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Business resilience: Covid-19 consequences on SMEs organizational design.

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Firma dello studente:

Alla mia Famiglia.

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ABSTRACT

As indicated by the title of this master's thesis, with this paper I will try to shed light on the concept of organizational resilience, a concept that is becoming increasingly important in public and corporate opinion, but which very often is not treated adequately. Organizational resilience is the ability of a company to anticipate and know how to manage unexpected disruptive events, having the strength to overcome them and prosper in the future (British Standards Institution, 2014). However, before even going into the presentation of the outline that will characterize this paper, I want to clarify why I chose to investigate this peculiar economic topic. On one hand, the idea behind this thesis arises as a consequence of the dramatic historical period we are experiencing. Indeed, according to the paper "European Economic Forecast, Autumn 2020" published by the European Commission in the first days of November 2020, the eurozone economy will contract by 7.8% in 2020 and the Eurozone GDP will not return to pre-pandemic levels before 2022. However, the idea of deepening this issue also arises from the personal path that has characterized the last two years of my personal career at the University of Padova. An event that I consider worthy of note from this point of view is connected to the collaboration that my class of studies had the honor of undertaking with some Veneto companies during the "Organization development and behaviour" course. I want to approach the reader by citing the example of Hiref S.p.A. the company to which my study group was entrusted, and which for this reason I know better. I immediately judged very positively the fact that a company was collaborating with the university of its territory to encourage its decision making and strategic process to follow the innovative inputs that very often can arise from the minds of young students. On May 5th (2020) the Italian national newspaper "Il Sole 24 Ore" has highlighted how despite the wave of Covid-19 the company has managed to inaugurate a new factory, hiring an additional 20 employees. Is it a coincidence that in a period of profound general crisis that company has discovered a path of success? Has the link with the territory helped this company? Had the firm taken into consideration a scenario such as that of the Coronavirus in its crisis management? Did they have to redesign their organizational structure? Therefore, the goal of this master's thesis is precisely to answer these questions, trying to understand which are the characteristics that make a company resilient from the organizational point of view.

The structure of this paper will have a funnel shape. The first chapter aims to analyze the concept of organizational resilience going to deepen the related reference literature, presenting also the methodology and the results related to my literary analysis from 2014 to 2020, with a

dedicated focus on SMEs resiliency. This analysis updates the mapping of the resilience bibliography initially conducted by Linnenluecke M. (2017). As regards the second chapter, it will focus on the preparation that companies should develop to better deal with economic shocks, which therefore require high corporate resilience and a fast response capacity. The first paragraph of this chapter will deal with The Resilience Architecture Framework (EMJ, 2014), this model will allow us to understand which are the dimensions of business resilience and how it interfaces with the surrounding environment. Going forward, this chapter will provide to the reader the necessary tools to develop an effective shock leadership. Indeed, it is useful to implement the mental predisposition that a company should have in crisis management. Furthermore, the concept of environment and leadership will be integrated into the organizational strategy defined as "adaptive co-management" between stakeholders.

The third chapter will open with a brief analysis of the economic consequences that the Covid-19 pandemic has brought in Italy and throughout Europe. Then, the organizational analysis will start from the academic reflections of Burns and Stalker who highlighted that in order to face moments of instability, companies should consistently change from a mechanistic system towards a more organic one, characterized by greater flexibility and more informal relationships. In this context company's strategies must move towards more agile solutions, also thanks to the technological opportunities available to us. Digitalization, teamwork and delegation of power are all features that facilitate this transition to more agile organizational models. It is for this reason that I have dedicated chapter four to the analysis of a case study based on the Href S.p.A. company. The purpose of this analysis was to highlight points of contact or any discrepancies between the analysis of the organizational literature and the actual approach of a firm characterized by high levels of business resilience and digitalization. In conclusion, the noblest purpose of this thesis is giving to small and medium companies some useful organizational tools to overcome the challenges that await us, to get out of moments of crisis stronger and more aware than before.

# CHAPTER 1: BUSINESS RESILIENCE: A LITERATURE REVIEW

1.1 Definition of resilience and its historical evolution from 1977 to 2013

The introductory part of this master's thesis will be dedicated to understanding the economic concept of organizational resilience. I immediately wanted to highlight the word "organizational" because focusing on resilience in general would have been somewhat dispersive. Just think that the word "resilience" can be explained from the point of view of psychology, ecology, physics, engineering or even sport. In this thesis I will explore only the issue of resilience within companies, and how this has an impact on the organizational level. As a consequence, the main function of this introductory paragraph will be to immerse ourselves in a topic that will act as a pivot within this paper. To deeply understand the origins of the concept of resilience we must take a dip in the past. In fact, according to the Accademia della Crusca institution, the etymology of the word resilience derives from the ancient Latin "resilire" (i.e.: to jump or to bounce). Furthermore, this verb was often linked to the ability of a material to resume its original form after an impact.

Having made these premises, now we can precisely define the modern term "organizational resilience". In this regard, I have chosen to report the definition provided by the British Standards Institution (BSI), which describes organizational resilience as: "the ability of an organization to anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper". Especially in 2020, a year characterized by the negative experience of Covid-19, which paralyzed the world economy, social media always connect the word resilience to crisis events. Nothing could be more wrong. In fact, if we carefully read the definition provided by BSI, we notice that we are simply talking about a change to be faced, which can be positive or negative. Organizational resilience therefore comes to life from proactive entrepreneurial strategies, which seek to find new vigor after a crisis or to transform a change of the economic system into an opportunity. Obviously, the concept of organizational resilience has been revisited by economists several times over the last few decades, so that five main areas of research have emerged. These are: resilience seen as a response to external threats, the strengths of the workforce, the organizational reliability, the adaptability of business models and finally the resilience applied to the supply chain concept. As emerges from the paper entitled "Resilience in business and management research: a review of influential publications and a research agenda" published by Linnenluecke M. in 2017, the amount of scientific publications related to organizational resilience began to become

substantial in the late 1970s and early 1980s. Subsequently, as can be seen from "Figure 1", there was a drastic growth of such publications at the beginning of the XXI century.

Figure 1 - Number of yearly organizational resilience publications
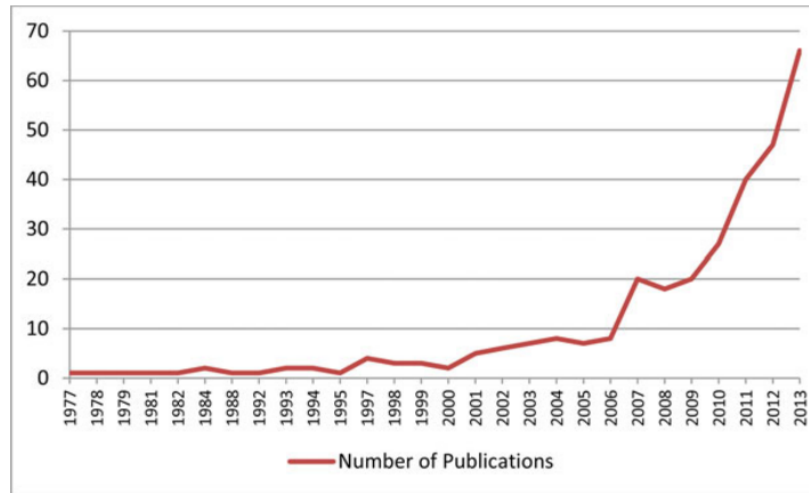
Source: Resilience in Business and Management Research. Linnenluecke M. (2017).

The literature on how organizations respond to external threats originates from the publications of Staw B.M. et al. (1981) and Meyer A.D. (1982), who had two different views. In particular, Meyer A.D. with his paper "*Adapting To Environmental Jolts*" (1982) elaborated an empirical study based on the response of hospitals after a medical strike. The evidence of this paper led Meyer A.D. to contradict Staw B.M. et al. (1981) who argued that an external threat can do nothing but involve organizational risks. Meyer's discoveries were important because they proved that companies can adapt to the environment with two different methodologies: they can absorb environmental impact through resilience or they can reconfigure themselves by learning new practices thanks to retention. To conclude, Meyer A.D. believed that resilience was shaped by scarce resources and organizational strategy, while retention was a logical consequence of corporate structure and culture. In the decade between 1980 and 1990 the research fields focused more on the management of large-scale accidents and risk management, this because public opinion was strongly attracted by catastrophic events such as Chernobyl or Exxon Valdez. Many academic studies were therefore based on the analysis of case studies to understand how to limit those small malfunctions of the business system that could potentially cause enormous damage, so in essence they were trying to understand how to increase internal reliability. Still in a context of resilience seen as the reliability of a system, in 1984 Perrow C.

wrote the book "Normal Accidents: Living with High-Risk Technologies", according to which incessant technological progress will increase the probability of failures. This is because the technical capacity required to solve problems is dramatically increasing. As a result, Wildavsky A. in his book "Searching for Safety" (1988), found that there are two strategies capable of solving the problem of incessant technological progress. The first is the ability is anticipation, understood as a strategy for assessing corporate vulnerabilities and avoiding potential dangers. The second is resilience, expressed as the ability to recover after the occurrence of some unforeseen events. One possible answer to limit a company's errors is provided by a highly cited study in the academic world, the paper "*Collective Mind in Organizations: Heedful Interrelating on Flight Decks*" by Weick K.E. and Roberts K.H. (1993). In fact this study, which analyzed the coordination operations on the flight decks of aircraft carriers, considered the creation of a "collective mind" within an organization to be of vital importance. This collective mind could only be created through an aggregate understanding of current events, in other words the authors had observed that highly reliable companies did not focus solely on process efficiency, but heavily invest in information processes that can allow all employees to understand the events in the organizational system. In the same paper Weick K.E. stressed the importance of sensemaking, concluding that some factors that can lead to increase resilience are organizational wisdom, respect in business interactions and finally the ability to improvise. Six years later, Weick K.E. et al. (1999) reinforced the theories of High Reliability Organizations by advocating that reliable businesses adopt strategies that seek to prevent the creation of catastrophic failures by making small continuous adjustments.

An epochal turning point in the resilience study occurred on September 11, 2001. In fact, after the terrorist attack on the Twin Towers, academic studies translated their analysis from intra-organizational reliability to the development of response mechanisms caused by external shocks. This paradigm shift was not only evident in private companies, but also public authorities such as the American Federal Reserve System (FED) developed guidelines to increase the resilience of the national financial system as a whole.

One of the themes that most fascinated the new millennium was undoubtedly the management of the strengths of the workforce. One of the first authors to study this field was Coutu D.L. (2002), in fact in his work it emerged that the capabilities of employees (including optimism and hope) are fundamental to increase the level of resilience. On this line of thought we also find Luthans F. (2002) who defined resilience at the individual level as the ability to respond to risks and adversities in a positive way, coming out strengthened and endowed with a greater

individual responsibility. Luthans F. therefore believed that management must necessarily develop the psychological capital to allow all employees to manage unforeseen events.

Another field of study that developed after the terrorist attacks was that which analyzed how companies can reinvent and adapt business models. Two authors, Hamel G. and Valikangas L. (2003), identified in business innovation the key to respond to exogenous shocks, this is because innovation can be a very useful tool to make a business model adaptable in the face of market turbulence. However, technical innovation must be accompanied by financial resilience. In fact, Gittell J.H. et al. (2006) shed light on the financial resources of a company, and understood that they are essential not only to keep the company alive but also to financially support employees in times of economic depression, so that the production performance remains unchanged.

Still citing Linnenluecke M., in her paper "Resilience in Business and Management Research: A Review of Influential Publications and a Research Agenda", she identifies a third and final area of research characteristic of the XXI millennium. We are talking about the resilience of supply chain designs, in fact the 9/11 crisis highlighted the vulnerability of many interdependent supply networks. Supply networks not only composed of private companies but also of government agencies (such as public transport infrastructure). The paper "The Severity of Supply Chain Disruptions: Design Characteristics and Mitigation Capabilities" by Craighhead C.W. et al. (2007) studied this area, and in particular noted that there are two characteristics of a resilient supply chain. The first feature is flexibility, while the second is redundancy, understood as the ability to build networks composed of diversified suppliers, modular designs and based on different transport lines.

In this paragraph only studies that have numerous citations have been indicated, however by analyzing more recent papers we can identify some new research trends regarding organizational resilience. A first branch of research can be identified in the management of modern global supply chains, and this topic also affects forms of shared management between companies to exchange information on inventories or simply increase inter-company connectivity. However, when it comes to relationships, much remains to be said about the connection between public and private, thus trying to understand how the community can increase business resilience. A further research trend seeks to respond to the climate and political changes we are experiencing in recent years. Particular attention is therefore given to those ecosystems where the business can be easily damaged by an impervious relationship with nature (for example: earthquakes, cataclysms, tsunamis, etc.), the existence of probable wars, possible terrorist attacks or political instability. Finally, a third and final wave of research

focuses on the human capital of companies, trying to understand how the psychological capital of the workforce behaves in contexts that can be very different from each other (family businesses versus managerial businesses), also analyzing leadership styles that can be defined as resilient. We have therefore understood that there is no single vision of organizational resilience, but rather it is declined in different research fields, very often distant from each other, but on the whole they provide a great wealth of knowledge for those who want to deepen the topic. In the following "Table 1", which concludes this paragraph, I have elaborated a chronological summary of the main publications that have been cited in this analysis on the historical evolution of resilience.

