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ORGANIZATIONAL RESILIENCE

HOW SMES OVERCOME CRISIS: AN EMPIRICAL ANALYSIS

Supervisor Diego Campagnolo

Candidate Alberto Delli Carri
ID Number 1181562

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A mia madre, che non smetterà mai di essere al mio fianco.

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INTRODUCTION & SUMMARY

THE REASON OF MY DISSERTATION – The thesis aims at investigating the concept of resilience and organizational resilience, its measurement and best practices by an extensive qualitative and quantitative analysis of data. In point of fact, this paper will find answers to several inquiries across the borders of resilience at organizational levels. First of all, why are some organizations more successful in coping with, and responding to, the complexity, volatility and uncertainty of the current business environment? Is it possible to build resilience into an organization? Is organizational resilience a contingent factor?

FIRST CHAPTER – RESILIENCE: THE EVOLUTION OF THE CONCEPT FROM 1977 TO TODAY - Resilience is a highly debated concept and many have been the publications connected to this topic. It can be defined as the ability to cope positively with traumatic events, to positively reorganize one's life in the face of difficulties, to rebuild oneself while remaining sensitive to the positive opportunities that life offers, without alienating one's identity. Therefore, in order to process a coherent study, and propose some further investigation, it is of extreme importance to examine the already existing literature concerning resilience.

SECOND CHAPTER – A DEEPER APPROACH TO ORGANIZATIONAL RESILIENCE - The notion of resilience and resiliency is developed by an organizational point of view. The drivers of organizational resilience are highlighted both at the level of multinationals and smaller companies. The various degrees of its measurement, from the evaluation of financial results to purely organizational elements, are shown in detail. The final part of

this chapter focuses on the contribution of organizational resilience to crises, how to implement it on a daily base in the corporate context and also make your organization more resilient.

THIRD CHAPTER – THE EMPIRICAL ANALYSIS - In this section, the thesis shifts the focus on SMEs environment in Italy. An empirical analysis is disclosed based on the data collect by the University of Padua in occasion of the project "Building Better Business Resilience" commissioned by J.P. Morgan Italy. The investigation is conducted in order to find evidence of which are the main drivers of resiliency in micro and small organizations. After a deep investigation of the sample and a detailed description regarding the characteristics of the SMEs interview, a regression model is performed. Several arguments will find an accurate explanation through the evolution of the study.

Risk has always been part of doing business, and every company seeks in some way to be prepared for damaging incidents and to be predisposed to respond to them at their best. However, in recent years, the need to demonstrate resilience has received greater urgency as a result of a number of powerful trends that have lately took place. First of all, a series of high impact, low probability events has alerted executives to the need for precautions. Beginning with the Y2K scare at the turn of the new millennium, and followed by the devastating September 11th attacks, the 2005 hurricane season in the US and a number of other catastrophes, the vulnerability of business to unforeseen events has never been more evident.

The success of a company depends on its ability to identify and successful managed the risks associated with running its operations. These risks, which can be grouped under the heading operational risk, refer to any type of risk a company faces that is neither financial nor market-related in nature. In the past few years, business continuity management (BCM) has emerged as one of the key tools that companies use to manage operational risk. At the same time, the discipline has evolved from being one that is focused on the way in which companies respond to an unforeseen event, to one that is used to increase their preparedness and overall resilience.

In less turbulent times, established companies could rely on the flywheel of momentum to sustain their success. Some, like AT&T and American Airlines, were insulated from competition by regulatory protection and oligopolistic practices. Others, like General

Motors and Coca-Cola, enjoyed a relatively stable product paradigm—for more than a century, cars have had four wheels and a combustion engine and consumers have sipped caffeine-laced soft drinks. Still others, like McDonald's and Intel, built formidable first-mover advantages. And in capital-intensive industries like petroleum and aerospace, high entry barriers protected incumbents.

Technological discontinuities, regulatory upheavals, geopolitical shocks, industry misalignments and disintermediation, abrupt shifts in consumer tastes, and several non-traditional competitors are just a few of the forces undermining the advantages of incumbency.

In the past, executives had the luxury of assuming that business models were more or less immortal. Companies always had to work to get better, of course, but they seldom had to get different, not at their core, not in their essence. Today, getting different is the imperative.

The fact that success has become less persistent strongly suggests that momentum is not the force it once was and it has pushed the need for business resilience to the top of the agenda. Business continuity and disaster recovery, which were hitherto seen as dull but necessary adjuncts of doing business, have drawn boardroom attention and intense scrutiny from investors, customers, regulators and other stakeholders.

Strategic resilience is not about responding to a onetime crisis. It is not about rebounding from a setback. It is about continuously anticipating and adjusting to deep, secular trends that can permanently impair the earning power of a core business. It is about having the capacity to change before the case for change becomes desperately obvious.

1. CHAPTER

RESILIENCE: THE EVOLUTION OF THE CONCEPT FROM 1977 TO TODAY

1.1 Introduction

In psychology, resilience is a concept that indicates the ability to deal positively with traumatic events, to positively reorganize one's life in the face of difficulties, to rebuild oneself while remaining sensitive to the positive opportunities that life offers, without alienate one's identity.

Resilient people are those who, immersed in adverse circumstances, succeed, in spite of everything and sometimes against all odds, in coping effectively with setbacks, giving new life to their own existence and even reaching important goals. Applied to an entire community or society, rather than to a single individual, the concept of resilience is affirming itself in the analysis of social contexts following serious natural disasters or due to human activities such as, for example, terrorist attacks, revolutions or wars (Vale & Campanella, 2004). From the original psychological meaning the concept has also spread to the economic one. Therefore, an organization (enterprise, company and similar) is resilient when it is able to face risks, seizing opportunities even in negative situations. In practice, it knows how to evolve out of a crisis situation as it is capable of managing change.

A quick delve into history shows that the term resilience has been around since the 1620's and comes from the Latin term 'resilire' meaning 'to recoil or rebound', by the 19th century it had evolved to include a sense of elasticity (MacMillan Dictionary, 2017). When looking within academic literature, the term resilience has been used since 1973 when Holling, an ecology scholar, classified two aspects of resilience; the first is Engineering Resilience defined as the time it takes to return to a state of equilibrium.

The second is Ecological Resilience defined as the amount of shock a system can absorb before it breaks down (Holling, 1973). So what does this tell us? The term resilience originally had three major components: a movement aspect, in the sense of a forced move away from its steady state, or business as usual processes. A temporal aspect, in the sense that there is time needed to rebound after an incident. An elasticity aspect, in the sense that there is a need to stretch and flex in order to absorb the shock.

Following this path, resilience seems to be very similar to the concept of 'continuity', but they differ in a slight but important difference. As Bhamra succinctly puts it: "Continuity management is essentially returning a business to 'business as usual', and nothing more. Resilience… not only enables organizations to continue with business as usual, but also to learn, progress and flourish which will likely involve transformation" (Bhamra, 2016). In short, business continuity returns us to where we were before an incident but a resilient organization will evolve and grow from the incident.

Therefore, at the organizational level, resilience refers to a business's ability to adapt and evolve as the global market is evolving, to respond to short term shocks - be they natural disasters or significant changes in market dynamics - and shape itself to respond to long term challenges.

The viability and sustainability of organizations continues to be tested in a world that is constantly changing. Many organizations are realizing that traditional corporate strategies are not protecting them from unexpected events. Organizations need to be able to absorb an event that necessitates change, to adapt and continue to maintain their competitive edge and profitability.

1.2 Different authors' studies and approaches

The concept has a quite long history that has his roots in the late '70s and the research covers five different streams of resilience as concept. Resilience as organizational responses to external threats, organizational reliability, employee strengths, the adaptability of business models or design principles that reduce supply chain vulnerabilities and disruptions.

The conceptual origins are attributed to Staw *et al.* (1981) and Meyer (1982), who both published on the "Administrative Science Quarterly". Starting from the evolutionary theory of Campbell (1965), the two authors have a different view on how organizations respond to external threats. Very interesting is the point of view of Meyer: in an empiri-

cal study of hospital responses to an unexpected doctors' strike or 'environmental jolt', he contradicted the proposition by Staw *et al.* (1981) that an external threat automatically places an organization at risk. Findings from Meyer's study suggested that organizations can display adaptability in the form of two different types of responses: they can either absorb the impact of the environmental shocks by undergoing first-order change and single-loop learning (labelled 'resiliency'), or they can adopt new practices or configurations through second-order change and double-loop learning (labelled 'retention'). Meyer (1982) further concluded that resilience is influenced by an organization's strategy and its slack resources, while retention is shaped by an organization's ideologies and constrained by organizational structures.

Resilience research changed its focus in the mid-80s, focusing on firm-internal disruption leading to industrial accidents and the reliability of high-risk technologies. Between 1980 and 1990, large-scale accidents, such as Chernobyl, Exxon Valdez, Bhopal and the Space Shuttle Challenger shifted the interest in research to resilience as reliability. From external events and their consequences for organizations, academic interest moved to internal organization reliability.

Charles Perrow (1984) is the main contributor of the paradigm resilience as reliability through his book, ''Normal Accident Theory'', in which he proposed that high-risk technological systems are vulnerable to failure because they are becoming increasingly complex and difficult for personnel to operate. Nonetheless, ''Normal Accident Theory'' gave rise to a 'reliability paradigm' (Van Den Eede *et al*., 2006), which showed itself through greater attention to operational safety and reliability in organizational research and practice. Wildavsky's 1990 book, *Searching for Safety*, reflected this paradigm and analysed the considerable degree of safety that society had thus far achieved. He concluded that resilience is "the capacity to cope with unanticipated dangers after they have become manifest, learning to bounce back'' (Wildavsky, 1990). This definition suggested that resilience is a generalized capacity to learn and to act without knowing in advance the situation or event that needs to be acted upon, which was later seen as an important aspect of High Reliability Organizing.

One of the highly cited contributions from this period is the paper by Weick and Roberts (1993) on the operation of aircraft carrier flight decks. The authors coined the concept of "collective mind", defined as "a pattern of heedful interrelations of actions in a

social system" (Weick & Roberts, 1993), and developed the hypothesis that increases in heedful interrelating and mindful comprehension of unfolding events decrease the potential for organizational errors. In other words, the authors suggested that high-reliability organizations enact aggregate mental processes (information processes, heedful action and mindful attention) that are more fully developed than those in organizations that are primarily concerned with efficiency. Processes of sense-making were also an important aspect of Weick's (1993) study, which was published alongside the paper by Weick and Roberts (1993).

Further research on high-reliability organizations continued to explore how these organizations find ways to address challenging conditions and problems as they occur and before their effects escalate. According to Weick & Sutcliffe (2001), High Reliability Organizations (HROs) are those able to preserve flexibility in the face of disturbances: they respond to disturbances with new learning rather than new rules or procedures. We see, then, a clear link between resilience and flexibility or adaptation: to regain a dynamically stable state, and thus to be resilient, an organization needs to be flexible and adaptive.

1.2.1 Significant changes due to 9/11 disaster and consequent research streams

It was only after 9/11 that resilience research reemphasized the importance of external threats and thus began to revisit Staw *et al.*'s (1981) and Meyer's (1982) contributions. The 2001 terrorist attacks in the US had profound impacts on resilience research, ending the predominant concern of intra-organizational reliability, and shifting attention to coping mechanisms and response strategies under conditions of great environmental uncertainty.

Three main streams can be individuated as post 9/11 research on resilience. The first one started with the works of Coutu (2002) and Luthans (2002a, b) and developed into a new line of enquiry on building resilience through employee strengths.

Coutu's (2002) paper put forward the idea that employee capabilities are important for building resilience. Prior to September 11, 2001, Morgan Stanley, the famous investment bank, was the largest tenant in the World Trade Center. The company had some 2,700 employees working in the south tower on 22 floors between the 43rd and the 74th. On that horrible day, the first plane hit the north tower at 8:46 am, and Morgan

Stanley started evacuating just one minute later, at 8:47 am. When the second plane crashed into the south tower 15 minutes after that, Morgan Stanley's offices were largely empty. All told, the company lost only seven employees despite receiving an almost direct hit. (Coutu, 2002).

Luthans (2002 a,b), with his paper *Positive Organizational Behavior*: Developing and Managing Psychological Strengths, proposed research on how to develop and manage psychological strength in employees. The management professor specializing in organizational behaviour highlighted resiliency as one of the variables leading to psychological strength. He defined resiliency as follow: "the capability of individuals to cope successfully in the face of significant change, adversity, or risk'' and as ''the positive psychological capacity to rebound, to 'bounce back' from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility''(Luthans, 2002). Organizations are assumed to be in a position to build psychological capital through developmental processes, which, in turn, improve employees' abilities to cope with change, adversity or risk.

A second stream of research is based on the adaptability of business models. The focus here is on how companies adjust, adapt and reinvent their business models in an ever-changing environment. Highly cited publications in this line of enquiry include Gittell et al. (2006), Hamel and Valikangas (2003) and Sutcliffe and Vogus (2003).

Sutcliffe and Vogus (2003) define resilience as: "the maintenance of positive adjustment under challenging conditions" (Sutcliffe & Vogus, 2003). The two authors proposed that these adjustment included both ongoing strains due to small interruptions and bigger disruptions due to exogenous events. In their paper they concluded that organizations are more likely to be resilient if enabling conditions are present as they create the continuing ability to use internal and external resources successfully to resolve issues.

In 2003 Gary Hamel and Liisa Välikangas wrote: "In a turbulent age, the only dependable advantage is a superior capacity for reinventing your business model before circumstances force you to'' (Hamel & Välikangas, 2003). They suggested innovation as another enabling condition, as it allows organizations constantly and continuously to anticipate and adjust to a broad range of turbulence.

Similarly to Sutcliffe and Vogus, Gittell et al. (2006) drew upon Meyer's (1982) findings and reached new results. Organizations need a viable business model that allows

financial reserves or slack resources to be built up, so that these resources can be used to provide a strong commitment to employees during the times of crises, and sustain relationships that act as enabling conditions for organizations to return quickly to full performance. The authors investigated major airlines' responses to 9/11 and found that the post-9/11 layoff (intended to improve economic performance) actually inhibited long-term business recovery.

A third and different stream of post 9/11 research is focused on resilient supply chain designs. The disaster in US revealed the vulnerability of highly independent supply networks.

''The attacks dramatically illustrated the interdependence that exists in the supply network—not just among the trading partners but also with the U.S. government agencies involved in the flow of goods and the transportation infrastructure. This new operating environment calls for a supply network design that is both secure and resilient'' (Rice & Caniato, 2003).

The principles most commonly hypothesized to lead to resilience in supply chains or networks are flexibility and redundancy (e.g. modular designs, diversification across suppliers, multiple transport or production modes). Juettner and Maklan (2011) provided some case evidence regarding supply chain resilience in the global financial crisis, and concluded that four resilience capabilities (flexibility, velocity/reaction speed, access to timely information, and collaborations among supply chain members) can avoid or limit the impacts of adverse events on revenue, cost and lead time/availability targets.

At the end of the previous bibliographic research, a summary table follows with the main authors who contributed to the studies on the organizational resilience (Table 1).

It is important to remember and emphasize the various stages of thinking that embraces organizational resilience. From the large scale accidents of the mid-80s, which shifted the interest to internal organization reliability. To the macro disaster of 9 September 2001 which gave birth to three different strands of research.

Table 1 - Summary of bibliography regarding resilience

Year	Author	Publication	Contribution
1981	Staw et al.	Threat Rigidity Effects in Organizational Behavior: A Multilevel Analysis	An external threat automatically places an organization at risk.
1982	Meyer	Threat Rigidity Effects in Organizational Behavior: A Multilevel Analysis	"Resilience is influenced by an organization's strategy and its slack resources"
1984	Charles Perrow	Normal Accident Theory	Resilience is "the capacity to cope with unanticipated dangers after they have become manifest, learning to bounce back."
1993	Weick and Roberts	Collective Mind in Organizations: Heedful Interrelating on Flight Decks.	Concept of collective mind: a pattern of heedful interrelations of actions in a social system.
2002	Coutu D.L.	How resilience works	Employee capabilities are important for building resilience.
2002	Luthans	Positive Organizational Behavior: Developing and Managing Psychological Strengths	Resilience is "the capability of individuals to cope successfully in the face of significant change, adversity, or risk'' responsibility''
2003	Sutcliffe and Vogus	Organizing for Resilience. Positive Organizational Scholarship: Foundations of a New Discipline.	Resilience is "the maintenance of positive adjustment under challenging conditions"
2003	Gary Hamel and Liisa Välikangas	The Quest for Resilience	Resilience as "superior capacity for reinventing your business model before circumstances force you to"
2006	Gittell et al.	Relationships, layoffs, and organizational resilience: airline industry responses to September 11.	Importance of slack resources and financial reserves
2011	Juettner and Maklan	Supply Chain Management: An International Journal	Flexibility, velocity/reaction speed, access to timely information, and collaborations among supply chain members can avoid or limit the impacts of adverse events on revenue, cost and lead time/availability targets

Source: Author's elaboration.

1.2.2 The new directions of resilience

The new directions draw a line of researchers that put more attention to the period of detecting a threat. It has been realized that an external threat or uncommon situation requires a resilient response and a corresponding and possibly latent organizational response (Burnand & Bhamra, 2000). Following the path of the first stream born after 2001, researchers continue to be interested in understanding employee resilience and psychological capital development. New studies in this area include further research on psychological capital development in different cultural contexts and organizational settings such as family firms and high-reliability organizations. In addition, researchers have extended their investigation into the impact of psychological capital development on factors such as employees' attitudes, performance and behaviours, including leadership behaviours and behaviours towards organizational change.

Moreover, researchers have started to pay increased attention towards global security concerns and the resilience of organizations and supply chains to terrorist attacks (e.g. Urciuoli et al. 2014; Voss and Williams 2013), as well as climate change and trend changes in weather extremes (e.g. Linnenluecke and Griffiths 2013;Wedawatta and Ingirige 2012;Winn and Pogutz 2013; Winston 2014). This research comments on the significant risks that organizations are exposed to and analyses ways in which organizations can create resilience from risks. Related papers focus in particular on how organizations can manage and reduce interdependence within highly complex and vulnerable systems, as well as avoid destroying the life supporting foundations provided by ecosystem stability. In addition, some literature has started to analyse the role of entrepreneurship and enterprise resilience in developing regions affected by war and terrorism, allowing individuals to (re)engage in economic activity in unstable conflict settings.

A first conclusion from examining the knowledge development on resilience is that resilience research has been highly context-dependent. It appears that resilience has been conceptualized in several different ways, depending on context. For example, some studies view resilience as a way of engaging positively with internal failures, weaknesses, deviations or impacts as they become apparent (mindful organizing, non-rigid information processing, experimentation, learning from adversity or small losses, human resources training). Other studies suggest that resilience is a way to avoid, resist or buffer against external impacts by implementing design principles. Some conceptualiza-

tions emphasize that resilience involves recovering from extreme events and disasters (the so called process of learning, 'bouncing back'), possibly even in a strengthened or improved fashion. A question that arises is whether these are complementary or competing, or simply context dependent approaches to building resilience.

The second conclusion from this analysis is that studies on resilience often propose particular ways of arranging or accumulating assets and resources (including human resources) to create resilience. Meyer (1982), for instance, suggested that slack (i.e. 'redundant') resources were important in absorbing the impacts of adverse conditions. With reference to Meyer (1982), Gittell et al. (2006) also emphasized the importance of slack resources and financial reserve to help preserve relational reserves over time. Similarly, studies on resilient supply chains have called for slack resources.

The third conclusion from the analysis is that existing attempts to detect resilience or its absence, have not only conceptualized, but operationalized, the concept quite differently.

Part of the problem in drawing out the resilience of organizations to future conditions is that there is a range of potentially relevant variables that could influence resilience. The resilience of an organization to a particular event may well be related to its relative size; the disruption of operations in a local branch may seem minor from the perspective of a large, global organization, but can be significant for a small organization which operates only in few locations (Linnenluecke & Griffiths, 2010).

1.3 Resilience of an individual in the work environment

Although an individual's resilience is influenced by the higher level social environments in which he or she is embedded, the social context, particularly occupational influences have been under-examined in the management literature. A professional sports player needs to quickly put mistakes aside. An inventor needs to view failed experiments toward making a breakthrough as knowledge. A scholar needs to think positively about setbacks and reframe repeated rejection from funders and journals as part of the occupational territory. Each of these examples illustrates variations in resilience that have a common theme of adapting performance to overcome adversity or simply sustain job demands, yet also reflect shades of occupational distinctiveness.

While the lines above provide some solid grounding for the development of a definition of resilience of the person, there are also unanswered questions and some conflicting notions. For example, is resilience a trait, a state, a process, or some combination and how are these shaped by occupational context? The notion that resilience fluctuates on a daily basis as illustrated from a recent experience sampling methodology (ESM) study (Martinez-Corts, Demerouti, Bakker, & Boz, 2015) showed that personal psychological resources such as optimism prevented work conflicts from spilling over to the non-work domain. These findings suggest that resilience is not only a trait but is also malleable. This stands in conflict with earlier writings we reviewed above e.g. Kobasa's, (1979) work on hardiness or London's (1983) work on self-efficacy that resilience is static. The positive organizational behaviour literature seems to stake out the "state-like" or capacity-building middle ground.

Furthermore, the study of resilience, particularly from the positive organizational behaviour standpoint, seems to lack occupational context. Few studies delineate what sort of adversity, exactly, one is bouncing back from. This gap makes it challenging to identify and examine some of the specific occupationally determined demands and how these interact with personal characteristics and resources. Examples of interesting understudied questions that might be examined with an increased emphasis on how occupational contexts vary and shape resilience might include, for example, are nurses and police members more resilient (or required to be more resilient) than accountants? What are the within occupational factors such as access to formal work supports that may make one nurse more resilient than another? Do different industries, occupations and professions put individuals and groups at greater risk to have harm and occupational risk or conversely greater likelihood to thrive and have well-being on and off the job? How do systems between work and personal life interact to support or hinder resilience over occupational contexts? Some industries and occupations seem to be less supportive of facilitating demographically diverse groups such as women and minorities.

Starting from a broad assumption: resilience, the ability to bounce back from adversity and endure demands, in one form or another, is critical to all occupations, but it can be critical in different ways. Resilience spans gender and diversity issues across occupations in that, for example, it can be a key resource for women in male-dominated professions. Or as a qualitative study of elite young athletes as a semi-occupation, involv-

ing adolescent soccer players, found resilience was one of four "competencies, besides discipline, commitment, and social support that was central to avocational success" (Holt & Dunn, 2004).

Additionally, there are some types of resilience demands that are purely occupation-specific like exposure to physical danger which is inherent in being a fire fighter, but is unlikely to occur in accounting, for example. There are other resilience demands such as work-family balance that may be content-general. Given the changing nature of work and workforce demographics (e.g. longer life spans, changing work-family, and gender demographics of the workforce), such demands are generally increasingly present across occupations.

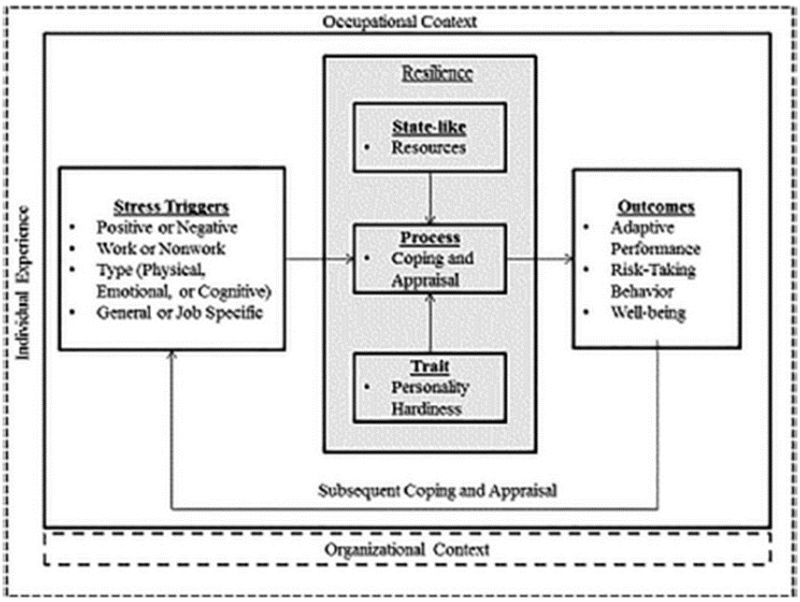
To acknowledge the contextual influences of resilience, we took a quasi-grounded theory approach to understand resilience at the occupational level. By occupation, we refer to "a group of work roles spanning multiple organizations that share a similar set of work requirements (e.g. tasks and responsibilities), methodologies, objectives, or worker requirements" (Morgeson, Dierdorff, & Hmurovic, 2010).

Occupational resilience is the synthesis of an individual's traits, capacities or coping strategies, and processes for positively adapting to adversity and risk in ones' occupational and organizational contexts. It reflects the multiple ways in which individuals access resiliency resources in order to respond to stress triggers (cognitive, emotional, or physical), which can be positive or negative, job-specific or general, to adapt performance across work and non-work domains over one's career.

