes beyond possibilities (overreaching) and resilience refers to an adaptive capacity (Bhamra, Dani, & Burnard, 2011).

Understanding vulnerabilities is the *sine qua non* for promoting resilience within organizations, especially because it helps leaders to understand and accept the limitations of their companies, and to seek internal and external resources that can overcome these limitations (Kantur & Isery-Say, 2012).

Learning capacity

Learning capacity focuses on the acquisition of knowledge from lessons learned, enabling proactive monitoring in order to define anticipatory actions to respond to emerging problems (Lee *et al.*, 2013). When combined with organizational resilience, it involves learning from mistakes, with the deployment of processes to improve business skills, restoring efficiency and increasing the ability to tackle adversities quickly. Flexibility and knowledge about critical resources to handle unpredictable situations – as they arise – are essential components of this capacity (Sutcliffe & Vogus, 2003).

Change management / reinvention / improvisation

Change management involves adaptive processes that enable organizations to reorganize, change, and learn after a threat (Wicker *et al.*, 2013) through a systematic approach to managing risks, with flexible allocation of resources to respond to an adversity and prepare for future events (Burnard *et al.*, 2018).

Capacity for reinvention involves some important aspects, such as accepting reality and the ability to improvise (or bricolage), that is, creating solutions using whatever resources are available, without the usual or obvious tools (Coutu, 2002; Mallak, 1998; Tierney, 2003). Bricolage involves the creation in a collective sense, so organizations are able to respond to situations of environmental turbulence (Tierney, 2003; Weick, 1993).

Ability to anticipate / proactive search for resources

Called 'preparedness' (Burnard *et al.*, 2018, p.26), this involves processes and procedures incorporated into organizational strategies that help an organization in preparing to respond to specific situations, but in a flexible manner. Active anticipation of potential interruptions, risks, and threats, and then the development of skills required to handle their effects, help create a 'constantly evolving understanding and assessment of the organization's operational environment' (Burnard *et al.*, 2018, p. 26).

The literature shows divergences regarding the temporal issue of resilience. Some authors discuss an approach focused on coping ability, absorption of changes, and recovery (Sutcliffe & Vogus, 2003), with quick responses in times of crisis. Others claim that the capacity for resilience involves anticipation and preparation, that is, changing before an adverse scenario leads to that change (Hamel & Välikangas, 2003).

Ability to adapt (behavior and resources)

This ability involves adapting existing resources and skills within the environment in order to handle unforeseen situations (Tierney, 2003). It is characterized by the ability to 'change, learn and reconfigure resources in order to respond to disruptive events' (Burnard *et al.*, 2018, p. 5). Organizations with a high adaptive capacity are able to develop 'structured and rational approaches' (Burnard *et al.*, 2018, p. 5) and allocate resources quickly and effectively to handle disruptive events. In addition, with the continuous development of adaptive capacity, organizations have more flexibility to learn and apply new knowledge.

Management of financial volatility / financial reserves

To increase their capacity for resilience, companies must invest in managerial processes and practices to detect

and correct dysfunctional trends and develop resources that help handle unexpected circumstances (Ortiz-de-Mandojana & Bansal, 2016). These resources include company financial reserves and a viable business model prior to a crisis, which help maintain relationships with employees and suppliers, allowing a faster return to pre-crisis performance levels (Gittell, Cameron, Lim, & Rivas, 2006). Pal, Torstensson, and Mattila (2014) claim that an 'expanded capital base' acts as a 'shock absorber' (p. 412), preventing the impact from a crisis.

In addition, some authors claim that maintaining sustainable relationships with stakeholders can help 'accumulate intangible resources and capacities' (Ortiz-de-Mandojana & Bansal, 2016, p. 1616), such as corporate reputation and customer satisfaction, which help reduce financial volatility and generate long-term growth. A high level of collaborative work between supply chains, for example, and the exchange of information among their members can help mitigate risks and uncertainties (Christopher & Peck, 2004). Enhanced interorganizational relationships can even lead to a trustful relationship with financial institutions (Pal *et al.*, 2014).

Response capacity

Response capacity involves an organization's capacity to quickly detect problems; mobilize monetary, physical, technological, and informational resources; and prioritize tasks to achieve goals in a very short period (Bruneau *et al.*, 2003). These factors contribute to fast decision making in times of crisis and future learning (Vogus & Sutcliffe, 2007).

An organization's response to a disruptive event will depend on a number of 'endogenous and exogenous factors' (Burnard *et al.*, 2018, p. 3). That is, some are more prepared to respond to large-scale events than others. Effective management of the effects of an adversity can lead to lessons learned, providing 'a significant competitive advantage' (Burnard *et al.*, 2018, p. 3).

Response capacity is directly related to adaptive capacity. The latter involves flexible resource allocation to respond to a disruptive event. Reactive behavior may indicate the company has no flexibility or resources available, or that its internal policies and processes limit resource reconfiguration. Agile behavior may indicate flexibility and improvisation capacity to respond to adversities (Burnard *et al.*, 2018).

