A Model for the Bounce-Forward Conceptual Framework

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Abstract

Purpose of the article The resilience of an organisation is based on the fundamental premise that crises are natural in the evolution of any organisation. As such, it is important that organisations focus not on how to protect themselves from difficult situations, but on learning how to live with them and how to use the acquired experience as a driving force to bounce-forward. The purpose of this article is to explore theoretical approaches and utilise methodological tools to reveal the key characteristics of resilient organisations.

Methodology/methods The systematic literature review (SLR) method was applied to collect and synthesise relevant scientific literature. SLR was performed under PSALSAR framework

Scientific aim The authors sought to identify theoretical evidence that answers the following research questions: How has the phenomenon of resilient organisations been identified and defined? Which theories and concepts have been used to explain the phenomenon of resilient organisations?

Findings The concept of resilience has outgrown its original interpretation, which focused on organisational ability to withstand crises and return activities to pre-crisis levels. Today's resilience represents not only the ability to return to the routine and to adapt to the changed environment by overcoming dynamic events, but also to enhance learning capacity, which allows for growth by constantly learning from oneself and gaining unique experiences.

Conclusions The SLR revealed that the concept of resilience is transforming into a structure based on the basic provision that a resilient organisation is not only able to withstand difficult situations and return to pre-crisis levels, but also to use the experience of crises as a driving force to bounce-forward. In this context, the authors propose a conceptual framework of Bounce Forward model, which introduces core characteristics of organisation's successful response to unexpected threats, i.e., robustness, resilience and antifragility.

Keywords: robust, resilient organisations, antifragility, bounce-forward, systematic literature review, PSALSAR framework

JEL Classification: D81, D23

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Introduction

In recent years, most organisations have experienced difficulties related to the challenges caused by the COVID-19 pandemic, climate change, globalisation, and a workforce with a lack of added value. Therefore, increasing attention has been paid to research into organisational resilience, which is based on the underlying idea that crises are natural occurrences in the evolution of organisations. As such, it is important that organisations focus not on how to protect themselves from difficult situations, but on how to cope with them – i.e., that they focus on: building capacity in their country; organisations, societies, or systems that enable them to adapt to the changing environment, aftershocks, and threats; returning to normal activities; and using the lessons learnt as a driving force to gain a unique competitive advantage (Ramezani & Camarinha-Matos, 2020). Resilient organisations are focused on continuous adaptive change. They are characterised by an intrinsic ability not only to maintain their status but also to continuously develop a dynamically stable state. This state enables them to successfully continue their activities after various shocks, or to function effectively in an environment of ongoing threats (Wiig & Fahlbruch, 2019; Pashapour et al., 2019). A resilient organisation is not only able to withstand complex situations and return to its pre-crisis state, but can also use the experience gained from these shocks as a driving force to bounce-forward (Pettersen & Schulman, 2019; Duchek et al., 2020; Chen et al., 2021).

While resilience has been identified as one of the most important features of an organisation in properly and effectively coping with disruptions, analysis of the broader scientific literature reveals that, although the concept of resilience in the main stream has been evolving since 2001, the concept of a resilient organisation did not receive proper attention until 2020. Therefore, we argue that the concept of a resilient organisation is a novel and rapidly emerging area of research. It is important to explore existing knowledge about resilient organisations, and to propose our ideas on the concept of a resilient organisational framework.

This paper is structured as follows: because we use the systematic literature review method, the methodology of the paper is presented first; we then introduce the findings of this research; before finally suggesting a conceptual framework for resilient organisations.

1 Research methodology

Based on pre-existing methods and protocols (Snyder, 2019; Booth et al., 2012), the authors conducted a systematic literature review (SLR) on the topic of resilient organisations within the business and management fields. An SLR differs from a traditional literature review as it allows for the collection of total scientific output with predefined inclusion and exclusion criteria in order to answer the specific research questions defined by the authors. The SLR method is also highly valued for the transparency, transferability, and replicability of the data it produces. The PSALSAR framework was followed when performing the systematic literature review, as suggested by (Booth et al., 2012). This method is explicit, transferable, and reproducible when perform SLRs (Mengist et al., 2020) (Table 1).

Table 1 The steps of the PSALSAR framework within the SLR

PSALSAR framework steps	Outcomes	Method
Protocol	Define the study scope and research questions	Only relevant publications within the fields of business and management field published in the journals that are included in the Science Direct database
Search	Define the research strategy	Identify search steps
Appraisal	Select articles for further synthesis	Introduce inclusion/exclusion criteria
Synthesis	Inductive content analysis	Simplify the data and prepare it for further analysis
Analysis	Retrieve the answers to the research questions	Evaluate the information as well as the extracted data
Report	Results and discussion	Draw conclusions based on the findings

Source: modified by the authors from (Mengist et al., 2020)

2.1 Protocol – SLR methodology step 1: define the study scope and the research questions

When we commenced the selection of scientific literature, we faced an information overload of scientific articles concerning resilient organisations. Therefore, it was important to form a strategy how to identify relevant scientific

sources to achieve a sense of the entire academic landscape, rather than just one potentially misleading part of it. It was important to include those publications that helped to answer the following research questions:

- How has the phenomenon of resilient organisations been identified and defined?
- Which theories and concepts have been used to explain the phenomenon of resilient organisations?