In this context, is quite relevant the multi-level model of occupational resilience (Figure 1) provided by a study published on The Academy of Management by Ellen Ernst Kossek and Matthew B. Perrigin with the title *Resilience: A Review Using a Grounded Integrated Occupational Approach.* The model provides a basic, dynamic framework where stressors are mediated by resilience and moderated by occupational and organizational contexts to shape outcomes. Outcomes may be positive or negative with cross-over across work and non-work domains. This continuous cycle of stressors influencing outcomes will occur over time and career stage. It will be constantly influenced by resilience such as individual hardiness, the state-like resources and capacity the individual may garner from the situation, and processes involved in determining the appraisal of the stressor and adaptation. This time-based process model encompasses the breadth of

occupational resilience in addition to recognize the multiple ways resilience has been conceptualized across job contexts.

Figure 1 - An Integrated Organizational Resilience Framework



Source: Author's elaboration.

1.4 Resilience of the entrepreneur

Successful entrepreneurs establish their business goals and take timely decisions to achieve those goals in increasingly competitive and uncertain environments. The information available to entrepreneurs is often ambiguous, incomplete or is constantly changing. In these circumstances, resilient entrepreneurs, who show a high degree of tolerance for ambiguity and adapt quickly to change, may be better prepared to succeed. "Entrepreneurs who have resilience are willing to work hard to achieve their goals, to adapt to changes in order to take advantage of the new situation and are able to learn from their mistakes" (Cooper, Estes & Allen, 2004).

Resilience is a dynamic adaptation process that allows entrepreneurs to continue to look towards the future despite harsh market conditions and despite the destabilizing events they must continually face. Resilience is the capacity an entrepreneur has in order to overcome particularly difficult circumstances. This capacity for adaptation and "bouncing back in the face of adversity depends on the individual's resources and their interaction with the environment" (Windle, Bennert & Noyes - 2011).

It is therefore reasonable to assume that the resilience of the entrepreneur changes as a result of their business requiring them to adjust their strategies and develop skills for coping with different kinds of situations with optimism and courage. The predictive validity of resilience could then be called into question: does resilience have any predictive validity? The researchers have demonstrated that differences in personal characteristics between men and woman could influence the success of their businesses. (Bolden & Nucci, 1999).

Resilience is the result of the interaction between entrepreneurs and their environment. It is a dynamic and evolving process through which entrepreneurs acquire the knowledge, abilities and skills to help them face the uncertain future with a positive attitude, with creativity and optimism, and by relying on their own resources. Entrepreneurs are resilient when faced with adverse circumstances and are able to develop and mobilize resources they often did not suspect they possessed. That is to say, resilience represents a real growth strategy for entrepreneurs.

Resilience is a multidimensional construct that comprises a network of favourable attitudes and behaviours. Resilience can be thought of as the "amalgamation of a range of personal and behavioural qualities rather than a specific characteristic" (Cooper, Estes & Allen, 2004).

As such, the construct of resilience has always been difficult to define, as difficult as it has been to develop an operational measure of resilience. Although a number of scales have been developed for measuring resilience, they are not widely validated. One exception is the Connor-Davidson Resilience Scale (CD-RISC) which has been validated in numerous studies.

The majority of researchers have demonstrated that the CD-RISC has a multifactorial structure. Manzano and Ayala (2010) has shown that resourcefulness, hardiness and optimism are distinct factors in the entrepreneurs' resilience. Hardiness refers to control of oneself, not to the control of the actions or support of others. It means that the entrepreneurs are not easily frustrated when facing adverse situations, they are audacious and they fight to achieve their goals. Resourcefulness refers to the resources, capabilities and skills the entrepreneur possesses in order to control the various adverse situations they have to face. Resourcefulness implies that the entrepreneurs believe in their own ability to control events and influence the outcome of situations in which they find

themselves in. Another component of resilience is optimism. It refers to the capacity of the entrepreneur to maintain a positive attitude in difficult circumstances, situations where there is great uncertainty regarding the outcomes. It is the capacity of the entrepreneurs to learn from mistakes and see them as an opportunity rather than a failure.

"Resilient entrepreneurs have a greater ability to renew themselves over time through innovation and adjust to diverse and turbulent changes in the environment" (Reinmoeller & Baardwijk, 2005). Resilient entrepreneurs have a high degree of self-esteem, feel they are in control and are not afraid to fail. If this happens, despite adversity, they "rise again" stronger than before because they have learnt from the situation, because they have experienced and made mistakes, and because they have been able to change so as to adapt to the new circumstances of their environment.

Stoltz (2000) studying personal resilience through what he terms the Adversity Quotient (AQ), has demonstrated that resilience is a major factor underlying success in entrepreneurial settings. Successful entrepreneurs had a significantly higher AQ score than those who were less successful. In fact, resilience has been argued to be an appropriate measure of entrepreneurial success in the early stages of a venture when hard financial indicators are not available or appropriate.

If resilience is believed to be a critical factor in understanding an entrepreneurs' capacity to sustain the business venture, it seems logical to assume that entrepreneurs who have more resilience will also be those whose ventures are more successful. It seems logical to assume that resilience positively influences entrepreneurial success.

To prove if resilience is a factor to predict entrepreneurial success, a study has been conducted by Juan-Carlos Ayala and Guadalupe Manzano, published on the Journal of Economic Psychology, in 2013, titled "The resilience of the entrepreneur. Influence on the success of the business. A longitudinal analysis" (Ayala & Manzano, 2013).

By the data analysis, it is expected resilience factors to predict entrepreneurial success (H1). In addition, it is expected to find that the factors of resilience help to predict the success of businesses run by men as much as they do the success of businesses run by women (H2).

Participants were entrepreneurs operating in the tourist industry in 2008, selected randomly from the SABI (Sistema de Análisis de Balances Ibéricos - Iberian Balance Sheet Analysis System). This database contains economic and financial information on

1,250,000 Spanish companies founded since 1996. A questionnaire survey research method was used to measure the resilience of entrepreneurs. Data for longitudinal study (objective growth and subjective growth) were collected 5 years after measuring the resilience of the individuals. Resilience was measured using the Spanish version of the Connor–Davidson Resilience Scale (CD-RISC) which was developed using a sample of entrepreneurs.

In order to determine what role resilience factors play in understanding the entrepreneurial success, a hierarchical linear regression analysis was used. In this analysis the dependent variables were the firm's objective growth and the firm's subjective growth and the independent variables were the three factors of resilience.

For all individuals taken together, the results show that hardiness, resourcefulness and optimism have a statistically significant positive relationship with objective and subjective growth. These findings provide support for hypothesis 1 and add to the empirical evidence that entrepreneurs' resilience has a positive influence on the explanation of entrepreneurial growth.

On the three dimensions of resilience considered in the explanation of entrepreneurial growth, the one that showed the greater explanatory power is resourcefulness. This result, which remains when the individuals are divided into gender-specific groups, is not at all surprising. The companies included in the present sample were small companies ($9 <$ employees< 50). Thus, they were still at a stage in their development where the founders are the key figures; they are immersed in the day-to-day activities of the business and they are the ones who take most of the important decisions. This result supports the arguments made by Sasi and Sendil (2000) and by Nandamuri (2013) who argue that resourcefulness is the key to becoming a successful entrepreneur. When the individuals are divided into gender-specific groups, the results show that the three factors of resilience improve the explanation both of the objective growth and the subjective growth. This result supports the hypothesis 2.

Business owners and aspiring entrepreneurs have had many reasons to be discouraged from launching new entrepreneurial endeavours. The perception of risk or adversity influences a person's belief in his/her personal abilities. Risk and adversity can raise anxiety, which can in turn lead to face-saving activities, physical reactions to stress, a weak-

ened ability to effectively manage negativity, and lastly reduced personal feelings of efficacy.

On the other hand, some individuals seek out more positive reactions to adversity. They find opportunities among the rubble for new business ideas and growth strategies not previously considered when times were better.

The extent to which a person believes in his/her ability to perform the tasks necessary to successfully become an entrepreneur, namely "entrepreneurial self-efficacy" (McGee, Peterson, Mueller & Sequeira, 2009), matters greatly for business development. Self-efficacy can be a motivational or de-motivational force depending on a person's self-enhancing or self-deprecating beliefs. Although challenging contexts can negatively influence self-efficacy, those who have more highly developed self-efficacy skills are better able to cope.

The business world has witnessed numerous examples of entrepreneurs recognizing business opportunities that have resulted from the recession based on new consumer needs: litigation companies that specialize in short sales, home-staging businesses to entice buyers, eBay sellers, resume writing services in the competitive job market, coupon websites like Groupon and Living Social, moving companies relocating job seekers to other countries and locales. It is because of self-efficacy that an entrepreneur finds a problem in the marketplace and has the confidence to turn it into a business opportunity. Here is another example.

Henrik Fisker, once a lead innovator for giant automakers like BMW, Ford, and Aston Martin, disassociated himself with the traditional way of structuring an automotive conglomerate in pursuit of an efficient, resourceful, and trailblazing kind of carmaker. Fisker Automotive pioneered the world's first luxury-hybrid electric car, the Karma, in the midst of today's economic recession. His strategy was to build a brand quickly and launch a plug-in hybrid faster than other automakers, and it was what he did. Fisker believed in his ability to find another way to build a successful car company; his self-efficacy gave him the push he needed to take the chance.

An entrepreneur's belief in his/her ability to effectively influence entrepreneurial processes and manage the effects of challenges and stressors can also impact his/her resilience to those very stressors. These abilities are pivotal for the development of entrepreneurial aspirations. A strong belief in their abilities makes it possible for entrepreneurial

individuals to have the confidence to overcome adversities that stem from debilitating economic downturns and business stagnation and to pursue new business opportunities.

1.5 Conclusions

Resilience has been defined as both ‘‘an ability to go on with life, or to continue living a purposeful life, after hardship or adversity’’ (Tedeschi & Calhoun, 2004) and ‘‘a dynamic process encompassing positive adaptation within the context of significant adversity’’ (Luthar, Cicchetti & Becker, 2000).

Individuals build resilient abilities through everyday developments that are the product of remarkable or unforeseen life happenings. Developing such skills comes from having a positive outlook on life, facing reality, and learning to roll with the punches. People who start businesses under dire circumstances often have to alter the status quo and forge new paths in order to succeed. Without resilience, individuals would be less capable of engaging in the necessary entrepreneurial behaviours required to start or pursue new ventures. Instead, they would not take action and perpetuate the business world’s cautious and fearful reaction to the bad economic environment.

2. CHAPTER

A DEEPER APPROACH TO ORGANIZATIONAL RESILIENCE

2.1 Introduction

"Resilience thinking" can no longer be associated exclusively with defensive and reactive measures, but it has to involve the everyday activities of the organization, changing its nature and becoming a best practice to avoid also minor (if compared to disasters) problems. Therefore, the managerial challenge is transforming organizational resilience from a set of redundant preventive actions, involving resources management, into a proactive strategy funded on a set of practices capable of fostering daily effectiveness of operations and processes.

The world of business has always been and will continue to be one fraught with risk and uncertainty. While informed strategic planning, based on the insights gained through environmental scanning, will certainly contribute to business success, such outcomes are often less predictable today. The present domestic and global economic challenges serve as undeniable illustrations of the realities facing contemporary businesses.

Interestingly, if one were to return to a review of the strategic planning documents, it would be unlikely that you would see the articulation of the desire that the organization 'survive' anywhere in its mission statement. Regardless of its length or how elaborately worded a mission statement may be, words like 'survival' are rarely, if ever, contemplated for inclusion.

Over the years many organizations have utilized risk management processes and tools to gain an understanding of the risks that they face and implement appropriate risk management strategies to either reduce or minimize these risks. A number of traditional fac-

tors are considered in identifying existing and likely future risks. These risks are assessed and prioritized in terms of their frequency and severity. An appropriate set of risk management strategies are selected and implemented. The selected risk management strategies typically involve the avoidance, reduction, sharing, and/or retention of risk. While an effective risk management program is obviously essential in the challenging world of contemporary business, risk management falls short of being the total solution to address risk and uncertainty in that, regardless of the diligence of an organization's strategic planning and risk management activities, unanticipated things can still happen.

"Organizations inevitably face adversity that threatens functioning and performance" (Boin, 2009). As a result, scholars have sought to explain both the nature and impact of crises and how organizations effectively prepare for, respond to, and overcome their various forms and degrees to preserve performance, to recover, or to prevent decline and even failure. More recently, there has been a rise in the degree and range of challenges that threaten organizations including a severe global economic downturn; an increasing number of climatic episodes, natural catastrophes, and industrial accidents; devastating product recalls; information technology breaches and data security violations; virally disruptive social media trends; and the threat of terrorism.

The weather-related events described above illustrate the ever-present unpredictability of the environment in which the contemporary business organization operates. Its success, as well as its survival, is conditioned on its ability to ensure the continuity of operations necessary to meet the expectations of its various stakeholder groups.

In response to these trends, there have been a number of calls for organizational research to better explain what we know about the crisis–organization interaction, including how to develop organizational resilience not only to respond to adversity but also to mitigate it before it arises (Van Der Vegt, Essens, Wahlstr¨om, & George, 2015).

An organization should find itself in the unfortunate position of not being able to continue its operations in accordance with the expectations of its stakeholders, the resulting outcomes can challenge not only an organization's future success, but also its survival, particularly if the business was struggling in advance of the unanticipated 'curve ball' thrown its way by opposing forces that are beyond its control – such as a natural or man-made disaster, or an act of terrorism.

The necessity of developing organizational resilience to 'spring back' from such unexpected, and often catastrophic, events is obvious, as is the role that such organizational resilience plays in an organization's pilgrimage to the desired future state articulated in its mission statement and strategic goals. Absent such resilience, an organization stands to experience decreases in sales, market share, and profits subsequent to the occurrence of an event that interrupts its ability to continue to conduct its operations in a manner that continues to meet the expectations of its stakeholders. The even more tragic consequences of such an occurrence can be the organization's loss of goodwill, reputation, and customers. The aftermath and consequences of such unanticipated events can challenge the organization's very existence and survival.

2.2 How resilience is conceptualized at organizational level

Over the years, in management literature, the concept of resilience applied to organizations has taken on a deeper meaning. The simple concept of resistance to shock and disasters expanded with the notions of recovery ability, recovery times, and costs of recovery. Therefore, according to the notions of ecological and engineering resilience, organizational resilience was firstly intended as the capacity to resist and recover from traumatic events, shocks or disasters that could affect an organization or a system either internally or externally.

Resilience generally has been used to describe organizations, systems, or individuals that are "able to react to and recover from duress or disturbances with minimal effects on stability and functioning" (Linnenluecke, 2015).

At the organizational level, Meyer in 1982 used the term resiliency to refer to an organization's ability, embodied in the existence of resources, ideologies, routines, and structures, to absorb a discrete environmental jolt and restore prior order. Wildavsky in 1990 suggested that resilience is one strategy for dealing with uncertainty and risk and defined it as "the capacity to cope with unanticipated dangers as they become manifest, learning to bounce back" (Wildavsky, 1990). More recently, organizational resilience is defined as a "dynamic capacity of organizational adaptability that grows and develops over time" (Gittell, Cameron, Lim & Rivas, 2006). In their early work, Lengnick-Hall and Beck define resilience as a capacity: "a unique blend of cognitive, behavioural, and contextual properties that increase a firm's ability to understand its current situation and to develop customized responses that reflect that understanding" (Lengnick-Hall &

Beck, 2005). In later work, they also describe organizational resilience as "a firm's ability to effectively absorb, develop situation specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organization survival" (Lengnick-Hall & Beck, 2011).

In extending the logic of organizational resilience to broader systems, Boin, Comfort and Demchak define the concept as the "capacity of a social system (e.g., an organization, city, or society) to proactively adapt to and recover from disturbances that are perceived within the system to fall outside the range of normal and expected disturbance" (Boin, Comfort & Demchak, 2010).

Similarly, Hall and Lamont argue that resilient systems (society, community, etc.) provide certain features that enhance organizational and individual capacities to "mount collective responses to challenges" (Hall & Lamont, 2013). That is, certain features of a system (culture, social connections, etc.) play a role in how actors within that system experience and respond to adversity. Importantly, scholars in the systems tradition generally delineate organizational resilience has having multiple features, suggesting the workings of a dynamic process. A dynamic perspective, therefore, would involve an interaction between actors (i.e., organizations, individuals, and institutions) and the environment that allows for "a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity and feedbacks" (Hall & Lamont, 2013)

These definitions highlight some important issues relevant to our analysis and integration. The first issue, illustrated particularly in definitions of employee resilience, pertains to the basic essence of resilience, whether it is a trait, a capacity, or a process. At the organization level, the issue is not so much whether an organization's capacity is fixed or malleable—most scholars agree that organizational resilience develops over time; rather it is whether resilience is an outcome or a process. Resilience as an interactive process of relational adaptation has to do with understanding, responding to, and absorbing variations; maintaining, gaining back, and/or building new resources. An entity does not survive merely because of inner resources; rather it survives and thrives on the basis of its ability to adapt and/or dynamically relate to its environment. The outcome of resilience relates to the state of return. As Lengnick-Hall *et al.* (2011) propose, some see organizational resilience as a return to the status quo (where the organization

left off), whereas others see resilience as an exploitation of current challenges to emerge stronger and more resourceful.

Relatedly, a second issue pertains to severity of the adversity. Resilience is generally inferred from a judgment that an entity has survived or thrived in the face of extenuating circumstances that posed a threat to good outcomes. But, as Boin, Comfort and Demchak (2010) ask, what about the severity of that adversity: is resilience a capacity to deal with rare, devastating events, or it is a capacity to deal with a much wider range of disruptions and disturbances that fall outside "of the set of disturbances the system is designed to handle"? (Boin, Comfort & Demchak, 2010).

Research on employee and occupational resilience seems to suggest that resilience is more ordinary, something required to deal with a variety of stressors, conflicts, and disturbances that occur over one's occupational or professional career. The idea that resilience is more ordinary and required more broadly shows up in the organizational literature as well. For example, Van Der Vegt et al. argue that organizational resilience is required "in our daily lives" as well as "to shape and mitigate the consequences of [adversity] when they occur" (Van Der Vegt, Essens, Wahlstr¨om & George, 2015).

A third issue pertains to the point at which resilience is most important—what Boin *et al.* call the 'moment' of resilience. Does resilience come after or before the onset of a major occurrence? If we think of resilience as an outcome, and couple it with the crisis-as-event perspective, resilience naturally would be situated after the event. A mark of resilience is the ability to recover. However, if we think of resilience as a process, and couple it with the crisis-as-process perspective, resilience naturally would be situated earlier. A mark of resilience is "the ability to negotiate flux without succumbing to it" (Boin, Comfort & Demchak, 2010).

The resilient organization works a bit like a reed in bad weather: it bends but does not break under pressure, whilst a tree, which is more rigid, would have broken. In the literature, the nature of "unexpected occurrences" or "disturbances" of the workflow which are studied can vary from unforeseen aspects of the activity, continuous stress, or major incidents, to a crisis affecting the organization, including an element of trauma.

Building on previous definitions and taking these issues into account we take a middle ground approach and define 'resilience' as the process by which an actor (i.e., individu-

al, organization, or community) builds and uses its capability endowments to interact with the environment in a way that positively adjusts and maintains functioning prior to, during, and following adversity. Importantly, and similar to the crisis management literature, a process definition of resilience accounts for the dynamic nature of resilience as an interaction between the organization and the environment. As such, it is inclusive of perversity capabilities, in-crisis organizing and adjusting, and post crisis resilience responding.

While the idea of resilience is increasingly popular, empirical research on resilient organizations is actually quite rare. Much of the literature on resilience is prescriptive and normative; it spurs people to "recognize impending dangers, learn on the spot, work in joint teams and high spirits, improvise their way around excruciating setbacks and emerge from crises stronger and better" (Weick & Sutcliffe, 2001). But it is not quite clear how these skills can be built into an organization and its employees. In fact, we do not really know what causes resilience or how it is achieved. Is it the result of designed processes or perhaps the outcome of improvisation and luck? In examining the relation between organizational processes and the outcome of resilience, we encounter two problems. First, it is not clear what resilience is, exactly. Second, it is hard to recognize resilience in action. We do not know resilience when we see it – rather, we assume it must have been there if an organization survives a crisis or disaster.

2.2.1 Organizational resilience and its attributes

As discussed in the section before, resilience is a complex and dynamic concept. Sophisticated concepts are characterized by different elements or attributes.

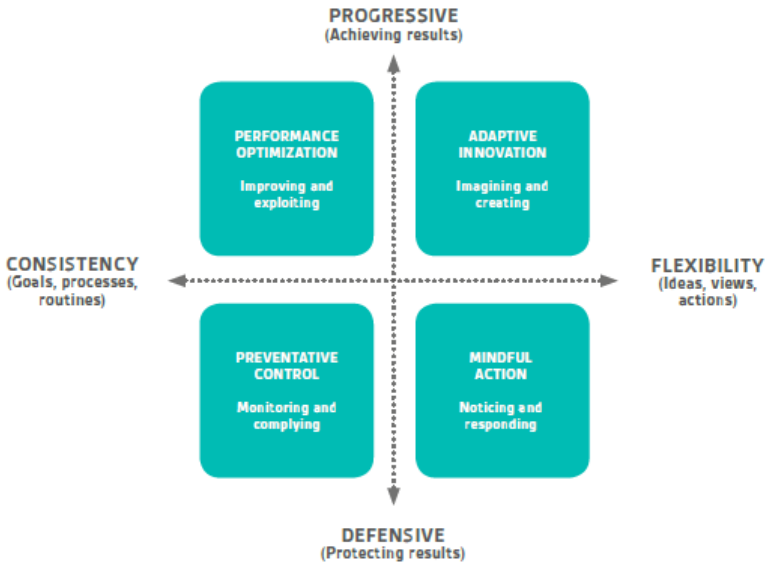
The thinking on organizational resilience has evolved over time and has been split by two core drivers: defensive (stopping bad things happen) and progressive (making good things happen), as well as a division between approaches that call for consistency and those that are based on flexibility. We identify four ways of thinking about Organizational Resilience (Figure 2): preventative control (defensive consistency), mindful action (defensive flexibility), performance optimization (progressive consistency) and adaptive innovation (progressive flexibility).

- *Preventative control.* Organizational Resilience is achieved by means of risk management, physical barriers, redundancy (spare capacity), systems back-ups and

standardized procedures, which protect the organization from threats and allow it to 'bounce back' from disruptions to restore a stable state i.e. defensive +consistent.

- *Mindful action.* Organizational Resilience is produced by people, who notice and react to threats and respond effectively to unfamiliar or challenging situations i.e. defensive + flexible.
- *Performance optimization*. Organizational Resilience is formed by continually improving, refining and extending existing competencies, enhancing ways of working and exploiting current technologies to serve present customers and markets i.e. progressive + consistent.
- *Adaptive innovation*. Organizational Resilience is created through creating, inventing and exploring unknown markets and new technologies. Organizations can be the disruption in their environment i.e. progressive + flexible

Figure 2 - Tension Quadrant



Source: Organizational Report – A summary of academic evidence. Business insights and new thinking. Denyer (2017)

Although a firm's resilience depends on the individual resilience of its employees, the organization's resilience capacity is not the mere sum of the individual capacities, since this would neglect the influence of organizational context. Organizational resilience consists of various organizational capabilities that generate resilience outcomes. These capabilities are process capabilities, because they emerge from within the process of coping with the unexpected. They are complex, deeply embedded in idiosyncratic social context, and expressed by organizational routines.

Starting point of the new conceptualization of organizational resilience is its definition as a set of capabilities by which firms anticipate, cope with and learn from unexpected events. Thus, three dimensions of organizational resilience can be distinguished - each referring to another time horizon -, since resilient organizations respond not only to current issues or the past, but also to the future. On this basis, the conceptualization pays attention to underlying resilience capabilities. Below, the main capabilities of each dimension are elaborated and some examples of resilience enhancing routines are given (Figure 3).

1. Anticipation skills

Anticipation is the first dimension of organizational resilience and describes its preventive aspects relative to a disturbance. It refers to the ability to detect critical developments in the organization or the environment and to adapt proactively, reacting to future changes before they happen. The anticipation dimension comprises organizational capabilities to observe the environment, to identify potential threats and, as far as possible, to prepare for unexpected events. The capabilities of a firm to observe the environment and identify trends or threats are closely related. In the literature they are discussed as the acquisition of weak signals and environmental scanning. As Ansoff (1975) mentioned, discontinuities and strategic surprises can be identified through the systematic perception of weak signals, i.e. information about emerging issues and starting trends without knowing their actual importance and scope. The activity to look for weak signals is called 'environmental scanning.' It is defined as an activity for acquiring information that involves simply an exposure to and perception of information. "The activity could range from gathering data in the most deliberate fashion - as by an extensive market research program - to undirected conversation at the breakfast table or the chance observation of an irate housewife throwing your product into trash barrel" (Aguilar, 1967).

'Preparation' is a term that has been used by Weick, Sutcliffe, and Obstfeld (1999) referring to the ability of high reliability organizations. In the context of organizational resilience it can be seen as an important part of the anticipation dimension. It is argued that organizations can prepare for inevitable surprises "by expanding general knowledge and technical facility, and generalized command over resources" (Wildavsky, 1990). Thus, preparation does not mean planning for the unexpected - this is impossible. Ra-

ther, it means that organizations prepare without knowing if, when and where an unexpected event will occur in the future.