Table 2 shows a summary of concepts related to the eight management dimensions addressed by the authors analyzed in this study and adopted in the SMOR model.

2.3 Human resource practices and organizational resilience

Human resource (HR) management of organizations in general, and Brazilian organizations in particular, has changed significantly (Dutra, 2002; Kaufman, 2015; Ulrich, 2003). A few decades ago, this department used to focus on payroll and operational tasks, but today it engages in more sustainable performance that involves alignment with the organization's strategy (Sareen, 2018; Schmidt, Pohler, & Willness, 2018). The organizational literature reports that HR practices have to focus on achieving goals and meeting socio-environmental demands (Haddadzadeh & Paghaleh, 2012; Khatri, 2000), and its indicators must reflect its strategic and not only its operational role. In addition to its operational roles (recruitment and selection, roles and compensation, performance evaluation, among others), strategic HR management should help organizations achieve their organizational goals (Boon, Eckardt, Lepark, & Boselie, 2018). Therefore, strategic HR processes and practices that contribute to individual performance can set an organization apart in terms of its results (Becker, Heselid, & Ulrich, 2001; Cania, 2014) and influence factors related to resilience (Costa, Demo, & Paschoal, 2019).

Resilient organizations have coping, change absorption, and recovery abilities (Sutcliffe & Vogus, 2003), and are able to respond quickly in times of crisis. Relational networks, which involve partnerships with suppliers and other members of the production chain, are also factors that can influence an organization's economic performance in times of crisis (Pal, Torstensson, & Mattila, 2014).

Strategic HR management can contribute to organizational resilience, based on a combination of cognitive, behavioral, and contextual capabilities, according to the model developed by Lengnick-Hall *et al.* (2011), as summarized in Table 3.

According to the model above, a company can develop organizational resilience based on strategic HR management. Key people in the organization, with specific individual skills and working in a scenario that favors resilience, can contribute more effectively in an adverse situation, handling uncertainties and developing fast

Table 2
Management dimensions: Concepts

Dimension	Concept
Risk management	Systematic identification of potential factors that can interrupt business and the adoption of practices that help protect the current environment, thus preserving the <i>status quo</i> (Ortiz-de-Mandojana & Bansal, 2016, p. 1619).
Vulnerability management	Adoption of practices to reduce potential failures and losses when a certain risk arises. Identification of processes that are susceptible to damage and/or that have 'potential for system change or transformation, when faced with a problem' (Gallopín, 2006, p. 294).
Learning capacity	Acquisition of knowledge from lessons learned, using it in future projects (Lee <i>et al.</i> , 2013).
Change management / re invention / improvisation	Capacity for reinvention with the aim of adapting to external changes (Wicker, 2013) and the ability to improvise by developing solutions using available tools (Mallak, 1998).
Ability to anticipate / proactive search for resources	Implementation of processes and procedures incorporated into organizational strategies that help an organization in preparing to respond to specific situations, but in a flexible manner (Burnard <i>et al.</i> , 2018). The ability to anticipate disruptions, systematically analyzing the current situation and the near future and investigating what can happen in the medium and long term (Hollnagel, 2008).
Ability to adapt	The ability to respond to changes in current environmental conditions, learning and reconfiguring resources. Skills acquired in previous lessons enable proactive monitoring, which helps 'flexible transfer of knowledge and resources to handle situations, as they arise' (Sutcliffe & Vogus, 2003, p. 14).
Management of financial volatility	Maintaining financial reserves that allow an organization to quickly return to pre-crisis performance levels. Organizations are better prepared to handle a crisis when 'they maintain strong relational and financial reserves and when they have business models that can be adapted to the needs of the existing competitive environment' (Gittell <i>et al.</i> , 2006, p. 301).
Response capacity	Fast problem detection; mobilization of monetary, physical, technological, and informational resources; and the ability to prioritize tasks to respond to a disruption. Decision making during a crisis can be based on 'the ability of managers to effectively interpret the demands of the situation and balance them with the capacities and resources available (Burnard <i>et al.</i> , 2018, p. 17).

Source: Developed by the authors

responses to obstacles. Desired employee contributions and HR principles determine appropriate HR policies (Lengnick-Hall *et al.*, 2011).

Regarding the organizational resilience dimensions proposed by the authors, the cognitive dimension refers to a clear understanding of reality and behavior that questions the current functioning of the organization. It can be facilitated by a clear sense of purpose, fundamental values, and 'constructive sensemaking' (Lengnick-Hall *et al.*, 2011, p. 246), which allows companies and employees to interpret meaning in unprecedented situations.

With regard to the behavioral dimension, Lengnick-Hall *et al.* (2011) state that organizations must develop their learning skills and counterintuitive agility, i.e., values that lead to habits of investigation rather than assumptions, and improved flexibility rather than rigidity, which enable robust and more effective responses to a crisis. This flexibility is directly related to behaviors that allow the development of new skills, capitalizing on technological and/or market changes.