2.2 Search – SLR methodology step 2: define the research strategy

The "search" step defined the research strategy of the study. Because it would be impossible to individually view each of the myriad scientific publications in the field of resilience, we decided to evaluate publications in the Science Direct database on the theme of resilient organisations within the business and management fields. In the bibliographic search, we entered the terms "resilient organisation", "organisational resilience", and "organisation resilience" for the period of 2001–2021. This choice of keywords was determined by the fact that the selected keywords were occasionally used as synonyms, and it was important for us to include all relevant articles in the systematic literature review. The year 2001 was chosen as a starting point as this is the year in which resilience began to become a more commonly studied topic. In total, 1,173 scientific articles containing the indicated key words were found in the selected period. In evaluating the initial selection of scientific articles, it was noted that the topic of resilience occurred more frequently from 2020 onwards. We argue that the relevance of this topic was inevitably influenced by the shock caused by the COVID-19 pandemic (Fig. 1).

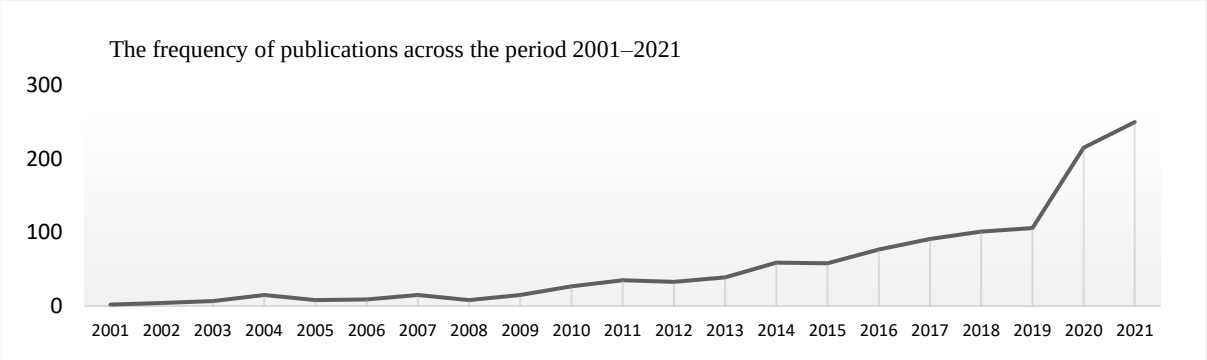

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Figure 1 The frequency of publications containing selected keywords in the period of 2001–2021

In order to ensure the reliability of the study, keyword searches were performed by two investigators at the same time during the selected period. After results were confirmed, we moved to the second stage of the selection of scientific articles.

2.3 Appraisal – SLR methodology step 3: selecting articles for further synthesis

At this stage, we exported all of the relevant scientific papers to the Zotero bibliography programme, which provided convenient access when running a preliminary screening of the suitability of the articles based on their titles, abstracts, and keywords. After this screening, 958 articles were excluded, leaving 215 articles for further selection, which were then subjected to further sorting based on the following criteria:

1. Only research articles were included; discussion papers and editorials were excluded.
2. The object of this research is resilient organisations, so articles analysing resilience at other levels – individuals, cities, regions, etc. – were rejected.
3. Only English language articles were selected for further review.
4. Both conceptual and empirical articles were relevant for our research because the purpose of this study was to identify the conceptual framework of resilience.

Following the application of the selection criteria, out of 215 scientific articles 172 were excluded and 43 were selected for further analysis. The majority of the articles were rejected because they did not satisfy the second criterion – i.e., they explored resilience at a non-organisational level. The authors then manually added 5 articles

that were relevant to the research, leaving a total of 48 articles. The manually added papers were published in journals that were not included in the Science Direct Data base, although they were important in explaining the phenomenon of resilient organisations (Denyer, 2017; Whitman et al., 2013; BSI Organisational Resilience Index Report, 2021; Linkov, 2019; Systemic resilience approach to dealing with Covid-19 and future shock, OECD Policy Responses to Coronavirus (COVID-19), 2020).

The appraisal flow diagram used in this process is presented in Figure 2.

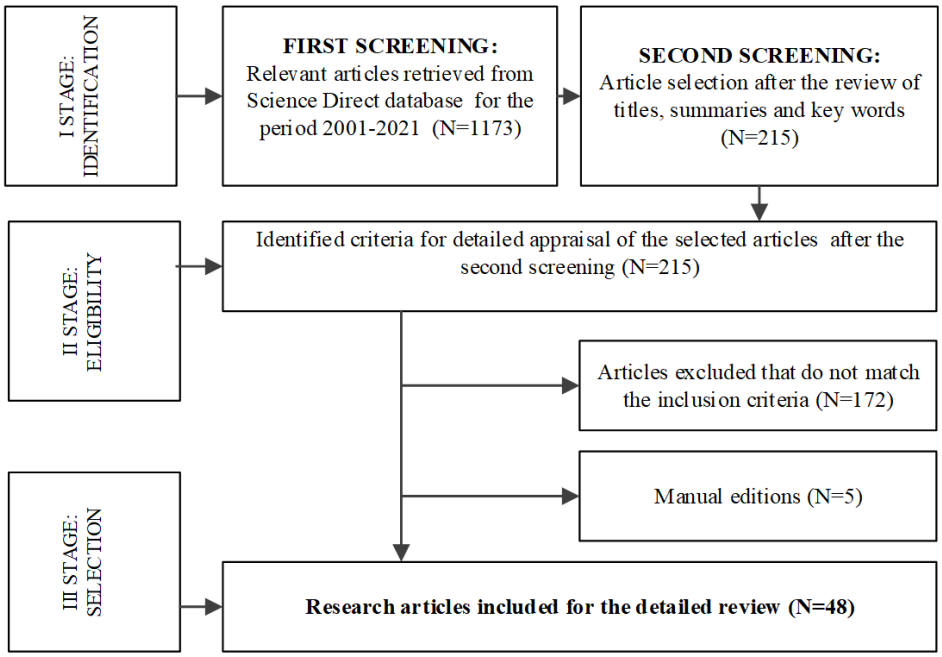

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Figure 2 SLR Appraisal flow diagram