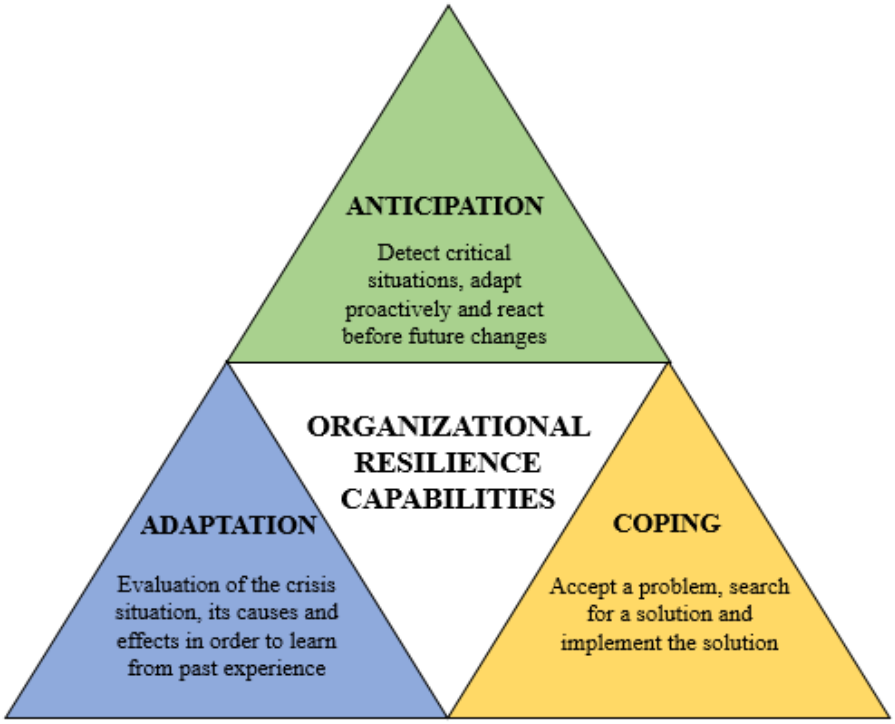
2. Coping capabilities

The ability of coping with the unexpected can be separated into different single capabilities: the capability to accept a problem, the capability to search a solution, and the capability to implement a solution. All these capabilities imply immediate or short-term action in response to unexpected events.

- Accepting. Coping with unexpected events starts with accepting the problem has already been mentioned in the literature on individual resilience. For example, Coutu (2002) states that resilient people possess among other things a staunch acceptance of reality. In an organizational setting, Catalan and Robert (2011) refer to the acceptance dimension of organizational resilience as comprised of three elements: understand the environment in which the system is operating, define a reference state for the system, and be aware of and accept system failures.
- Searching for solution. The search for solution in the face of crisis is always a combination of sense-making and acting. Sense-making emphasizes that people try to make things rationally accountable to themselves and others. Only if people understand the crisis situation they are able to act on this. For an effective sense-making, there must be a continually feedback between understanding and action - that means sense must continually be made and remade. One of the most important principle that facilitates the collective sense-making process is 'bricolage': the capability to improvise and to apply creativity in problem-solving. In their paper on high reliability organizations Weick *et al.* (1999) explain that bricolage is enacted through informal "epistemic networks." These networks have no formal status and dissolve as soon as normalcy returns. They allow for a rapid pooling of cognitive knowledge to handle events that were impossible to anticipate. Epistemic networks represent a strategy for flexible crisis intervention and an example of the generalized, uncommitted resources that are necessary if one is to cope with the unexpected in a resilient manner.
- Implement solution. "To implement a solution during times of crisis it is necessary to enable organizations to maintain a shared vision among its constituent parts" (Weick & Sutcliffe, 2007). In this context, Weick (1993) argues for the importance

of virtual role systems, in which each member cognitively reproduces the organization. Comfort's (1999) work suggests that such systems can be achieved by linking member's cognitions via improved communication and imaging technology.

Figure 3 - Triangle of capabilities



Source: Author's elaboration

3. Adaptation skills

Resilience also comprises adaptation, which implies long-term learning. Learning in the aftermath of a crisis starts with the reflection and the evaluation of the crisis situation, its causes, and effects. Subsequently, the gained experiences can be incorporated in the existing knowledge base. Academic literature on organizational learning demonstrated that organizations learn from past experience. It is argued that while success leads to a refining of previous actions (local search), failure leads to a more substantial deviation from prior choices. Although previous research contains a number of case studies of organizations that learned from disasters (e.g., Roberts, Madsen, & Desai, 2005) and organizations that failed to learn from disasters (e.g., Vaughan, 2005), there is a lack of empirical work on how this learning from unexpected events impacts future organiza-

tional resilience. However, it can be assumed that knowledge gained from one crisis needs to be analysed, transferred, and stored to avoid and to mitigate future crises.

2.2.2 Which are the essential elements of a resilient organization? The BSI approach

It is necessary to remark that other suggested elements may also be important attributes for organizational resilience. A resilient organization includes a mix of several capabilities and actions to be performed. It is this mix what makes an organization resilient.

To better understand the difference between a simple organization and an organization that has a source of wealth and uniqueness in resilience, it will be interesting to analyse the meaning of the following quote: "A resilient organization not only survives in the long term, but it is the one that blooms by overcoming the tests dictated by time" (Kerr, 2017).

According to Howard Kerr, managing director of BSI (British Standards Institution, global leader in training on major international standards for management and support systems for professionals and organizations), organizational resilience is a strategic imperative for an organization that wants to thrive in a dynamic and interconnected world like today.

The mastery of organizational resilience requires the adoption of ad hoc habits and best practices aimed at providing improvements through the creation of competencies and new skills: this allows leaders to take greater risks being able to make the most of the opportunities presented to them. The basic idea that emerges in relation to the concept of organizational resilience, therefore, is the one of an element that can guide and assist organizations in the proactive management of adverse situations, turning the latter into opportunities.

Mastering resilience requires the adoption of an open mind, in order to improve one's business and assimilate skills and abilities that characterize any successful global supply and supply chain: from products to services, from people to processes, as well as from values to corporate vision and culture and behaviour.

An organizational resilience therefore requires the commitment of the whole society: it requires a top-down direction by the management body, and a bottom-up commitment by the employees, through a clear communication and a shared will among all members of the organization.

Similarly, resilience does not correspond to what happens to an organization but to what the organization does with what happens to it: the most resilient organizations will be reflected in those most eager to learn from their own and others' experiences to minimize the problems and then take advantage of them. The presence of a peer-to-peer network (network in which the nodes are hierarchized in the form of equivalent or equal nodes, which can therefore act as both customer and server to the other terminal nodes of the network) and knowledge sharing is vital, for example, when trying to invest in new areas, to introduce innovative products and processes, or to penetrate new and unknown markets.

But which are the essential elements and the domains of organizational resilience? The three essential elements of organizational resilience for the BSI model are:

- The excellence of the product

  In this sphere, the term 'product' refers to any product, service or solution that an organization introduces into the market. First of all, organizations will have to ask themselves in which markets should they penetrate, if their qualities and their products correspond to those required by that particular slice of the market, if they will comply with environmental regulations and if not how could they adapt their production. The companies dedicated to innovation will be resilient, differentiating the offer to remain in a position of competitive advantage over their competitors.
- Reliability of the production process

  Incorporating the best development and marketing practices for your products and services is a key component of business success. Resilient organizations are those that make sure to perform these activities consistently, through the strength and reliability of their processes, while leaving room for innovation and creativity. In order to increase one's resilience capacity, there must therefore be continuous and compliant management of key factors such as quality, the environment and information security, both within the organization itself and in the key points of its network of supply.
- The behaviours and abilities of the members of the organization

  Resilient organizations seek to align customer expectations with the commitment of their employees. They do not just dictate rules to follow but encourage their employees to become an integral part of the decision-making process. The biggest chal-

lenge for organizations is therefore inherent in inculcating their values with clarity and transparency, so that all members of the same can 'live them' not because they have been obliged to them.

The BSI model thus identifies three domains of fundamental importance for achieving organizational resilience in small and large companies. (***Error! Reference source not found.***)

- Operational resilience

  A resilient organization has full knowledge of how to manage the environment in which it operates. This implies: identification of operational improvements with respect to its products / services and processes in order to meet the needs of its customers, enhance the work done by its employees and better manage its activities. All this requires, however, that the organization is never satisfied with respect to the results achieved and that it is always committed to improving its performance by focusing on sustainability.
- Supply chain resilience

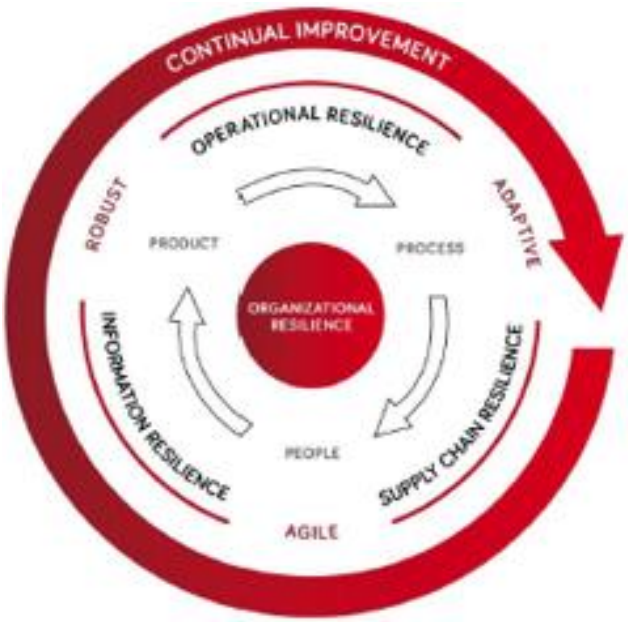
  Increasingly, today, supply chains are experiencing a process of internationalization by crossing entire continents and creating increasingly complex networks. It therefore becomes of primary importance to be able to quantify and mitigate the risks related to the incorrect functioning of the supply chain in its entirety, from procurement to production, from transport to sales. Resilient organizations have the obligation to identify risks in order to minimize the impact of any disruptive phenomena, thus helping to protect the operational and financial aspect of the management, as well as its reputation.
- Information resilience

  In today's world organizations need to be very careful in safeguarding their sensitive information. A resilient organization will necessarily have to manage its data - physical, digital and intellectual property - throughout their life cycle, from creation to destruction. This requires the adoption of information security practices that enable interested parties to collect, store, access and use information in a safe and effective manner.

In conclusion, every organization that intends to stand out and survive, regardless of its size, sector or place of belonging, will have to develop a resilient approach that is congenial to it, that supports its ideas and enhances its brand.

However, despite recent developments in studies on the resilience of complex systems, the concept of organizational resilience is still insufficiently theorized: resilience often does not appear as an essential component of corporate strategy but rather as a superfluous element aimed at the simple explanation of for an organization to survive unexpectedly, or even prosper, in conditions that are not advantageous for it.

Figure 4 – Elements and domains of Organizaitonal Resilience



Source: "Essential elements and domains of Organizatioanl Resilience". The British Standards Institution (2017)

It becomes evident, continuing in the treatment of the elaborate, how resilience should not be considered inevitably, and in any case, as a goal to be achieved. The strategic use of the concept will in fact depend on considering resilience as a characteristic of the system that turns out to be more or less 'desirable' with respect to the state in which it actually stay: for example, the less performing or vulnerable organizations, and their stakeholders, they benefit by entering a phase of change, or into a new regime, rather than maintaining their functional status.

Therefore, it is possible to argue that in the assessment of organizational resilience it will be necessary to take into consideration two critical dimensions: the 'size of the amplitude', which refers to the level of resilience of the system, in other words the levels of disturbance that the system can tolerate; and the 'dimension of desirability', which refers to the level of desirability of the state of the system, state of the system more or less desirable compared to its current functional level.

The extent of resilience will depend mainly on the characteristics of the organizational system and the ability to interact with its environment in an 'offensive' (adaptive) or 'defensive' (reactive) manner. The dimension of desirability effectively introduces the stakeholder perspective in assessing organizational resilience: the organization can be considered as an open system that interacts with its socio-ecological environment. Hence, it is a system nested within a wider network of interested parties, including individuals, institutions, social networks and natural systems. The desirability of the system depends on the perspectives of the internal actors as employees, managers and shareholders, as well as on the external actors that operate in the market as customers, suppliers, competitors, financiers, government and community agents that directly or indirectly influence the organization.

2.3 The High Reliability Organizations (HROs)

"Organizational forms which allow flexibility are characterized by the presence of informal work practices, local autonomy of action, management systems for feedback, learning and continual improvement" (McDonald, 2006).

According to Weick & Sutcliffe (2001), High Reliability Organizations (HROs) are those able to preserve flexibility in the face of disturbances: they respond to disturbances with new learning rather than new rules or procedures. We see, then, a clear link between resilience and flexibility or adaptation: to regain a dynamically stable state, and thus to be resilient, an organization needs to be flexible and adaptive.

High reliability theory (HRT) began with a small group of researchers studying a distinct and special class of organizations, those charged with the management of hazardous but essential technical systems. Failure in these organizations could mean the loss of critical societal functions and could cause severe damage, threatening thousands of lives. The term 'high reliability organization' was coined to denote those organizations that successfully avoid such failure while providing operational

capabilities under a wide range of environmental conditions. High reliability theorists, especially Bourrier and Rochlin in 2011, set out to investigate the secret of HRO success. They engaged in individual case studies of nuclear aircraft carriers, nuclear power plants and air traffic control centers. Two important findings surfaced. First, they discovered that HROs share similar and rather distinctive features. The most important are:

- high technical competence throughout the organization;
- a clear awareness of core events that must be precluded from happening;
- an elaborate and evolving set of procedures and practices, which are directed towards avoiding disastrous events from happening;
- a formal structure of roles, responsibilities and reporting relationships that can be transformed under emergency conditions into a decentralized, team-based approach to problem-solving;
- a 'culture of reliability' that distributes and instills the values of care and caution, respect for procedures, attentiveness and individual responsibility for the promotion of safety throughout the organization.

"A second finding relates to the process of reliability maintenance. The researchers found that once a threat to safety emerges, however faint or distant, an HRO immediately 'reorders' and reorganizes to deal with that threat" (Boin & van Eeten, 2013). This reordering involves a combination of rapid decentralization and facilitated improvisation. However, very little is known how, exactly, this process unfolds and how it relates to constant performance under pressure and, by implication, precursor resilience. The HRO framework thus offers a fairly precise, if only hypothetical, relation between organizational characteristics and precursor resilience. The crisis management literature offers additional insights with regard to the conditions for a rapid and effective response in the face of unexpected threats. First, organizations need capacity to arrive at an authoritative definition of the situation. The coordination of an improvised response network requires that all participants are "on the same page". This, in turn, demands a form of dynamic sense-making: information must be collected, commissioned, analyzed and shared in real time. It is no exaggeration to state that this is

one of the biggest challenges that crisis managers encounter. Second, crisis management scholars put a premium on the ability to improvise.

Whereas HRT scholars view improvisation as "the last 5%" only to be used when all else fails, crisis management scholars view it as an integral building block for an effective response. "Plans and procedures cannot prescribe what an organization must do to address a major crisis" (Clarke, 1999). In crisis, an organization must rally its resources and partners in creative ways to produce an urgent response to a unique problem.

Roberts in 1989 coined the term "High Reliability Organization" after she and her University of California, Berkeley colleagues noted how risky organizations sustained excellent performance over long periods despite the inherent danger of their work. Organizations were categorized as HROs based on how often they might have failed with catastrophic implications—and yet did not. Roberts noted, "If the answer is 'repeatedly', the organization qualifies for membership in the 'high reliability' group" (Roberts, 1989).

Initially some HRO theorists, such as Weick (1987), characterized HROs based on their total elimination of mistakes and inability to learn by trialand, error due to the severe implications of failure. However, this stance was later reassessed to allow for the inevitability of error, referenced in the literature as a "preoccupation with failure," and the importance of trial-and-error learning, albeit in a limited manner.

Another early HRO researcher, La Porte, further defined HROs as organizations that must continuously operate at a very high level of efficiency using complex and hazardous advanced technologies without major failure while maintaining the capacity to address unpredictability. Similarly, Carroll's 1998 HRO study found that nuclear power and chemical processing plants employ a unique organizational learning process cycle to avoid errors, to limit the consequences of problems, and to learn from near-misses and minor incidents. Other early studies cited the fixation of HROs on safety as the source of their reliability.

What was novel about these pioneering studies was that before this time, studies of complex operations in hazardous industries often involved adopting an engineering presumption that performance reliability resulted from clear hierarchy, stable environments, unambiguous functions, and routinized procedures. In this paradigm,

human operators were seen as a potential weakness and that vulnerability was controlled through engineering design, managerial supervision, and routinization.

By contrast, early HRO researchers recognized that a new paradigm was needed in which reliability was achieved through organizational flexibility, resilience, and responsiveness to the unexpected, rather than through rigidity and routines. As such, "resilience resulted from organizational slack that allowed operators to continually manage small fluctuations and uncertainties, not from organizational invariance and tight managerial control" (Schulman, 1993). Although Weick *et al.* (1999) argue that HROs experience low failure rates because stable processes of cognition allow organizational actors to detect and adapt patterns of activity in managing unexpected events, we still do not know how this is achieved in practice. Therefore, to better understand how organizations organize to enhance reliability, Weick *et al.* (1999) suggest that researchers analyze how and when mindfulness arises in practice. HRO theory demonstrates that HROs achieve their high reliability through heedful performance, heedful interrelating, and other mindful organizing processes. For example, Weick and Roberts, in 1993, note that heedful interrelating is an "ongoing social process" (Weick & Roberts, 1993) in which HROs capitalize on individual knowhow to meet unexpected situational demands by identifying small failures before they turn into catastrophes.

Moreover, heedful performance is the outcome of training and experience linked with thinking and feeling that allows HROs to flexibly apply knowledge in ambiguous situations. Yet how these important micro- and macro level factors are linked to achieve high performance in HROs has been largely unexplored. Weick *et al.* (1999) observe that although there has been ample recognition that diverse cognitive processes are associated with high reliability functioning, how these diverse processes interrelate in a state of "collective mindfulness" is less understood.

Identifying new links between individual mindfulness attributes (comfort with uncertainty and chaos) and collective mindfulness influences (a positive orientation towards failure) that combine to co-create a phenomenon we call "mindfulness in action." Mindfulness in action occurs when HROs achieve an attentive yet flexible focus capable of incorporating multiple, sometimes competing, and realities to assess alternative solutions and take action in dynamic situations.

In this regard, the study on the training of American SEALs conducted by Amy L. Fraher of the University of Birmingham, Layla Jane Branicki of Macquarie University and Keith Grint of Warwick University is very interesting. The intent is to find, through the analysis of the training of the American special military division, similarities between the organizational resilience that the men establish between them and the literature on the mindful in action.

Central to SEAL training and development is the completion of Basic Underwater Demolition/SEAL training known simply as BUD/S: an arduous, 30-week training course held at the Naval Special Warfare Training Center in Coronado, California, where much of the research for the present study was conducted. A highlight of the BUD/S program is "Hell Week," an event designed during World War II to quickly prepare frogmen for the Normandy beach landing, which includes five days of continuous training exercises in hypothermic environments along with intense sleep deprivation. The training objective of Hell Week is for SEAL candidates to demonstrate a "never quit" attitude, regardless of assignment difficulty. Nonetheless, Hell Week is so demanding that approximately 75 percent of each BUD/S class typically quit by week's end (Doolittle, 2004).

At the collective level of analysis, the participants' accounts were less congruent with the HRO literature, in particular, Weick, Sutcliffe, and Obstfeld's (2008) five hallmarks of "collective mindfulness." For instance, they found evidence that the respondents, and importantly their team and organization, were concerned with failure but not in the manner anticipated in the extant literature. For example, the men subject to the study, were less "preoccupied" by failure, as Weick and Sutcliffe (2001, 2006) emphasize, and more focused on psychologically adjusting to failing and learning from failure.

By contrast, the findings in the present study reveal that embedded within SEALs' mindful organizing processes is the autonomy to fail and move on, as long as they gave their best effort and learned from the experience. These findings parallel sports psychology studies that report that "athletes who can put mistakes behind them report more effective coping skills and greater motivation than those who dwell on failure" (Mouratidis & Michou., 2011).

SEALs learned through repeated failure in a controlled setting how to adapt to uncertainty and chaos, and during this process, mindfulness processes are triggered in

ways that have not previously been identified in HRO research. They discovered that SEALs' ability to reconfigure mistakes into learning experiences ensures that they do not become immobilized by the potential repercussions of failing in their risky operating environments.

High-reliability organizations have accepted uncertainty as a basic condition of their everyday operations. Uncertainty is relevant at two different points in time: (a) before the actual manifestation of a crisis and (b) during a crisis. Hence, organizations are required to constantly assess their operations and scan for the slightest variances in their environment. In cases of crisis organizations' response activities are fraught with a high degree of uncertainty because organizations cannot completely predict which effects their measures will have. Either way, uncertainty cannot actively be diminished, and organizations have to cope with adversity as it materializes.

As shown above, there have been tremendous efforts to advance our insights into the routines and practices that enable organizations to cope with unexpected situations. Nonetheless, empirical studies share a number of additional assumptions that limit, to a certain extent, their contributions to an integral understanding of organizational resilience. First, the term high-reliability organization is used very broadly. It is applied to a variety of entities such as aircraft carriers, or nuclear power plants, as in the work of La Porte, which are obviously quite different in their specific, detailed characteristics. Aircraft carriers and nuclear power plants must maintain their operations at a constant level; due to their tightly coupled technological systems, they have only minimal tolerance of deviations. Therefore, preventing failure and containing upcoming threats are of utmost importance, as even small declines in performance may cause serious damage. Nevertheless, the ability to withstand adversity does not imply that these entities are equally able to recover from crises swiftly. For example, as the breakdown of the nuclear power plant in Fukushima revealed, operators were perfectly able to apply their rehearsed emergency procedures at the beginning of the disaster. However, the situation turned into a crisis when the operators had to adapt to unforeseen problems and multiple actors became involved.

A second issue is that power plants and similar tightly coupled systems have strictly specified organizational purposes that are almost immutable; they constitute highly complex technological systems with rigid resources, and they provide goods that are

fundamentally important for society. Hence, the purpose of such organizations cannot easily be changed, and therefore their response options are limited. Thus, they need to focus on avoiding internal errors and resisting external disturbances. By contrast, fire brigades, for example, are familiar with being exposed to volatile task environments with multiple response options dependent on the situation they are facing. Consequently, they have developed practices and routines to adapt to constantly changing demands. However, as surprises become less surprising, dealing with adverse situations does not necessarily constitute a crisis for HROs themselves.

Therefore, some questions remain unanswered regarding the transferability of the insights from HROs to other organizations. Nevertheless, research on high-reliability organizations and other organizations that regard uncertainty as a basic condition for their operations has generated valuable insights into how to sense potential threats at a very early stage, how to prevent and contain small errors or disturbances, and how to absorb strains.

2.4 The measurement of organizational resilience

Another important issue to deal with should be if the resilience can be measured. Is there any formula to quantify the resilience of an organization? Which are the variables that affect theme developed in this work? It is very difficult to measure resilience without knowing what has to be measured exactly. This is due to the fact that the resilience concept is defined variably in different context.

Resilience broadly applies to various fields. As such, measuring the concept requires a detailed understanding of what has to be measured. Yet, resilience frameworks scarcely show detailed contextual understanding of resilience (Sturgess, 2016). Furthermore, while there are efforts to quantify resilience in psychology, household level, communities and infrastructure, there are very few straightforward approaches to measuring business resilience. This makes it difficult to measure, particularly in the small retail sector. In most definitions, the adaptive capacity of a system, organization or business is singled out as a critical attribute of resilience. However, Levine (2014) argues that it is difficult to measure adaptive capacity as it comprises financial, technical, cultural and social components among other aspects.

Paradoxically, it is hard to design generalizable indices for measuring small retail resilience using only qualitative methods. More so, qualitative enquiries normally focus on

the external validity of assessment, thus risking drawing unfounded conclusions because of insufficient attention to internal validity. Some studies are more inclined towards quantitative methods due to their statistical value. However, quantitative methods exclude probing questions and interpretation based on explanation, a fact which is important in understanding resilience. (Levine, 2014).