Regarding the contextual dimension, Lengnick-Hall *et al.* (2011) report that relationships within and outside an organization can facilitate effective responses to environmental complexities, contributing to organizational resilience. Internally, professionals need to feel secure to take risks, and each member of the organization has a responsibility to ensure the attainment of organizational interests – what they call 'shared responsibility' (Lengnick-Hall *et al.*, 2011, p.247). Externally, access to broad resource networks promotes the development of resilience, including relationships with suppliers and strategic alliances, to secure needed resources, especially during adaptation to new scenarios.

For these authors, the expected contributions of employees, such as creativity and decisiveness in uncertain scenarios, can be developed with strategic HR actions, such as specific training that presents unknown, non-routine issues for employees to resolve. As they have to devise unconventional and robust responses to adversities and challenges, they develop behavioral skills that contribute

Table 3
HR system components for developing a capacity for resilience

Dimension of organizational resilience	Desired employee contributions	HR principles	HR policies
Cognitive dimension	<ul style="list-style-type: none"> ▪ Creativity ▪ Expertise ▪ Questioning fundamental assumptions ▪ Novel solutions ▪ Decisiveness 	<ul style="list-style-type: none"> ▪ Partnership with employees ▪ Localize decision-making power ▪ Relational rather than transactional relationships ▪ Minimize rules and procedures ▪ Ensure pluralism and different individual experiences 	<ul style="list-style-type: none"> ▪ Job security ▪ Cross-functional work assignments ▪ Broad recruiting sources ▪ Continuous developmental opportunities ▪ Group-based incentives
Behavioral dimension	<ul style="list-style-type: none"> ▪ Devising unconventional responses to unprecedented challenges ▪ Combining originality and initiative ▪ Practicing repetitive routines that provide the first response to any unexpected threat ▪ Making investments before they are needed 	<ul style="list-style-type: none"> ▪ Develop a culture of organizational ambidexterity ▪ Create a climate of open communication and collaboration ▪ Encourage problem-solving processes tied to organizational learning ▪ Encourage knowledge sharing ▪ Enable rapid deployment of human resources ▪ Emphasize worker flexibility 	<ul style="list-style-type: none"> ▪ Experimentation (freedom to fail) ▪ Lessons learned ▪ Human resource and coordination flexibility ▪ Broad job descriptions ▪ Employee suggestions ▪ Cross-departmental task forces
Contextual dimension	<ul style="list-style-type: none"> ▪ Developing interpersonal connections ▪ Developing resource supply lines ▪ Sharing information and knowledge widely ▪ Sharing power and accountability 	<ul style="list-style-type: none"> ▪ Encourage social interactions, both inside and outside the organization ▪ Nurture a climate of reciprocal trust ▪ Develop facilitative communication structures ▪ Emphasize contributions and outcomes rather than tasks ▪ Reinforce power based on expertise rather than hierarchical position ▪ Create broad resource networks 	<ul style="list-style-type: none"> ▪ Joint employee-customer teams and networks ▪ Empowerment ▪ Open communication ▪ Results-based appraisals ▪ Accessible, integrated information systems

Source: Lengnick-Hall *et al.* (2011, p. 249).

to the development of organizational resilience (Lengnick-Hall *et al.*, 2011).

HR principles such as relational networks and pluralism, for example, seek to create a workplace with values that guide employee behaviors, especially in unforeseen scenarios. When they feel confident in their ability to explore new actions and share information, employees are better prepared to handle situations that require fast and specific responses (Lengnick-Hall *et al.*, 2011).

HR policies such as continuous socialization create a collaborative climate among employees, which helps them handle uncertainties in moments of crisis. Freedom to fail, just like cross-departmental task forces, helps an organization balance unconventional moves and divergent ideas with necessary routines and useful habits.

Open communication and joint employee-customer networks help obtain a rich variety of resources from inside and beyond the boundaries of the organization. All these strategic actions aim to influence individual attitudes and behaviors, with a view to developing or expanding the company's capacity for resilience (Lengnick-Hall *et al.*, 2011).

Ho *et al.* (2014) conducted studies using content analysis to investigate how human resource management is correlated with organizational resilience. First, they identified that organizational resilience is emphasized as a strategic capability – which is rarely seen in the literature on this topic. Then, they studied components of organizations that influence and support organizational resilience, such as human capital, characterized as the knowledge, skills,

and individual attitudes of the professionals working in the organization (individual resilience); organizational capabilities, such as flexibility, adaptability, and agility; and other factors such as strategy, leadership, and organizational learning. In general, these authors suggest that organizational resilience can be developed over time and that 'it is rooted in the organizations before the need arises' (Ho, Teo, Bentley, Verreyne, & Galvin, 2014, p. 5). They also suggest that it is not related to preparation, but rather to numerous capacities the company develops during its life cycle, based on its work routines, which will help in moments of crisis.