Table 1 - Leading authors and publications on resilience

Year	Author(s)	Publication title
1981	Staw B.M. et al.	Threat Rigidity Effects in Organizational Behavior: A Multilevel Analysis.
1982	Meyer A.D.	Adapting To Environmental Jolts.
1984	Perrow C.	Normal Accidents: Living with High-Risk Technologies.
1988	Wildavsky A.	Searching for Safety.
1993	Weick K.E. Roberts K.H.	Collective Mind in Organizations: Heedful Interrelating on Flight Decks.
1999	Weick K.E. et al.	Organizing For High Reliability: Processes Of Collective Mindfulness.
2002	Coutu D.L.	How resilience works.
2002	Luthans F., Church A.H.	Positive Organizational Behavior: Developing and Managing Psychological Strengths.
2003	Hamel G., Valikangas L.	The Quest for Resilience.
2006	Gittell J.H. et al.	Relationships, layoffs, and organizational resilience.
2007	Craighhead C.W. et al.	The Severity of Supply Chain Disruptions: Design Characteristics and Mitigation Capabilities.

Source: Author's elaboration.

1.2 Author's research: literary production on resilience from 2014 to 2020

As seen in the previous paragraph, the literature study conducted by Linnenluecke M. in her paper "Resilience in business and management research: a review of influential publications and a research agenda" (2017) involved the years between 1977 and 2013. Therefore, the aim of this second paragraph is to conclude the literature study just mentioned. This, in order to offer the reader of this master's thesis a vision as complete as possible of the literary production inherent to managerial resilience that goes from the year 1977 to 2020.

To make my research on the scientific literature as understandable as possible, I will present step by step the procedure that I have followed. Therefore in chronological order, the research methodology will be presented first, then the results obtained, and finally it will be elaborated an integration between the results of Linnenluecke M. and those of this thesis.

1.2.1 Methodology: mapping business resilience literature

First of all, as regards the research methodology carried out, I want to emphasize that I have tried to faithfully replicate the process developed by Linnenluecke M., this in order to obtain results that can be easily compared and integrated.

The first step of this methodology was to build a dataset of bibliographic references. To do this I used the database called Web of Science, a platform for academic use developed by the U.S. company Clarivate Analytics. The publications and scientific articles related to the theme of resilience were selected through the use of a Boolean search. So, I conducted an initial analysis to develop the basis of my database, the initial goal was to find all the publications that have the term "resilien*" in their title, abstract or keywords between the years 2014 and 2020. It is also important to note that the foundation of my database was built on the Social Sciences Citation Index, the Conference Proceedings Citation Index and the Book Citation Index.

I used the term "resilien*" because the asterisk symbol suggests to the Web of Science platform to identify all the words that have the root "resilien", this means that the software will identify all the publications that have words like "resilience", "resiliency", "resilient" and so on. Obviously, a search of this type is extremely generic, in fact it allowed me to obtain an initial database equal to 55,792 publications. To model the database according to my needs I therefore used the numerous filters that are offered by Web of Science. First of all, I selected only the publications that belong to the "management" or "business" areas, this operation allowed me to significantly narrow the field of observation, in fact I restricted the database to 1,439 units.

Using additional filters, I was able to select only publications written in English that belong to one of the following types of documents: article, proceedings paper, early access, review and editorial material. The reason I have relied exclusively on English publications is because this language comprises the majority of scientific papers globally. Furthermore, I decided to exclude the Italian language because if one day someone in the world wants to continue the elaboration conducted by Linnenluecke M. and then by me, it would be unthinkable to ask him to know the Italian language. In fact, part of the elaboration consists also of a manual review of the publications (based on reading the title, keywords and possibly the abstract of the paper).

So, after manually removing those publications that could not be automatically excluded from the Web of Science filters (in the case of Linnenluecke M. this action was carried out by two fellows), I was able to obtain a final sample equal to 1,203 publications (from 2014 to 2020). In "Figure 2" it is possible to observe the research areas of the publications that I have considered in my final database.

Figure 2 - Publications' research topics
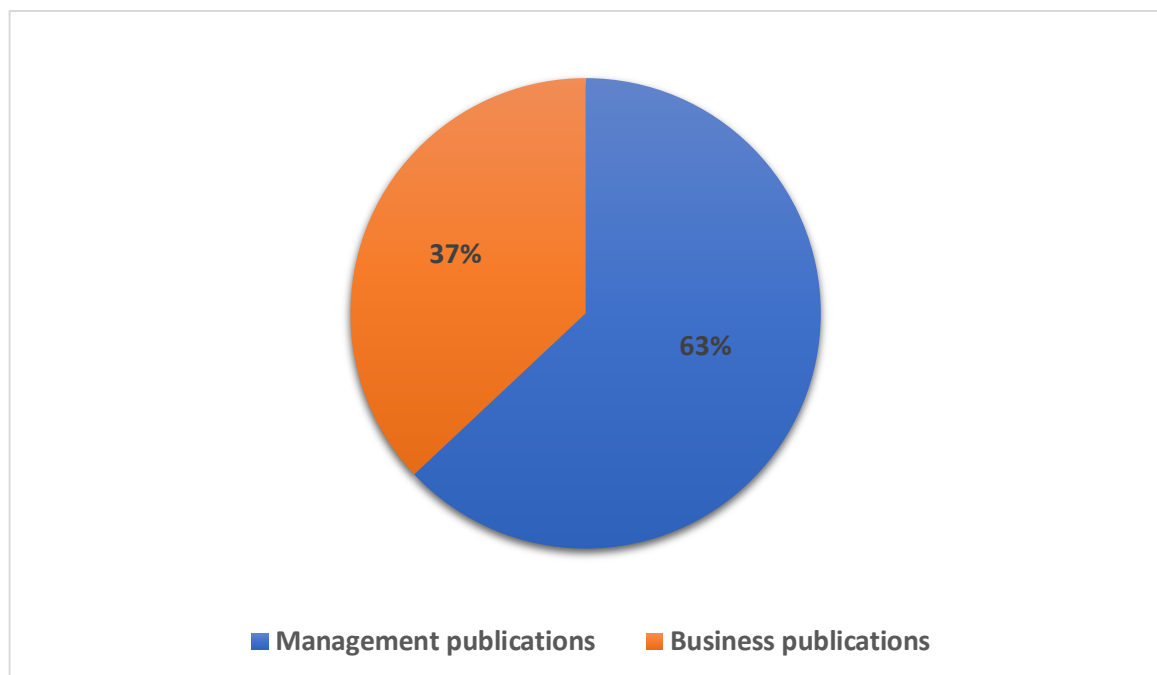
Source: author's elaboration.

Instead, in "Figure 3" it is possible to observe the specific typology of each publication included in my final dataset.

Figure 3 - Types of publications
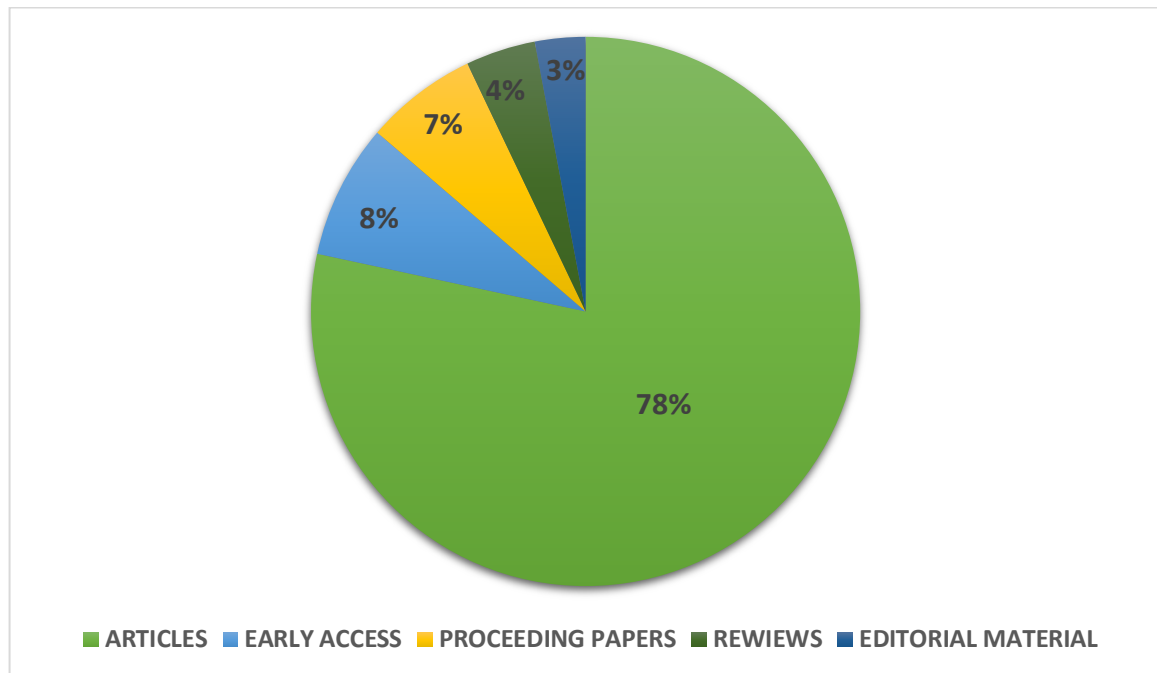
Source: author's elaboration.

1.2.2 Results: statistics on the whole sample

Obviously, I cannot claim to have found the exact worldwide number of resilience management publications; also because the final dataset depends on the subjective ability to eliminate not relevant publications. However, I can say that I have obtained results that fit well with the order of magnitude previously identified by Linnenluecke M., also, my final dataset reflects the growing trend that she had identified in 2013.

From the publications that met my selection criteria I found it useful to extrapolate two very significant data. The first represents the world ranking of the 10 nations that between 2014 and 2020 published the largest number of scientific articles related to managerial resilience. This ranking is available in "Figure 4", and the descending order of the most productive nations from the point of view of literature is this: United States, England, Australia, India, Italy, Canada, Germany, China, Spain and finally New Zealand.

Figure 4 - Countries with the highest number of publications from 2014 to 2020
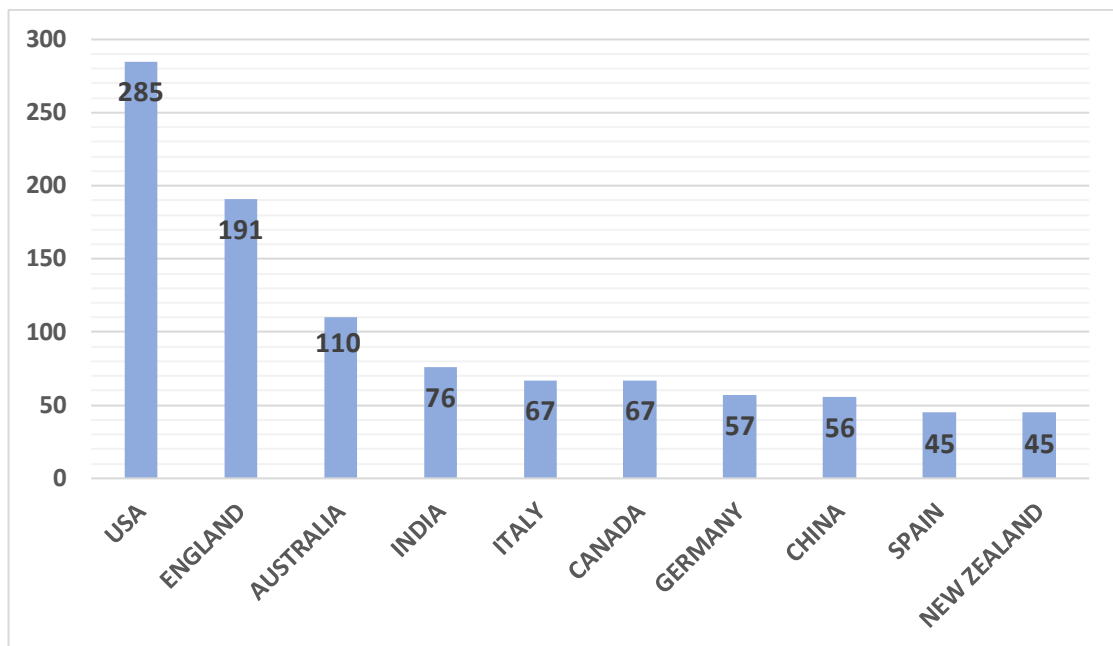
Source: author's elaboration.

Finally, the main result of this research is related to the annual global production of resilience literature in the managerial field. As can be seen from "Figure 5", the trend is increasing with a linear growth, in fact a slight decline in literary production can only be observed in the year 2018.