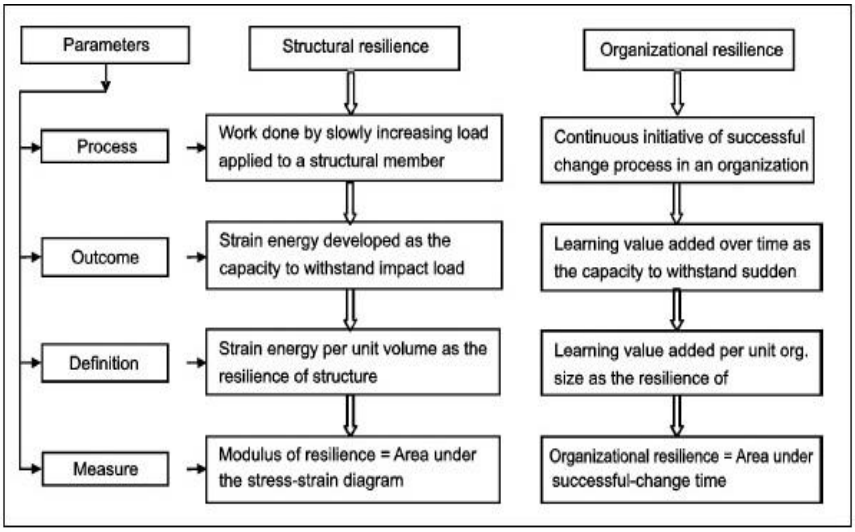
We know that in engineering, the capacity of any structure to withstand an impact load without being permanently deformed depends upon the strain energy per unit volume that the material may absorb without yielding, i.e., the modulus of resilience of the material used. Taking the cue from such a phenomenon of the capacity to withstand impact loading of structures, organizational resilience may be viewed as its capacity to withstand sudden change in the environment, and continue to survive and grow. The concept of strain energy is defined as the increase in energy associated with the deformation of elements. It is equal to the work done by a slowly increasing load applied to the structural member. Likewise, organizations can plan and initiate changes over time as a matter of day-to-day planning, and learn and develop how to manage such changes successfully in its various functional and strategic areas, and become resilient over time. The learning value of such changes and the change culture that is being developed over time in the organization speak of strain energy of organizations. More the area under the stress-strain diagram of structural member, higher is the modulus of resilience of the material. In the same way, more the number of year organizations continue to initiate and manage change successfully, higher would be the organizational resilience. It is the continuity of change and the change culture inculcated into the organization that adds on to its capacity an inner strength to make it resilient. With increase in volume of a structural member, its capacity to withstand impact load increases, likewise, the organizational resilience increases with increase in organizational size (

Figure 5).

Starting from this analogy, a suitable measurement methodology has been developed.

There are different techniques adopted to compute the intensity of resilience, some of them based on indicators, organizational outcomes or organizational recovery.

Figure 5 - Analogy between modulus of resilience of structures versus organizational resilience



Source: Mohit Kumar Kolay. Measurement of Organizational Resilience - An Approach – 2016

- Measurement based on indicators

Regarding to the measurement of organizational resilience there are two main streams: the measurement of organizational resilience potential and the measurement of resilience after a disruptive event has occurred. The assessment of organizational resilience potential is usually based on evaluating the characteristics or abilities that an organization possess. Despite there is a broad literature about organizational resilience indicators, here the indicators proposed by Lee et al. (2013) are the chosen ones for our studying path because they provide a complete benchmark tool to do the evaluation process. They evaluate the organizational resilience potential based on a questionnaire with 53 items. Each item is evaluated based on an eight-point scale. The lower score is achieved if the organization strongly disagrees with the statement in the item. The higher score is obtained when the organization strongly agree with the statement. The 53 items are classified into 13 indicators. The indicators are grouped in two factors: adaptive capacity and planning. (Table 2).

Analysing the 13 indicators, we get an idea of how the organization is prepared to respond to a crisis. However, the resilience of the organization will depend on the kind of risk it is dealing with. The level of resilience the organization has exhibited cannot be measured until the risk has occurred.

Table 2 - Measurement based on indicators divided into two factors

Adaptive capacity		**Planning**	
MINIMIZATION OF SILOS	It is related to the minimization of barriers in the organization, especially those ones related to communication	PLANNING STRATEGIES	There are plans to manage organization vulnerabilities.
INTERNAL RESOURCES	The organization has enough resources to conduct its business as usual, but it is also able to provide extra resources when needed.	PARTECIPATION IN EXERCISE	There are simulacrums in the organization to practice and evaluate the plans.
STAFF ENGAGEMENT and INVOLVEMENT	The staff understands the link between their work, the resilience of the organization and its success.	PROACTIVE POSTURE	The organization is prepared to respond to early warning signals.
INFORMATION and KNOWLEDGE	The information is available when needed and stored in different locations. The staff is flexible, so different people can fill key roles.	EXTERNAL RESOURCES	The organization has a plan to access resources from other organizations when needed.
LEADERSHIP	There is a good leader in the organization. The organization strategies and programs are continuously reviewed.	RECOVERY PRIORITIES	The priorities are set and the organization understands its minimum operating requirements.
INNOVATION and CREATIVITY	The use of novel ways to solve problems is encouraged and rewarded in the organization.		
DECISION MAKING	People have the authority to make decision based on their skills. During crisis, authority is delegated to be able to respond to the crisis.		

Source: Author's adaptation from Allende M., Manuel and Ruiz-Martin, Cristina and Lopez-Paredes, Adolfo and Perez Rios & Jose. (2017). Aligning Organizational Pathologies and Organizational Resilience Indicators. International Journal of Production Management and Engineering. 5. 107.

- Measurement based on the organizational outcomes

This stream is less popular, as fewer authors use this approach. For example, Watanabe et al. (2004) proposed to use the Operating Income to Sales to measure resilience. If the sales come from the operating income of the company, so the core business is generating revenues, the firm should be in a good situation. Therefore, even if a crisis arises in the market, the company knows its strength and its survival odds.

Dalziell & Mcmanus (2004) suggested to measure resilience based on Key Performance Index (KPIs) defined taking into account the organization's objectives. Normally KPIs are various and different depending on the company. There are financial KPIs as profit, cost, COGS, day sales outstanding or sales by region, because through the analysis of which regions are meeting sales objectives, you can provide better feedback for under-performing regions.. These if we are dealing with operational indicators.

Other commonly important are cash flow from financing activities to demonstrate an organization's financial strength, or EBITDA measurement of revenue after expenses are considered and interest, taxes, depreciation, and amortization are excluded.

Markman & Venzin (2014) suggested to measure resilience following a more stock-based approach, taking into account the Return on Equity (ROE) and volatility. ROE is considered a measure of how effectively management is using a company's assets to create profits. Return on equity (ROE) deemed good or bad will depend on what's normal for a stock's peers.

Volatility is the degree of variation of a trading price series over time as measured by the standard deviation of logarithmic returns. The higher the volatility, the riskier is the stock and so the company. A low volatility suggests a good stock performance and so lower possibility of default.

Jackson (2007) suggested to measure resilience potential based on the statistical correlation between minor and major incidents. He found that minor accidents are positively correlated to major accidents.

- Measurement based on the organizational recovery

In this case, the authors measure resilience based on how the organization recovers from failure. The drawback is that the organization needs to suffer failures to assess its resilience. Therefore, this way to measure resilience is only valid after the organization has suffered some shocks.

Hence resilience becomes the ability to prevent disruptive events, or the ability to prevent consequences of that disruptive event becoming worse, or the ability to recover from a disruptive event that has happened. For each perspective, several metrics can be identified.

For example, Rose and Liao (2005) propose to determine a quotient of failure probability, reduced consequences from failure, and reduced time to recover. Probability of fail-

ure is selected as a metric which indicates the ability to prevent disruptive events, reduced consequences from failure is a metric of the ability to prevent the consequences of that disruptive event, and finally the reduced recovery time is the metric for ability to recover from a disruptive event.

Westrum (2006) classifies disruptive events based on their predictability, their potential to disrupt a system, and the origin of that disruptive event whether it is internal or external.

To measure the level of resilience after a disruptive event, Henry and Ramirez-Marquez (2010) propose to evaluate the level of recovery of the organization against its losses. They suggest to measure resilience quantitatively as the ratio of Recovery and Loss. Here, Loss is the deterioration from the original state after the disruption and Recovery is the amount it bounces back from the disruptive state to the recovered state. The authors acknowledge that the limitation is to not to consider the money and time to recover. They do not consider what we should evaluate to measure loss and recovery.

Erol, Henry, Sauser, *et al.* (2010) also include to the recovery time, the initial vulnerability and the potential loss averted. They proposed to measure resilience based on recovery time, level of recovery, initial vulnerability and potential loss averted. However, they do not indicate how to assess these items.

Classifying the types of disruptive events or threats help to create preventive actions and to model how a system will react in case of that threat.

Arguably the most significant metric in a dynamic and diachronic model is recovery time. It overcome disruption and return to its normal state. In order to measure recovery time, we need well defined start and stop points. The start point could either be (a) the occurrence of the disruption or (b) when the disruption affects the enterprise – though in some cases, both these could happen at the same instant of time. If it were (a), it also depends on the nature of the disruption - some could be instant (e.g. earthquake) while some others could be while some others could extend over a period of time (e.g. drop in sales). If the start point were to be (b), it brings in additional challenges in defining it properly. The precise instant at which a disruption affects an enterprise would depend on the nature of the disruption and also if the effect is direct/primary (e.g. earthquake hitting an assembly plant) or indirect/secondary (e.g. earthquake hitting the manufactur-

ing plant of a supplier. The stop point depends on the definition of the recovered state, which can be considered to be equal to the normal state before the onset of the disruption. Hence the stop point would be the instant of time at which the enterprise reaches its original state.

2.5 Leadership and Crisis Management – Resilient organizations struggling with crisis

After highlighting the characteristics of an organization that can be defined as resilient, what are its behaviours and how organizational resilience is measured, we are now dedicated specifically to how a company faces moments of crisis.

Crises are believed to represent an opportunity for managers to communicate with stakeholders, display leadership skills, and particularly engage positive leadership so as to facilitate the "organization's progression through stages of recovery to reduce the negative effect of the crisis" (Auf der Heide, 1989). In a crisis, some leadership styles are considered more effective than others in helping organizations to respond. However, the effectiveness of leadership styles at least partly depends on the nature, and stage, of the crisis, what led to the crisis (e.g. natural disaster, industrial accident, gradual weakening). Preparation for different crisis scenarios can influence how leaders react to the crisis, which in turn affects crisis response outcomes. For example, when the organization is at fault (i.e., industrial accident), acceptance of responsibility and the prior relationship a leader had with the organization likely shapes a leader's social approval, how organizational stakeholders perceive the crisis, and the organization's response.

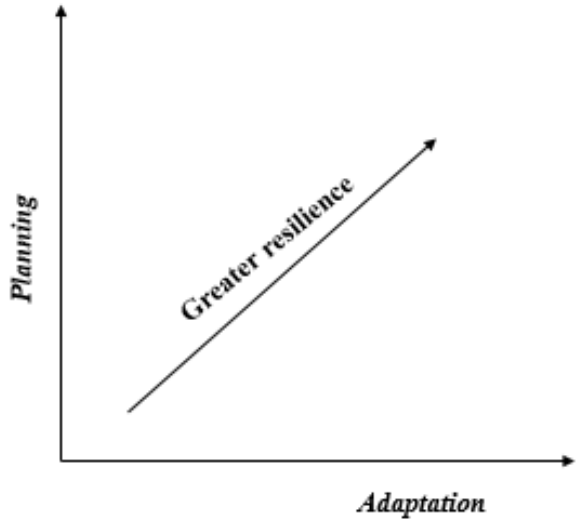
There is no single formula to design a perfectly resilient organization. Different aspects can increase or undermine the resilience of an organization. "Organizations can become myopic when they think about the kind of events that can occur" (Seville, 2017)

Different reactions to the crisis, according to the literature, highlight the need to identify resilience capacities that not only help companies to survive sudden adverse events, but also that effectively support improving daily work. This requires developing resilience strategies that advice organizations with any type of criticality, perceived or not as a significant risk.

Organizational resilience derives from both its planning and adaptive abilities. (Figure 6) Organizations that invest in planning skills are able to perceive change as it comes in

and get benefits. In some cases, they are also able to prevent and anticipate adverse events and manage them effectively.

Figure 6 - Correlation between Planning and Adaptation capabilities



Source: Author's elaboration.

However, despite the importance of leadership in planning and preparing for a crisis response, detailed planning and preparation cannot mitigate every potential crisis. Consequently, effective crisis response also involves ad hoc capabilities, such as improvising decision-making activities and role enactment, identifying and mobilizing resources, and establishing order through emergent communication and coordination techniques.

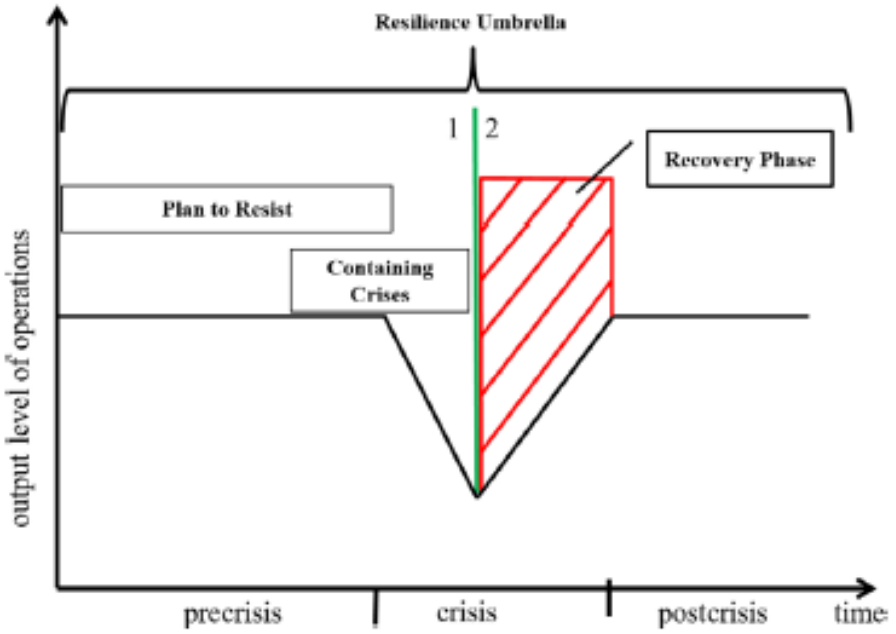
2.5.1 Careful planning prevents disasters

The notions of resilience and crisis are necessarily intertwined. It is commonly accepted that crises can be conceptualized as 'singular events in time.' This conceptualization implies a separation into different temporal phases: before, during, and after crises. (Figure 7) This temporal differentiation allows us to assign order and rationality to the very messy, complex reality of natural or technological disasters, and human responses to them and is therefore suitable for guiding disaster management strategies.

Based on this temporal separation, an integral, capability-based understanding of resilience allows assigning the Plan to Resist Approach as well as the Containing Crisis Approach to distinct phases of crises, thus strengthening the equal importance of both approaches.

The Plan to Resist Approach has proven to be useful in preparing organizations to withstand events that occur with a certain degree of regularity and whose adverse effects can be roughly estimated, for example, floods or thunderstorms. By improving planning capabilities, organizations become more resistant, and the likelihood of potentially dangerous situations turning into crises decreases. Hence, this approach plays a crucial role in the pre-crisis phase.

Figure 7 - An integral, capability-based understanding of organizational resilience



Source: Philipp M. Darkow. (2018) Beyond "bouncing back": Towards an integral, capability based understanding of organizational resilience. Contingencies and Crisis Management. (2019)

The Containing Crisis Approach enables organizations to avoid and address unexpected adversities in the moment they occur despite preventive measures. Some of the practices, such as heedful interrelating, play an important role in preventing internal crises from happening by avoiding man-made errors. However, the consequences of external crises can also be avoided to some extent by permanently reassessing environmental developments and adjusting organizational responses. Organizations can contain these disruptions and prevent themselves from sliding into a crisis by enacting targeted countermeasures at a very early stage. Taking this into account, these practices play a major role in managing unexpected events as they are happening. Altogether, the Containing Crisis Approach is mainly relevant at the onset of an actual crisis.

The theoretical implication of this model is that both approaches need to be regarded as functional equivalents. Organizations need both sophisticated risk assessment and planning capabilities to avoid potential threats or reduce the impact of those threats; they also need the ability to respond and adapt to sudden shocks in order to contain hazardous effects. Prioritizing one approach or the other neglects the potential interdependences between the different phases and the capabilities required to manage them. In sum, an integral understanding of resilience can be regarded as a "conceptual umbrella" that covers the different phases of crisis and their associated capabilities.

By integrating the two approaches into an integral, capability-based model of organizational resilience, we simultaneously shed light on a gap that Boin and van Eeten (2013: 431) refer to as "recovery resilience." At present, recovery activities are commonly understood as long-term-oriented. They require analytic, evaluative, and policymaking skills to evaluate response measures and identify best practices that may improve mitigation and preparedness.

However, recovery also has short-term implications. When pre-planned structures and resources are overstretched and response activities are not able to contain an upcoming threat, organizations need to turn the chaotic circumstances of a crisis into manageable trajectories, stop deterioration, and initiate a return to normalcy. To address the associated consequences, the destruction of the pre-existing social–political order, the general threatening of the organization's survival or threat to life-sustaining systems that requires immediate reaction, organizations need short-term-oriented recovery measures to become operational again. This phase is conceptually different from the response phase. It entails different tasks and requires organizations to enact other capabilities and practices than those required to contain a crisis. At the turning point of a crisis, this phase is about adapting old structures or building completely new structures and processes. It is a phase that is no longer solely about reactive but also about proactive activities, about overcoming the status of crisis. For an integral, capability-based understanding of organizational resilience, short-term recovery constitutes a distinct phase of its own. This phase needs to be considered just as important as improved risk assessment and the capacity to contain a crisis.

Organizational resilience represents key determinant of an organization's ability to weather a crisis and withstand its many potential associated challenges. The multifacet-

ed challenges of the contemporary business environment necessitate that organizations develop the capabilities required to minimize the business impact of predictable as well as unpredictable events. The significant consequences of being unprepared to effectively and efficiently manage crises and other unexpected occurrences must be recognized. A lack of preparedness in terms of crisis management can undermine an organization's success and survival.

Through coordinated and comprehensive strategic planning, risk management, and crisis management, those responsible for leading contemporary organizations can greatly enhance the potential for both organizational success and survival. The synergistic utilization of these three management tools represents an act of organizational stewardship on the part of an organization's management team. The skilful and proactive use of strategic management enables an organization to chart its course. Through risk management, risks can be proactively identified and addressed. When all else fails, which it willet times, and a crisis occurs, the proactive actions of developing a crisis management plan and ensuring its readiness will stand the organization in good stead to address the many demands and challenges associated with crises that, if not addressed in a proactive, timely, and professional manner, are fully capable of causing irreversible harm to an organization.

What is so difficult about recovery is that it is commonly perceived as "bouncing back." (Wildavsky, 1990). Organizations are labelled as resilient if they are able to rebound from crisis promptly and return to their initial state. This outcome-cantered perspective may be deceptive and thereby hinder the theoretical advancement of resilience as an integral, capability-based concept for three reasons. First, bouncing back conveys the notion of an easily definable status quo that needs to be rebuilt. However, if we understand organizations as "unpredictable, incomprehensible, indeterminate, [and] unorganized" (Doerfel & Prezelj, 2017) systems, it is nearly impossible to define a status quo that can be re-established. Seen this way, organizations may be in a constant state of minor adjustment to internal and external changes that may have ramifications and implications beyond those initially imagined or planned. Organizations that try to bounce back by simply replicating former processes may experience conflicting results because of a serious misfit between the old status quo and new environmental conditions. Following

this line of thought, a crisis would never end because organizations would always fail to re-establish the prior status quo.

Second, bouncing back creates the impression that only one desirable outcome exists. Yet, if we conceptualize crisis as a processual, cascading phenomenon, organizations will need to respond to ongoing changes. While recovery activities are ongoing, organizations may need to restructure their processes and reformulate their aims. Hence, a desired outcome that was postulated at the onset of a crisis may become obsolete. Nevertheless the extent to which organizations can adapt to ongoing crises is highly dependent on the type of organization. Whereas corporate organizations may have many opportunities to overcome crisis by adapting or changing their business models, critical infrastructures or public authorities may face a narrow corridor of potential solutions.

Third, bouncing back as a measure of resilience "would amount to backtracking in time" (Boin, Comfort & Demchak, 2010). How long should it takes to evaluate whether an organization is resilient and at what point do we conclude that an organization is non-resilient? Do we apply different time horizons to different types of crises and different types of organizations? Answers to those questions would be arbitrary and thus are not conducive to a theoretical conceptualization.

2.5.2 The fundamental role of adaptation and its establishment

Given the inherent limitations of the command-and-control approach to disaster response, emergent leadership behaviours and the development of new norms are critical for addressing organizational and community demands in the crisis aftermath. Furthermore, organizational and community leaders must be aware that emergent groups are likely to arise in response to crisis. Such groups have the potential to offer aid but may also present a number of challenges. Most of the times, this issues concern confusion over who is in charge, congestion of people and supplies that create logistical problems, mixed messages in communication, and so on. Therefore, effective leaders must harness the contributions of emergent groups while also minimizing the potential problems associated with such groups.

Beyond explorations of crisis leadership in responding to disaster events, another set of studies also consider a more process-oriented approach to crisis management. These studies underscore the importance of ongoing actions by leaders that are heightened when organizations rely on those same leaders during the climax (triggering event) of a

crisis. "Leaders who can effectively notice weak signs of danger, and then organize action to bring those signals to the collective view can potentially address the adversity before it becomes a triggering even" (Rerup, 2009). In contrast, if leaders remain 'willfully ignorant' and retreat from the reality of accumulating imperfection and vulnerabilities in their organizations, then these imperfections will build up until reaching "a saturation point that takes them out of managers' control" (Roux-Dufort, 2007) and results in a major disruption, the already cited triggering event.

Many organizations, weak from the planning point of view, must rely on their adaptability to solve problems. It is important to note that any company, regardless of size or organizational structure, is able to develop resilience on the planning or adaptation side (Seville, 2017).

Organizations thriving in a complex world of uncertainty show bold disruption and continuous innovation. Relying on the human desire for resilience and reinvention, these organizations embrace change and rapidly morph to respond to shifting customer, environmental and market needs. Adaptable organizations remove the belief in scarcity, structure and control and replace it with an ecosystem that learns from the past and adapts accordingly to help ensure survival of the overall system. In this sense, adaptable organizations are living and breathing enterprises organized around networks based on how people work and behave, distributing and maximizing human potential (Fiksel, Polyviou, Croxton & Pettit, 2015).

The design of an adaptable organization will be very different for each organization, but it is mainly based on three factors: the team, the leader and the individual. Adaptability will always rely on teams (Figure 8). Team-based design focuses lesson who people work for and more on who people work with. Teams are diverse, often cross-functional, connected by specific missions to serve a customer, product or organizational outcome and have clearly defined cultures, mind-sets and behaviours. Teams working in this way can more easily leverage the power of diverse thought to help achieve successful outcomes by working with (or even more easily meeting with) people who think differently, who ask different questions and approach problem solving in a way that helps the group see around all sides of a challenge. Individual performance is intrinsically linked to team composition. A high-performing team is always worth more than the sum of its parts and radiates resilience which resonates throughout the organization.

To establish an adaptable organization, it should be implemented flexible governance and decision-making models. For this model to work effectively, the governance must also become adaptable, given the absence of traditional top-down formal hierarchy. Adaptability in an organization only emerges through a long-term series of many small changes that eventually change the DNA of the organization.

Leadership, as already explicated before, plays a vital role in establishing a well-performing company and, moreover, in empowering the adaptability of an organization. Leaders should be versatile, able to energize, empower and connect people across the ecosystem and to lead any team in any context. Leaders must drive change. Leadership has traditionally been hierarchical and somewhat monolithic; leadership roles have conventionally been bestowed upon those considered most expert or experienced. But flattening hierarchy to a distributed, team-based model demands leadership at every level and allows leaders to emerge in the "hidden networks" (Deloitte, 2019).

Finally, the individual serves central aspect in gaining adaptability. The traditional view of the employee assumes people inherently resist change and talent programs provide stability. In Adaptable Organizations, resilience and accepting change becomes part of the organization's DNA and talent programs exist to enable that resilience. If individuals cannot shift their own mind set and visible behaviours, the organization will likely struggle to become adaptable.

Figure 8 - The recipe of organizational adaptability

Source: Author's elaboration

2.6 Conclusions

Resilient organizations keep errors small and improvise workarounds that keep the system functioning. They possess "an impressive capacity to grasp crisis dynamic. They resist tendencies to adopt and cling to an interpretation based on limited information and hasty analysis. They force themselves to continuously probe their situational assessment. They have created a culture of awareness. They expect crisis to happen. They look for them because employees know that they are expected to do that – even when it comes at the cost of task efficiency" (Boin, Comfort & Demchak, 2010)

The dearth of empirical data makes it hard to relate with any type of certainty organizational characteristics and processes to resilient performance. We seek to address this lacuna. To facilitate empirical research, we need a theoretical framework supported by a data analysis that proposes precise relations.

A few years ago, an organization's desire to become more agile and innovative was an indicator of success; now it is an imperative for survival in unstable markets. Organizations that are not directly impacted by increased market pressure and that often appear stable on the surface, such as government or no-profit organization are also searching for adaptability.

3. CHAPTER

THE EMPIRICAL ANALYSIS

3.1 Introduction

With the advent of globalization, many organization started focusing on the need to plan and organize means needed In order to achieve efficiency and increase productivity. Thus, the goal became the maximization of shareholders' value and the decrease in cost. (Judge, Piccolo & Ilies, 2004). Performance optimization involves learning to do existing things better, delivering goals and meeting the needs of the public, the media, regulators and the government, who all demand that products and services be delivered that 'work right this time, next time and every time'.

The ability of business owners and managers to think strategically during the midst of a crisis is a key factor in an organization's long term survival. Especially because there is currently little research regarding advisable means on how to do this in the most efficient way.