The two themes of organizational resilience and human resource management are rarely mentioned together. When this occurs, the focus is on managing skills, behaviors, and capacities to mitigate crises. However, human resource management plays an important role in managing organizational risks and threats, especially because organizational resilience can be seen as a 'cultural change' (Ho *et al.*, 2014, p. 6). Thus, the human resources department can contribute to supporting changes in behavior and structure.

3 Method

This is a literature review that used a bibliometric analysis to study the topic of organizational resilience, with the aim of developing a SMOR framework, which will be presented below.

To qualitatively illustrate the application of SMOR in the corporate universe, four organizations experiencing the effects of the COVID-19 pandemic in Brazil were selected according to the criteria of convenience and accessibility. One leadership member from each company was interviewed. All the interviews were conducted over the phone via the Zoom platform and/or WhatsApp and, after reading the transcriptions, the interviewees authorized us to use the content for academic purposes.

The questions were directly linked with the dimensions of SMOR (environmental dimension, organizational behavioral dimension, individual behavioral dimension, and organizational practices) and refer to actions performed by the companies before the pandemic which, during the crisis, contributed to a rapid response, the deployment of strategic actions, and the development of a contingency plan for the future.

4 Results

4.1 Framework - Strategic Management of Organizational Resilience (SMOR)

Based on the cognitive, behavioral, and contextual dimensions developed by Lengnick-Hall *et al.* (2011), the study conducted by Ho *et al.* (2014), and the capacities for resilience mentioned in the theoretical framework section, we propose the Strategic Management of Organizational Resilience (SMOR) framework in Figure 1 below.

Unlike the model proposed by Lengnick-Hall *et al.* (2011), which represents an HR system designed to develop the capacity for organizational resilience, SMOR does not use HR practices and policies to promote organizational resilience, although it does address employee behaviors and attitudes that contribute to this process. In addition, organizational practices linked with the SMOR dimensions should have support from the HR department.

SMOR is based on the assumption that some organizations are more assertive when faced with environmental adversity and variability because they are more resilient. Such organizational resilience is a result of organizational practices and other capacities that are widely discussed in the literature, including anticipation, response, and learning capacities, which are directly linked with risk management, business continuity management, vulnerability management, change management, and financial reserve management.

Therefore, for organizational resilience to be analyzed in a strategic manner, we propose a combination of three specific dimensions: environmental, organizational behavioral, and individual behavioral, supported by organizational practices. The SMOR dimensions suggest temporal actions before, during, and after a crisis or adverse event.

The environmental dimension involves specific actions that organizations should implement with a focus on the external environment, aiming to promote organizational resilience. The organizational behavioral dimension is linked with anticipation, response, and learning capacities that organizations will need to develop or strengthen and which are directly related to organizational resilience. The individual behavioral dimension refers to behaviors that every professional within the organization will have to improve, which contribute to organizational resilience.

The SMOR model and the model proposed by Lengnick-Hall *et al.* (2011) have similarities and

differences. SMOR gives a strategic character to organizational resilience, as mentioned by Ho *et al.* (2014) and described in Table 4.

In the SMOR model, systematic scenario analysis and financial management are the first two aspects of the environmental dimension before a crisis and involve