Figure 5 - Number of publications from 2014 to 2020
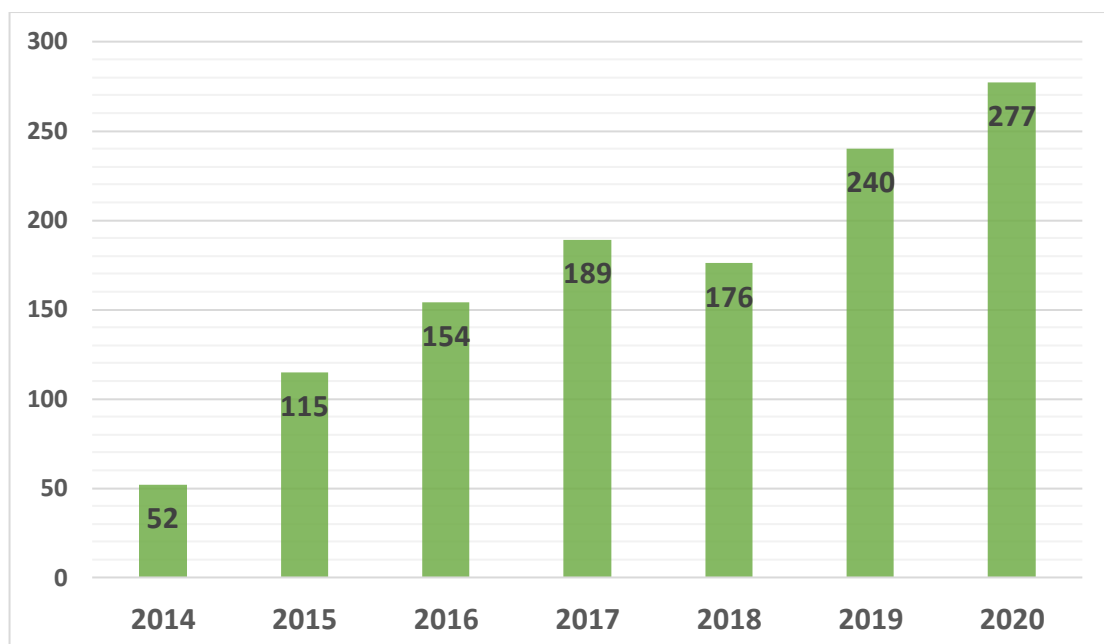
Source: author's elaboration.

The final goal of this research consists in the integration between the results obtained by Linnenluecke M. and the results obtained in my own research. In the graph below (Figure 6) it is possible to observe the blue line that represents the literature on resilience identified by Linnenluecke M. up to 2013, instead the orange line represents my contribution regarding the updating of data up to 2020.

From the graph it is possible to see that from the 1970s until today the production of scientific articles related to resilience has attracted the interest of many authors, in fact the growth assumes a trend that is no longer linear but instead is exponential.

Figure 6 - Number of yearly publications from 1978 to 2020
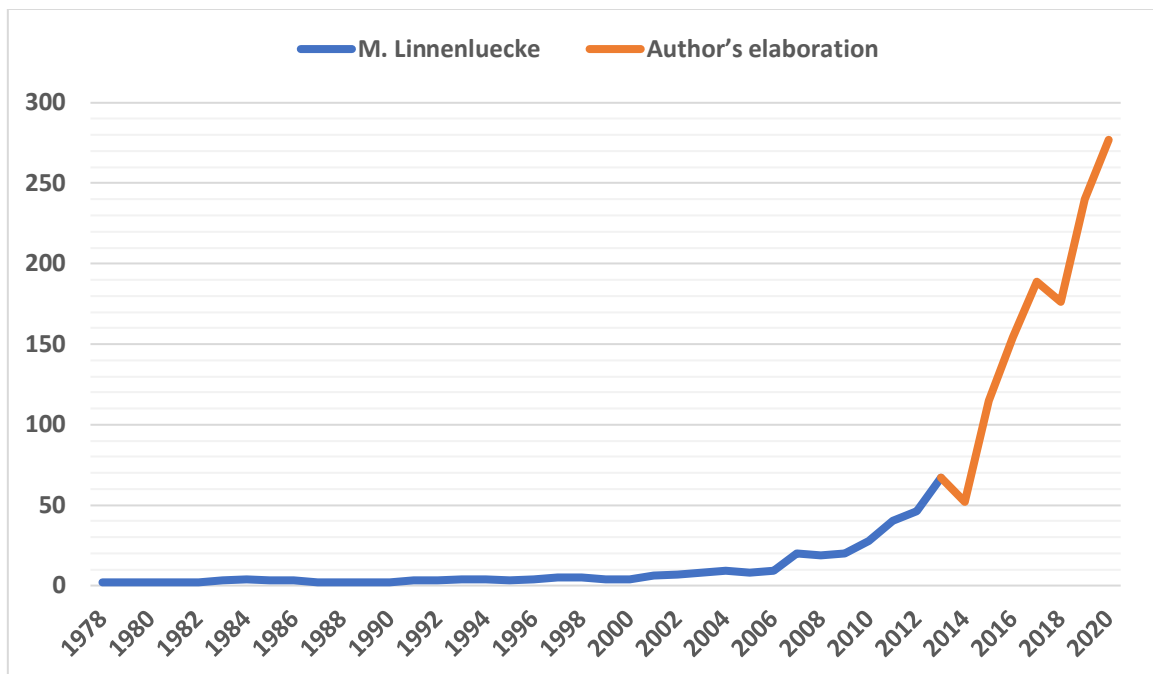
Source: author's elaboration.

1.2.3 Focus on SMEs resilience literature

This chapter opened with a review of the main publications on managerial resilience since the '80s. Later my analysis focused on scientific studies from 2014 to 2020, this to update the research conducted by Linnenluecke M. (2017) and to obtain an overview of the importance of the concept of business resilience, characterized by an exponential trend of publications. This section is instead dedicad to the resilience of SMEs and entrepreneurs, an analysis of the reference literature based on the previously elaborated dataset. I decided to deepen this focus because the Italian economy is largely characterized by small and medium-sized enterprises. The "Table 2" presents a summary of the publications examined on this topic.

Table 2 - SMEs resilience publications

Year	Author(s)	Publication title
2014	Ayala J.C., Manzano G.	The resilience of the entrepreneur. Influence on the success of the business. A longitudinal analysis.
2015	Herbane B.	Threat Orientation in Small and Medium-Sized Enterprises: Understanding Differences toward Acute Interruptions.
2016	Gray D., Jones K.F.	Using organisational development and learning methods to develop resilience for sustainable futures with SMEs and micro-businesses The case of the "business alliance".
2017	Conz E., Danicolai S., Zucchella A.	The resilience strategies of SMEs in mature clusters.
2018	Branicki L.J., Sullivan-Taylor B., Livschitz S.R.	How entrepreneurial resilience generates resilient SMEs.
2019	Herbane B.	Rethinking organizational resilience and strategic renewal in SMEs.
2020	Westerlund M.	Digitalization, Internationalization and Scaling of Online SMEs.

Source: author's elaboration.

These publications have been identified thanks to the Web Of Science software. In this database I conducted a Boolean search based on title and abstract using the following command:

"[Resilien * AND (SMEs OR entrepreneur)]".

So, I decided to select the most relevant publications for each year from 2014 to 2020, basing my choice on the title, the abstract and the topic relevance of the papers. The following summary of the articles will follow a chronological order.

Starting from 2014, the paper "The resilience of the entrepreneur. Influence on the success of the business. A longitudinal analysis" written by Ayala J.C. and Manzano G. (2014) sought to demonstrate whether relationships exist between the resilience of the entrepreneur and the consequent resilience of the business. From the sample under study (consisting only of small Spanish companies) it emerged that this positive relationship exists and is based on three main coefficients, namely: hardiness, resourcefulness and optimism. In particular, the entrepreneur's resourcefulness, that is the set of resources and capabilities to face adverse situations, is the key element that leads to business resilience.

In 2015, Herbane B. with the publication "Threat orientation in small and medium-sized enterprises: Understanding differences toward acute interruptions", tried to understand if the ability to respond to a crisis is mainly due to the age of the SMEs or to the size of them. It emerged that the only really significant coefficient is the age of the company, this is because over time the management and the entrepreneur accumulate fundamental experience and learning effects. Furthermore, the social capital and the network that the company has managed to develop over time are fundamental to efficiently deal with crises.

After, Gray D. and Jones K.F. in their paper "Using organisational development and learning methods to develop resilience for sustainable futures with SMEs and micro-businesses The case of the "business alliance" (2016), didn't focus their study on resilience that is based on the skills of the individual company, but instead on how SMEs can grow thanks to their environmental system. Therefore, the community has turned out to be the fulcrum around which the resilience of small businesses rotates, this is because very often individual entrepreneurs do not have all the necessary resources to better manage their business. Especially for companies operating in the same sector competitiveness must not be the only driver, collaboration is also fundamental, so that everyone can perfect their business. Learning and coaching activities must not be developed only within the company, but also outside it, exploiting all the potentials that the network of stakeholders can offer.

Proceeding the analysis in chronological order, a paper that I find very interesting is "The resilience strategies of SMEs in mature clusters" edited by Conz E., Danicolai S. and Zucchella A. (2017). This article proposes a framework (available in "Figure 7") that aims to analyze the development of resilience in SMEs from the point of view of exploitation and exploration.

Figure 7 - A framework for the resilience strategies of SMEs
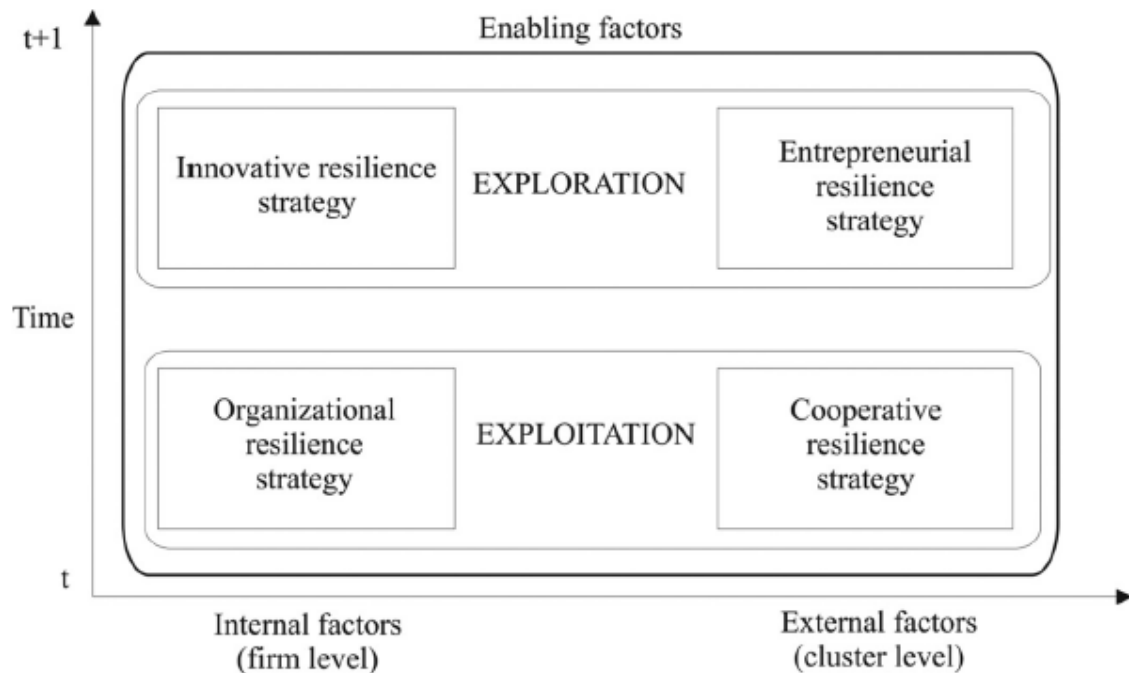
Source: The resilience strategies of SMEs in mature clusters. Conz E. et al. (2017).

In this model it is therefore underlined that the present time (T) is characterized by the exploitation phase, in which the sources of resilience are based on the internal skills of the company and on the development of cooperations with the external network. Instead, the future (T+1) is characterized by the exploration phase, in which the company's internal resources are innovated thanks to the network that the SMEs have developed during time (T), and also, the "entrepreneurial resilience strategy" is formed, thanks to which the company can overcome its boundaries, creating new businesses and seeking new opportunities in the external environment.

Moving on to 2018, Branicki L.J., Sullivan-Taylor B. and Livschitz S.R. with the publication "How entrepreneurial resilience generates resilient SMEs", focus the spectrum of their analysis on the skills of resilient entrepreneurs. Indeed, this study points out that the concept of resilience

differs widely between large companies and SMEs. In fact, large companies have many resources to develop new organizational processes or new operating systems. Instead, SMEs need to base their resilience on alternative resources such as the entrepreneur's tenacity and problem solving through "bricolage", as well as collaboration between employees (as an unofficial support mechanism). Thus, this paper shows that for large companies resilience is a resource intensive concept, while for SMEs it is relational, attitudinal and contextual.

Regarding the categorization of the strategic responses of SMEs, Herbane B. with his article "Rethinking organizational resilience and strategic renewal in SMEs" (2019) has classified 265 UK SMEs into four main clusters. The most resilient cluster of companies has been called "Attentive Interventionists", this is because SMEs that fall into this category invest a lot both in the formalization of strategic planning and in resilience-planning activities; in fact they firmly believe that crises can be anticipated or at least limited. The "Light Planners" cluster, on the other hand, includes companies that have developed strategic response plans to the crisis but in a rather limited manner. The category "Rooted Strategists" includes those companies that invest heavily in strategic decision-making processes, however they do not believe that the effects of crises can be predicted or contained (and therefore do not invest in training and preparation for the crisis). Finally, the "Reliant Neighbors" cluster includes the SMEs with limited planning skills, but who firmly believe in the resilience of their network of stakeholders.