2.4 Synthesis – SLR methodology step 4: inductive content analysis

The synthesis of the systematic literature review therefore included 48 articles. The evaluation of the content of the selected articles was carried out using a strategy of qualitative induction content analysis to deepen our understanding of the concept similarities and differences. This method uses code sets to reduce the overload of information into more manageable data so that researchers can answer the study questions using concepts, categories, or themes, which are coded and serve as a basis for reporting content analysis according to similar characteristics (Kyngäs, 2020). We selected the criteria for extraction by the coder from the selected scientific articles as follows: authors; year of publication; concept of resilience; and resilience stages (Mengist et al., 2020)

2.5 Analysis – SLR methodology step 5: retrieve the answers to the research questions

The concept of resilience has developed in different fields of science, and has been driven by different factors over different periods of time. (Andersson et al., 2019) suggested five different research streams regarding resilience in the business and management literature: 1) organisational ability to respond to external threats; 2) organisational reliability; 3) employee strength; 4) the adaptability of business models; 5) resilient supply chains.

All five streams were formed by different theories. Meyer (1982) was among the first to analyse the ability of organisations to respond to external threats. The organisational reliability stream focuses on the ability of organisations to deal with natural disasters, covering the research of high-reliability organisations (HROs), as well as having a strong link with organisational theory (Cantu et al., 2021). The third stream relates to the resistance of individuals, apprentices, and employees, and research in this stream is associated with psychology (Sharma et al., 2020; Andersson et al., 2019). The fourth stream is associated with organisational capacity to adjust under turbulent conditions. Research in this stream concerns the development of the capability to adapt (Gonçalves et al., 2019); Brown et al., 2017; Klimek et al., 2019; Hudec et al., 2018; Saad & Elshaer, 2020; Filimonau et al., 2020). The

fifth stream deals with the supply chain rather than sole organisations (Wong et al., 2020; Sawyerr & Harrison, 2020). Research into resilience in this stream emphasises the importance of interconnectedness between various players/organisations, and the need for the entire chain to be resilient in order to achieve long-lasting competitive advantage. Scientific literature also identifies resilience through three main categories:

- The first and broadest category is associated with resilience as an outcome. Research in this category focuses on identifying the characteristics of resilient organisations – i.e., necessary resources, strategies, organisational behaviour, etc. Empirical research attempts to identify the factors that determine the resilience of an organisation (Bento et al., 2021).
- The second category identifies resilience as a process that changes across time and through stages such as anticipation, absorption and adaptation. Although different scholars may identify these stages differently, they all share a common emphasis on the dynamic nature of resilience (Duchek et al., 2020); (Woods, 2015). The assessment of resilience at different stages makes it possible to identify links between input and output. Denyer (2017) identifies five phases of resilience: preventive control; mindful action; performance optimisation; adaptive innovation; and paradoxical thinking.
- The third category focuses on research to identify the resilient capabilities rather than attributes of the organisation. The resilient capability research approach is focused on enhancing resilience in practice (Ramezani & Camarinha-Matos, 2020; De Florio, 2017; Morgan et al., 2019).

The concept of resilience can also be interpreted through the prism of the resilience domain (Linkov et al., 2019), i.e., physical – sensors, facilities, equipment, system states, and capabilities; information – creation, manipulation, and storage of data; cognitive – understanding, mental models, preconceptions, biases, and values; social – interaction, collaboration, and self-synchronisation between individuals and entities. Although all resilience domains are important, the information domain is considered to be essential. Information is often interpreted differently, and so – especially in times of crisis – it is important to communicate in a clear, understandable way, and to build community confidence. The objectivity and availability of information is important for decision-making authorities, but in these moments human error is unavoidable, therefore it becomes crucial to involve other communities in the discussion.

Pursuing the recommendations of (Ramezani & Camarinha-Matos, 2020), we adopted the following characteristics depending on the way organisations react to threats:

- **Fragility** – when organisations do not have the ability to cope with disruptions, they are vulnerable to destruction (Ramezani & Camarinha-Matos, 2020).
- **Robustness** – the ability to absorb shock and remain stable. Robust organisations are not influenced by disruptions as they are able to resist them. Robustness, together with agility, reduces the vulnerability of an organisation by reducing the variables that might threaten stability. Organisational robustness is considered to be a prerequisite for operational agility, and an imperative element in enhancing resilience. According to Bento et al. (2021, p. 3), "resilience becomes the emergent outcome of robustness of all processes that maintain the system safe in relation to risks and threats." Conz & Magnani (2020) also argue that resilience cannot be enhanced if an organisation is not stable, i.e., robust. However, the relationship between being robust and being resilient is much more complex, as resilience deals with the unexpected. This means that new tools, approaches, and strategies must be employed to adapt to a new environment, which normally concerns high level dynamics and risks. Robustness, however, concerns stability and the ability to absorb shock.
- **Resilience** – the ability to absorb, recover, and adapt after disaster (Al-Atwi et al., 2021; Neise et al., 2021). Enabling resilience requires certain capabilities – i.e., flexibility and robustness (Iborra et al., 2020). Flexibility is important when it comes to coping and adapting, and robustness is a characteristic that concerns safety and stability under stressful circumstances. According to Bouaziz & Smaoui Hachicha (2018), resilient organisations are capable of returning to a desirable state after shock – not necessarily the same state as before the disruption occurred. Once organisations adapt to new conditions, they usually achieve a new organisational equilibrium, which leads to new opportunities. Resilience mainly focuses on positive adaptation (Hudec et al., 2018) to the changing conditions and the identification of operational agility – i.e., the capability of organisations to quickly deal with disruptions (Andersson et al., 2019) – as necessary components in developing resilience. Ramezani & Camarinha-

Matos (2020) identify this phenomenon as transformative resilience, which empowers organisations' ability to reorganize, reconfigure, restructure, and even reinvent when appropriate in response to disruptions. Russo & Ciancarini (2017) identify this phenomenon as the moment of 'springing back' or, in the words of Bouaziz & Smaoui Hachicha (2018, p. 3), "inside to outside renewal, transformation and dynamic creativity".

- **Antifragility** – when organisations absorb shocks, adapt to a new normal, and recover afterwards (Lichtman, 2016). An antifragile phase can be achieved after organisational resilience has already been enhanced, i.e., an organisation has adapted to a new normal. Antifragile systems are those which not only survive a shock-induced state, but also employ experience to then become stronger (Ramezani & Camarinha-Matos, 2020; Lichtman, 2016).). Here, the fundamental idea is to go beyond resilience phases – i.e., to prepare, absorb, recover, adapt, and utilise learning capacity to bounce-forward. (Bouaziz & Smaoui Hachicha, 2018) also argues that resilience is more than just an adaptation to a new environment and cannot be limited to absorbing the shock, recover and adapt. Being resilient is about bouncing back to the original state and quickly transforming into desirable state. Russo and Ciancarini (2017) argues that antifragility is different from agility, which mostly focuses on the capabilities to quickly recognize the opportunities and address the threats in a turbulent environment, where antifragility concerns the origin of learning – i.e., learning from your own mistakes, therefore the agility can be identified as the prerequisite for antifragility.

It should be noted that resilient organisations can be both fragile and robust, vulnerable and adaptive (Andersson et al., 2019). Such a phenomenon is called the resilience paradox – i.e., the ability of an organisation to achieve resilience by maintaining a balance between two opposing forces, such as maintaining high efficiency without expending excessive resources (Al-Atwi et al., 2021); Ramezani & Camarinha-Matos, 2020). This paradox is explored in organisational studies, which emphasise the importance of being structured and at the same time indicate that rigidity represents one of the major threats to organisational resilience. This phenomenon is also explored by Denyer (2017) via the Tension Quadrant, where organisational resilience is seen from the perspective of time and is split between two core drivers – i.e., the defensive state and the progressive state. The defensive state focuses on putting a stop to crises, whereas the progressive state is devoted to enhancing the occurrence of positive outcomes. The tension quadrant also includes two different approaches: consistent and flexible. The resilience paradox in the tension quadrant manifests in the fact that a resilient organisation understands that a defensive strategy must be based on consistency as well as flexibility. Equally, an organisation with a progressive approach should be both consistent and flexible.

At the same time, it is noted that an organisation's resilience is important at all levels. If only upper management is committed to resilience and employees are not, the possibility of the organisation failing to achieve resilience is enhanced (Andersson et al., 2019). For employees, trust, empowerment, and meaningful work are strong factors that determine the resilience of the organisation

2.6 Report – SLR methodology step 6: results and discussion

Following the steps of inductive content analysis, the selected papers were then analysed. It was evident that some authors focused on the phase of resilience concerning the ability of an organisation to return to its pre-crisis state and adapt to the so-called "new normal" (Floetgen et al., 2021), while others focused on learning capacity as the final desired capability of a resilient organisation.

We also noted the large number of studies that focused on the phases and capabilities that characterise resilient organisations – i.e., preparation, planning, coping, recovery, and adaptation. In addition, we observed that, among the various phases indicated in Table 2, (t-BB) adaptation is the ultimate desired phase of resilient organisations as it allows them to quickly adapt to the new environment and to bounce back to their previous states, altering the equilibrium of the organisation after the event. Studies supporting the phase of adaptation as the ultimate desirable stage to enhance resilience focus on the idea that resilience is the capacity to rebound after shock and adapt to a changing environment. Similarly, Melián-Alzola et al. (2020) define resilience as the measure that indicates operational and strategic adaptations in reaching a new equilibrium, which is grounds for sustaining business longevity and continuity in the long term (Conz & Magnani, 2020).

Conversely, we also identified studies that go beyond the adaptation phase and thrive due to learning capacity, which is considered to be crucial for ensuring competitiveness in the long term. This characterises antifragile

organisations – i.e., organisations that, when absorbing shocks, adapt to a new normal and become stronger afterwards (Lichtman, 2016) by learning from their own mistakes and enhancing unique experiences. De Florio (2017) and Ramezani & Camarinha-Matos (2020) refer to this phenomenon as the ability to bounce-forward.