In order to be resilient in times of crisis, organizations must face a series of apparent contradictions in which effective planning is strictly correlated to the adaptability of companies in changing circumstances. Important to note is that these circumstances have different natures as they range from the mere hard characteristics of the business in which the company operates as well as by the culture of the company taken into account. As a matter of fact, it is extremely important to have people able to inspire their colleagues with a sense of hope and direction whilst being well grounded about the situation they are in. It is also important to have an organizational culture that values disciplined planning whilst fostering innovation and to have teams able to recognize patterns and integrate information to make sense of a chaotic situation. Planning and innovation

are also pivotal, together with the capability of recognizing patterns and make decisions carefully in order to avoid chaotic situations.
When referring to optimization one of the most critical aspects is leadership. It is often achieved by helping followers understanding role and task requirements, by providing answers, by creating and using rewards as reinforcement and by intervening when best practice is not achieved. When change occurs it is often controlled, planned and determined by defined sequential steps aimed at altering organizational and individual behavior.
In a resilient organization, that undertakes an optimization agenda, change occurs "with no calamitous surprises, no convulsive reorganizations, no colossal write-offs and no indiscriminate, across-the board layoffs" (Hamel & Valikangas, 2003)

The data analysis proposed is based on a questionnaire submitted to a sample of 600 small-medium enterprises (SMEs) in the peripheral areas of Milan. The study, developed by The University of Padua with the contribution of J.P. Morgan Italy, is part of a project that involves five European countries. The aim of this project is to test Organizational Resilience in national economics centers of the countries involved, in order to highlight how SMEs reach resiliency in struggling economic conditions.
The organizations selected in Milan are divided geographically in two parts: "average" and "deprived" which namely denote a medium poor area and a very poor area. The study is conducted on purpose in those areas to better analyze cases of crisis in order to test organizational resilience.

3.1.1 SMEs in Italy

SMEs are highly vulnerable to periods of crisis mainly because of their limited financial and human resources to respond. However, many SMEs may have strategic advantages over larger organizations when it comes to face changing environments. In fact, they do respond quickly to small crises but they still have to develop their responsiveness on a larger scale crisis.
From a theoretical point of view, SMEs may be defined in different terms and on different levels. The first one is the "micro" category which defines enterprises with no more than 250 employees and with either a turnover lower than 50 million of euro or an annual balance sheet total not exceeding 43 million euro. According to *ConfCommercio*,

in Italy 99.9% of companies that operate in any manufacturing sector, such as industry, construction, services, are represented by small and medium-sized enterprises (SMEs). Of these, 95% have less than 10 employees and they are concentrated in the tertiary sector, particularly in real estate, IT and retail. On the contrary, companies having from 10 to 249 employees, are said to operate more in the industrial sector. Therefore, after this initial overview, it is possible to argue that SMEs are the sustaining backbone of the Italian national production process.

Until a few years ago, the entrepreneur had to work to ensure good production, provide excellent pre and post-sales services and ultimately thwart competition. Nowadays, companies must also deal with the global economic crisis that has weakened the markets starting from 2008. As a matter of fact, on the one hand, management costs and taxes have increased, while on the other hand, consumption has decreased, and concern has widely spread.

Moreover, distribution of SMEs is mainly concentrated in the North of Italy, with 814.421 organizations and 2.992.305 employees, from which Lombardy is the region with the majority of SMEs. (Il Sole 24 ore, 2019).

Small and medium-sized enterprises, here defined as active businesses with a turnover of less than 50 million euros, employ 82% of workers in Italy (well above the EU average) and represent 92% of active businesses (from the calculations dormant companies with zero turnover in the last year are excluded. These numbers suggest that SMEs make up for a distinctive segment of the Italian economy that reflect traditions and entrepreneurship spread throughout the territory. "Italian SMEs are now part of complex and global value chains, contributing to the formation of their competitive advantages through flexible and diversified solutions. Finally, it should not be forgotten that the contribution of SMEs extends beyond the economic aspect and occupies an important place in Italian cultural and social life." (Il Sole 24 ore, 2019)

An important aspect that has to be taken into account in this analysis is the intrinsic nature and structure of the Italian economy. Indeed, Italy is a particular case to analyze as its economy is characterized by high labor costs, high GDP per capita and high presence of SMEs. In fact, Italy registers the largest number of SMEs in the manufacturing sector.

One of the strongest sector is the agro-industrial and food products where some intermediate goods producers are long-time exporters. Other important sectors in which Italian companies outperform their international counterparts refer to the ones involving textile machines, leather and footwear machines, food processing machines, agriculture machinery and services both to other organizations and people. By keeping this in mind, two really good and insightful examples of extremely competitive Italian firms are Fiat in *Turin* and Luxottica founded in *Belluno*. For these reasons, it is possible to argue that the Italian case demonstrates that it is not pivotal to have a large presence of big firms in order to have a competitive national economy. In general, Italian companies mostly focus on exporting high-quality goods from a wide range of sectors that specializing in the so called 'made in Italy' concept; fashion, food, beverage etc.

By looking from another perspective, small firms may be looked at not as an individual entity, but as parts of groups of firms that, by banding together, are able to create what they would not be able to create as single firms. By following this reasoning, it comes with no surprise that the so-called 'industrial districts', or 'clusters', have been of such interest to entrepreneurs and scholars alike.

Although there is strong competition among firms, there is often also a high degree of cooperation among firms in the production processes which are divided into distinct stages with separate firms responsible for different phases. Therefore, specialized small firms may divide their labour processes by group together, or by regroup depending on the requirements of the market. This conversion allows for flexibility and short-term response, which is a factor that large firms with fixed assembly lines are often unable to provide. It is important to stress that firms may be interdependent, but, at the same time, they do not necessarily share of a high degree of dependency.

3.2 SMEs in crisis

In general, different authors affirm that SMEs are the first and the most important victims of a prolonged economic crises. SMEs may suffer disproportionately from economic downturns, because of their limited financial resources and their dependence on banks' lending in paying such high interest rates. Adding to the financial aspect, their relative shortcomings in terms of technological, managerial and human capabilities may reduce their capacity to overcome the economic crisis. On the other hand, their greater

dependence on (fewer) customers and suppliers and markets may lead to increased difficulties in maintaining their activity in the face of the crisis.

However, research suggests that SMEs are subjected to a bigger burden from economic crises than large scale enterprises do. Gregory et al. (2002) say that Korean SMEs, during the Asian financial and economic crisis of 1997, decided that it would more beneficial for them to strengthen their marketing and technological innovation. This adaptation was the easiest for SMEs businesses in connection with the big unites. Shama (1993) mentions that SMEs react using market segmentation tactics much more effectively and quickly than the big businesses, whereas Pearce and Michael (1997) comment that investment in sales and marketing improved SMEs' performance during economic recessions.

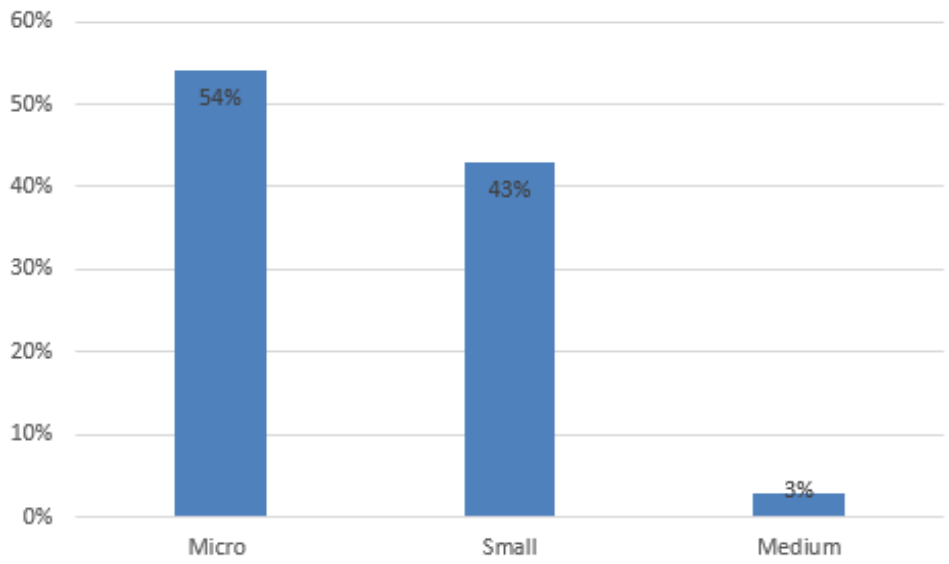
In the literature, we find valid reasons why small firms may have different effects from larger firms. Smaller enterprises may be more flexible in adapting to an economic downturn because they are less resistant to inertia, rigidity, and sunk costs, more able to exploit market niches, concentrated on activities characterized by economies of agglomeration, rather than economies of scale, and less reliant on formal credits compared with their larger counterparts, which are more burdened by debts (Bourletidis, Triantafyllopoulos, 2019).

Even their disadvantages at technological and knowledge levels can be overcome by imitation of other firms' best practices. As a result, SMEs may be more able to maintain their sustainability and thus counteract the negative effects of the crisis, helping to stabilize the economy. Indeed, there is robust empirical evidence showing that SMEs, and specifically export-oriented SMEs, are better able to adjust to crises (Gregory et al., 2002). Furthermore, SMEs have strategic importance for the economic recovery. They help restructure industries because they can act as a source of competition for larger companies, can promote regional trade, contribute to technology transfer, and also regional development.

3.3 Data analysis and description of the sample

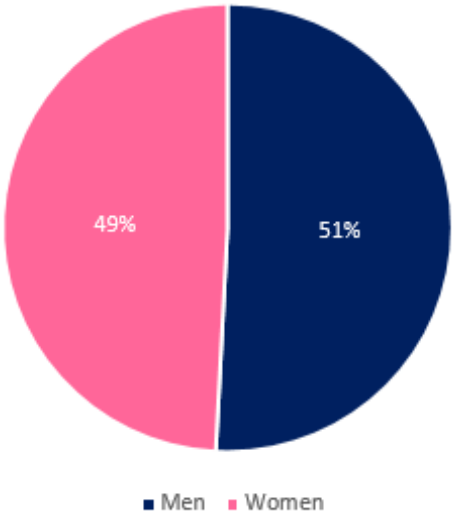
As mentioned in the preface, the data analysis is based on a sample of 600 small and medium enterprises with a number of employees lower than a hundred. We are dealing with micro and small companies due to the number of employees (Figure 9). Only 3% of them are medium companies (more than 50 employees) and the vast majority, about the 54% are micro enterprises (9 employees maximum). Instead, small organizations have between 10 and 50 people. Thus, the distribution across the territory is uniform. Sampling took place in the areas of Milan with a medium-low and very-low profit where conditions and the companies are perfectly split into these two zone. All the areas with higher income are, therefore as a consequence, excluded, and only those areas that offer the least in terms of available resources and infrastructure are taken into consideration. First of all, it is important to define the composition of these firms in terms of gender or geographical origin. How many men and women manage the organizations interviewed? The gender distribution across the managers is in equilibrium (Figure 10).

Figure 9 - Dimension of the 600 SMEs



Source: Author's elaboration.

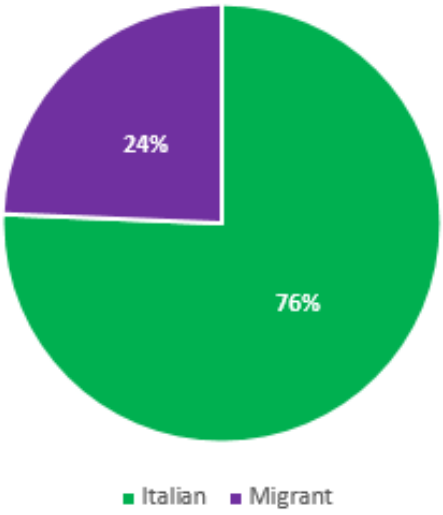
Figure 10 - Gender in managers or founders



Source: Author's elaboration.

About a half is a company managed or founded by a man and equally by a woman. Another distinction that has to be made in the sample is based on the geographical origins of the people in charge. By asking the country of born, we individuate two categories: in the first one we find Italians and foreign people from America or Australia that are in the country since at least 5 years. Instead, migrant companies are made up of all foreigners in Italy for less than 5 years or by people from Asia and Africa regardless of the number of years (Figure 11).

Figure 11 - Origins of the people



Source: Author's elaboration.

One out four companies are led by Migrants or ethnical minorities. Surprisingly, after the majority of Italian origins, most of the other entrepreneurs are Chinese and do not come from other countries of Europe. Lombardy region, once again, is at the first place for the number of Chinese residents, with over 23 percent of the total population living and evidently working in this northern region of Italy. (ISTAT – 2019) In our sample the category Migrants is composed only by people from Africa and Asia.

Another relevant distinction has to be made between companies with only one person running or managing the business and organizations with at least two people in charge (Figure 12). The preponderance is towards companies headed by more than one person. We expect differences between these two categories with regard to the responses to the crisis adopted, the degree of organizational resilience. In one out three cases we are dealing with companies that have only one man or woman taking decision for the entire organization. The contrasts might arise because of leadership issues. Only one person in charge, basically takes decisions alone, meanwhile here 70% of organizations undergo decisions by a group. An important inquiry arises: is it better in terms of organizational resilience to be led by one person alone or by a group?

Figure 12 - People in charge

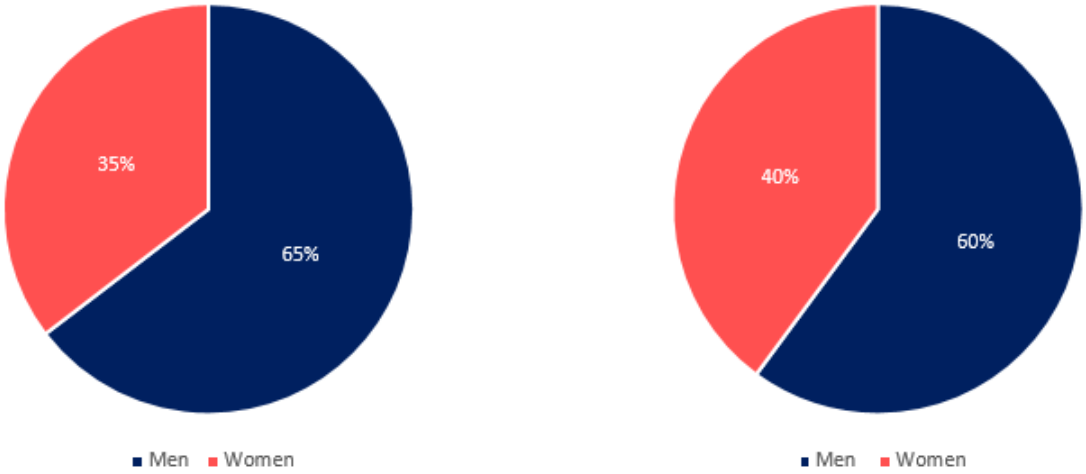
Source: Author's elaboration.

It should be emphasized that this group of people includes company owners and employees responsible for making strategic decisions. In both groups of companies the number of men overcome the number of women, but the companies with one person in

charge are even more male-centric (**Error! Reference source not found.**). The groups of managers tend to incorporate much more women in their teams.

Figure 13 - People in charge by Gender

a) Only one person *b) At least two people*

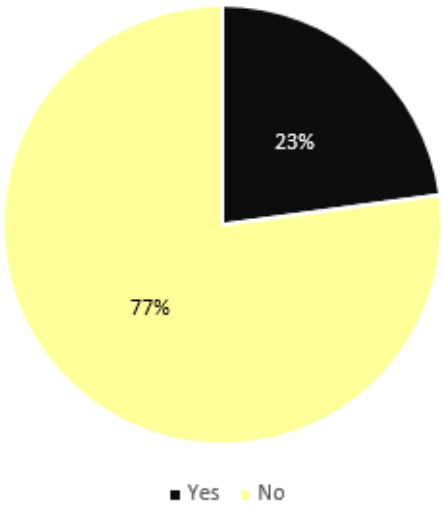


Source: Author's elaboration.

The groups of managers tend to incorporate much more women in their teams.

Moreover, it was asked if, in the last five years they suffered any crisis or business difficulty (Figure 14). Almost one out of four have suffered a crisis or faced difficulties. "Business crises occur more often than we think." (Seville – 2017)

Figure 14 - Any crisis or difficulties in the last 5 years?



Source: Author's elaboration.

Crisis seems to be something regular in business life and not something unusual.

After that the main categories of people or organizations' typology present in our sample have been described, it is helpful in our study to compare and cross them with the other elements offered by the survey. In order to find differences in personal resilience, organizational resilience, crisis management and leadership. The strategy adopted is to build an empirical model tested by significance test.

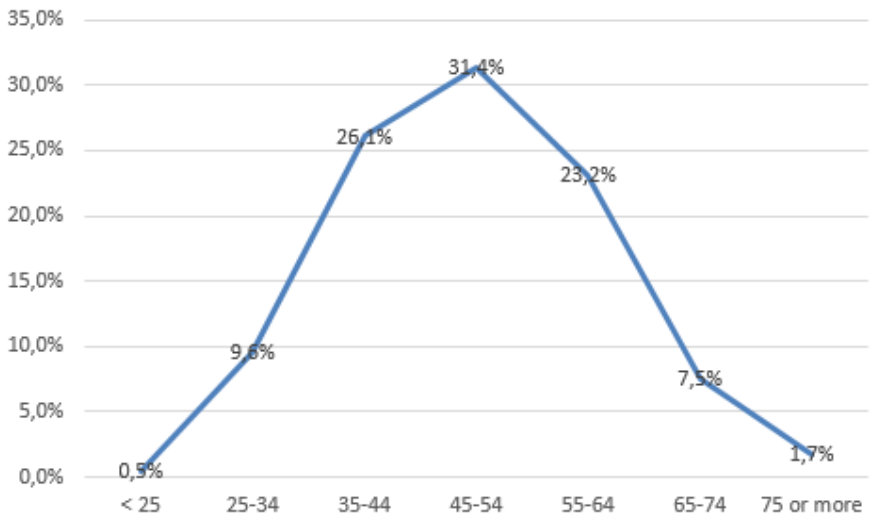
First of all, we are going to construct a model that match different aspects analysed with the category explained above. These aspects are the characteristics of the person, characteristics of the organization, the perception of threats, crisis data and reaction to the crisis. For each of these aspects, we are going to show irregularities with the whole sample and test them with significance test.

3.3.1 The characteristics of the person

The study begins with the elements regarding the characteristics of the person. Age, grade of instruction and grade of personal resilience belong to this class with the gender and the origin already put into the divisions already done. I am going to show only the results that may have an impact on our path of study and that better describe the sample.

With regard to the age, the concentration is between 35 and 64 years old. (Figure 15) In general the companies are quite young in terms of people that work in them.

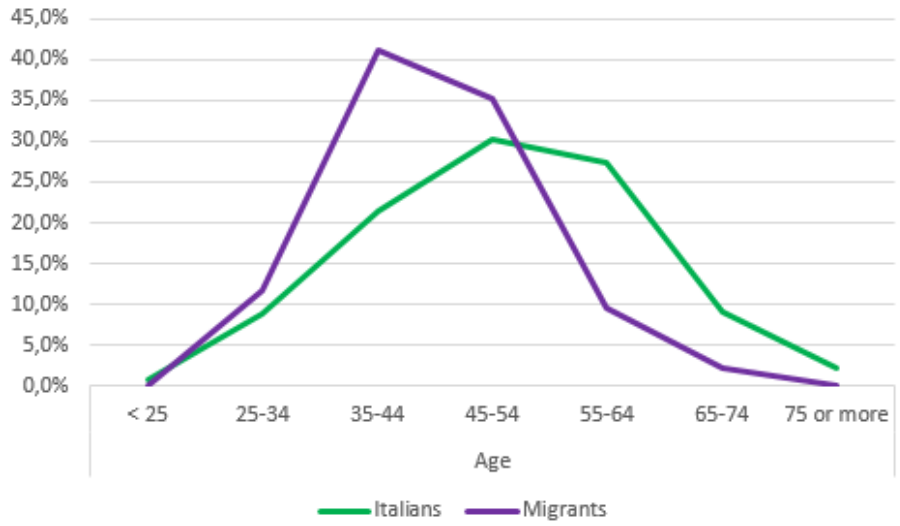
Figure 15 - Age of the sample



Source: Author's elaboration.

Across all categories the distribution is homogeneous. The only anomaly found is in the match with the origin of the people (Figure 16). Migrants are sensibly younger than Italians: more than the 30% of Migrants are younger than Italians. The percentage of Migrants older than 55 years old collapses decisively with respect to the Italians.

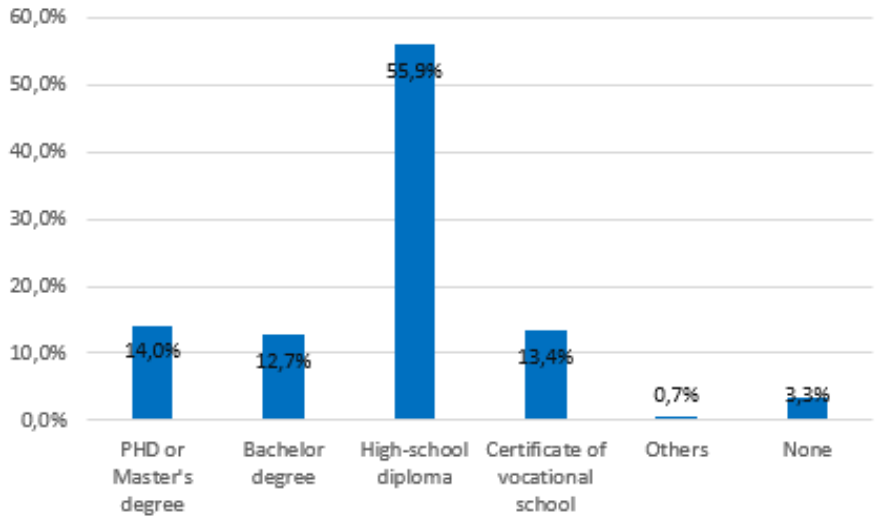
Figure 16 - Age by Origin



Source: Author's elaboration.

Another characteristic of the person analysed is the grade of education. Which is the grade of education achieved by the people interview? Are they undergraduate, graduates or what else? (Figure 17)

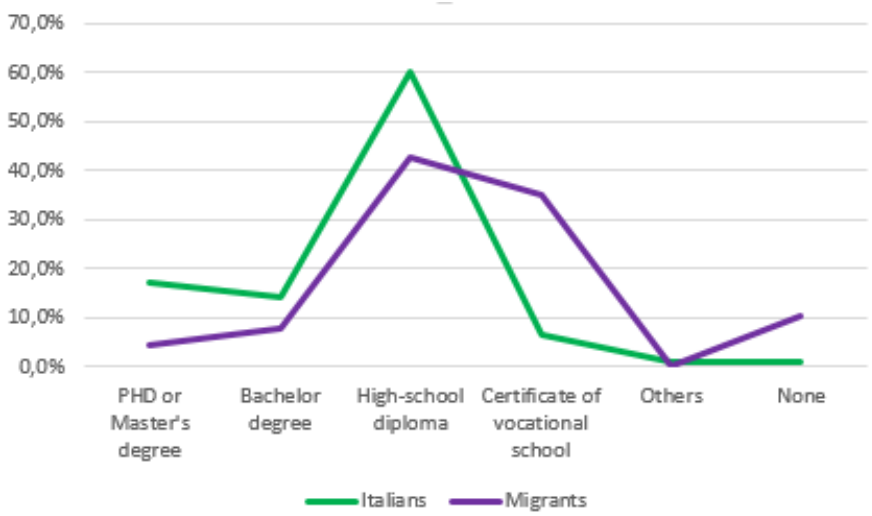
Figure 17 - Grade of Education of the sample



Source: Author's elaboration.

Again we have big differences in terms of origin. Migrants are younger but they are also less educated than the Italians (Figure 18). On average, Italians have higher education levels: more than 90% have at least a high school diploma while for migrants, about half have the same level of education.

Figure 18 - Grade of Education by Origin



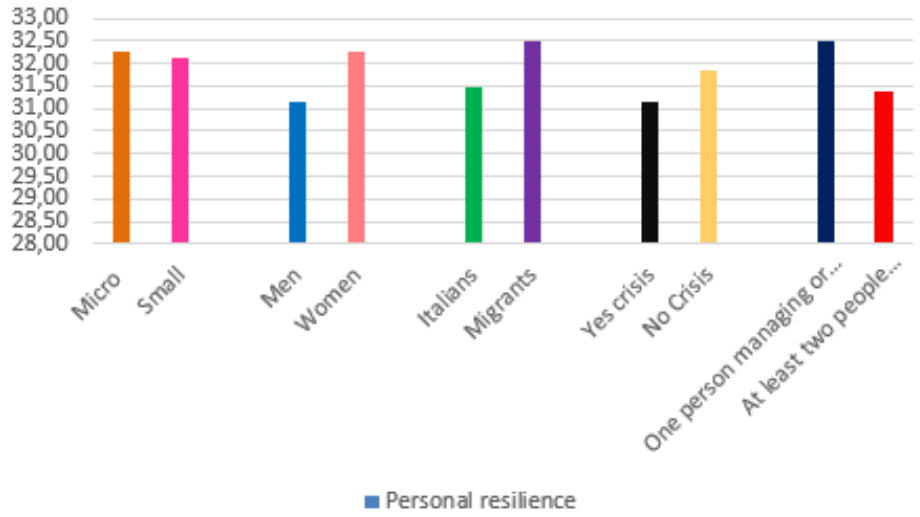
Source: Author's elaboration.