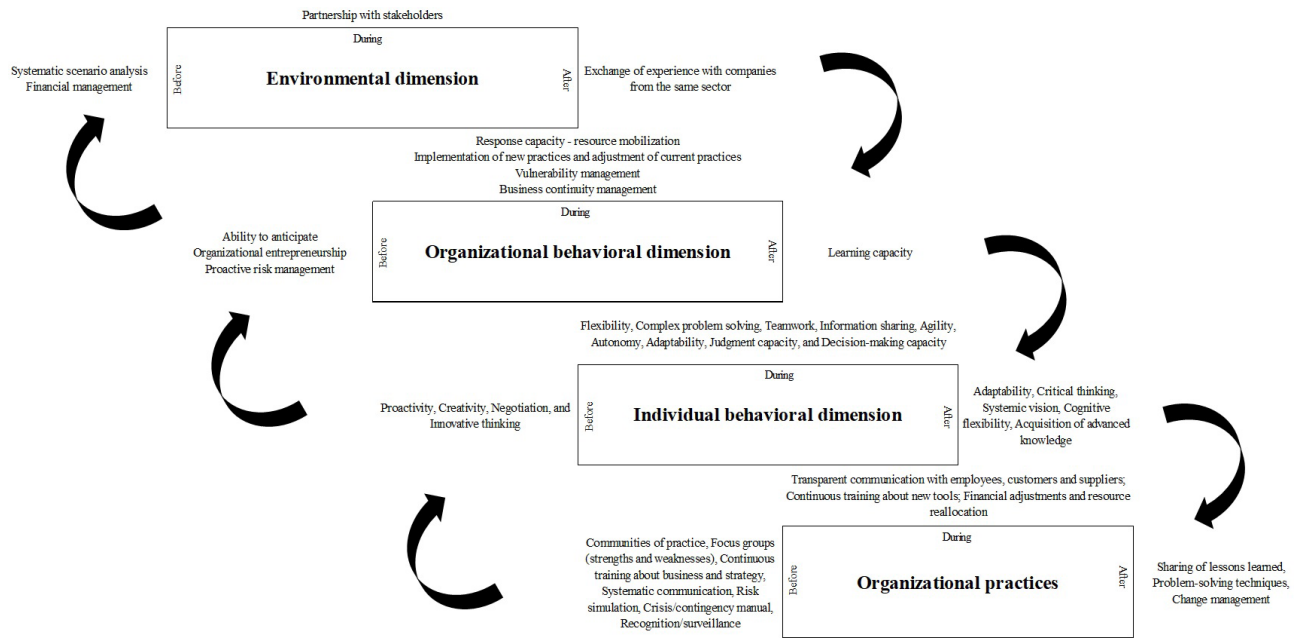


Figure 1. SMOR framework.

Source: Developed by the authors.

Table 4
Similarities and differences between SMOR and the HR system components for developing a capacity for resilience / strategic actions proposed by Ho *et al.* (2014)

Model proposed by Lengnick-Hall <i>et al.</i> (2011)	SMOR	Strategic actions of organizational resilience (Ho <i>et al.</i> , 2014)
Cognitive dimension Desired employee contributions, HR principles, and HR policies that enable a company to accurately diagnose environmental conditions and assume a more effective strategic posture. (Keep using current sources or create different ones).	Environmental dimension Actions implemented by the organization with a focus on the external environment before, during, and after a crisis, supported by organizational practices.	Strategy.
Behavioral dimension Desired employee contributions, HR principles, and HR policies linked with 'actions needed to turn competitive potential into realized strategy' (p. 252).	Organizational behavioral dimension Internal actions performed by the organization before, during, and after a crisis (anticipation, response, and learning capacities), supported by organizational practices.	Leadership, agility, and organizational learning.
Contextual dimension Desired employee contributions, HR principles, and HR policies that help generate contextual conditions that support resilience, with better use of strategic capacity (for example, psychological security – when individuals perceive that their work environment favors assuming interpersonal risks).	Individual behavioral dimension Individual employee behaviors, supported by organizational practices before, during, and after a crisis.	Individual knowledge, skills, and attitudes of professionals working in the organization: flexibility and adaptability.

Source: Data collected by the authors.

monitoring both internal and external environments (Burnard *et al.*, 2018), developing anticipation capacity, organizational entrepreneurship, and proactive risk management (organizational behavioral dimension). Organizational entrepreneurship becomes viable when a company is able to adapt to an ever-changing environment by building and improving structures and an organizational culture that support entrepreneurship and innovation internally, 'encouraging employees to behave as business owners' (Hashimoto, 2006, p.13). These capacities can be facilitated by the employee behaviors of creativity and proactivity (Lengnick-Hall *et al.*, 2011), in addition to negotiation and innovative thinking, as addressed in the individual behavioral dimension.

In order to manage risks in a more holistic and strategic way, the events and the main vulnerabilities that could cause risks must be observed (McManus, 2008). The following organizational practices that contribute to a more systemic vision are needed: (i) systematization of communities of practices, in which professionals holding the same role or in different departments of companies operating in the same sector meet periodically to share problems and look for solutions; (ii) focus groups that periodically discuss internal strengths and weaknesses, identifying new ways to consider internal processes; (iii) continuous training in business and strategy, so that employees can feel secure in their work processes and think beyond their routines; (iv) systematic communication with everyone involved in the production chain to ensure they have a clear idea of the company's vision and market obstacles; and (v) risk / crisis simulations and a contingency manual to provide clear guidance for future problems. In addition, these practices involve employee incentives to keep them alert to possible problems that may arise, including employee recognition for sharing experiences and opinions (Lee *et al.*, 2013).

Partnerships with stakeholders is the third aspect of the environmental dimension of the SMOR model and it is suggested for moments of crisis. This process is about maintaining contact networks with everyone involved in the production chain, as well as collaborative and supportive relationships with other organizations (Wicker *et al.*, 2013). This factor may favor faster response capacity in the face of a crisis and more efficient mobilization of resources with potential system interruption. In addition, new practices must be deployed and current practices should be adjusted, while managing vulnerabilities resulting from an unprecedented crisis, such as COVID-19. In other

words, potential losses arising from a crisis must be clearly identified, as well as measures to be adopted to avoid system collapse. All these actions are included under the organizational behavioral dimension and contribute to business continuity management.

To support this process, some skills must be developed or improved: (i) flexibility (Hollnagel, 2008) and complex problem solving, particularly among leaders, in addition to teamwork (Lengnick-Hall *et al.*, 2011); (ii) information sharing; (iii) agility and autonomy for fast and assertive decision making in adverse situations; (iv) adaptability; and (v) accurate judgment about the current situation for proper decision making.