Having these two directions in mind, the authors explored organisations' ability to deal with threats as a two-phase phenomenon – i.e., being composed of the bounce-back and bounce-forward phases. We therefore inductively coded the bounce-back phase as (t-BB) and the bounce-forward as (t-BF). The review of selected publications revealed that most of the publications in the (t-BB) category were from before the year 2020. Some publications from 2021, mainly those that applied the quantitative methodology, also fell under the (t-BB) category, as they used their experience to gain a unique competitive advantage and bounce-forward.

Table 2 The concepts of resilient organisations categorised according to the t-BB and t-BF phases.

	Phases	Authors
Resilience as a bounce-back phase (T-BB)	Detect, contain, and bounce-back from the inventible	Cantu et al., 2021
	Anticipation, coping, and adaptation	Bento et al., 2021
	Absorption and coping	Neise et al., 2021
	Flexibility and adaptability	Sharma et al., 2020
	Strategy and change	Melián-Alzola et al., 2020
	Respond and adapt	Saad & Elshaer, 2020; Filimonau et al., 2020
	Survival and recovery	Iborra et al., 2020
	Discover and adapt	Fang et al., 2020
	Robustness, redundancy, rapidity, and resourcefulness	Pashapour et al., 2019
	Risk awareness, preference for cooperation, agility, and improvisation	Andersson et al., 2019
	Prepare, absorb, recover, and adapt	Morgan et al., 2019
	Plan and adapt	Gonçalves et al., 2019; Brown et al., 2017
	Plan, absorb, recover, and adapt	Klimek et al., 2019
	Discover and adapt	Hudec et al., 2018
	Continuous change	Pizzo, 2015
	Bounce-back and adapt	Dahlberg, 2015; Markman & Venzin, 2014
	Repeated adaptation	Teixeira & Werther, 2013
Resilience as a bounce-forward phase (T-BF)	Survive, adapt, and thrive	Fasey et al., 2021
	Adapt and learn	Al-Atwi et al., 2021
	Anticipation, coping, adaptation, learning	Al-Ghattas & Marjanovic, 2021
	Prepare, absorb, recover, adapt, learn	Liu et al., 2021
	Proactive, absorptive / adaptive, reactive, or dynamic	Sharma et al., 2020; Iftikhar et al., 2021
	Recover, adapt, and rebound forward	Sobaih et al., 2021
	Monitor, anticipate, respond, and learn	Tortorella et al., 2021
	Proactive, absorptive phase and adaptive, reactive phase	Conz & Magnani, 2020
	Absorb, cope, adapt, transform, and learn	Ramezani & Camarinha-Matos, 2020
	Survive, adapt, respond, recover, and grow	Wong et al., 2020
	Prepare, absorb, recover, adapt, learn	Hynes et al., 2020
	Anticipate, absorb, recover, and adapt	OECD Policy Responses to Coronavirus (COVID-19), 2020
	Learn from mistakes	Lichtman, 2016
	Elasticity, entelechy, and (machine) learning	De Florio, 2017
	Adapt and learn	Russo & Ciancarini, 2017
	Plan, absorb, recover, and adapt	Linkov, 2019
	Foresight, insight, oversight, and hindsight	Denyer, 2017

Source: own proceeding

After evaluating the scientific articles that were selected to explore the concept of resilient organisations, we observed that, firstly, organisations need to be robust – i.e., they need to be able to assure their stability and to be able to sustain shock during turbulent times. Robustness is considered to be a prerequisite to resilience, although the connection between those two properties is rather complicated. Robustness is all about stability, whereas resilience deals with dynamic stability – i.e., constant transformation, also called transformative resilience, which can be achieved by cementing the preparation, absorption, recovery, and adaptation phases in the organisation. It was also evident that adaptation is the core phase of resilience, and represents a desired characteristic which can allow organisations to successfully bounce back to their previous states and adapt to a changed environment. Further, however, we found supporting evidence which suggests that the ability to return to the routine, to adapt to a changed environment, and to overcome dynamic events is no longer sufficient. Instead, it is becoming important for organisations to enhance the learning phase, which allows for growth by constantly learning from oneself and gaining unique experiences. Such a phenomenon is explained by antifragility, which goes beyond resilience and supports the idea of learning from your own mistakes, gaining unique experience, and using it to achieve competitive advantage.

In order to get understanding the differences between resilience and antifragility (Ramezani & Camarinha-Matos, 2020) highlights the differences through metaphors. The mythical Phoenix, rising from the ashes, is a resilience-identifying phenomenon, while the mythological Greek Hydra, which grows two heads in place of each that is cut off, represents antifragility – i.e., the organisation's ability to become stronger and bounce-forward after experiencing shock.

Based on our findings, we propose the conceptual framework of the Bounce Forward model (Fig. 3), which introduces the core characteristics of a successful organisational response to unexpected threats – i.e., robustness, resilience, and antifragility. The model suggests enhancing certain phases – such as the ability to remain stable, to prepare, to absorb, to recover, to adapt, and the capacity to learn – which might play an important role when coping with turbulence.