As mentioned in chapter 1, to measure personal resilience an internationally accepted tool is used as scale. This instrument is the scale Connor-Davidson (CD-RISC). The test submitted to our interviewees is composed by ten items and for each one a score from 0 to 4 must be assigned. Therefore, here it is adopted the CD-RISC-10, adaptation of the original scale with 25 items. The scale was reorganized by Campbell-Sills and Stein (2007) and the 10 items included in this abridged scale assess one's ability to endure difficult experiences, including "change, personal problems, illness, pressure, failure, and painful feelings." The authors found that scores on the 10-item CD-RISC correlated highly with score on the original 25-item CD-RISC.

On average, the sample has a personal resilience score of 31,68 that is quite high. Women, Migrants and companies led by only one person reveal higher score in the CD-RISC scale (Figure 19). Even if the differences with the other half of reference are not that high, they are significant. The categories that we can define as "weakest" in the society and probably those that encounter the greatest obstacles in doing business, are those that then show higher levels of personal resilience. This result demonstrates how resilience, which is of the person himself and then transmitted to his own organization, is a quality

born inside the individual and that increases his strength by facing inconveniences along the way.

Figure 19 - Personal Resilience across the groups

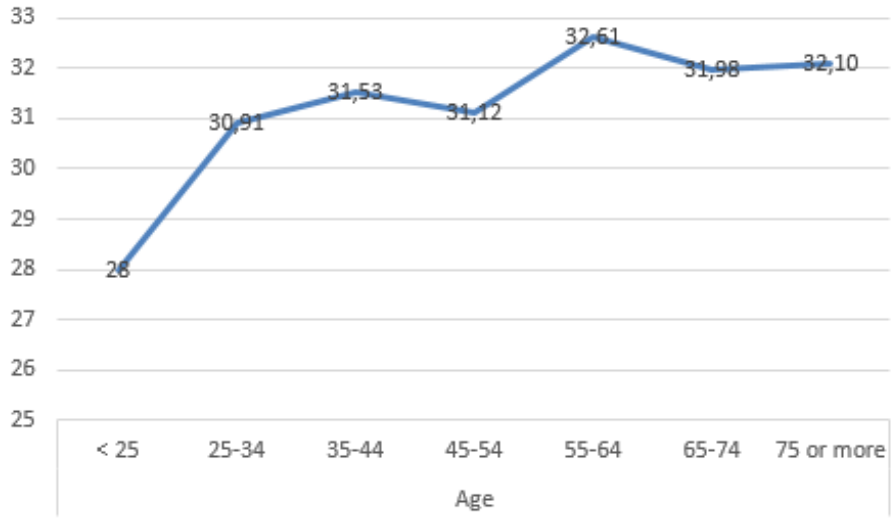


Source: Author's elaboration.

As shown, even companies with a single boss are more resilient than those with a governing team. Also in this case resilience seems to be a quality of the individual who, finding himself alone to manage crisis situations, must give life to the maximum resistance he possesses.

With increasing age, experience is also said to increase, and seems to benefit resilience (Figure 20).

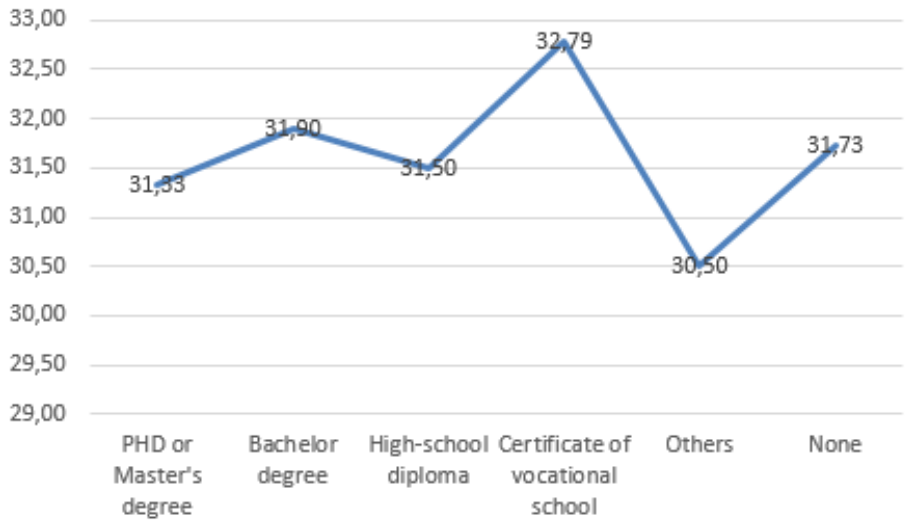
Figure 20 - Personal Resilience by Age



Source: Author's elaboration.

After a certain age, around 55 years old, one achieves higher scores of resilience. Moreover, regressing the Personal Resilience with the Age of the respondents, the age represents a statistically significant variable as it reports a p value=0.041 (Significance at 5%). Comparing Personal Resilience with the grade of Education of the respondents is curious that it increases with the decrease of the study achieved (Figure 21). Incredibly, the highest average level is reached by those who have a very low educational level. People who attended just some professional school as surveyor or accountant have the highest score in Personal Resilience. Is Resilience something you do not learn in school? Testing by regression the Personal Resilience with the Grade of education, the results shows no significance at statistically level. It seems that the lower the grade of education, the higher is the Personal Resilience of the individuals in interview, by the sample. However, we cannot affirm that resiliency is increased outside the school. Moreover, there is no great differences in terms of score between who have a very high grade of education and who do not.

Figure 21 - Personal Resilience by Education



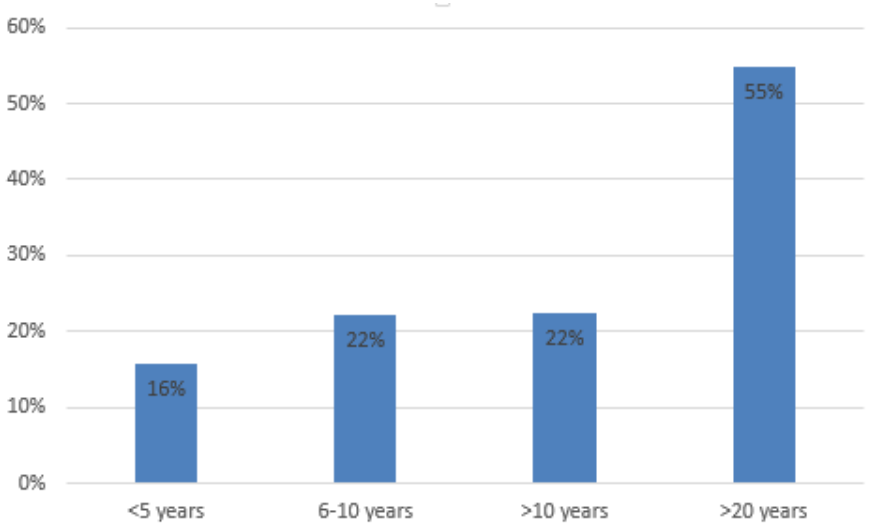
Source: Author's elaboration.

3.3.2 The characteristics of the organization

In this division we have the years of foundation, if the company is a family business or not and the objectives that organizations have for the next three years. In the sample we have quite mature companies (Figure 22). We are not speaking about start-ups because only 16% is five years or younger and the majority has almost 10 years of history. They

have overcame the difficulties of starting a business and even the majority has more than twenty years of history.

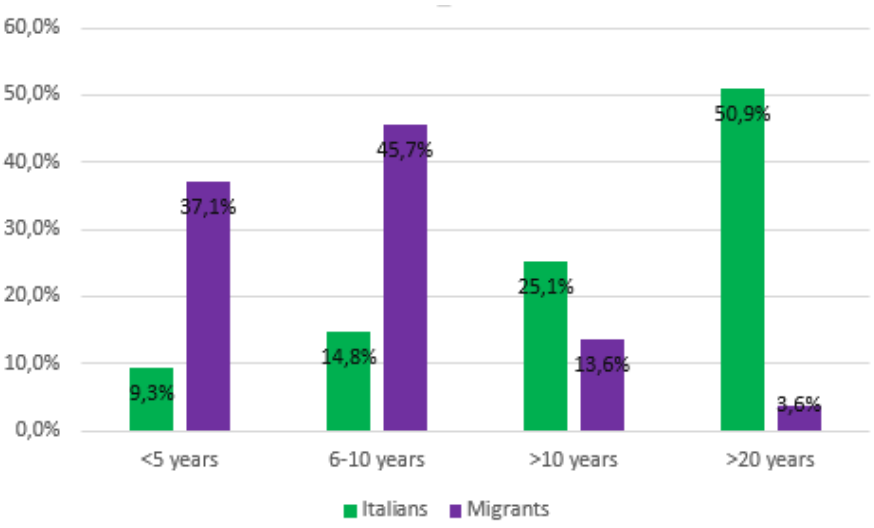
Figure 22 - Organizations by Years of foundation



Source: Author's elaboration.

A marked difference is found in the subdivision of predominantly Italian or ethnic minority companies. The number of migrant companies is much younger than the Italian ones (Figure 23).Almost half of foreign companies are less than 10 years old, while most Italian companies have a history of over 20 years. Will this reflect on the resilience of the organization?

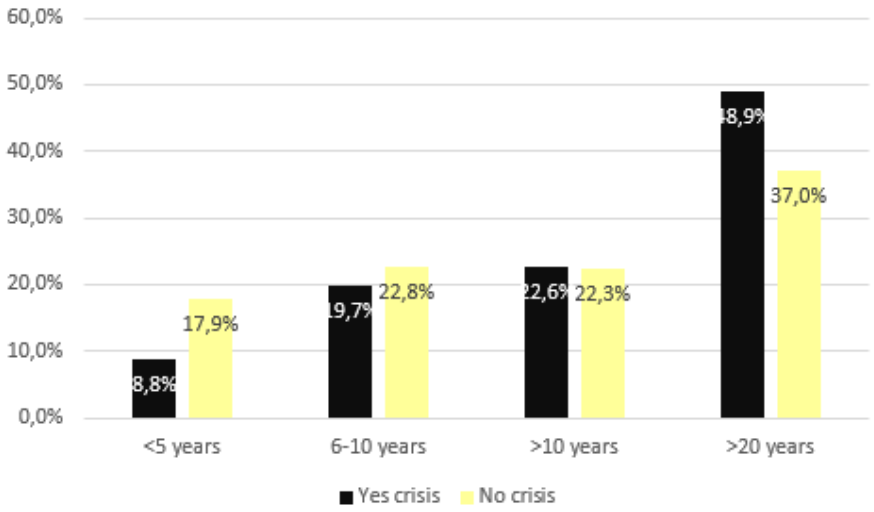
Figure 23 - Years of foundation by Origin



Source: Author's elaboration.

In terms of crisis suffered, we see a slight difference with regards to the organization's foundation years (Figure 24).

Figure 24 - Years of foundation divided by organization that suffered a crisis

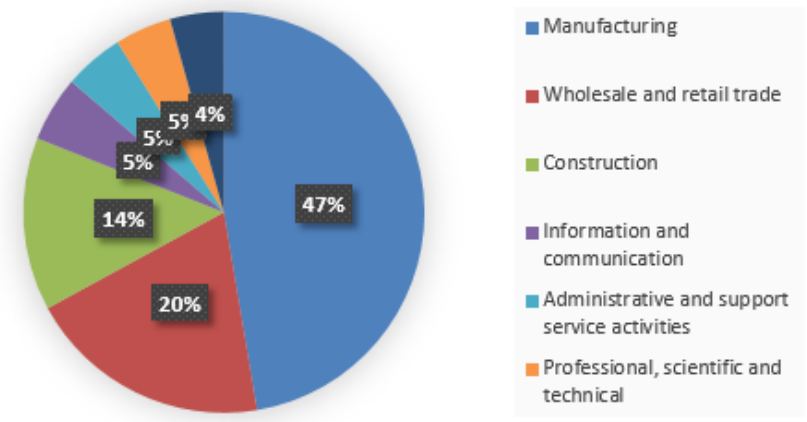


Source: Author's elaboration.

On average, very young companies have not suffered a crisis in the last five years, meanwhile the companies that have suffered a crisis have a longer history. In general, a crisis is an element that always arises in the company context, so the higher incidence in older companies is a rather reasonable statistic.

A necessary subdivision regards the sector of the organizations (Figure 25). Our sample is largely concentrated in the manufacturing sector, a sector that is dotted with small and medium-sized companies in Italy.

Figure 25 - Sectors of the sample

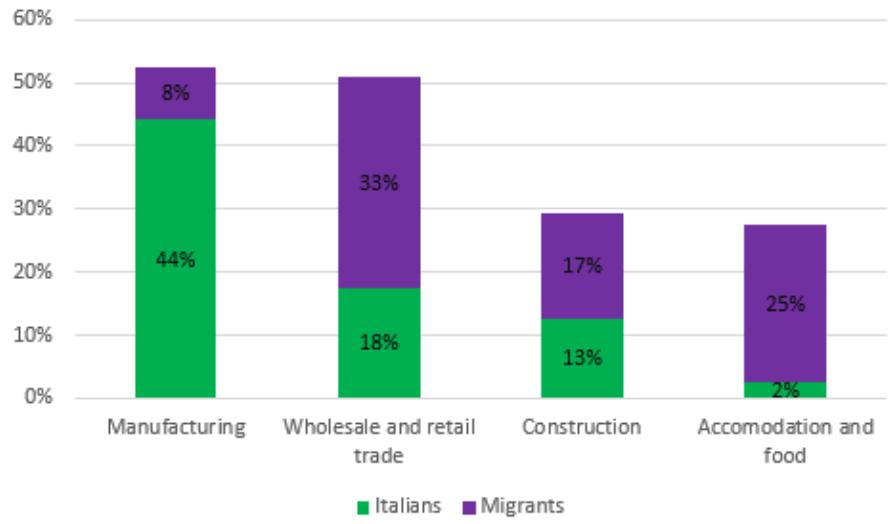


Source: Author's elaboration.

Then we find in the second and third place the wholesale and retail trade and the building and construction sector. All the others are spread in various sectors ranging from communication to administration and transport to high technology systems.

There are four main sectors. An interesting polarization can be noticed between Italians and Migrants (Figure 26). While the organizations managed mainly by Italians are concentrated in the manufacturing sector, one company out of four, run by ethnical minorities, provide accommodation and food services. Therefore, Migrants organizations are involved in the distribution of services, mostly to other people.

Figure 26 - Sectors by Origin



Source: Author's elaboration.

It was asked also, in a scale between not important at all and very important, a list of objectives that the company might have in the next three years (Figure 27). Reasonably, in the first place we find the consolidation of the current activity.

We are talking about small-sized companies, so the first objective is to concentrate their forces to strengthen the business. A little further back we find building a business both and above all at national level, and outside the Italian borders. Less attention is paid to sustainability and even less to contribute to the prosperity of the community. SMEs do not seem to be focused on renewal themes but rather to survive in the short term.

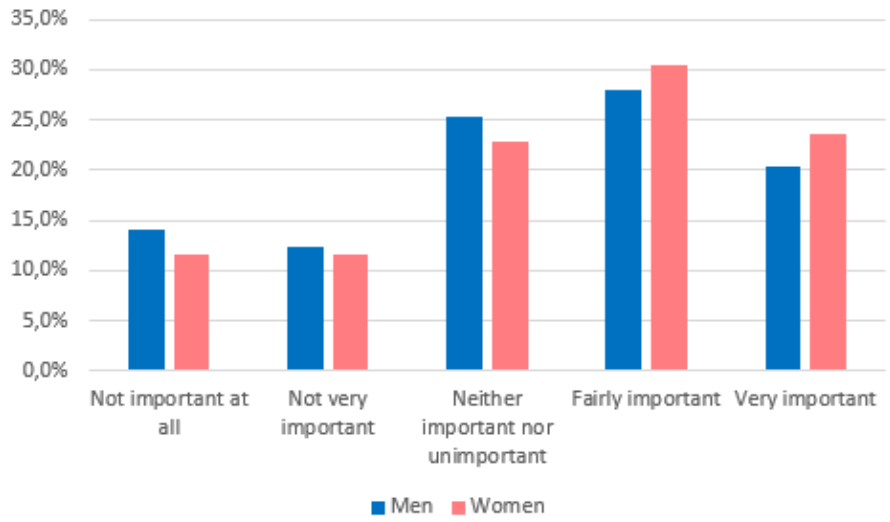
Figure 27 - Objectives of the organizations in the next 3 years

Source: Author's elaboration.

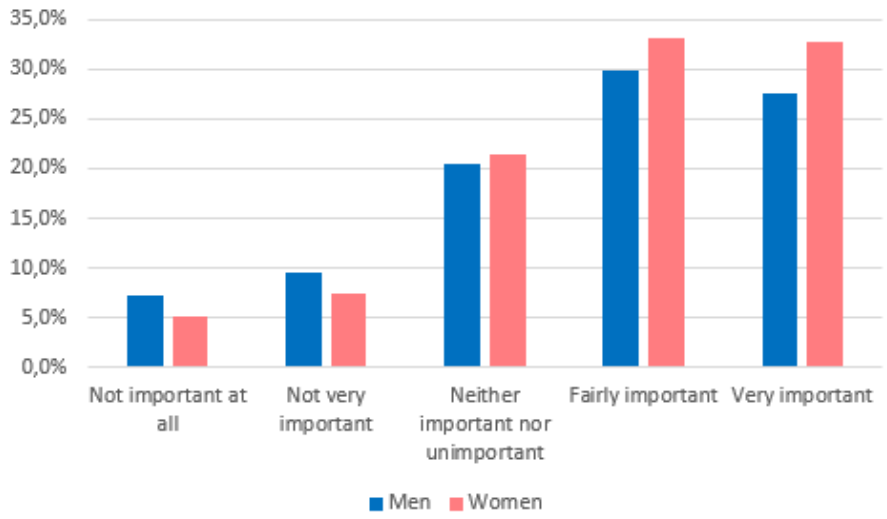
Analysed by gender, the first two objectives have the same distribution. Regarding the other two, it seems that women pay more attention to social and environmental themes compared to men (Figure 28). Making a contribution to the local community and increase the social and environmental benefits of the business have much more importance in female organizations. It is interesting to note that as the importance attributed to the future objective increases, the percentage of women increases to the point of overtaking men.

Figure 28 - The two minor objectives by Gender

a) Make a contribution to the local community



b) Increase the social and environmental benefits of the business

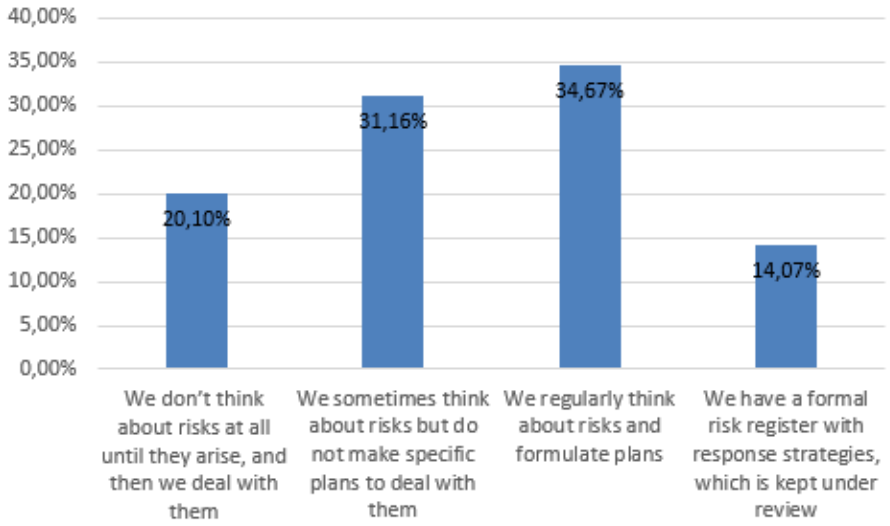


Source: Author's elaboration.

3.3.3 The perception of threats

This section covers both the risk aversion of our organizations and the source of threats identified by them. The evaluation of risks is measured in our sample (Figure 29). Perception of risk is pretty high as most people regularly think about risks and formulate a plan for them or are aware of the fact that they can go against the risks.

Figure 29 - Risk aversion of the organizations



Source: Author's elaboration.

Again the partition is between companies led by one person or by more than one (Figure 30).

Figure 30 - Risk aversion by People in charge

Source: Author's elaboration.

The organizations with only one man or woman ahead are not so worried about risks, usually they wait until a risk arises. Instead, the companies run by two or more people are pretty much preoccupied by difficulties that can emerge in the business context. Moreover, they regularly formulate plans and strategies against accident that can occur much more than the other category.

Risk adversity seems to be more pronounced in organizations with at least two people in charge due to the possibility that they have in defining more guidelines at the same time. Greater propensity to formulate strategies and to formalize business risks on a regular basis bring beneficial effects towards the survival of the company.

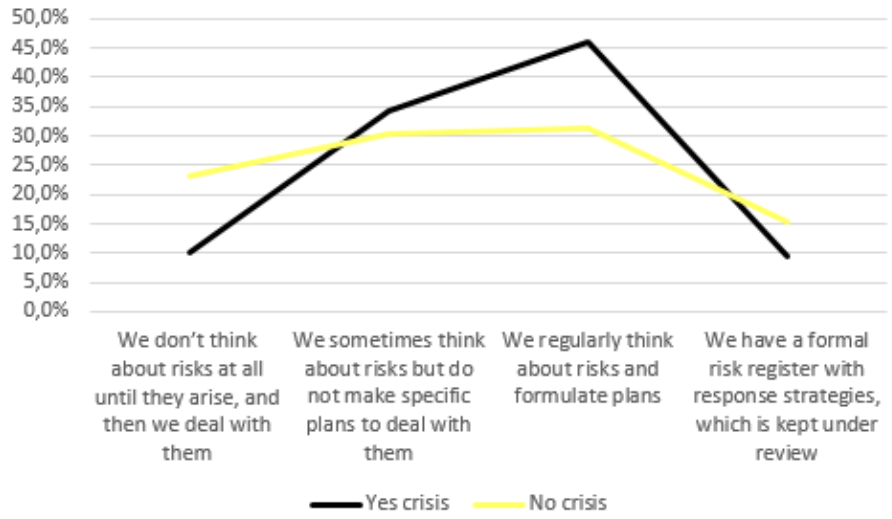
This assumption is confirmed by a test of statistical significance, with a p-value=0.000 (Significance at 1%). Increasing the number of people in charge also increases risk aversion and the frequency of preparing plans to respond to threats.

Nowadays, leadership is a business component that belongs to several people even within the same team. Compared to the past, we are trying to build organizations that have numerous individuals with leadership skills, so as to contribute to growth and resolve adversity more easily.

Having a look to the companies that suffered a crisis, the results denote a particularity which is worth highlighting (Figure 31). The predisposition to formulate strategic response plans or simply to think frequently is pretty higher in companies that already suffered a crisis. This is due to the fact that the monitoring here is tested post-crisis. Or-

ganizations that have suffered an emergency have also "learned" because their grade of planning is clearly superior. Moreover, regressing the adversity to risk with the condition in which they had a crisis or not, the resulting p-value is equal to 0.09 (Significance at 10%). We can in this case speak about a "learning effect" observed in the SMEs.

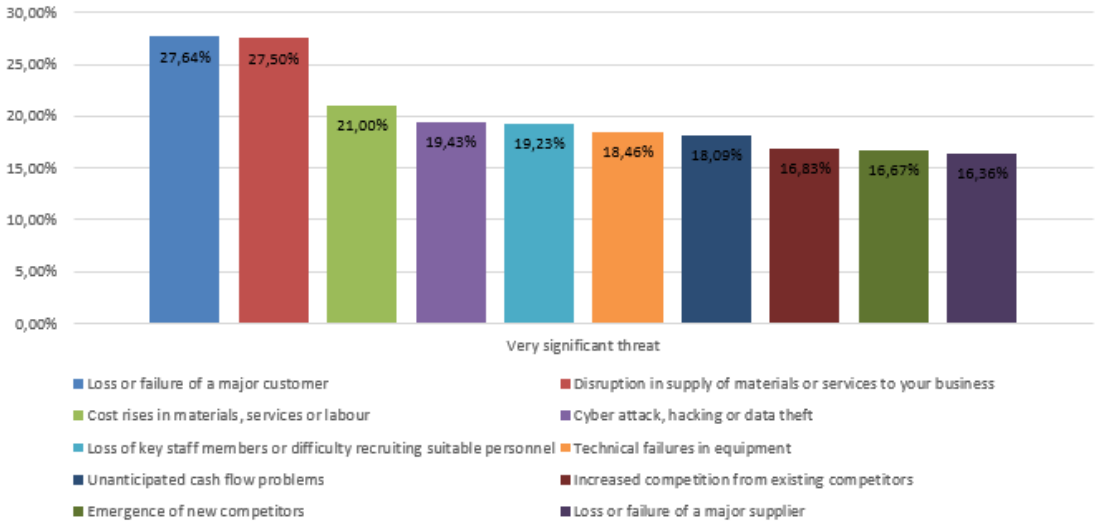
Figure 31- Risk aversion by Crisis suffered



Source: Author's elaboration.