The organizational practices during a crisis that are suggested in the SMOR model, and that can help promote organizational resilience, involve: (i) transparent communication with employees, customers, and suppliers, with frequent messaging to avoid speculation and crisis aggravation; (ii) continuous training in new tools and processes that may arise during a crisis, which should involve everyone in the organization's production chain; and (iii) financial adjustments and resource reallocation to balance the company's cash flow, reduce financial volatility, honor commitments, and fulfill new demands from customers and partners resulting from an unprecedented crisis.

Exchange of experience with companies from the same sector represents the fourth aspect of the environmental dimension of the SMOR model after a crisis, and it can promote learning capacity (organizational behavioral dimension). It focuses on different formal and informal learning (Burnard *et al.*, 2018) acquired during adverse events that help improve procedures to respond to future adversity. Learning from previous lessons contributes to proactive monitoring, which facilitates anticipatory actions for emerging problems (Lee *et al.*, 2013). Skills such as (i) adaptability, (ii) critical thinking, (iii) a systemic vision and cognitive flexibility, and (iv) the acquisition of advanced knowledge in unstructured scenarios (Gruber, 2001) must be developed by employees and are included in the individual behavioral dimension.

Post-crisis organizational practices can drive learning capacity and involve the following: (i) sharing lessons learned; (ii) problem solving techniques; and (iii) change management. These processes promote a flexible learning environment, allowing specific knowledge to be presented and learned in different ways, and they may facilitate, for example, cognitive flexibility (Spiro, Feltovich, Jacobson, & Coulson, 1991).

Several authors have emphasized the importance of resilience analysis in high reliability organizations (Sutcliffe, 2011). These more complex organizations from sectors such as air traffic and nuclear energy operate in unfavorable environments using technologies prone to potential errors and where there is little possibility of learning through experimentation, due to the probable occurrence of simultaneous critical results (Sutcliffe, 2011).

The development and improvement of both anticipation and resilience capacities, taking into account not only adaptation to changes, crisis acceptance, and persistence (Weick *et al.*, 1999), but also preparation and learning through monitoring and analysis of scenarios, early detection of emerging threats and potential problems (Su & Linderman, 2016), as well as flexibility and resources to ensure real-time responses and process reorganization to maintain operations even when faced with peripheral adversities (Sutcliffe, 2011), are all critical aspects for these organizations, and are included in the SMOR framework.

4.2 Illustrative application of the SMOR model

Profile of respondents and companies analyzed in this study

Table 5 shows the profile of respondents and companies analyzed.

Environmental dimension – the SMOR model

The president of technology company D mentioned in a video for all employees that having a capital reserve – to cover at least three months – was essential. This action could make the difference when

compared to other companies that, unfortunately, will not survive the pandemic.

Another factor mentioned as an anticipatory action, which has proven to be effective during the crisis, was the organization of internal processes based on a relevant scenario analysis conducted long before the pandemic. Company B, for example, realizing its growth in the region, acquired its ISO 9001:2008 certification in 2013, so all its processes became standardized. In addition, it created a smart kitchen, with state-of-the-art equipment, requiring continuous staff training. These innovations implemented years ago allowed for a fast response during the crisis. Company D had similar conditions. Its culture and values are based on systematically questioning the *status quo* and today all directors are aware of their strengths and weaknesses. Their various innovations implemented a few years ago – such as the deployment of an IP telephone system that allows employees to call customers from their homes using the company number – have made all the difference when working from home due to the COVID-19 pandemic.

Company D also created discussion groups with other companies from the same sector and other segments to understand what each organization was doing to handle the effects of the pandemic and mitigate vulnerabilities. They believe these groups can help promote creativity and reinvention. In the SMOR model, this action is mentioned in the post-crisis temporality; however, as COVID-19 is an unprecedented pandemic, companies realize the need and obligation to learn quickly. Agility and adaptability make all the difference in this process.

Partnerships with companies from the same sector and other segments have contributed to fast anticipation and response capacity in these companies. In the face of a serious crisis such as the one resulting

Table 5
Sample characteristics

Name	Sector	Size	Respondent
A	Insurance, risk management activities	Large company, 300 employees, 18 years old.	Compliance director
B	Corporate / industrial food services	Small company, 60 employees, 8 years old.	Owner
C	Food goods and services	Large company, 500 employees, more than 80 years old.	Executive marketing manager
D	Technology and software	Large company, 1,800 employees, 31 years old.	Founder/president

Source: Developed by the authors

from the COVID-19 pandemic, more assertive actions are essential, even when the future scenario still seems uncertain, as well as teamwork and constant sharing of information by the leaders. Everyone involved in a company's production chain have to be well informed and feel safe and secure right now.

Another important aspect of the scenario analysis allowed these organizations to quickly foresee a loss of suppliers or dealers, so they started a process to support their operations. To prevent the loss of dealers and suppliers, one of the companies paid them before the usual deadline and postponed payments from some customers. Another company focused on smaller producers who otherwise would not be able to survive the crisis. This action relates to partnerships with stakeholders, which is mentioned in the environmental dimension of the SMOR model.