Finally, the most recent paper among those presented is "Digitalization, Internationalization and Scaling of Online SMEs" written by Westerlund M. in 2020. This publication investigated the impact of digitalization on 535 SMEs, and highlighted the technological differences between companies open to the international market and those focused on the domestic market. The study found that international SMEs are much better equipped from a digital point of view. Indeed, they mostly use information systems (such as the Customer Relationship Management and Enterprise Resource Planning), have a wider network of stakeholders, make more use of online services such as e-marketplaces and are also more equipped with IT technical personnel. Obviously, this digital bias has made international SMEs more vulnerable to cybersecurity issues. In light of the catastrophic events linked to the Covid-19 pandemic, it is however clear that the companies most predisposed to the use of digital instruments have suffered a minor impact, and this consequence emerged also in the study "SMEs that have digitized have better faced the Covid-19 crisis" conducted by the Italian Lapam-Confartigianato in September 2020.

CHAPTER 2: CRISIS PREPAREDNESS

2.1 Business environment: The Resilience Architecture Framework

In the previous chapter we have understood the concept of business resilience. Furthermore, the evolution of this paradigm has been explained in relation to its historical evolution and thanks to the main reference literature. As a next step, I decided to dedicate the first part of this second chapter to the dimensions of resilience, in order to contextualize it and not make it a mere theoretical concept. This because a company before developing strategies to mitigate economic shocks should understand what position it holds in its reference environment. During my research on the Web of Science platform to complete M. Linnenluecke's study, I found that approximately 5% of the publications in my final dataset presented a resilience "model" or "framework". In particular, to create this data cluster I entered the following command in the Web of Science search engine:

"[Resilien* AND (framework OR model)]".

This command means that I was interested in finding all the scientific publications that have in the title a derivative word of the term "resilience", plus the presence of the term "framework" or "model". So, the result of this research allowed me to discover the most cited paper in this specific cluster. In fact, the paper "The Resilience Architecture Framework: Four organizational archetypes" published by the European Management Journal (2014) appears to be the first for citations among the publications that try to present a model with respect to the concept of resilience. This publication proved to be very useful, in fact it seeks to integrate resilience with the concepts of socio-ecological literature, organizational rigidity and the dynamic capabilities of a company. Before delving into the Resilience Architecture Framework (R.A.F.) it is useful to understand that business resilience is not always a positive concept (unlike sustainability), and for this reason it must always be analyzed together with the reference system in which it is placed. An image that helps us understand this last statement can be, for example, a highly polluting multinational. In fact, from an economic point of view it could be highly resilient, however since it does not maximize the health of all its stakeholders it could lead the entire system to underperform the overall utility. The logical consequence of this reasoning is that resilience must not be evaluated as an independent factor, but rather must be inserted within an environmental context. Thus, the socio-ecological environment becomes evident because resilience is evaluated in the perspective of all the stakeholders considered.

In this interesting study on the R.A.F. model (published in 2014 by the European Management Journal), the authors Limnios E., Mazzarol T., Ghadouani A. and Schilizzi S. (2014) have clearly highlighted four main quadrants in the relationship between resilience and the surrounding environment. These four quadrants are respectively: the Adaptability quadrant, the Vulnerability quadrant, the Rigidity quadrant and finally the Transience quadrant. I will therefore present these quadrants that arise from the intersection of two main axes: the ordinate axis measures the level of firm's resilience, while the abscissa axis measures the desirability of the system. A visual representation of this framework can be seen in "Figure 8".

Figure 8 - Four organizational archetypes (R.A.F. model)
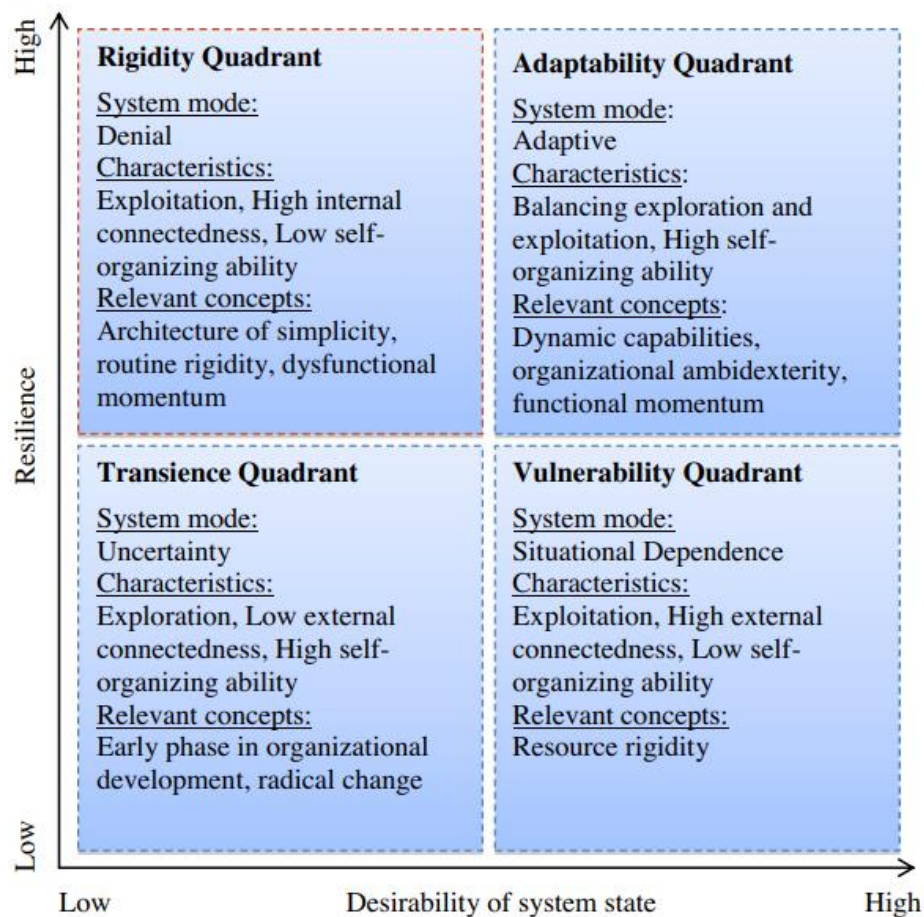
Source: The Resilience Architecture Framework. Limnios E. et al. (2014).

1. **Adaptability quadrant:** This turns out to be the optimal quadrant for a company, because it demonstrates that the business entity has not only achieved high levels of internal resilience but has also managed to synchronize with its reference environment.

Reaching this quadrant means having developed dynamic capabilities that allow adaptation, integration and finally the ability to know how to reconfigure company skills in relation to the dynamic environment in which the company is located. If the businesses obtain this position it means that they have generated win-win relationships capable of satisfying all the existing stakeholders, thus generating a widespread consensus towards the management. The adaptability quadrant is also linked to the concept of "organizational ambidexterity" which in 1996 the authors Tushman M.L. and O'Reilly C.A. defined as the ability of a company to simultaneously develop exploration and exploitation. The authors of "The Resilience Architecture Framework" (2014) identified IBM as a practical example of a company that has entered the adaptability quadrant. This is because from 1960 to 1980 it managed to be a world leader in computer production, while at the same time managing to create strong loyalty and satisfaction in all its customers and stakeholders.

2. **Vulnerability quadrant:** The companies belonging to this quadrant have shown that they are able to satisfy the reference stakeholders however only in certain circumstances, indeed they are not very resilient companies from an organizational point of view. An explanation of this may lie in limited investments in the exploration of new capabilities, resources or technologies. Hence, these companies are very vulnerable to changes in the external environment, such as social, cultural, demographic, technological or regulatory changes. In 2008, an industrial sector that proved to be placed in the vulnerability quadrant was the automotive sector because all production lines and supply chains were highly dependent on the availability to collect credit, the financial crisis therefore discovered all the weaknesses of this industry.

3. **Rigidity quadrant:** Generally it can be said that a company occupies this quadrant when it is not satisfying the needs of its customers or, more generally, of its stakeholders. These are undoubtedly signs of decline, however the companies that belong to this quadrant are not able to reorganize themselves but rather tend to survive even for several decades thanks to conservative defense systems. In this case the high level of resilience tends to become survival, and this is not a positive factor because it fossilizes the company in its organizational rigidity and as a consequence there is a slow but inexorable decline that over time will lead to failure of the company itself. In the paper "The Resilience Architecture Framework: Four organizational archetypes" (2014)

the Ford Company is cited because between the 1920s and 1930s it fell into the trap of rigidity, not realizing that it was entering into a period of stagnation while maintaining an organizational structure unable to respond to the growing competitiveness of the market.

4. **Transience quadrant:** According to the R.A.F. model this is the worst quadrant, because companies characterized by low levels of resilience and low desirability of system state inevitably have high levels of uncertainty. Generally, the companies that are positioned in this quadrant are those that are facing a strong internal reorganization or are at the beginning of their life cycle (and consequently have not yet begun to satisfy the relevant stakeholders). According to the authors of the Resilience Architecture Framework one company that has experienced the transience quadrant is IBM. In fact, during the 1990s the company experienced a notable transition from being a hardware manufacturer to becoming a software developer and service provider in the Internet era. However, this is a very positive business example in fact IBM has managed to develop adaptability starting from an initial moment of strong turbulence.

A reflection that can be made after analyzing the four quadrants of the R.A.F. model is that resilience can also be interpreted as a defensive or offensive strategy. In fact, when the company is in the rigidity quadrant (i.e. with high levels of resilience but low desirability at the system level) resilience must be interpreted as a defensive function, to allow the business to operate in a non-optimal environment. When the company assumes this defensive position, the firm manages to survive, but is defined as rigid precisely because it cannot reach the optimal level in the relationship with all its stakeholders. Therefore, any type of business should try to achieve an offensive resilience (Adaptability quadrant), and this is precisely the interpretation of resilience that is provided to us by the main reference literature.

Having understood the structure of The Resilience Architecture Framework and its related quadrants, it can be seen how this model can be applied to the organizational structure of a company. In fact, this model can also be applied to sub-systems, for example a multinational company could develop a R.A.F. model at regional or local bases. This is a very important feature, because in this way the company has the ability to relate its level of resilience to the local context, so it will be easier to intervene on a regional scale to limit any systemic crises.

2.2 Definition of economic shock

Thanks to the Resilience Architecture Framework we have understood how to catalog a company from an environmental point of view, thus analyzing its level of resilience and its desirability at the system level. Now, as can be guessed from the title of this second paragraph, this part of the thesis will focus on the ability of organizations to prepare for unexpected crises. First of all, let's try to understand what is meant by the term "shock" from an economic point of view. The Italian Treccani dictionary defines a shock as an "unexpected and unpredictable event, external to the economic system, which influences its performance in a positive or negative way".

A shock can therefore be classified according to the economic variable that affects the most, we can observe: demand shocks related to household consumption expenditure, that of business investments or that of foreign operators (which affects exports). Supply shocks can instead be due to an increase in productivity due to an advance in technology (i.e., technological shocks), or to exogenous changes in the quantity or price of an asset, following political, military or climatic events in the countries of production. Finally, economic policy shocks arise when public authorities take decisions that are not expected by private operators, which may concern the reference interest rate or other monetary instruments available to the central bank, or the level of spending by public administrations.

Therefore, in economic and econometric models the shock turns out to be the realization of an independent random variable, because it does not depend on other factors. A further clarification that deserves to be treated is the distinction between symmetrical and asymmetrical shocks. The first affects different economic areas to the same extent, while the asymmetrical one causes divergent trends within an economic system, thus making it more difficult for public authorities to respond.

Contrary to what happens in emergencies of "traditional" type, shocks are unthinkable forms of emergencies and inconceivable before they actually take place (Lagadec, 2006). Such emergencies are also called "not-textbook events". Some scholars have framed these emergencies in one distinct category, the "new emergencies", not just because these events present characteristics different from those usually examined in the emergency management studies, but above all because they aren't easy to address with the traditional systems of emergency management.

Traditionally companies have tried to manage emergencies using a certain level of preparedness that has been theorized with the aim of improving the response to a closed list (and ideally complete) of foreseeable events on probabilistic basis. However, as reported by Frigotto M. and Narduzzo A. (2015), an example of the difficulty in overcoming the traditional conception of preparedness is illustrated very well by the US government's reaction that followed the events of 11 September 2001.

Indeed, during this dramatic event millions of dollars have been allocated to understand the mistakes made in the management of the emergency and to define a suitable emergency plan to face future similar situations. However, according to the claims by the NY Fire Chief, none of these systems provides that the emergency could be of an anomalous type, nor are procedures defined for the understanding of new or unexpected situations. The economic shock we have experienced throughout 2020 and which continues into the first months of 2021 is that related to the pandemic crisis caused by Covid-19, a crisis by definition asymmetrical because it has hit geographic areas and industries with divergent effects.

For these reasons the year 2020 will be remembered by all as dramatic not only from a health point of view but also from an economic point of view. By now we have all been surrounded by television news that explained to us what the global epidemic of Covid-19 consists of, so the scientific explanation of this phenomenon goes beyond the topics that will be treated in this thesis. What interests us are the organizational consequences of this phenomenon, so the rest of the chapter will be devoted to understanding the potential organizational strategies for getting ready to face dark period like this one.

2.3 Shock leadership development and preparedness

The introduction of this second chapter was dedicated to understanding what is meant by "economic shock". This new paragraph will instead be devoted to understanding the current crisis from a managerial point of view. In fact, a good manager even before responding to unexpected shocks should try to increase the awareness with which the firm will face this issue. The management of non-programmable shocks (also called "black swans") has only been partially covered by the economic literature. This is because the study of organizations and their functioning is traditionally focused on recurring events and situations that arise more frequently, with the goal of improving the success of the firms performance by refining and consolidating effective and efficient responses.