In this section it was also asked which kind of threats or menaces the company expects in the future (**Error! Not a valid bookmark self-reference.**).

Figure 32 - What threats the organizations expect in the future



Source: Author's elaboration.

May be useful to understand from where SMEs suspect the difficulties arise. First of all to highlight what these societies' fears are and find out if they are moving in the right direction; but also to compare future fears with the causes of past crises. Are the problems I solved in the last five years still my main menace? Was there a sort of "learning effect"?

3.3.4 Data-crisis

In the sample, 137 over 600 suffered a crisis in the last five years. All the section B of the survey, relating to the Business Resilience, will be useful for our principal analysis. What is particularly interesting for our research is to find out the source or origin of these crises, their consequences, the subsequent decrease in profit and how long did they take to recover from the crises.

To better list the origin of the causes, we divided them into three main categories: General Environment, Transactional Environment and Internal Environment.

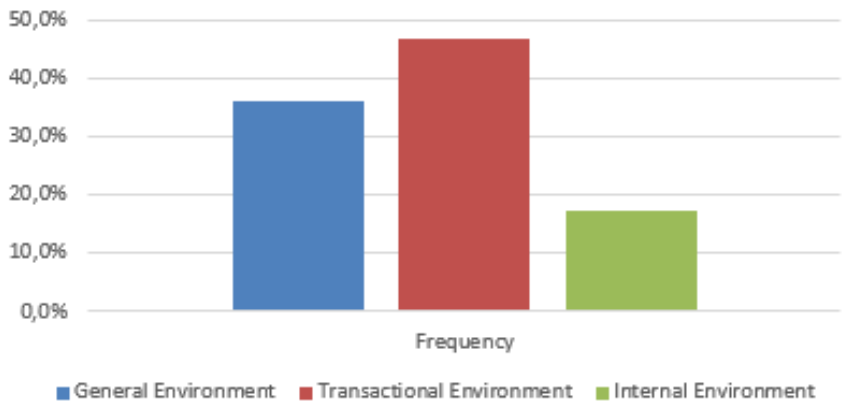
A company has to be visualized as a system that interacts with the external environment: the external environment influences the company and is, although to a much lesser extent, influenced by it. When we talk about the environment we can refer to both the general environment that is unique for all the companies belonging to a determined context, and the specific environment that directly influences a certain company. The specific environment is also called the transactional environment because it coincides with the markets for the supply of the productive factors and with the markets where the products are sold, markets with which the company implements transactions. The general environment refers to any external force that influences the company but that has origins on which the company cannot act and therefore we could say causes on which the company has no faults. It is shaped by climate disasters, changes in regulations, economic crisis and all the inefficiency due to market misalignments. Authorizations denied, crisis in the building sector or a flood, to cite some examples taken from our sample, are certainly not causes that the company could oppose.

The second dimension of the external environment is the transactional environment. Here, even if the cause comes from an external source, they are directly linked with the specific company playing in the field. The competition, the insolvency or failure of a customer, the loss of orders or the decrease in customers are a few examples.

A company has also an internal dimension which is directly dependent to the decisions taken by the company itself or originated inside it. So, we put a category that target this kind of causes. Any change in the production, in the structure of the management or ownership are generated by the company and if these kind of operations bring to crisis, bad management has its fault. Afferent to this group also all the liquidity or cash flow difficulty of an organization and all the internal situation of a company linked to employees.

The origin of the causes are shown below (Figure 33). A great prevalence of external cause is present, with than the 80 per cent of the cases, highlighting that the main corporate crisis forces are unleashed outside the context of the company itself. Entrepreneurs' perceptions of recession are dependent upon their context and the wider social structures that might facilitate or hinder their functioning.

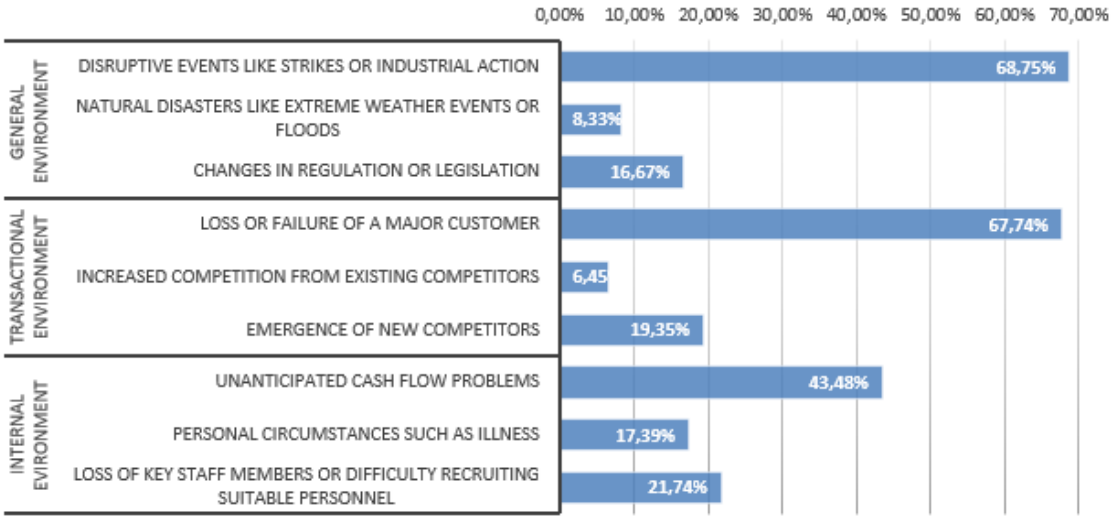
Figure 33 - The origins of the Crises



Source: Author's elaboration.

The wider institutional context and the interaction with stakeholders such as investors, government, and competitors all contribute to the formation of perceptions. The following graph shows the main causes of crisis broken down by origin (Figure 34). In Italy strikes are quite frequent and are a serious problem for SMEs. With the same frequency to threaten the survival of these organizations were the losses or failures of major customers. Generally, such small companies have one or two really important customers that make up the majority of profits. If these, for one reason or another, fail to pay the small artisans or manufacturing companies, the consequences are likely to be rather serious.

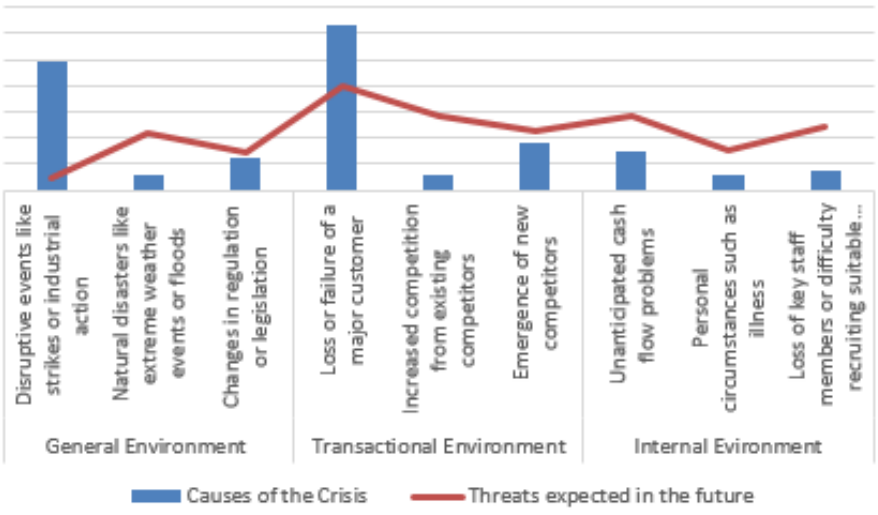
Figure 34 - The cause of the Crises



Source: Author's elaboration.

From the internal side, however, the major complications come from liquidity problems. Once again, it is a reasonable cause given the size of the companies in the sample. Other fairly frequent causes of crisis concern competition, both new and existing, changes in regulations that are often not foreseen and against which little can be done and also difficulties in finding suitable personnel. An important element now can be analysed. The causes suffered and the menaces organizations expect do not coincide (Figure 35).

Figure 35 - Comparison between the origin of the actual crises and the menaces in the future. A learning effect?

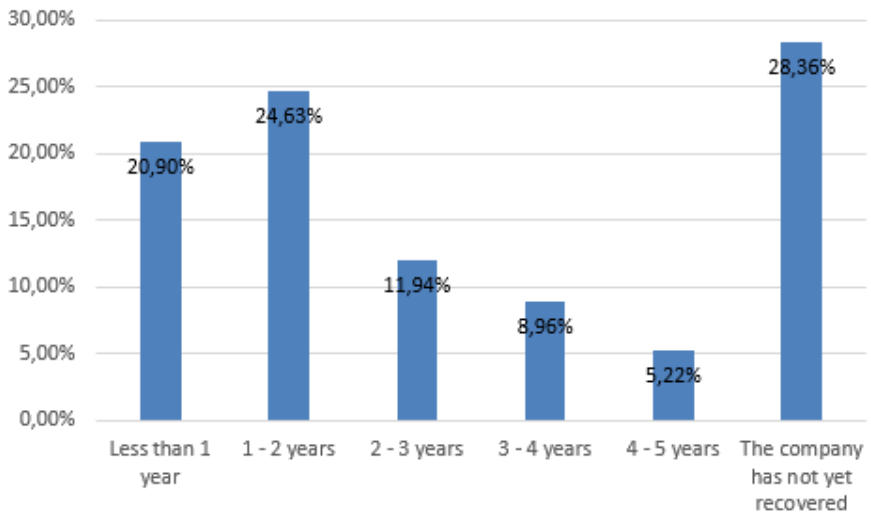


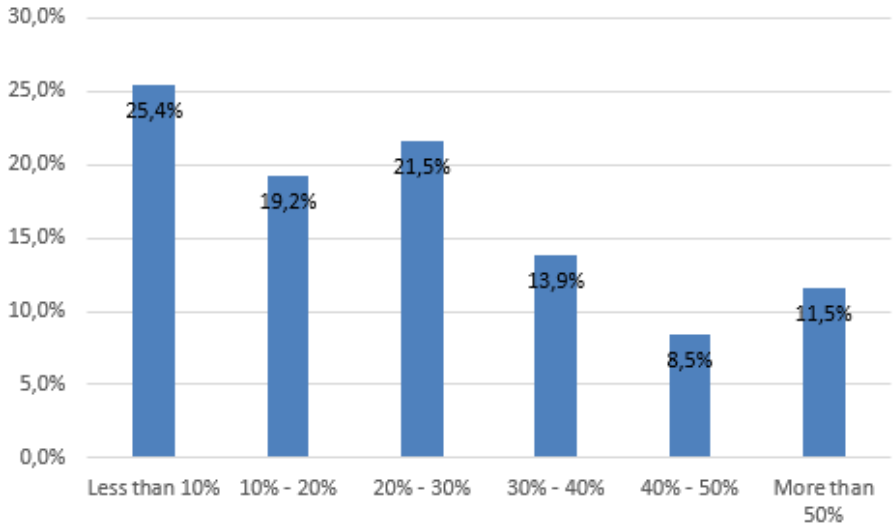
Source: Author's elaboration.

In the organizational literature it is indicated that if an organization suffered a crisis consequently in the future it will be more "conscious" of that cause and afraid of threats that come from other sides. It is called "learning effect." Therefore, an element of knowledge acquirement seems to be alive, at least for the most frequent causes of crisis. The sample is not aware about disruptive events or loss of customers any more. Instead, they are much more worried about situations that in the past were not a real problem. The SMEs interview are now focused on internal problems as liquidity and cash flow problems that can undermine the survival of such small companies. Also the preoccupation for competitions is now fairly increased. This comparison in time has been performed only on the menaces reputed as "very significant threat", the one with the highest score.

However, every corporate crisis leads to lower revenues. One reliable measurement of organizational resilience is carried out when a company had suffered a business menace. In the questionnaire we asked how much they lost in terms of profit and how long it took to recover (Figure 36). Almost the 65 per cent of organizations have lost no more than 30 percent, therefore contained losses. These are directly related to that part of companies, one out five, which immediately recovered. Despite this almost one in three has not yet recovered. Some crises have clearly lasting effects especially on small companies as those at issue and are not due to shock but to continuing situations which has not yet found a solution.

Figure 36 - Decrease in profit due to crisis and the consequent Time to recover





Source: Author's elaboration.

The higher the time that an organization took to recover from the disruption, the greater is the probability to lose more in terms of turnover (Figure 37). A positive and quite strong correlation between the two variables is found. In most cases, the time it takes for the company to recover is directly correlated with the decline in turnover it has had due to the crisis.

Figure 37 - Correlation between Time to recover and Decrease in profit

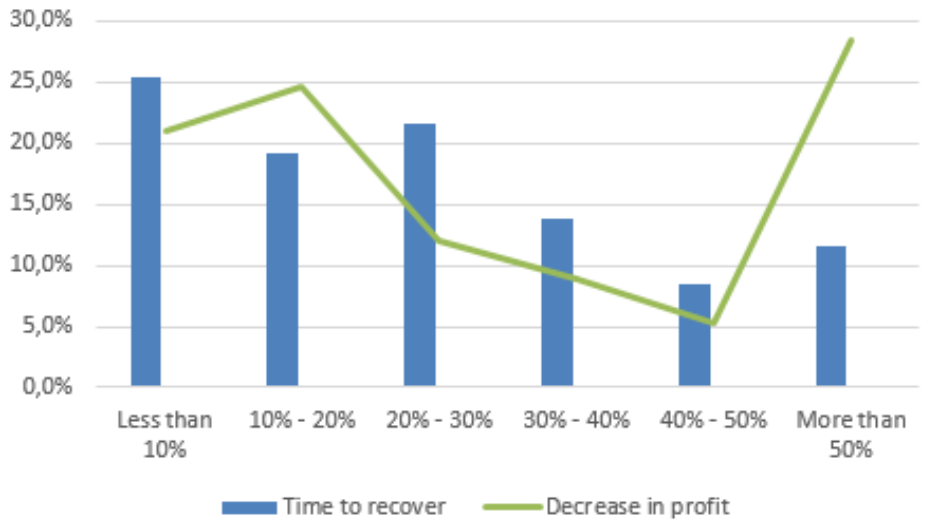
	Timeto~r	Decrea~t
Timetoreco~r	1.0000	
Decreasein~t	0.5728	1.0000

Source: Author's elaboration.

After reaching a threshold that is around a loss of more than 50%, companies have not yet recovered The chart shows this trend (Figure 38). While the green line, which shows the recovery times, follows the histogram trend for almost all the time, in the last part squirts at the top. The frequencies here are superimposed, which despite the limitations, allow us to highlight the factor that a threshold is exists.

It has to notice that the crises polarize in terms of time to recover. Which are the elements that provide resiliency in SMEs will be investigated widely in the next section.

Figure 38 - Time to recover and Decrease in profit overlapped



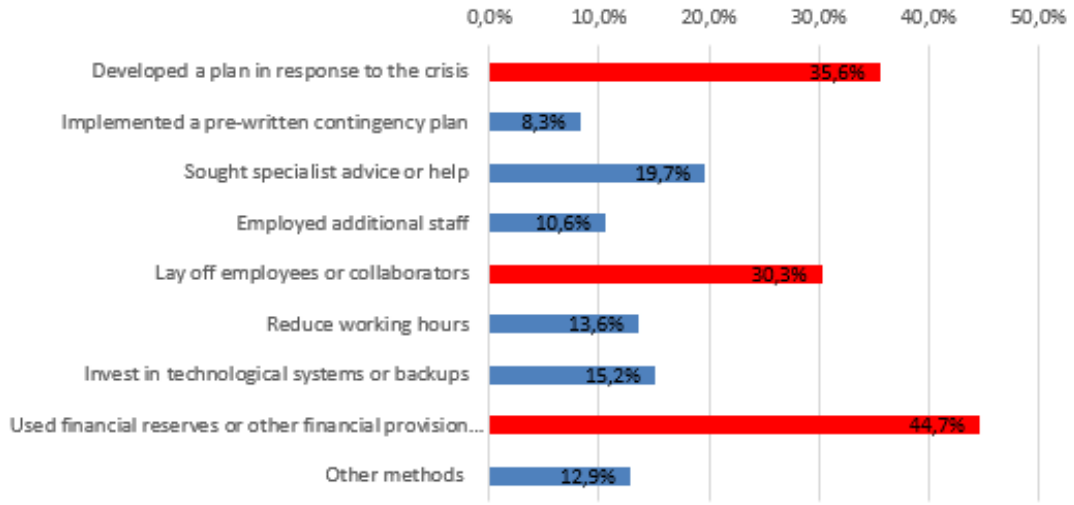
Source: Author's elaboration.

3.3.5 Crisis responses

Another crucial step in our analysis concern what happened post-crisis. How the 137 organizations dealt with the business-survival threats? (Figure 39). The most adopted are in red. Immediate liquidity seems to be the best solution to any cause of crisis. Probably, due to the small size and therefore low reserves, financial resources or other financial provisions as bank loans are widely used. By definition, a small enterprise has very limited financial resources and in bad business conditions, they may be not enough to avoid the fall of the company and have to borrow money.

As it should be in structured organizations, developing crisis response plans is the second best step adopted. Here, crisis management shows all its usefulness and efficiency. Addressing various steps, any organization can be prepared to face any type of difficulties that menace the survival of the company. Usually, these steps are like assess the risks, determine the business impact, identify contingencies and then build and implement the plan. A good management team should revisit the plan frequently, in order to test if the company is recovering and to avoid any other type of damaging loss. One out three was forced to leave employees at home. No one likes to fire people, especially in small companies where the human resource plays a vital role, but in extreme cases there are no other solutions.

Figure 39 - Step taken to address the crisis

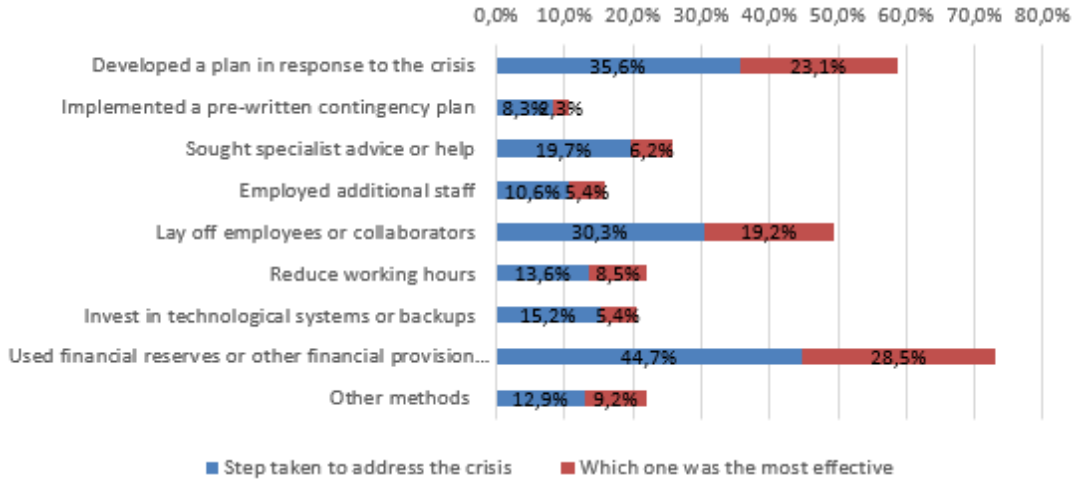


Source: Author's elaboration.

Addressing specialists also appears to be a choice made in many cases. One in five has decided to ask for help from an external source, mainly accountants, to whom much trust is given in Italy.

After the adopted plans, we also asked if the steps really satisfied the organizations. Or better to say, what solutions to the crisis, in retrospect, have been the most effective (Figure 40). Here, using financial reserves or asking for loans was the most effective response to crisis according to the sample.

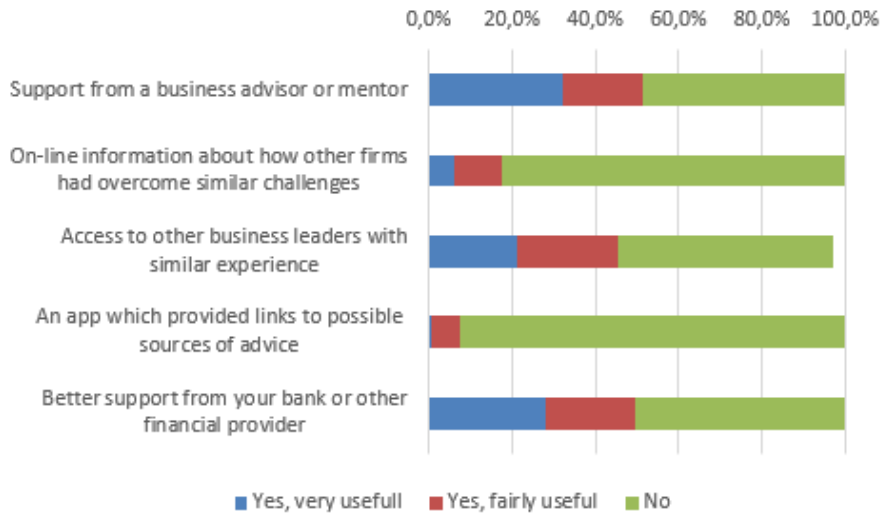
Figure 40 - Comparison between the step taken and the actual satisfaction



Source: Author's elaboration.

On the other hand, minor decisions such as sought special advice, provide preventive plans and invest in technological implementation systems have been unsuccessful.
Instead, "develop a plan in response to the crisis" maintains its high position as effective step addressed to solve the crisis. Improve and cultivate a strategy that has not only the goal of solving the problems in the short run, but also to build a method that could help the company in future bad situations, is recognized as really effective.
Finally, the usefulness of some step is tested (Figure 41).

Figure 41 - Usefulness of support during crisis



Source: Author's elaboration.

Again, support from banks reveals its utility for many SMEs and also the help from other managers with similar experience is fairly useful for our sample. Very little feedback has the technological aspect. Evidently, such small companies do not exploit technological implementations and software that would be able to help them in the processes of recovery.

3.4 A model to test the Organizational Resilience

At the end of the dissertation, the intent is to define any relationship between the organizational resilience of the companies affected by a crisis, with the different elements observed during the description of the sample. The measure for organizational resilience is the time that the companies took to recover. Hence, what is measured is properly the resiliency of the organizations.
The analysis presented was performed with the statistical software StataIC16.

3.4.1 Definition of the variables and descriptive statistics

Several authors attribute the increase in organizational resilience to the planning and the adaptation of the company. What will be tested now is whether these two components may help small companies in times of crisis. The planning strategies are measured by the monitoring of risks realized through the measurement of business threats and the configuration of plans to strive adversity. Higher the adversity, higher are the aptitude to implement strategic programs to contrast crisis and the supervision of future menaces. We expect that the planning attributes are not that advantageous for such small companies, especially when devising plan is not supported by the adaptive skills. These last are not directly measured, but are indirectly compared with the grade of formalization. Generally, the number of formalized departments hold back the adaptation because compel the employees in pre-ordered structures and do not allow adequate flexibility in the working environment. An interpretation about having so many formalized structures or disarmament sinks the adaptation, even in extremely small companies, is proposed.
Moreover, the effects of the monitoring and the grade of formalization will be interacted with the personal resilience, in order to evidence any benefits of individual's resilience.
First of all, the descriptive statistics of these fours elements are proposed (Table 3).

Table 3 - The outcome and the independent variables - Descriptive statistics

Dimension	*Variable*	*Obs*	*Mean*	*Std.Dev.*	*Min*	*Max*
Organizational Resilience	Timetorecover	130	3.592308	1.943768	1	6
Planning	Monitoring	133	2.533835	.8029196	1	4
Adaptation	Gradeofformalization	133	4.045113	1.778937	1	7
Personal Resilience	StdPersonalResilience	133	6.15e-09	1	- 4.90397	1.531935

Source: Author's elaboration.

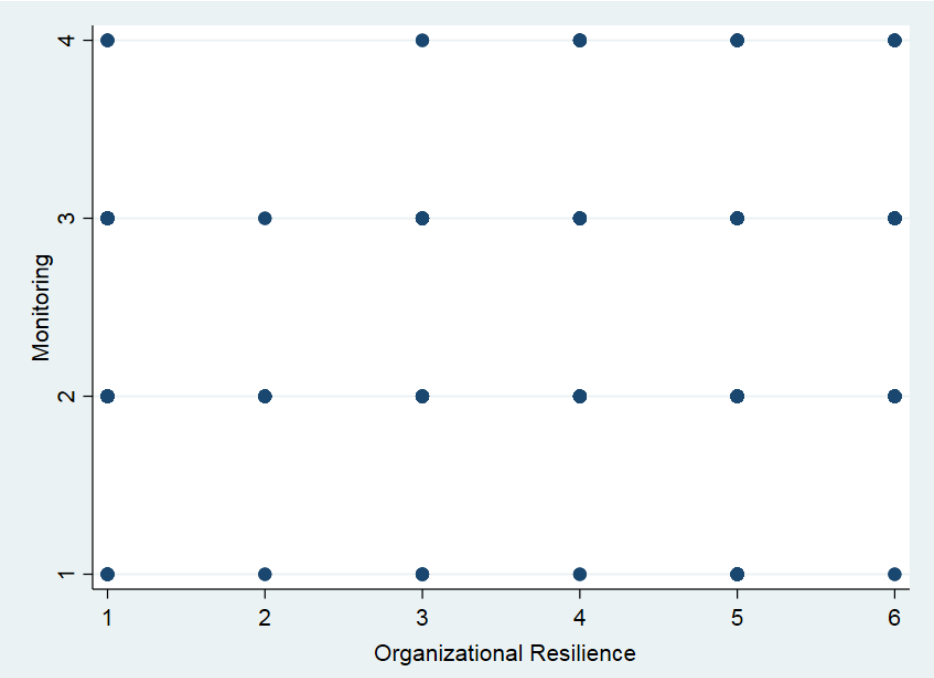
The scale of these variables is set as 1 is the worst category and the last is the best possible category. The time to recover, the monitoring and the personal resilience have already been described in this chapter. Monitoring goes from 1 in which the organization does not think about the risks until they arrive; to 4, case in which a company has a formal risk register. The personal resilience is a continuous variable measure by the international scale Connor-Davidson from 1 to 40 with ten questions. In order to interact this variable with planning and adaptation, it has to be standardized (mean 0 St.Dev. 1).