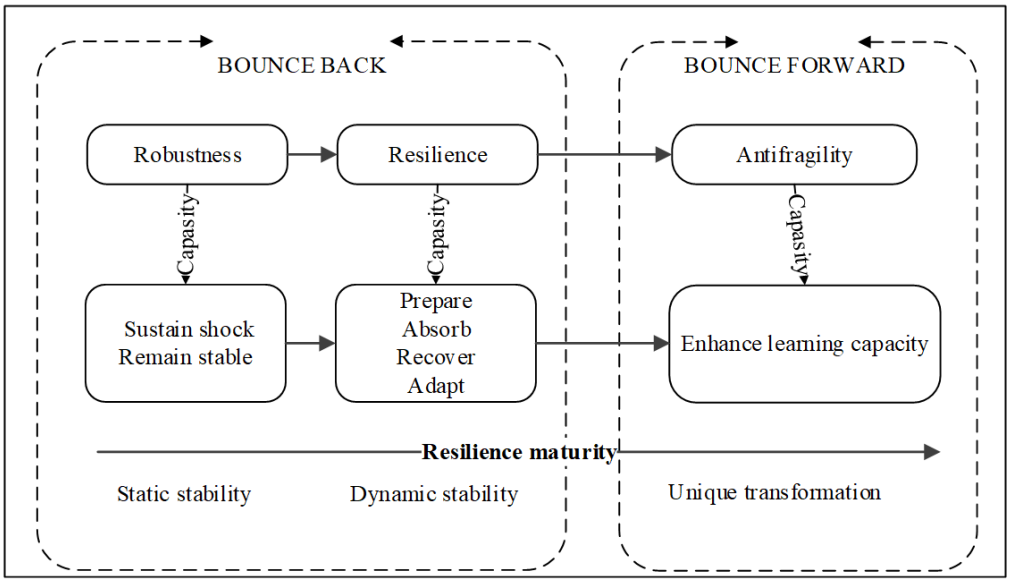

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Figure 3 Robustness, Resilience and Antifragility - conceptual framework of Bounce Forward model

Depending on the phase in which the organisation finds itself, certain capabilities are required. Robust organisations are characterised by their ability to sustain the shock and remain stable during the crises, thus ensuring static stability. Resilience adapts preparation, absorption, recovery and adaptation, focusing on the adaptation as the core ability resilient organisation is thriving for. Yet recent studies have shown that ability to successfully adapt after the shock alone is no longer sufficient in today's turbulent environment. The ability to constantly learn from mistakes and experiences ensures the unique transformation of an organisation, and enables organisations to accept crises as a natural and inevitable component of their evolution. In encountering these crises,

organisations become stronger due to their ability to, as defined by resilience paradox, be both fragile and robust; vulnerable and adaptive.

Conclusion, limitations, and directions for future research

A systematic literature review revealed certain trends in the area of organisational resilience. The analysis of scientific research has shown that the concept of resilience is transforming into a structure based on the underlying idea that a resilient organisation can not only withstand complex situations and be able to return to its pre-crisis position, but can also use the experience of shocks as a driving force to bounce-forward. Therefore, we propose the conceptual framework of the Bounce Forward model, which introduces the core characteristics of an organisation's successful response to unexpected threats – i.e., robustness, resilience, and antifragility.

The authors argue that all three of these stages are interconnected and have a positive relationship between each other, meaning that without strong robustness an organisation cannot achieve resilience and adapt properly to a changing post-crisis environment. Similarly, antifragility cannot be achieved without organisational resilience, that can be achieved by successful adaptation. An organisation first needs to be stable and to adapt properly to the changing environment, and only after gaining new experience and knowledge can it strive for unique transformations which are supported by the learning capacity of the organisation.

Our suggested framework should be considered in the context of some key limitations. Firstly, our proposed model is a conceptual one, therefore it does not explain potential correlations among robustness, resilience and antifragility. Secondly, we do not explore the specific capabilities that enhance each of the phase. Empirical evidence is required to overcome these limitations, which will form the basis of the authors' future research.

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References

AL-ATWI, A. A., AMANKWAH-AMOAH, J., KHAN, Z. (2021). Micro-foundations of organizational design and sustainability: The mediating role of learning ambidexterity. *International Business Review*, 30(1), 1-11. Doi 10.1016/j.ibusrev.2019.101656

AL-GHATTAS, H., MARJANOVIC, O. (2021). Business Analytics Capabilities for Organisational Resilience. In *Hawaii International Conference on System Sciences*. 228-235. Doi 10.24251/HICSS.2021.026

ANDERSSON, T., CÄKER, M., TENGBLAD, S., WICKELGREN, M. (2019). Building traits for organizational resilience through balancing organizational structures. *Scandinavian Journal of Management*, 35(1), 36-45. Doi 10.1016/j.scaman.2019.01.001

BENTO, F., GAROTTI, L., MERCADO, M. P. (2021). Organizational resilience in the oil and gas industry: A scoping review. *Safety Science*, 133, 1-11. Doi 10.1016/j.ssci.2020.105036

BOOTH, A., PAPAIOANNOU, D., SUTTON, A. (2012). *Systematic Approaches to a Successful Literature Review*.