However, the resistance in treating black swans for what they are can be explained by what Fischhoff B. in his paper "Hindsight ≠ foresight: the effect of outcome knowledge on judgment under uncertainty" (1975) calls "hindsight bias". Because of this bias, people tend to overestimate the predictability of an event after it has taken place. Individuals emphasize that the information was available, and so they have the impression that the decision makers might have known (therefore having the opportunity to face such a scenario).

2.3.1 Crisis as an event or crisis as a process

To begin with, let's try to understand how a crisis should be interpreted. The paper "Organizational response to adversity: fusing crisis management and resilience research streams" published by the Academy of Management Annals (2017), highlights how the analysis of a corporate crisis can be analyzed from two main points of view: perceiving the crisis as a single event or as a process. Today one of the most widely used definitions of crisis is that provided by Pearson C.M. and Clair J.A. (1998) who have defined the crisis as an event with a low probability of occurring but with a potential heavy impact on corporate stability. Therefore, the significant components to understand a crisis are essentially three: the rarity of the event, its magnitude and its impact on corporate stakeholders.

Often the study of crises such as earthquakes, wars or terrorist attacks led to a narrow vision of the crisis concept because the papers were only trying to understand what triggered the event and what its consequences are. Basically, when the crisis is seen as a single event, it is interpreted as an unexpected contingent event isolated from the organizational structure that should prevent it. Obviously this interpretation has several limits, because it leaves the

entrepreneur at the mercy of events, simply stating that it is impossible to measure the probabilities of occurrence of individual events and therefore formulate adequate strategic responses. From this point of view, crisis management has the sole objective of re-adjusting the system to realign it and return to the previous state. To sum up, the crisis perceived as an event does not seek to investigate all the causes that triggered the negative event, because the imperative is returning back to the equilibrium as soon as possible.

Always in the paper published by the Academy of Management (2017), there is also a second possible crisis interpretation, that is no longer focused on the single event but on the process that has led to the failure of the system. Disaster research highlighted that failure is related to the inability to identify incubators (or weak signals) that reveal future threats, indeed the organizations that best prevent crises invest in the ability to recognize such signals. So, the ability to recognize a crisis situation is an organizational skill and it is part of the broader system of organizational resources, it is context-dependent and it is susceptible to learning, development and adaptation (Narduzzo A. and Warglien M., 1998).

Therefore, if the crisis is interpreted as a process, managers should try to understand its evolution, which organizational processes were found to be inappropriate and how the company should respond to the various stages of the phenomenon. This kind of thinking should lead the entrepreneur to identify a genealogy of negative events which, overall, led to the most acute and dramatic phase.

So, the final phase (called "crisis") is characterized by being a cumulative process of failures committed by the entire organization. Always in the paper by the Academy of Management (2017) it is reported that Turner B.A. in 1976 tried to define the corporate crisis process with six fundamental steps: 1) a starting point fixed in time, 2) the incubation period of the crisis, 3) the triggering phenomenon, 4) the immediate negative consequences, 5) the first phase of adjustment, 6) the complete resolution of the problem and finally the consequent establishment of new organizational rules to prevent future crisis.

It is therefore possible to understand that interpreting the crisis as a process does not make us focus only on the single triggering event of the crisis, but instead allows managers to think in organizational terms to make the company more effective and efficient as a whole. Tackling the crisis in terms of business organization becomes essential to not allow the small imperfections of the system to accumulate, because if these small errors are combined with managerial inability they can evolve into triggering events of a crisis. In summary, addressing the crisis as a process allows management to act on difficulties in three different time frames:

before, during and after the critical event. A summary elaboration on the concepts of crisis management is proposed in "Table 3", which offers to the reader a comparison between the interpretation of the crisis as an event or as a process.

Table 3 - Definitions of crisis and crisis management

	As an EVENT	**As a PROCESS**
Crisis	Organizational stability is threatened by an event with a low probability of occurrence but with a potentially very high impact.	The corporate crisis develops in different phases, so the triggering event is the sum of the failures accumulated during the incubation period.
Crisis management	Managing company resources to overcome the moment of difficulty, with the aim of bringing the organization back into balance.	Knowing how to manage the small signs of organizational weakness to defeat the crisis in its incubation period.

Source: author's elaboration.

2.3.2 Proactive versus reactive resilience

The topic we have just covered is only the first step in building a solid organizational resilience. However, this is a fundamental step because at this point the road to resilience can follow two separate trajectories. When the management board interprets the crisis as a single event, the probability of pursuing a reactive resilience increases, because the company is taking a passive position with respect to adversity. On the contrary, perceiving the crisis as a process helps the company to develop a proactive resilience, guaranteeing at the same time flexibility and preparation in each step of incubation of the adverse phenomenon.

As stated by Klein R.J. (2003) an organizational strategy based on reactive resilience only reinforces the status quo, making the company averse to change and fearful of the future. On the contrary, a company that proactively strengthens resilience will not hide from the inevitable passing of events, but rather it will try to create a defensive system capable of adapting together with the reference ecosystem.

In the paper "Entrepreneurship and resilient communities" written by McNaughton R.B. and Gray B. (2017) it is underlined that three associated themes emerge from the study of the dichotomy between reactive and proactive resilience, and for this reason they should be analyzed in detail by every company.

The first theme is linked to the relationship that exists between the figure of the entrepreneur and the surrounding community, the resilience of these two different economic subjects is self-reinforcing. This evidence is linked to the SMEs resilience literature cited in the first chapter of this master's thesis, related to the close relationship that exists between a resilient company and its network of stakeholders located in its territory of belonging. When this kind of collaborations become effective they can produce networking and long-term benefits thanks to the use of learning and coaching between the company and all its allies.

The second emerging theme concerns the definition of operational strategies to respond to the crisis. Generally, business strategies can be of two types, improvised or prepared in advance. In the event that a company finds itself with a reactive resilience, it will soon understand that it has ineffective weapons, this because an improvised response will generate a waste of both human and financial resources to pursue short-term objectives. On the contrary, proactive resilience seeks to solve small problems in the incubation phase, this not only to prevent future crises, but also to plan more effectively the use of resources following a clear path to achieve stability in the long period.

The third theme that emerges from the aforementioned paper is based on the distinction between bouncing back and bouncing forward strategies. The first term refers to the companies that implement a passive resilience, i.e. reactive with respect to the crisis phenomenon. Instead, the term bouncing forward is linked to those business activities aimed at increasing proactive resilience. From the literature study carried out by McNaughton R.B. and Gray B. (2017) it emerges that most companies in the face of a crisis respond reactively with short-term plans. An immediate consequence of this phenomenon is that they generally tend to preserve their existing context rather than adapting to new conditions, companies also find themselves having to improvise survival strategies instead of activating preparedness.

From this evidence it emerges that a proactive resilience is not an easy and immediate goal to achieve, often entrepreneurs and managers are able to develop skills of this type only after having experienced and successfully overcome shocks in their reference market. It can therefore be said that the learning of proactive strategies is also due to the mistakes made in the past by using short-term reactive strategies.

2.3.3 Pandemic leadership and Scenario-Based Training

Having understood how a company can interpret the crisis, as an event or as a process, and after deciding whether you want to develop a proactive or reactive resilience strategy, it is time to explore the topic of leadership in moments of profound shocks. As we have seen, the crisis linked to Covid-19 has been defined by the World Health Organization (WHO) as a pandemic at a global level, and this specific form of crisis has led to a very complex and widespread disruption. In the previous paragraph, the importance of preparedness was underlined in order to better deal with unexpected disasters, however, as Bowers M.R. (2017) states, very often companies do not dedicate enough resources to the development of an adequate crisis management. From a survey developed by Lockwood N.R. in 2005 and published in the paper "Crisis Management in Today's Business Environment", it emerged that only 50% of the U.S. companies interviewed had drawn up an emergency plan for sudden disasters (please note that only a few years earlier the terrorist attack of 9 September 2001 had occurred).

Also due to this lack of preparation, very often during a crisis the strategic responses of companies vary within a wide spectrum of solutions, it is possible to observe panic situations as well as it is possible to observe a solid and efficient leadership.

Precisely in order not to allow reactive responses to take over during a crisis, in this paragraph we will try to understand how to develop a strong leadership for moments of crisis such as that of a pandemic. The first phenomenon to avoid during a shock like that of Covid-19 is resistance to change, in fact too often the managerial lines try to solve unconventional challenges with strategies that are conventional and familiar; this in order to remain in the comfort zone of normality. When a shock occurs, there are many qualities that a leader must have: he must be flexible in making decisions, strategic, capable of analyzing the "big picture" of the phenomenon, transparent, empathetic towards his employees and gifted with good communication skills.

In the paper "Shock leadership development for the modern era of pandemic management and preparedness" written by Shufutinsky A. and Long B. in 2020, it is underlined how all these capabilities should be implemented and developed thanks to what the two authors call "Shock Leadership Development". From this study it emerges that a resilient leadership can be empowered by managers thanks to the use of the so called Real-Time Scenario-Based Training.

Real-Time Scenario-Based Training is a leadership development methodology based on the importance of a quick decision making. The authors of the paper based their analysis on the

observation of the U.S. military corps, which in war zones have to make decisions in very complex contexts, also characterized by changing environments and often poor in resources. The managerial lines of a company should therefore take inspiration from the simulations carried out by these special military corps, using simulations that can predict the occurrence of different disasters (i.e. economical, natural, political or pandemic).

As pointed out in the paper "Sbiancare il cigno nero? Strategie e competenze manageriali per riconoscere il nuovo" written by Frigotto M.L. and Narduzzo A. (2015), it is very useful to generate stories in correspondence of mistakes that have been made in the past (also called "post-mortem"), in order to reconstruct the causal chain that caused these mistakes and to intervene on this dynamic with a future perspective (Weick K.E. et al., 1999). For different reasons story production is an important strategy to prepare the company for new emergencies. First, stories help in building the identity of organizations, of groups and individuals (Brown, 2001), to define how the members of the organization are called to act. Second, stories are the main channel for generating and spreading knowledge about the unknown and the ability to face it. Third, through the exercise of generating multiple scenarios organizations expand the spectrum of their expectations by leveraging the virtual reality that they have created. Consequently, companies can construct "almost stories" in which they practice in hypothesizing how events would go by changing some circumstances. In this way, firms understand to what they need to pay attention to. Finally, companies should gather numerous stories about the same event but which are written by different subjects in terms of skills and roles. In this way they extend the knowledge of the problems faced at different levels and they multiply the perspectives with which to look at the experience.

Organizations should constantly train with varied scenarios in making decisive strategic decisions in the shortest possible time. This type of simulation is not only useful for predicting different strategies, but also for strengthening teamwork, improving communication between different business units, strengthening corporate alert systems and finally making leaders flexible from a strategic point of view. So, also in this case, preparedness is the fulcrum around which it is possible to make a company truly resilient in the face of unexpected turbulent events. It is important to underline how this learning technique could be further enhanced with the help of exercises concerning concentration and meditation, statements like this one are supported by neuroscience studies such as that of Dr. Kozasa E. in her paper "Meditation Training Increases Brain Efficiency in Attention Task" (2011). This scenario-training makes leaders more agile in making decisions, but it also reinforces communication; in fact the dialogue between all the

business functions is situational, what works well in one context may be inadequate in another. Effective communication must therefore be one of the cornerstones around which to build a resilient company, because in times of crisis the workforce could become demotivated and lose hope in the future, so a good leader must know how to be charismatic to allay fears and direct employees towards new goals.

Also, as regards the organizational design, Rerup C. (2009) has shown the importance of having an efficient communication network for reporting anomalies along the hierarchy, this in order to highlight potential threats at different levels of the organization. Furthermore, Weick K.E. et al. (1999) have observed that in organizations characterized by high resilience, when events become critical and go beyond the boundaries of standard operations, control is not assumed by whoever holds the highest position in the hierarchy, but by those who have the greatest expertise in that specific issue.

Being able to develop this capabilities in companies is essential because the pandemic crisis we have faced in 2020 and that we are still facing in 2021 has caught most of our organizational systems globally unprepared. The crisis of schools, hospitals, public offices and businesses has endangered the economic and social stability of the majority of the countries. Despite this, society will continue to survive and evolve, however future and destructive events are not only possible, but are expected.

What emerges is that private and public organizations will have to equip themselves with a leadership capable of providing proactive resilience against any possible shock. This not only to better manage the crises, but also subsequent waves (as in the case of a pandemic) and the final moment of recovery. Managers must therefore not only possess technical skills, but they must have a sense of preparedness thanks to constant training based also on disruptive scenarios.

2.3.4 Improving crisis management

This paragraph will delve into the relationship that exists between the development of business strategies aimed at increasing the degree of resilience and the ability of firms to carry out an effective crisis management. Societies and economic systems are often severely tested by cataclysms, pandemics, economic crises and disruptive technologies that undermine existing conditions. As we have seen, it is therefore necessary for companies to pursue strategies which, also thanks to the study of risk, make it possible to develop adequate responses. Therefore, when we talk about risk assessment, the management must produce reliable estimates of events, and obviously the resilience capacity becomes more difficult to achieve when it is necessary to evaluate complex systems that can be characterized by highly unforeseen events.