The magnitude of the crisis is forcing companies to deeply consider people directly related to their production chains, as well as other sectors impacted by COVID-19. An interesting initiative was adopted by company D, which offered its software license free of charge to help other companies that have worked remotely.

A systematic scenario analysis has been conducted daily by these companies with the aim of analyzing the effects of COVID-19 on their businesses. These actions are present in the environmental dimension of SMOR, linked with systematic scenario analysis and financial management.

Organizational behavioral dimension – the SMOR model

All four companies analyzed showed an ability to respond quickly to COVID-19, with employees working remotely or the companies developing strategies to protect their workers, by implementing processes that did not exist in the organizations before the pandemic.

Three organizations adopted home office strategies for almost all employees. One of the companies had to buy additional laptops to support remote working. Two of the companies partnered with IT companies to facilitate home office functionalities and with hand sanitizer and mask manufacturers to supply these products to all employees and other relevant people.

In addition, one of the companies developed a simple remote working agreement specifying the daily hours to be worked and a manual time sheet. This document was signed by both the managers and the employees.

In another company, new performance indicators were created due to the new work routines. These actions reflect three essential aspects of the SMOR model: response capacity and implementation of new practices/ adjustments of current practices in the organizational behavioral dimension, and continuous training in new tools in the organizational practices dimension, since people had to start working in a different way from their old routine. To reduce employee insecurity, leaders held periodic meetings, seeking to solve problems regarding the new processes.

The president of company D gave several online training sessions to employees to show them the company's main challenges at that moment and what was expected of them. Transparent communication reduced anxiety and possible resistance to changes.

In one of the companies, home office working was gradually adopted. The most vulnerable groups were identified by the company as the elderly and pregnant women – the Ministry of Health clearly identified the risk groups – and, after addressing this group, the board determined that practically the whole team (90% of the staff) would work from home, a process that took place in three days.

According to Powley (2009), this moment is a 'temporary holding space' (p.1299) or a brief unresolved period, in which people create specific spaces to readjust and reorient themselves. In the case of COVID-19, an unprecedented pandemic generating many questions with few answers, a major concern of most companies was social distancing, which was assumed to be a possible solution to contain the spread of the virus.

Two of the companies brought forward vacations for some employees and the only change in this sense was the prior notice from the employer – from 30 to two days in advance due to the urgency in deploying the process.

Two companies adopted safety and sanitization actions at the entrances of their facilities, such as removing the biometric systems, constantly cleaning the busiest areas, and providing sanitization products, especially for external employees. Company B, from the food sector and whose activity cannot be performed from home, provided a specific area to receive suppliers, outside the facilities, and deliveries were scheduled to maintain them for a longer period (30 days), thus avoiding constant contact. In addition, more hand sanitizer was provided in its kitchens and cafeterias and all employees were informed

of the company's preventive measures, receiving constant food safety training.

Of the four companies analyzed in this study, three (companies A, C, and D) included in their websites the following pages 'About COVID-19,' 'Global Response to COVID-19,' and 'Stay home.' These contained all the short-, medium-, and long-term strategies implemented or to be implemented in relation to employees, suppliers, and customers.

In company A, the employees were instructed to call the company's doctor immediately after noticing symptoms of the disease, and to use the telemedicine system of the health plan offered to all employees, interns, and members of the junior apprentice program, in order to receive proper guidance. In addition, the board members communicated all emergency actions in the four companies through messages via the intranet and WhatsApp to all employees and partners, and daily awareness messages were sent to inform them about the progression of the disease and new precautions to take, without causing panic or stress among the employees.

Regarding the strategies adopted by the marketing departments, company C created advertising campaigns published on the internet, which were also broadcasted on TV stations to a large number of viewers, informing them of all the actions adopted by the company to ensure the safety of its products and services. This type of action has a direct impact on people's trust in the company, and is linked with a specific aspect from the organizational practices dimension: transparent communication with employees, customers, and suppliers.

In two companies, international trips were canceled and in-person meetings changed to videoconferences, using free software or another system previously available in the company. In addition, employees were instructed to talk to their manager or the local HR department if they had any questions about the home office process. These companies realized that communication was a daily task, even when working remotely. Meetings are now shorter, but are held more frequently.

All four companies focused on agility to adapt to the current scenario, seeking to reinvent their processes on a daily basis. One of them has seen competitive advantages with the home office system, and will analyze how to permanently implement it for some roles in the company in the medium term, after the pandemic. What seemed to be an obstacle before the pandemic has become an important system. This process is directly linked with

the learning capacity mentioned in the SMOR model as 'after the crisis,' but which has actually occurred during the pandemic.

Exchange of experience during the crisis (environmental dimension) can significantly help expand learning capacity (organizational behavioral dimension) and strengthen critical thinking (individual behavioral dimension) about new situations and internal processes.