BOUAZIZ, F., SMAOUI HACHICHA, Z. (2018). Strategic human resource management practices and organizational resilience. *Journal of Management Development*, 37(7), 537-551. Doi 10.1108/JMD-11-2017-0358

BROWN, C., SEVILLE, E., VARGO, J. (2017). Measuring the organizational resilience of critical infrastructure providers: A New Zealand case study. *International Journal of Critical Infrastructure Protection*, 18, 37-49. Doi 10.1016/j.ijcip.2017.05.002

BSI. (2021). *Organizational Resilience Index Report 2021*. Retrieved from Bsi-Organisational-Resilience-Index-Report-2021.Pdf

CANTU, J., TOLK, J., FRITTS, S., GHAREHYAKHEH, A. (2021). Interventions and measurements of highly reliable/resilient organization implementations: A literature review. *Applied Ergonomics*, 90, 1-9. Doi 10.1016/j.apergo.2020.103241

CHEN, R., LIU, Y., ZHOU, F. (2021). Turning danger into safety: The origin, research context and theoretical framework of organizational resilience. IEEE Access, 9, 48899-48913. Doi 10.1109/ACCESS.2021.3069301

CONZ, E., MAGNANI, G. (2020). A dynamic perspective on the resilience of firms: A systematic literature review and a framework for future research. *European Management Journal*, 38(3), 400-412. Doi 10.1016/j.emj.2019.12.004

DAHLBERG, R. (2015). Resilience and Complexity: Conjoining the Discourses of Two Contested Concepts. *Culture Unbound*, 7(3), 541-557. Doi 10.3384/cu.2000.1525.1572541

DE FLORIO, V. (2017). Systems, resilience, and organization: Analogies and points of contact with hierarchy theory. *Procedia Computer Science*, 109, 935-942. Doi 10.1016/j.procs.2017.05.430

DENYER, P. D. (2017). *Organizational Resilience. Organizational Resilience*, 54.

DUCHEK, S., RAETZE, S., SCHEUCH, I. (2020). The role of diversity in organizational resilience: A theoretical framework. *Business Research*, 13(2), 387-423. Doi 10.1007/s40685-019-0084-8

FILIMONAU, V., DERQUI, B., MATUTE, J. (2020). The COVID-19 pandemic and organisational commitment of senior hotel managers. *International Journal of Hospitality Management*, 91, 1-13. Doi 10.1016/j.ijhm.2020.102659

FANG, S. (ECHO), PRAYAG, G., OZANNE, L. K., DE VRIES, H. (2020). Psychological capital, coping mechanisms and organizational resilience: Insights from the 2016 Kaikoura earthquake, New Zealand. *Tourism Management Perspectives*, 34, 1-13. Doi 10.1016/j.tmp.2020.100637

FASEY, K. J., SARKAR, M., WAGSTAFF, C. R. D., JOHNSTON, J. (2021). Defining and characterizing organizational resilience in elite sport. *Psychology of Sport and Exercise*, 52, 1-12. Doi 10.1016/j.psychsport.2020.101834

FLOETGEN, R. J., STRAUSS, J., WEKING, J., HEIN, A., URMETZER, F., BÖHM, M., KRCMAR, H. (2021). Introducing platform ecosystem resilience: Leveraging mobility platforms and their ecosystems for the new normal during COVID-19. *European Journal of Information Systems*, 30(3), 304-321. Doi 10.1080/0960085X.2021.1884009

GONÇALVES, L., NAVARRO, J. B., SALA, R. (2019). Spanish validation of the Benchmark Resilience Tool (short-form version) to evaluate organisational resilience. *Safety Science*, 111, 94-101. Doi 10.1016/j.ssci.2018.09.015

HUDEC, O., REGGIANI, A., ŠISEROVÁ, M. (2018). Resilience capacity and vulnerability: A joint analysis with reference to Slovak urban districts. *Cities*, 73, 24-35. Doi 10.1016/j.cities.2017.10.004

HYNES, W., TRUMP, B., LOVE, P., LINKOV, I. (2020). Bouncing forward: A resilience approach to dealing with COVID-19 and future systemic shocks. *Environment Systems and Decisions*, 40(2), 174-184. Doi 10.1007/s10669-020-09776-x

IBORRA, M., SAFÓN, V., DOLZ, C. (2020). What explains the resilience of SMEs? Ambidexterity capability and strategic consistency. *Long Range Planning*, 53(6), 1-15. Doi 10.1016/j.lrp.2019.101947

IFTIKHAR, A., PURVIS, L., GIANNOCCARO, I. (2021). A meta-analytical review of antecedents and outcomes of firm resilience. *Journal of Business Research*, 135, 408-425. Doi 10.1016/j.jbusres.2021.06.048

KLIMEK, P., VARGA, J., JOVANOVIC, A. S., SZÉKELY, Z. (2019). Quantitative resilience assessment in emergency response reveals how organizations trade efficiency for redundancy. Safety Science, 113, 404-414. Doi 10.1016/j.ssci.2018.12.017

KYNGÄS, H. (2020). Inductive Content Analysis. In: Kyngäs H., Mikkonen K., Kääriäinen M. (eds) *The Application of Content Analysis in Nursing Science Research*. 13-21. Doi 10.1007/978-3-030-30199-6_2

LICHTMAN, M. L. (2016). *Antifragile Communications*. 184.

LINKOV, I. (2019). *Resilience-based strategies and policies to address systemic risks*. 36.