In the study "Improving government policy on risk: Eight key principles", written by Aven T. and Renn O. in 2018, three main strategies for crisis management are identified. Generally to obtain an optimal action strategy it is recommended to follow a mixture of all these three, because adopting only one of these principles would lead to poor and incomplete risk assessment:

1. ***Risk-informed approach*** → This first strategy is also called risk-informed decision-making (RIDM), it consists of a weighted choice between different sets of assessments to measure the risks of different scenarios. Quantitative methods are then completed with qualitative reflections to precisely inform the management that will have to make the final decision. This procedure recognizes that a decision based exclusively on the numerical and technical aspect cannot be sufficient, human evaluations are also necessary, this because the concept of risk is partly subjective. Therefore, the resulting decision making must necessarily be taken by highly experienced managers to implement reliable action plans.

2. ***Cautionary approach*** → The principle of caution should be used for all kinds of ambiguities or uncertainties that characterize a business. Indeed this approach states that if the consequences of a business decision can lead to unpredictable events, then some actions should be taken by the management to limit those risks, or alternatively such decision should not be taken. Obviously, since it is a principle and not a rule, the cautionary approach must be interpreted as a guide because it cannot provide management with a standard formula to use, there is always a gap between theory and action.

3.   ***Discursive approach*** → This third and final approach starts from the assumption that individuals (or groups of individuals) may have a different conception of perceived risk. Within the same organization there could therefore be groups with different visions, so very often the best strategy to follow for the company may not be optimal for some business units. Therefore, the discursive strategy is useful precisely to attract the greatest possible consensus between the parties when it is necessary to pursue binding decisions, making sure that the trade-offs deriving from the crisis management strategies are accepted by all. In this way governance should not be expressed to the parties along a top-down approach (simply by exposing the risks and choices made in this regard) but instead a discussion must be established between the different pluralities of the company, trying to balance the benefits, the costs and the perceived risks of each option at stake. If this process is well structured it can lead to a common vision of the problem and consequently the employees' support underlying the crisis management decisions will be expanded.

It should be noted that strategies number 2 and 3 are created to find an answer to the limits of the risk assessment approach, because this strategy cannot work perfectly in the case of uncertain or difficult to predict events. Furthermore, if the dangerous situation is characterized by numerous uncertainties, the prevailing strategy will be the cautionary one because the risk managers will have to give greater weight to possible negative events. If, on the other hand, the risk can potentially create divisions within the organization, then the approach that will necessarily have more weight will be the discursive one.

As underlines the paper "Risk Governance and Resilience: New Approaches to Cope with Uncertainty and Ambiguity" written by Renn O. in 2015, when we talk about risk assessment, in most cases the possible future events are classified according to the probability of occurrence and the possible consequences.

Therefore, after having decided which of the three strategies to follow in crisis management (Risk-informed approach, Cautionary approach or Discursive approach), a useful and intuitive model to classify those risks is called the Traffic Light Model (Figure 9). On the abscissa axis of this model we find the impact of the possible consequences, while on the ordinate axis we find the probability of occurrence of the considered event.

Figure 9 - Traffic Light Model
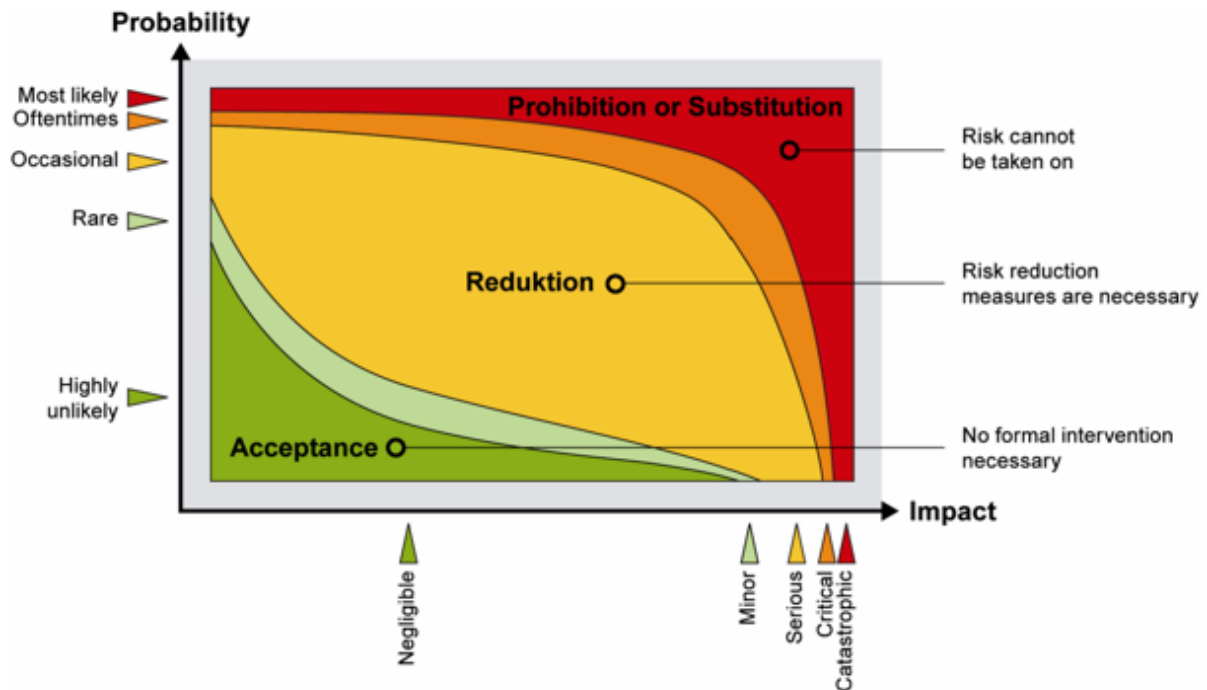
Source: Klinke A. and Renn O. (2014).

In this diagram Klinke A. and Renn O. (2014) identify three main areas:

- The GREEN area indicates that the risk considered is unlikely to happen and the associated consequences are limited, it is certainly worthwhile to undertake the project (no intervention is necessary).

- The YELLOW area indicates a risk perceived as tolerable, in this case significant impacts occur only in limited cases, consequently the benefits outweigh the potential risks, so also in this case an action should be taken (of course risk containment measures are recommended).

- The RED area indicates that the risks considered can lead to catastrophic consequences and therefore it is absolutely not advisable to pursue them.

Therefore, the ultimate goal of crisis management is precisely to draw a dividing line between intolerable risks, tolerable risks and acceptable risks. However, a company very often finds itself having to evaluate options that are not so easy to classify, it is for this reason that the Traffic Light Model also leaves room for other two areas (light green and orange) in which tolerability will not be easily accepted by all the stakeholders of the company.

Models like this one can be very useful, however very often especially in stable and mature economic sectors, resilience is managed without the support of a complete crisis management, for example it is considered sufficient to provide training to employees without carefully evaluating the probabilities of future events. A very interesting research has been done by McKinsey on this issue. Between 2015 and 2017, 1.100 non-financial companies were interviewed and from this research it emerged that for most of them crisis management remains a siloed and underdeveloped capability.

As can be seen from the graph below (Figure 10), in 2017 only 9% of board meeting time was dedicated to risk and crisis management, furthermore, the comparison of this result with the data of 2015 highlights that this trend seems to be in decline. Therefore it seems that a reactive approach to crisis remains the most common managerial choice, the resilience of companies is consequently damaged.

Figure 10 - Risk management survey

	2015, % (n = 1,119)	2017, % (n = 1,126)
Strategy	27	27
Performance management	22	20
Organization structure, culture, and talent management[1]	9	13
Investments and M&A	10	12
Core governance and compliance	12	10
Risk management	**10**	**9**
Shareholder and stakeholder management	9	9

Note: Figures may not sum to 100%, because of rounding
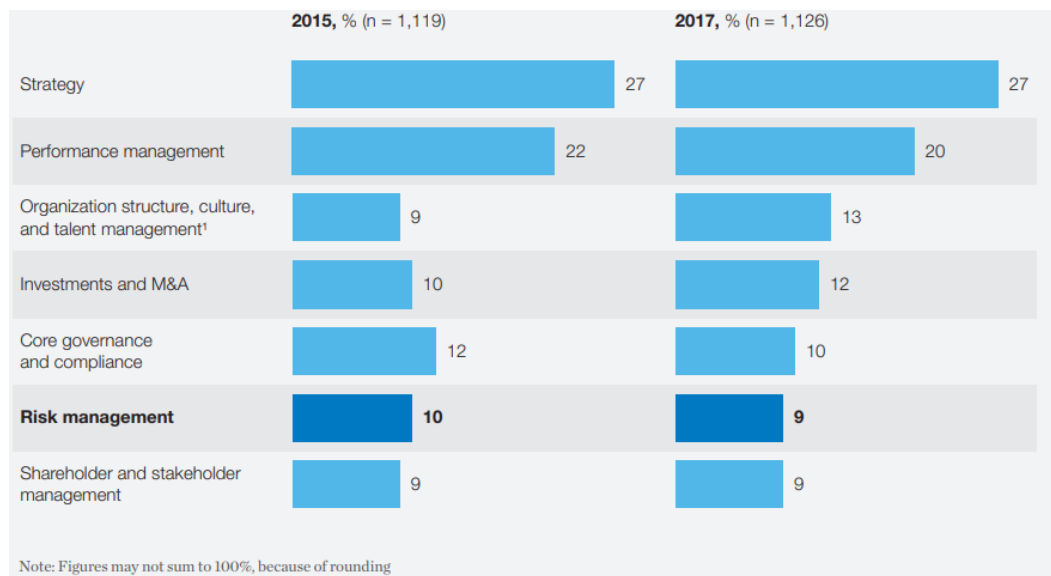
Source: McKinsey Global Board Survey (2015, 2017)

For this reason, in the publication "How some types of risk assessments can support resilience analysis and management" (2017) Aven T. suggests using risk analysis in resilience management, for two fundamental reasons:

- First of all, knowing how to manage risk means providing a complementary tool to the study of organizational resilience. This is because thanks to risk management it is possible to identify new potential events that had not been previously considered and consequently to discover new cause-effect relationships that can help the company to manage crisis situations.

- Second, all world organizations by definition have limited resources. Hence, the study of risk can become a tool for placing the available funds in the best possible way. Companies to develop resilience programs must necessarily prioritize certain projects over others. Risk management therefore becomes very useful for maximizing corporate efforts without wasting financial resources.

At this point, we can already say that thanks to crisis management we can enhance organizational resilience. This is because the strategies and models seen so far allow us to take actions today in order to be able to limit the uncertainties of tomorrow.

However, in the "Risk U.S.A. Conference" of November 2019, reported in the article "Thrive in Any Environment: Strengthening Resilience Through Risk Management" written by the Federal Reserve Bank (2019), Rosenberg J. (Executive Vice President and Chief Risk Officer at the Federal Reserve Bank of New York) highlighted the two fundamental issues that prevent crisis management from reaching the top position in organizations. These two issues are: acting for isolated silos and the complexity of control.

The first thing to note is that business threats never respect the structure and boundaries of an organization, and consequently the responses to risks cannot be developed at the level of a single department or single business unit. Therefore, crisis management should be called "enterprise crisis management". We must always remember that the critical business processes cross different areas are linked as a chain, these processes start from the procurement of raw materials, go through the value-added production and end with the delivery to the final customers.

The question that a company should always ask itself at this point is: do we have the skills to deal with risks thanks to teamwork between the different business units? Indeed, as has been underlined in the crisis management "discursive approach", very often companies have to balance the pros and the cons of any risk and to obtain the most effective decision making it is mandatory to be able to coordinate the experts of each department, making communication as effective as possible. The risk of silos can therefore be solved if the company operates in terms of a single entity, increasing the collaboration between the different available skills.

Most organizations create a report for each individual risk considered, the only way to increase resilience is to combine all these inputs to create a single and complete risk picture. The solution lies in an integrated business continuity plan, capable of protecting all critical business areas from the most relevant threats.

As anticipated, the second resilience challenge identified by Rosenberg J. is the complexity of control. Generally, when crisis management identifies problems at the process level, it inserts controls to mitigate them. Basically, controls are created to prevent problems and prevent them from ever occurring again. However, the controls that work well separately may not be optimal when they are all activated at the same time, this means that a possible crash in the controls can have strong repercussions on operations. Also, when the company thinks it has managed the risks in the best way, it could be surprised again in a negative way. For this reason, resilience cannot be based only on preventive, detective and corrective measures but must also be implemented to manage the high variability of the business system.

To conclude, in this paragraph we have explored the different strategies to assess risk (Risk-informed approach, Cautionary approach and the Discursive approach) and we have understood how to use the Traffic Light Model for the interpretation of the business strategies that should be implemented or excluded. Finally, the two main issues inherent to crisis management (isolated silos and complexity of control) were presented.

It is important to emphasize that all these considerations are integrative, meaning that the individual resilient business components do not necessarily imply a resilient whole. Therefore, the resilience corporate goal must be achieved with crisis management tools that must be consistent and coordinated with each other.