Individual behavioral dimension – the SMOR model

The actions presented above reflect the rapid response capacity of the companies analyzed in this study. The teams showed adaptability, agility, and decision-making skills, which were behaviors required of them. In addition, spread of the virus was a major concern of all four companies, generating a feeling of shared responsibility. The top management felt it was necessary to urgently remove people from the offices – an action directly linked with judgment capacity and decision-making capacity.

The contingency plan of these companies considered a short period (one to two months) and the first 'symptoms' of company B, which operates in the restaurant sector, were the economic crisis and reduced numbers in their businesses, both in terms of demand and supply. Many of its customers had to close their businesses and this caused a significant reduction in sales. In the first month of the pandemic, it lost 40% of its revenue, mainly because the companies that bought its meals were physically closed. However, the teams showed cognitive flexibility and systemic vision. With the help of a business consultant, the owner created a new product – healthy meals for delivery – which leveraged her business, forcing her to hire more employees.

Company D, on the other hand, will end the year with 3% growth, much below its usual result, but much higher than in the rest of the market. This result is directly linked with its president's behavior, which spread to the team and involves creativity, innovative thinking, and continuous questioning of the *status quo*, seeking constant improvements.

Organizational practices – the SMOR model

The companies quickly realized they needed to learn, relearn, and solve complex problems during the crisis, mainly because they had no clear contingency

plan to handle problems of this magnitude. Transparent communication with employees, customers, and suppliers; financial adjustments; and resource reallocations were key factors in enhancing the companies' image.

The top management of company A, which operates in the insurance sector, periodically sent messages to its employees informing them that there would be no dismissals, which gave the teams some peace of mind. In addition, the company decided to keep all employees working from home until December 31, 2020.

Continuous business and strategy training was an important process in these companies, so their values were not lost in the new work system. They provided a channel for guiding employees in fast organizational changes.

Even during the COVID-19 crisis, the companies showed their learning capacity and their employees adapted quickly and forcibly to a new work system (home office). Short-term contingency plans were developed to adjust internal processes and support the creation of different strategies to mitigate financial losses resulting from the unprecedented world pandemic. The development of contingency plans is included 'before the crisis' in this dimension of the SMOR model; however, the companies realized they had to create these plans during the crisis to guide their teams regarding the main procedures and measures to be adopted in an adverse event.

Based on the analyses above, although these companies are different sizes and operate in different sectors, they showed common aspects directly linked with the dimensions proposed in the SMOR model.

5 Final considerations

For systemic implementation of organizational resilience, our study presented theoretical evidence and academic studies confirming that the environmental dimension (analysis of the external and internal environment) and the behavioral dimension (skills of individuals inserted in organizations) should be supported by strategic actions. To strategically develop organizational resilience, a critical and systematic system is required for both internal and external environments.

In this sense, this article proposed a framework for the Strategic Management of Organizational Resilience (SMOR) model, with management dimensions that were identified through a bibliometric analysis of articles published from 2000 to 2019. The SMOR model helps organizations of different sizes analyze their strengths

and weaknesses, internal and external scenarios, and different processes in a systematic manner, for strategic management of business resilience.

To qualitatively illustrate the application of the SMOR framework in the corporate universe, directors and/or managers from four organizations experiencing the effects of the COVID-19 pandemic in Brazil were interviewed to identify the strategic actions they adopted before and during the pandemic, and their future contingency plans, correlating them with the SMOR dimensions.

The organizations analyzed in this study presented common points directly linked with the dimensions proposed in the SMOR model: systematic scenario analysis, partnerships with stakeholders, daily sharing of information by the board, assertive decision-making ability, financial management, rapid response and learning capacity, besides cognitive flexibility presented by the managers of the organizations, which helped them manage their internal processes in the face of an unprecedented global crisis.

However, this study has some limitations. Regarding the data collection, the study had a small number of respondents. Also, due to the restrictions related to the COVID-19 pandemic, online interviews were conducted, which are not always comfortable for the interviewees. Another limitation relates to the fact that this study does not allow for universal generalizations based on its results, but the conclusions of this study do provide important information for future investigations.

Regarding the SMOR framework, two limitations were identified and could be analyzed in future studies: (i) statistical validation is required with a larger sample, and (ii) a longitudinal study of the four companies analyzed could be developed after the pandemic to identify whether the actions linked with the SMOR model have promoted resilience in their businesses, especially given the aggravated health and financial crisis in Brazil and worldwide.

The COVID-19 pandemic has shown that everyone needs to learn from emergency situations, and anticipatory internal preparation may favor effective management during the crisis. The SMOR model helps organizations by providing a better understanding of the main processes that can strategically improve their organizational resilience, presenting a construct that covers very complex but necessary procedures, especially at this specific time for businesses. Future studies could use the SMOR framework in a higher number of different sized companies from different sectors with different legal

constitutions, making it a comprehensive model for organizational resilience management. It could also be used in organizations that have overcome the obstacles and adversities of COVID-19, seeking to correlate the processes implemented by these companies and those proposed in the SMOR model.

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