The grade of formalization is the sum of any department where a manager is identified for a specific function regardless of the number of collaborators reporting to him. The possible departments are in order: Administration and Finance, Information Technology, Organization and HR, Research and Operations Development (acquired, logistics and production), Marketing and Sales. We have to point out that the grade of formalization, as the other variables, except for the personal resilience, are categorical variables. It means that any number above the other implies a category more. (i.e. grade of formalization = 3 means Administration and Finance, Information Technology, Organization and HR; grade of formalization = 4 mean the same departments plus Research and Operations Development).

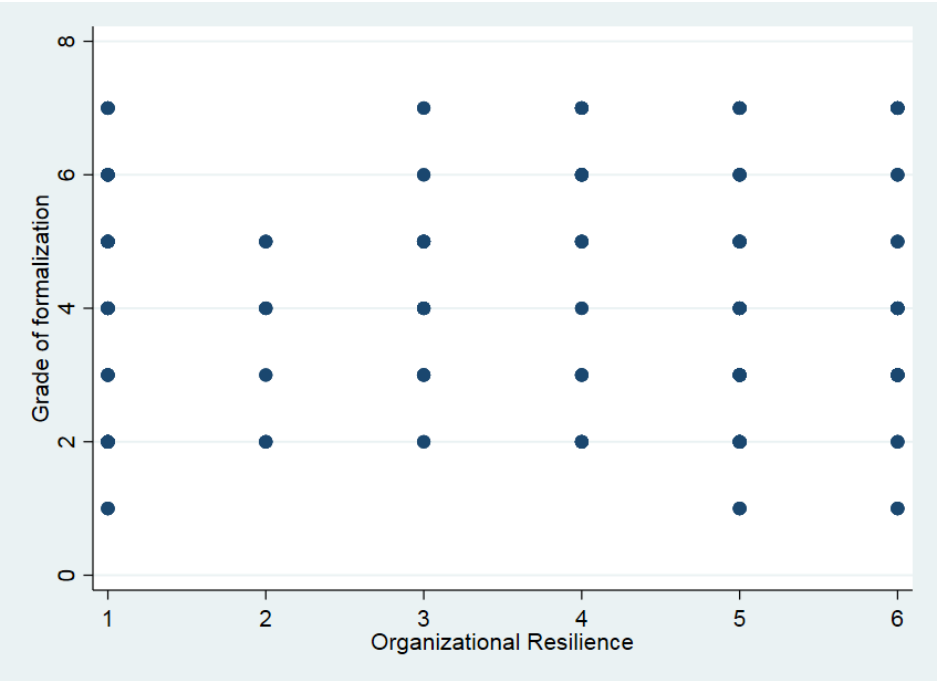
The distributions of these three variables with the organizational resilience are showed through the following graphs (Figure 42). As we are dealing with categorical variables, the distributions reveals an ordinary disposal. No linear distribution is present.

Figure 42 - Distributions of Organizational Resilience

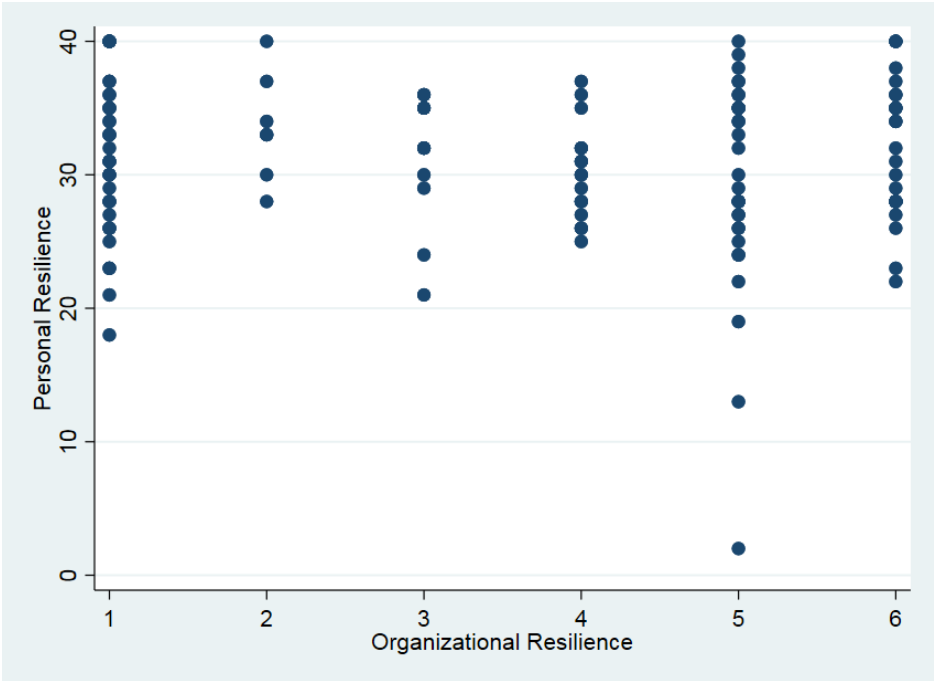
a) Monitoring



b) Grade of formalization



c) Personal Resilience



Source: Author's elaboration.

In order to test the organizational resilience, some control variables are added to the empirical analysis. These are aspects of the sample we are already familiar with because of the accurate examination in the descriptive statistics. As the investigation on organizational resilience concerns SMEs, the following elements of an organization may affect the time to recover during a crisis (Table 4).

Table 4 - Control variables - Descriptive statistics

Dimension	Variable	Measure	Obs	Mean	St.Dev.	Min	Max
Gender	Gender	0 Woman 1 Man	133	.5639098	.4977736	0	1
Origin	Origin	0 Migrant 1 Italian	133	.9548872	.2083362	0	1
Number of people in charge	N_Leaders	Continuous	133	2.315789	1.11034	1	6
Years of foundation	Y_Foundation	Categorical	133	5.120301	1.022753	2	6
Family business	Family	0 NO 1 YES	133	.7894737	.4092238	0	1
Sector	Sector	Categorical	133	1.714286	.4092238	1	3
Number of emplyees	N_Employees	Continuous	133	11.25564	10.68605	3	80

Source: Author's elaboration.

A further clarification on these control variables concerning their distribution across the 133 organizations affected by a crisis and why they may affect the organizational resilience must be provided.

The gender is equal distributed as the entire sample, with a small predominance of men above women. In companies such SMEs the sex of the people who work there may be important in terms of how the organization thrive crises. As seen in the description of the sample, women have higher average personal resilience score than men (Figure 19). Is it the same at organizational level? Here, as gender, we mean the prevalence of sex in the people in charge of the companies. The origin, as well explained in the beginning of the chapter, may affect the behaviour of company during a crisis. Again, Migrants showed higher personal resilience score and again we are speaking about the prevalence of the people in charge (Figure 19). However, the organizations led by Migrants affected by a crisis are only the 4.5 percent.

The number of people in charge, set as continuous variable, should affect the organizational resilience. Organizations with only one person running or managing the business

performed higher score in personal resilience. So, an organization benefits when a person alone with a high resilience takes decisions, or when the strategic choices are taken by a group?

The age of a company is another important element to take into consideration. Generally, a very young organization, let say with less than 10 years of history, should have more problems than a well-established company with a long past. Experience plays an important role in terms of how to deal with problems. If an organization is capable to learn from the past experience, it should be able to understand situations with advance notice and the organizational resilience benefits.

In Italy, family businesses are extremely common, especially with few employees (78%). There are many Italian companies, born from family management, which have grown and are now multinationals company (i.e. Ferrero, Ferrari, Fiat). Company led by a family should be able to overcome risks if they are cohesive families and also have good performance. Do family businesses know how to adapt better and recover from crises faster than companies without a family in charge?

Certainly, the sector determines a differentiation in terms of origin and causes of a crisis and how companies, therefore, take action if they are hit. For the purpose of simplify, the sectors now are three: manufacturing, services and construction. In the description of the sample (Figure 26), we have seen a polarization in terms of origin: the manufacturing companies are mainly managed by Italians, while the organizations providing services are mainly led by Migrants.

Lastly, the number of employees and so the size of the organization is considered. Numerous studies provide evidence that the size of a company does not affect the organizational resilience. "Resilience is not directly related to the amount of resources that a certain organization has; it is linked rather to the way it can access and use certain resources when it actually needs it" (Seville, 2016). Even if an organization is very small, but is able to benefit from alternative resources not tied with the dimension, it can recover faster than a larger company that does not know how to exploit the resources it has.

3.4.2 Empirical estimations

Dealing with categorical and not continuous variables, not-parametric correlation are suggested as Spearman's correlation (Table 5) The Spearman correlation between two

variables is equal to the Pearson correlation between the rank values of those two variables; while Pearson's correlation assesses linear relationships, Spearman's correlation assesses monotonic relationships (whether linear or not). If there are no repeated data values, a perfect Spearman correlation of +1 or −1 occurs when each of the variables is a perfect monotone function of the other. Intuitively, the Spearman correlation between two variables will be high when observations have a similar (or identical for a correlation of 1) rank between the two variables, and low when observations have a dissimilar (or fully opposed for a correlation of −1) rank between the two variables. Spearman's coefficient is appropriate for both continuous and discrete ordinal variables. The significance is highlighted by a star.

Monitoring and Family have a negative correlation. Organizations led by a family, generally, pay less attention in planning and thinking about risk compared to companies without a family as owner. Also, family business are relatively older than the counterpart. Reasonably, the grade of formalization is positively correlated with the number of employees. It is rational to think that higher is the number of people in an organization, higher are the departments settled.

Another important correlation that will be investigated is the one between Family and Years of foundation. Family businesses are the older organizations present in the analysis. As seen in the previous paragraph, there is a broad distinction between the age of the company and the origin of the owners. Most of the organizations founded by foreign people are younger than the ones founded by Italians. Moreover, there is a negative correlation between Origin and the number of employees. The foreign firms are younger but they are also smaller than the counterpart.

It is also reported a positive correlation between the Personal Resilience and the number of employees. A reasonable explanation will be provided in the next pages.

All the other correlations regarding the Organizational Resilience are evaluated with the regression model.

Table 5 - Spearman's correlation

	N_Employees	*Sector*	*Family*	*Y_Foundation*	*N_Leaders*	*Origin*	*Gender*	*StdPersonalResilience*	*Gradeofformalization*	*Monitoring*	*OrganizationalResilience*
OrganizationalResilience	0.0129	0.2023*	-0.1904*	-0.3280*	0.0114	-0.0356	0.1282	-0.026	0.0380	0.0148	1
Monitoring	-0.0193	0.1018	-0.1833*	-0.0788	0.0473	-0.1683	-0.0873	0.1038	0.1140	1	
Gradeofformalization	0.1937*	-0.0749	-0.1392	-0.0160	0.1005	0.1322	-0.0518	0.0423	1		
StdPersonalResilience	0.1937*	-0.0749	-0.1391	-0.0160	0.1005	0.1322	-0.0518	1			
Gender	0.0841	-0.1041	-0.1390	0.0828	0.0490	-0.0433	1				
Origin	-0.1902*	-0.0961	-0.0222	0.1955*	-0.0496	1					
N_Leaders	0.3689*	0.1004	-0.1368	0.1034	1						
Y_Foundation	0.0857	-0.1201	0.2431*	1							
Family	0.1253	-0.0840	1								
Sector	-0.1678	1									
N_Employees	1										

Source: Author's elaboration

When the dependent variable has more than two categories and the values of each category has meaningful sequential order where a values is indeed higher than the previous, an ordinal logistic regression is the best choice as regression model. Therefore, an ologit robust model has been chosen to perform the empirical analysis. A quick clarification on how to read the results follows.

To understand if the model is performed well, so if the test actually works, the Prob > chi2 has to be statistically significant at 0.05. Logit coefficients in log-odd units cannot be read as regular OLS coefficients. To interpret them if should be estimated the predicted probabilities of Y=1. The column z tests the hypothesis that each coefficient is different from 0. To reject this, the t-values has to be higher than 1.96 (for 95% confidence). If this is the case than the variable has a significant influence on Y. The higher the z the higher the relevance of the variable. Two tail p-values test the hypothesis that each coefficients is different from 0. To reject this, the p–values has to be lower than 0.05. If this is the case, then the variable has a significant influence on Y.

One of the assumptions underlying ordered logistic regression is that the relationship between each pair of outcome groups is the same. In other words, ordered logistic regression assumes that the coefficients that describe the relationship between, say, the lowest versus all higher categories of the response variable are the same as those that describe the relationship between the next lowest category and all higher categories, etc. This is called the proportional odds assumption or the parallel regression assumption. That's why in the following tables are indicated the coefficients, the standard deviation in parenthesis and the odds probability in the third column.

The first variant proposed is with a model in which the Organizational Resilience is tested by Planning and Adaptation elements with the related control variables (Table 6). The gender, the years of foundation of the organization and the sector results statistically significant. An organization with men in charge shows level of Organizational Resilience higher than a company with prevalence of women. The results show that there is almost the 97 per cent of probability that the organizational resilience is higher with the prevalence of men in the management, given that all of the other variables in the model are held constant.

Table 6 - Results of the robust ordered logistic regression

VARIABLES	***OrganizationalResilience***	***Odds ratio %***
Monitoring	0.027	2.7
	(0.191)	
Gradeofformalization	0.067	7.0
	(0.106)	
Gender	0.678*	96.9
	(0.369)	
Origin	0.695	100.3
	(0.704)	
N_Leaders	-0.107	-10.1
	(0.154)	
Y_Foundation	-0.729***	-51.8
	(0.202)	
Family	-0.317	-27.1
	(0.447)	
Sector	0.577***	78.1
	(0.218)	
N_Employees	0.022	2.2
	(0.015)	
Observations	130	

Prob > chi2 0.0037
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author's elaboration.

The result linked to the company's history arouses curiosity because of the coefficient. With the increase of the years of foundation, the time to recover from a crisis decrease, with great odds. The younger companies dealt with the crisis more efficiently and have recovered faster.

As we expected, the sector influences the Organizational Resilience. Not all the crises are equal. Different causes have different origins and a sector can be affected or not. The worst performing sector is the manufacturing sector, the most popular among Italian companies. While the sector of services, for the most part composed by Migrants, has recover with less effort.

All the other variables are not significant, they do not influence the time to recover from a crisis. The monitoring of risks and the grade of formalization do not help or create any problem for SMEs.

A more in-depth and accurate explanation will be given in the next sub-section.

Then, another test is performed. We want to understand if the Personal Resilience has any effect on the Planning and Adaptive capacity of SMEs through the interaction of the other variables (Table 7).

Table 7 - Results of the robust ordered logistic regression with interaction factor

VARIABLES	***OrganizationalResilience***	***Odds ratio %***
Monitoring	0.029	3.0
	(0.189)	
StdPersonalResilience	-0.459	-36.8
	(0.439)	
Monitoring#StdPersonalResilience	0.088	9.2
	(0.172)	
Gradeofformalization	0.074	7.7
	(0.110)	
Gradeofformalization#StdPersonalResilience	0.047	4.9
	(0.124)	
Gender	0.647*	91.0
	(0.379)	
Origin	0.726	106.6
	(0.677)	
N_Leaders	-0.103	-9.8
	(0.157)	
Y_Foundation	-0.718***	-51.2
	(0.211)	
Family	-0.311	-26.8
	(0.478)	
Sector	0.576***	77.8
	(0.220)	
N_Employees	0.022	2.3
	(0.015)	
Observations	130	

Prob > chi2 0.0019
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author's elaboration.

If the inner strength of the individual and his predisposition to never give up can also help the implementation of strategic plans and the adaptability of the company, the resiliency should benefit. Apparently, the Personal Resilience has no power at the organizational level. Moreover, it would have a negative effect. The sector, the years of foundation and the gender remain significant with the same impact on the output.

In order to perform a robustness check, the regression model is proposed without the variable Y_Foundation (Table 8). Due to its strong significance, removing it from the model, may increase the significance of other elements.

Table 8 - Robustness check

VARIABLES	***OrganizationalResilience***	***Odds ratio %***
Monitoring	-0.003	-0.3
	(0.185)	
StdPersonalResilience	-0.641*	-47.3
	(0.380)	
Monitoring#StdPersonalResilience	0.215	24
	(0.182)	
Gradeofformalization	0.064	6.6
	(0.111)	
Gradeofformalization#StdPersonalResilience	-0.007	-0.7
	(0.141)	
Gender	0.451	57.1
	(0.393)	
Origin	0.014	1.5
	(0.590)	
N_Leaders	-0.169	-15.6
	(0.154)	
Family	-0.771*	-53.8
	(0.462)	
Sector	0.529**	69.7
	(0.210)	
N_Employees	0.015	1.5
	(0.017)	
Observations	130	

Prob > chi2 0.0623
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author's elaboration.

Thanks to this robustness check, the variable family business is statistically significant. With high probability (53.8 per cent), being a family business makes you less resilient than being not a family business. The effect of the sector remains but the gender turns to not statistically significant. Anyway, this model is significant only at 6 per cent (Prob > chi2 0.0623).

All due clarification are provided in the next section.

3.4.3 Results and discussion

After the study of data from a purely econometric and statistical point of view, with the regression model proposed, the results have to be interpreted in an organizational and managerial approach.

As the outcomes suggest, planning strategies do not seem to influence resiliency in small and micro organizations. The control of risks does not reduce the time to recover during a crisis event. In such little companies, the predisposition to plan and arrange in advance procedures to anticipate menaces, do not prevent crises. Moreover, as highlighted in the description of the sample (Figure 31), the risk aversion is pretty higher in the organizations that suffered a crisis compared to the ones that not had any problem in the last five years. Indeed, we can say, as the risk aversion was measured after undergoing a crisis, experiencing problems related to the survival of the business increases the predisposition to plan and think about risk as something concreate. Only in large and well-structured companies, proper planning is important to deal with the crises that arise.

We also found an answer to another question asked at the beginning of the empirical analysis: does the grade of formalization clip the wings of adaptation even in SMEs? The answer of our test is no. Apparently, only in extremely structured and formalized companies, too many departments are a brake on the adaptability and capabilities of the individual. Although not significant, the grade of formalization has a positive and very small coefficient, as to say that a minimum of formalization could help organizational resilience in SMEs. If we imagine a small or even a micro organization, with just five employees, it seems reasonable to believe that without a definitive division of the corporate roles and tasks of employees, ambiguity would be unleashed not only in situations that threaten the company. We observe that resiliency depends to a lesser extent on the structural design of the organization and to a greater extent on the relationship between people and groups within the organization (Seville, 2016).

What arouses amazement is why individual resilience is not significant and therefore does not interfere (positively) with the resilience of the organization. Personal resilience is useful if supported by a proactive attitude of the entire company. Rather than relying on planning skills, a small company must count on the proactive approach: being strategically and operationally prepared at the first signs of change, even before a crisis oc-

curs. Proactive attitude translates into anticipating, preventing, planning and preparing for the future. These operations take time and work. A unity of intent and collaboration seems to be lacking in Italian SMEs and this is also at the expense of the individual who has a strong inner resilience. We can suppose that teamwork and the inclusion of the most resilient people in decision-making spheres is also lacking, otherwise we expected higher resiliency in companies with peopled that achieved higher scores of personal resilience.

This deduction gives the impression to be affirmed by the significance of the foundation years of these organizations. The younger you are, the more likely you are resilient. Paradoxically, Italian SMEs with a long history do not learn from the mistakes they had made in the past. Companies with a history are averse to change and find it hard to break the schemes. In recent years, they have not been able to collect the opportunities, and even if they have resources at their disposal they do not know how to exploit them. Seems that these entities have difficulties in growing at organizational level. Companies that are so small and with many years of activity are stagnant and not prone to change. They do not understand how to take advantage of opportunities and capture the best times.

Usually, these types of companies are family-run. In fact, through the first robustness test, carried out by removing the variable Y_Foundation, the presence of a family in the management or ownership of an organization is significantly negative. In this case, the odds to be less resilient with a family in charge, are even above the probability to be less resilient if the organization is older (More than 50 per cent). It seems to be lack of cohesion and a unique address that allows for a quick rebirth from crises.

Another noteworthy aspect concern the sector of activity. Companies operating in different sectors face different challenges, but none is really predetermined to be more or less resilient. Organizations operating in strictly regulated environments can sometimes feel limited in their ability to innovate and implement new solutions at short notice. Instead, organizations that operate in highly competitive contexts can be more incentivized to renew themselves. In addiction, very frequently, the fate of such small entities depends on a single clientele that can quickly change flag at the first sign of failure. This can bring to serial problems for SMEs if they are not prepared for the worst. Fur-

thermore, if it is the case of prolonged crises, economic crisis or sector crisis, SMEs have great difficulty in recovering.

Also the prevalence of men in people who manage or run the business has benefits on the organizational resilience. Having a man in the management team makes the organization more resilient with 90 per cent of probability, holding constant the other elements. However, women have higher personal resilience score (Figure 19). This brings us back to the fact that SMEs appear not able enough to give vent to the qualities of the individual. The results suggest that the people with the higher score in personal resilience are not included in the decision-making power, or probably they are not contemplated in the moments when there is a problem to deal with.

The other control variables examined, the prevalent origin of the people in charge, the number of employees and the number of people running the business do not suggest any correlation with the organizational resilience. There is not relevant difference between companies headed by more Italians or by more Migrants. Although, it must be said that foreign companies are to a much lesser extent than our local counterparts (4.5 per cent) in this analysis. The number of people at the head does not even seem to change things. What is more important, the single leader or a team that makes decisions in unison? Probably the number does not matter. What weight much more is the quality of leadership to leave back a negative period.

Finally, the number of employees, and so the size of the company, is irrelevant. As already explained in the thesis: "Resilience is not directly related to the amount of resources that a certain organization has; it is linked rather to the way it can access and use certain resources when it actually needs it" (Seville, 2016). SMEs have less resources under their direct control, but if they have an efficient network and are well-connected with other organizations, they can have access to a large set of resources. It is all about knowing how to exploit these resources and turn failures and periods of difficulty into a competitive advantage.

3.4.4 Limitations of the model

The results observed in the empirical analysis denote a situation that deserves attention. Despite the evidences raise attention for further evaluation, a more accurate development and offers insights, the analysis conducted in this thesis has some limitations.

First of all, the number of organizations taken into consideration to test the organizational resilience are only a small part of the entire sample. Unfortunately, as properly explained, one way to test organizational resilience presumes that an organization already suffered a crisis. For this reason, the sample for the empirical analysis is restricted to only the companies that suffered any business danger in the last five years (133 over 600). This awareness should propose new researches taking into consideration larger samples.

Another restriction of this analysis concerns the fact that all data were collected through a questionnaire submit after any possible crisis experienced. Through this approach, some of the elements analysed, for example the planning competences, had not a direct impact on the crises. As proof, the monitoring is higher in companies that suffered a crisis, but it is not significant. It is likely to think that the organizations that had bad times, learned how to plan due to a crisis. Assembling observations before and after a crisis, would measure organizational resilience more efficiently.

As explained this is an empirical model that computes the odds that an increase of one category of a variable induces an effect on the outcome. Hence, what is estimated is just a probability of the occurrence of the event, we cannot take as perfectly accurate result the outcomes of the analysis in its entirety.

Finally, economics and management are social Sciences. Therefore, no study or analysis can ever give a mathematical certainty of any situation. Especially when decision-making and matter of leadership are involved.

3.4.5 Conclusions

The analysis proposed, despite the limitations already exposed, tries to photograph the historical-economic moment of the micro and small Italian organizations. It appears that they suffer several crises due to distinct causes. From financial issues to problems with major customers or suppliers, their subsistence is strictly linked to the abilities and capacities they put on the field on a daily base.

For these reasons, organizational resilience plays a central role for companies of such dimension. The integration of the most resilient subjects and adequate planning must be the drivers of their personal struggle in the context they operate.

Resilient organizations know the need to renew and adapt quickly, not only in case of critical events, but to any form of change that may arise. So they encourage innovation

and creativity in their own employees, something that seems to be lacking in the organizations subjected to analysis.

Finally, in order to benefit from resilience, organizations must understand that it is a dynamic aspect: they can be resilient today but not tomorrow.

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