2.4 Adaptive co-management between stakeholders

To conclude this second chapter dedicated to the ability of companies to prepare for any type of crisis, I decided to analyze a relevant organizational issue, namely the "adaptive co-management" between the company and all its major stakeholders. At the beginning of this chapter the importance that exists between the company and its reference environment was underlined. Consequently, thanks to the "Resilience Architecture Framework" developed by Limnios E., Mazzarol T., Ghadouani A. and Schilizzi S. (2014), we have understood how to increase the level of company's resilience in order to fit well with its own reference system, thus trying to place the firm in the optimal "Adaptability quadrant". Having understood this, the analysis of this thesis has moved towards the leadership skills that management should have to develop a proactive capacity response in front of crises, starting from the awareness that resilience is a process that it is built over time. A process that also passes through the implementation of a pandemic leadership that knows how to enhance the importance of Scenario-Based Training and crisis management.

To unify these perspectives from a managerial point of view, I decided to include the theme of "adaptive ecosystem-based management" in this chapter. As underlined in the paper "Adaptive governance of social-ecological systems" written by Folke C., Hahn T., Olsson P. and Norberg J. (2005), company management has always been based on standards that have been developed in the past, but which are adapted to face the new challenges of the present. Adaptive ecosystem-based management consists in observing, interpreting and enriching the knowledge that the company can exchange with all its stakeholders, this in order to increase its level of environmental resilience.

The paper "Learning More Effectively from Experience" written by Fazey I. (2005) underlines how this type of management is based on participation, collective action and learning to increase the company's ability to adapt. In this perspective, all the people involved and all the stakeholders become an essential source of learning. This learning structure is by definition flexible because it is based on different types of organizations and consequently becomes a distinctive feature of the territory in which it develops. The network capability of companies is therefore an essential feature, this in order to exploit the collaboration and the problem-solving capacity between stakeholders. This kind of collaboration takes place between different hierarchical levels and between different entities, indeed the organizations involved should include companies, municipalities, universities and all the other entities that can concretely help the business. It is precisely because of the large number of actors that Lee M. in the publication

"Conceptualizing the new governance: a new institution of social coordination" (2003), defines this governance system as a polycentric form that thanks to its adaptive capabilities manages to govern sociality.

The strength of this adaptive governance lies also in the fact that it can operate at different levels of the organizations, in fact agreements can be developed between peripheral actors (creating a decentralized system) or can be signed by the top management of organizations to form a centralized collaboration. However, it is important to note that this fit between institutions must not undermine the bureaucratic and organizational system of the single company, but rather it must act as a complementary tool to allow the development of a civic arena that allows for an open and constructive debate between all the actors.

This network of relationships, precisely because it must not replace the corporate hierarchy, can also be informal, however in the paper "Ecosystem management, decentralization, and public opinion" (2001) Steel B.S. and Weber E. underline that an excessive level of informality can cause a lack of effective collective action, especially if the number of involved stakeholders is high. As can be easily understood, social capital turns out to be the main resource of adaptive co-management, this because only thanks to constant debate the necessary innovation can be generated to respond adequately to unexpected crises (the Covid-19 pandemic can be an example).

Furthermore, it is important to underline that this governance system is not only based on an environment rich of stakeholders that are ready to collaborate, a further strongly needed element is the leadership capacity within the various organizations. In this chapter we have seen how leaders have to provide a correct interpretation of the ongoing crisis, also developing effective response plans. However, the management figures are also indispensable for the development of an adaptive governance; indeed they are charged with building trust, managing conflicts with stakeholders and making sense in the ongoing collaborations. Trust is therefore fundamental, in the article "Social capital and the environment" (2001) Pretty J. underlines how within a community trust makes collaboration easier, also because it increases the degree of persuasion between the various actors.

At this point we have understood that this shared governance method can increase the resilience of the entire environmental system, this because the adaptive capacity makes it possible to reconfigure the relationships between the different actors as macro-economic conditions change. Also, Folke C. et al. (2005) point out that in the collaboration between stakeholders the redundancy of the various company functions is an added value and not a weakness, this

because the different experiences of the individual actors constantly enrich the collective memory. Collective memory that turns out to be fundamental when it is necessary to interpret in an innovative way present and future scenarios.

Having reached this point of reflection, Armitage D.R. in the paper "Adaptive co-management for social ecological complexity" (2009) affirms that entrusting the crisis response to a centralized bureaucracy very often limits the company's ability towards adaptation. The concept of "command-and-control" governance must therefore give way to a shared system of experiences at a territorial level. Obviously, creating a healthy collaboration between all stakeholders is not an easy task to achieve, because resources are often disputed, and it can also happen that even within the same organization there are different conflicting visions.

It is also for this reason that in order to minimize conflicts between institutions it is necessary to establish clear ownership rights on the resources deployed, and above all to identify key leaders who know how to manage the possible emergence of conflicts, this in order to allow the flourish of the shared governance in the long run. Conflict management is therefore a mandatory prerogative for a correct adaptive co-management, indeed Armitage D.R. (2009) states that to create a truly collaborative system it could take up to 10 years, on the contrary the trust between the partners can be eroded in a single moment. It is also for this reason that co-management should always respect the conditions summarized in "Table 4".

Table 4 - Six conditions for successful adaptive co-management

Condition of success:	Explanation:
Narrrow context	In order to reduce the competing interests
Stakeholders' shared interests	In order to increase trust and collaboration
Clear property rights	In order to facilitate long-term innovation
Long-term commitment	In order to establish stable collaborations
Open participation	In order to enrich complementarities
Key leaders	In order to have effective mediators during conflicts

Source: Author's elaboration.

CHAPTER 3: COVID-19 IMPACT ON SMEs ORGANIZATIONAL DESIGN

3.1 The impact of Covid-19 in Europe. Was it predictable?

As anticipated, this pandemic has had very serious economic and social consequences globally, however, this paragraph will focus more on European and Italian macroeconomic data. From a chronological point of view, the first half of 2020 was the one with the most evident economic shock, this due to the clear lack of preparation in dealing with this new epidemic. Instead, in the third quarter of the same year we witnessed a strong recovery of the markets, also thanks to the gradual decrease of the containment measures. However, the resurgence of the pandemic in recent weeks, with the new public health measures introduced by the national authorities to limit its spread, is at the origin of new disturbances. The epidemiological situation means that the growth projections in the forecast period are characterized by an extremely high degree of uncertainty and risk.

The pandemic had different economic impacts in EU countries, and the prospects for recovery also diverge considerably depending on the spread degree of the virus, the rigor of public health measures taken to contain it, the sectoral composition of national economies and the intensity of national policy responses. According to the paper "European Economic Forecast, Autumn 2020" published by the European Commission in the first days of November 2020, the eurozone economy will contract by 7.8% in 2020, before growing by 4.2% in 2021 and 3% in 2022.

In any case, Eurozone GDP will not return to pre-pandemic levels before 2022. Job losses and rising unemployment have been the natural consequence for the economies of all European countries. However, the policy measures taken by Member States, together with the initiatives at Eurepean level, have helped to alleviate the impact of the pandemic on labor markets. This is why the rise in unemployment was proportionally less than the decline in economic activity. Unemployment is expected to increase from the 8,3% of 2020 to the 9,4% in 2021, as states gradually begin to abolish emergency measures, but should improve in 2022 as the economic recovery continues.

If we focus our attention on Italian macroeconomic data, the situation certainly does not improve. In fact, according to the study "Economie regionali" prepared by the Bank of Italy (November 2020), in the first six months of the same year economic activity dropped by 10 percentage points compared to 2019 and the projections of a rise in the third quarter still maintain a negative balance if compared to the previous year.

From this macroeconomic picture it clearly emerges that the pandemic linked to the Coronavirus has brought with it catastrophic consequences on a social level. A question that many have asked themselves is whether a shock of this magnitude could have been foreseen.

As stated by Hermann C. (1972), the recognition of a problem is based on the comparison between the expected state of the reality and the perceived situation, therefore when a dissonance between reality and expectations is perceived and this exceeds a defined threshold, a case is framed as sufficiently different (new) and therefore problematic. Obviously, after an event has occurred it is very easy to judge the strategic choices of governments or individual companies.

Furthermore, as pointed out in the document "Sbiancare il cigno nero? Strategie e competenze manageriali per riconoscere il nuovo" written by Frigotto M. L. and Narduzzo A. (2015), the difficulty of recognizing unexpected situations refers to different types of limits that directly affect the decision maker. First, the decision maker's expectations are incomplete.

The decision maker acts in conditions of limited rationality concerning: a) limited computational and memory skills, b) the saturation of attention, especially in the presence of sudden and high flows of information, c) the difficulty in managing the priorities, especially in situations where multiple problems have to be managed simultaneously. In other words, the decision makers tend to simplify the interpretation of the world (Turner B.A. and Pidgeon N., 1997), and this leads them to react by activating a standard response.

However in this way, it happens that the anomalies are ignored, they tend to accumulate so that unwanted consequences are taken into account only when they can hardly be contained. Consequently, this thesis will not aim to discredit the predictive capacity of economic agents, but will underline how companies must be prepared for any eventuality. Let us always remember that the question we want to answer is: how can we increase our organizational resilience?

It is clear to everyone that the prediction of a pandemic is somewhat difficult to elaborate, however in this precise case crisis management would not have the primary function of understanding how likely such an event is, its purpose would instead be to develop organizational strategies capable of responding to shocks like this. The paper "A world at risk: Annual report on global preparedness for health emergencies", written by the Global Preparedness Monitoring Board in September 2019 (a few months before the Covid-19 pandemic outbreak), highlighted numerous weaknesses in our globalized economic system.

This study, capable of elaborating scientific and economic knowledge at the same time, stated that today's world is constantly threatened by humanitarian crises, political issues, ecological processes in constant decline, social trends such as the constant increase in population and urbanization and finally the outbreak of numerous global epidemics. "Figure 11", extrapolated from this paper, is very important because it visually shows us the amount of epidemics that have broken out globally in the last decade.

To be precise, between 2011 and 2018 the World Health Organization reported as many as 1,483 epidemic crises in the world, diseases that due to globalization are spreading more and more rapidly and consequently are difficult to manage. As already anticipated, this study conducted by the Global Preparedness Monitoring Board focused on epidemic events, i.e. the manifestations of frequent and localized (but limited in time) infectious diseases that lead to a widespread transmission of the virus. In the case of Covid-19, the situation is even more critical because on 11 March 2020 the World Health Organization found that Coronavirus is a pandemic, that is, an epidemic that has spread to all the continents of the world.

Figure 11 - Global examples of emerging and re-emerging diseases
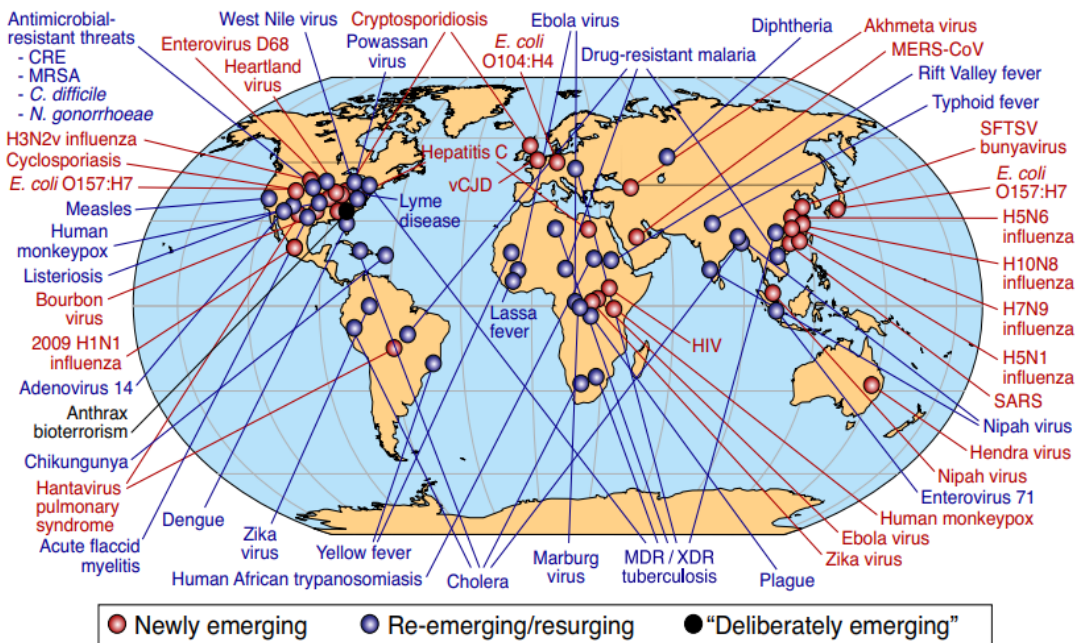
Source: A world at risk, GPMB (2019).

Papers of this type have the aim of increasing the awareness of organizations, this is because we do not know exactly when, but we know with certainty that sooner or later unpredictable shocks of any kind will continue to occur. Having understood the extent of a global pandemic such as Covid-19, in the next few paragraphs we will try to understand how companies can outline their organizational structure to better respond to these external shocks.

I will therefore try to explain how firms can find more agile organizational solutions in their adaptation to the contingencies of the moment. The final goal will be to extrapolate the benefits of both classical mechanical structures and the benefits of the so called organic structures. This also in order to rethink the figure of individual employees, who will increasingly have to be empowered and placed in a working context that knows how to enhance collaboration instead of individualism.