LIU, J., TONG, T. W., SINFIELD, J. V. (2021). Toward a resilient complex adaptive system view of business models. *Long Range Planning*, 54(3), 1-17. Doi 10.1016/j.lrp.2020.102030

MARKMAN, G. M., VENZIN, M. (2014). Resilience: Lessons from banks that have braved the economic crisis – and from those that have not. *International Business Review*, 23(6), 1096-1107. Doi 10.1016/j.ibusrev.2014.06.013

MELIÁN-ALZOLA, L., FERNÁNDEZ-MONROY, M., HIDALGO-PEÑATE, M. (2020). Hotels in contexts of uncertainty: Measuring organisational resilience. *Tourism Management Perspectives*, 36, 1-14. Doi 10.1016/j.tmp.2020.100747

MENGIST, W., SOROMESSA, T., LEGESE, G. (2020). Method for conducting systematic literature review and meta-analysis for environmental science research. *MethodsX*, 7, 1-11. Doi 10.1016/j.mex.2019.100777

MORGAN, K. H., LIBBY, N. E., WEAVER, A. K., CAI, C. (2019). Development of an early warning resilience survey for healthcare organizations. *Heliyon*, 5(10), 1-6. Doi 10.1016/j.heliyon.2019.e02670

NEISE, T., VERFÜRTH, P., FRANZ, M. (2021). Rapid responding to the COVID-19 crisis: Assessing the resilience in the German restaurant and bar industry. *International Journal of Hospitality Management*, 96, 1-9. https://doi.org/10.1016/j.ijhm.2021.102960

PASHAPOUR, S., BOZORGI-AMIRI, A., AZADEH, A., GHADERI, S. F., KERAMATI, A. (2019). Performance optimization of organizations considering economic resilience factors under uncertainty: A case study of a petrochemical plant. *Journal of Cleaner Production*, 231, 1526-1541. Doi 10.1016/j.jclepro.2019.05.171

PETTERSEN, K. A., SCHULMAN, P. R. (2019). Drift, adaptation, resilience and reliability: Toward an empirical clarification. *Safety Science*, 117, 460-468. Doi 10.1016/j.ssci.2016.03.004

PIZZO, B. (2015). Problematizing resilience: Implications for planning theory and practice. *Cities*, 43, 133-140. Doi 10.1016/j.cities.2014.11.015

RAMEZANI, J., CAMARINHA-MATOS, L. M. (2020). Approaches for resilience and antifragility in collaborative business ecosystems. *Technological Forecasting and Social Change*, 151, 1-26. Doi https://doi.org/10.1016/j.techfore.2019.119846

RUSSO, D., CIANCARINI, P. (2017). Towards antifragile software architectures. *Procedia Computer Science*, 109, 929-934. Doi 10.1016/j.procs.2017.05.426

SAAD, S. K., ELSHAER, I. A. (2020). Justice and trust's role in employees' resilience and business' continuity: Evidence from Egypt. *Tourism Management Perspectives*, 35, 1-12. Doi 10.1016/j.tmp.2020.100712

SAWYERR, E., HARRISON, C. (2020). Developing resilient supply chains: Lessons from high-reliability organisations. *Supply Chain Management: An International Journal*, 25(1), 77-100. Doi 10.1108/SCM-09-2018-0329

SHARMA, A., RANGARAJAN, D., PAESBRUGGHE, B. (2020). Increasing resilience by creating an adaptive salesforce. *Industrial Marketing Management*, 88, 238-246. Doi 10.1016/j.indmarman.2020.05.023

SNYDER, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333-339. Doi 10.1016/j.jbusres.2019.07.039

SOBAIH, A. E. E., ELSHAER, I., HASANEIN, A. M., ABDELAZIZ, A. S. (2021). Responses to COVID-19: The role of performance in the relationship between small hospitality enterprises' resilience and sustainable tourism development. *International Journal of Hospitality Management*, 94, 1-11. Doi 10.1016/j.ijhm.2020.102824

OECD POLICY RESPONSES TO CORONAVIRUS (COVID-19). (2020). *Systemic resilience approach to dealing with Covid-19 and future shocks*. OECD Publishing, Paris. Doi 10.1787/36a5bdfb-en

TEIXEIRA, E. DE O., WERTHER, W. B. (2013). Resilience: Continuous renewal of competitive advantages. *Business Horizons*, 56(3), 333-342. Doi 10.1016/j.bushor.2013.01.009

TORTORELLA, G. L., SAURIN, T. A., FOGLIATTO, F. S., ROSA, V. M., TONETTO, L. M., MAGRABI, F. (2021). Impacts of Healthcare 4.0 digital technologies on the resilience of hospitals. *Technological Forecasting and Social Change*, 166, 1-10. Doi 10.1016/j.techfore.2021.120666

WIIG, S., FAHLBRUCH, B. (Eds.). (2019). *Exploring resilience: A scientific journey from practice to theory*. Springer International Publishing. Doi 10.1007/978-3-030-03189-3

WHITMAN R., Z., KACHALI, H., ROGER, D., VARGO, J., SEVILLE, E. (2013). Short-form version of the Benchmark Resilience Tool (BRT-53). *Measuring Business Excellence*, 17(3), 3-14. Doi 10.1108/MBE-05-2012-0030

WONG, C. W. Y., LIRN, T.-C., YANG, C.-C., SHANG, K.-C. (2020). Supply chain and external conditions under which supply chain resilience pays: An organizational information processing theorization. *International Journal of Production Economics*, 226, 1-11. Doi 10.1016/j.ijpe.2019.107610

WOODS, D. D. (2015). Four concepts for resilience and the implications for the future of resilience engineering. *Reliability Engineering & System Safety*, 141, 5-9. Doi 10.1016/j.ress.2015.03.018