3.2 Finding a balance between organic and mechanical models

As we have seen in the second chapter of this thesis, the Resilience Architecture Framework (R.A.F.) underlines the importance of the environment within which a company is located. The environment is the set of forces that surround an organization and that can affect it directly on the ability to create value. Economic, political, health and social forces determine complexity, and this in turn has repercussions on the specific environment in which the company operates. In this historical period, characterized by a global pandemic shock such as Covid-19, the debate on which is the best organizational structure for companies is fundamental.

It is important to note that the pandemic crisis we are experiencing impacts exactly on the environment in which companies are located. In this regard, the book "Organizzazione aziendale. Mercati, gerarchie e convenzioni" written by Costa G., Gubitta P. and Pittino D. in 2014, highlights that one of the fundamental theories for analyzing the relationship between companies and the environment is the Contingency Theory. By using the term "contingent", we mean something that depends on situations or circumstances. The Contingency Theory proposed by Lawrence and Lorsch (1967) shows how the organizational system in a complex environment is destined to develop specific characteristics to control environmental variety.

Consequently, the effectiveness of the corporate structure does not have to be rigidly defined, on the contrary the internal departments must be created to adapt to the contingent pressures of the environment with which they interact. Hence, this theory underlines the close relationship that exists between environmental turbulence and the formalization of the organizational structure. Briefly, the Contingency Theory explains how organizations develop a series of highly formalized routines and procedures in stable contexts, as opposed to what happens in uncertain environments, in which firms reward flexibility and adaptation. Costa G., Gubitta P. and Pittino D. (2014) argue that valid organizational structures cannot always exist: "it all depends is the contingent response to Taylor's one best way". Furthermore, the reference environment for the organization in some cases is not uniform, because it may happen that there is an environmental diversity even among the individual business units that are part of the organization.

According to this organizational theory, there are two fundamental typologies for categorizing business systems: mechanical structures and organic structures. As for mechanical structures, these are designed to induce individuals to act in a standardized and predictable way. In this structure power is usually centralized and control develops directly along the vertical

hierarchical structure. Therefore, integration and control are guaranteed by the vertical structure and by well-defined roles; as a consequence, much importance is given to "status" and norms.

Organic structures, on the other hand, promote flexibility and mutual adaptation to external conditions, decision-making power is distributed throughout the hierarchy and it is continually modified according to organizational needs. Obviously, this type of organization requires high and complex integration mechanisms, such as teams or task forces, in which responsibilities are continually redefined. In this case, as suggested in the book "L'organizzazione dell'impresa" written by Bartezzaghi E. in 2010, "status" is no longer conferred by the position along the hierarchy, but by the skills and the ability to provide leadership.

Given the influence that the environment has on the internal structure, mechanical and organic structures have very different implications. Lawrence and Lorsch (1967) are the first authors to speak explicitly of the "contingent" approach. Their research covered three organizational units: research and development (R&D), production and finally sales. The sectors taken into consideration are instead that of plastics (characterized by high uncertainty), the food sector (moderately stable) and that of packaging (with the lowest level of uncertainty).

This study highlighted the positive relationship between environmental stability and the formalization of the organizational structure. Where the environment was more unstable, the most efficient organizations were the least formalized, these firms were characterized by a high level of relationships, of mutual adaptation and a complex coordination system. On the other hand, in more certain and stable environments the most efficient companies had a centralized and bureaucratic structure, in which the strong use of hierarchy and standardization were sufficient to guarantee coordination.

The same results were also obtained by the sociologists Burns T. and Stalker G.M., indeed during the '50s they conducted a research on numerous Scottish and English companies operating in various sectors. Their book "The Management of Innovation" (1994) highlighted that in order to deal with environments characterized by instability, companies adopt increasingly flexible organizational forms, placing themselves on a continuum between two models: the first characterized by the mechanical structure of the classical models, while the second qualified as an organic system. Furthermore, it emerges that the mechanical management system is characterized by: a stable environment, specialization of functional tasks, performance control performed by the superior, the authority is assigned by the role within the organization and finally there is a continuous search for operational efficiency.

Instead, organic structures are characterized by: usually unstable environments, horizontal rather than vertical interactions, task management based on experiences, coordination given by a network structure and finally authority linked to skills.

Analyzing these two structures, it is possible to notice how organic systems (although they can be stratified) are not hierarchical like the mechanical ones. Organic roles differ on the basis of skills and expertise. Authority is taken on a contingent basis by those who prove to be more capable and informed. Mainly, the cause of this distinction lies in the importance of speed decision-making in dynamic environments. In stable environments, on the contrary, using a centralized and formalized structure is configured as the most effective method to coordinate and motivate workers, since in situations where uncertainty is lower, there is no need to develop complex decision-making systems and therefore a top-down structure is more satisfactory in terms of performance.

Having understood what the characteristics of these two organizational models are, we can now ask ourselves which organizational structure is most adequate to efficiently overcome unpredictable shocks such as that linked to the Covid-19 pandemic. In this regard, strategic consulting firms believe that adopting a flatter and more organic structure could help companies respond faster to the ongoing crisis.

Quoting McKinsey's indications, elaborated in the paper "Ready, set, go: Reinventing the organization for speed in the post-COVID-19 era" (2020), companies must be able to rethink work routines, reinvent the organizational structure and spur talent as well as leadership skills. To do this, the organizational structure must allow to speed up the exchange of informations, delegate decision making, allow the development of hybrid works and encourage teamwork. All these needs will necessarily lead companies to rediscover a more organic organizational form, this is because mechanical models have characteristics that are incompatible with the search for adaptation and resilience that must emerge in times of crisis.

First of all, the use of a mechanical structure can cause communication problems, in fact an excessive number of hierarchical levels affects and slows down not only communication but also the decision process. This slowdown will therefore lead companies in being unable to react quickly to changes in trends and competitors' strategies. Another communication problem is related to the distortion and manipulation of the information flow. In this regard Costa G., Gubitta P. and Pittino D. (2014) argue that the loss of control in highly stratified organizations occurs precisely because of the "filters" placed by the lower levels of the hierarchy, thus endangering the entire decision-making process and presenting the risk of creating problems of

rivalry between the different functions. However, it should not be forgotten that the use of new communication technologies can alleviate these issues, allowing the general management of each company to transmit and receive a large and accurate amount of information, developing also the level of coordination.

Instead, from the motivation point of view, the book "Organizzazioni Resilienti. Come sopravvivere, prosperare e creare opportunità al tempo della crisi" by Seville E. (2018) underlines the importance of continuously encouraging the workforce, in order to increase the curiosity and exploration of workers towards new business solutions. These words do nothing but direct the new trend along the direction of more organic organizations, capable of developing an "adaptive resilience" characterized by a high capacity for exploration and learning especially in times of crisis.

These characteristics cannot be guaranteed by a rigid and mechanical structure, which due to a highly stratified hierarchy of authority is unable to offer employees flexible solutions to respond to the crisis. In the choice of the organizational structure, the problem of autonomy that is delegated to the individual also emerges, in the more rigid structures there is a tendency to a centralization of skills and authority, it is for this reason that the responsibility of management increases when it does not involve the capabilities of all the employees.

As Burns T. and Stalker G.M. point out in their book "The Management of Innovation" (1966), these two organizational models represent two polarities of a set of possible organizational solutions. In fact, between the mechanical and the organic model it is possible to find intermediate stages that try to mediate the benefits and disadvantages of both these two extreme structures.

To increase organizational resilience one of the secrets is therefore knowing how to adapt the organizational structure in relation to any possible environmental change. In this regard, Seville E. (2018) in her numerous examples of crisis management during unforeseen shoks such as earthquakes, never forgets the numerous benefits that also the centralization of leadership entails in times of crisis. A great strength of the centralized authority is the speed of the decision-making process, in fact a clear and formalized structure can guarantee a unified vision of corporate objectives.

In conclusion, most organizations sway between mechanistic and organic characteristics. However, it would be interesting to understand why in times of crisis the characteristics of bureaucratic and hierarchical systems are often questioned.

Probably the answer lies in the balance that can be reached between the different types of organizational structures and the people who are part of it. Bureaucracy and hierarchy are not negative features, it is the abuse of them that causes the problem; and this is demonstrated by multinationals that manage simultaneously the benefits of a necessarily hierarchical structure but which at the same time guarantees the innovation of the organic model.

To get an overview, "Table 5" offers to the reader a synthetic and schematic view of the main characteristics of organic and mechanical structures.

Table 5 - Organic structure and Mechanical structure

	Organic system	**Mechanical system**
Environment	Unstable	Stable
Business goal	Innovation	Efficiency
Labour organisation	Lack of formalization Mutual adaptation Teamwork	Process standardization Labor Specialization Direct supervision
Decision making	Authority Skills	Formal hierarchy Seniority
Communication	Horizontal relationships	Top-down relationships

Source: Author's elaboration.

3.3 Reinventing the organization for agile solutions

Whatever organizational structure companies are using, the outbreak of a global pandemic shock like that of Covid-19 has resulted in a necessary change in the speed of execution of companies. This acceleration is not only attributable to a mere organizational strategy, rather it was dictated by the market itself. In fact, there are only two alternatives: either the company remains unchanged and passively suffers a surrounding environment in constant evolution, or the firm has to adapt together with the environment, and to do this it must run as fast as an epidemic that spreads day by day in the world also because of the globalization multiplicative effect that we have achieved. From the citizens point of view, the pandemic could have created the perception that time has crystallized, this for several reasons: we are forced to remain closed inside the walls of our house, we cannot meet friends and we are not free to buy products where we want. Instead, within companies this view is symmetrically the opposite. In fact, when the reference environment undergoes a drastic change, the company must necessarily evolve together with it, alternatively the probability of failure increases considerably.

The paper "Develop Agility That Outlasts the Pandemic" published by Harvard Business Review (2020) underlines how in recent years the environment in which organizations operate is becoming increasingly dynamic. Therefore, thanks to technological advancement, companies must not only innovate products or services, but must also readjust organizational models. From a practical point of view, this process consists in using also information technology to develop and support agile methodologies that replace the classic command and control management.

In the article written by De Smet A. et al. (2020) it is underlined how companies have to rethink the use of technology and the use of data for maximizing productivity and above all speeding up decision making skills. Among the Covid-19 business examples of this article we can find: a retailer from the United States who developed a product delivery plan in just two days (compared to the 18 months initially envisaged) or a manufacturing company that managed to increase company productivity by 90% with only half of the available workforce.

All these entrepreneurial activities are driven by speed. Reconsidering the previous paragraph on organizational structures, it is possible to state that there has been a shift towards more organic corporate forms, this is because managers had to remove the company's silos, moving towards new organizational structures capable of delegating decision making and processes. As a consequence, the front line managers should be empowered to solve the problems related to the bureaucratic slowness of the vertical and hierarchical structures.

However, the article "Embracing Agile" by Harvard Business Review (2016) reports that too often top management confuses organizational agility with anarchy, or simply with a faster chain of command. But agility does not correspond to either of these two features. True organizational agility comes from different sources, some of the most important are creativity and teamwork to solve business problems, or even the continuous elimination of waste in terms of time and resources. If interpreted in this way, business agility allows the entrepreneur or top management to dedicate more time to strategic activities with high added value that only they can perform.

These strategic and fundamental activities that only management can organize consist of: prioritizing corporate action plans, assigning the right employees to the various tasks, unifying the corporate vision or increasing collaboration between the various functions of the organization. Certainly agility is not easy to pursue. Indeed in the same article it is recalled that from a research it emerges that 70% of companies that try to improve their agility highlight tensions between team groups and all the other employees of the firm. Probably these tensions arise because the teams and the remaining employees operate at different speeds, or have divergent goals. Also for this reason it is essential to have leaders capable of managing cross-functional relationships and mitigating the emergence of potential conflicts.

Therefore, in improving agile organizational solutions, a company should also seek to develop a new generation of skilled managers. These managers must be able to demolish the old organizational silos, to create multidisciplinary teams capable of self-monitoring. However, too often the managerial lines see organizational agility as a dangerous transition to be faced, and this happens because if they are not properly trained they cannot understand the importance of this approach. Very often, therefore, it can happen that numerous initiatives aimed at increasing business agility are launched without deciding which projects have absolute priority; in doing so, the best and most creative workers are dispersed on too many fronts of action. Hence, even the best starting intentions can lead to the erosion of the benefits linked to agility.

McKinsey (2020) also stresses the importance of keeping these paradigm changes permanent, in fact the structural evolution brought by this pandemic crisis is also based on the employee engagement and motivation; overcoming the crisis and then returning back to the old models would not only endanger the company's continuity but it would also nullify the spread of responsibility at the organizational level.

Obviously, to make the company truly resilient, it is necessary to ensure that the agility concept does not remain purely theoretical. As anticipated, from an organizational point of view agility

can be declined with different strategies: speeding up decision making (also thanks to a greater delegation of power), flattening the hierarchical structure (making it more dynamic), using more teamwork and developing hybrid roles.

Also, the speeding up of decision making can be achieved with less business meetings characterized by a smaller number of people involved in making critical decisions. However, this reasoning does not preclude the accountability of all the employees, in fact while key decisions are made by a limited number of people, daily or routine operational choices can be more delegated along the command chain. Organizational choices of this type will help top management to focus on the main challenges caused by the current crisis (such as the Covid-19 pandemic), while empowering employees in those choices that are not critical for the company's survival.

The paper "Ready, set, go: Reinventing the organization for speed in the post-COVID-19 era" published by McKinsey (2020) underlines that precisely because the company is experiencing a period of crisis for managers it would be counterproductive to totally centralize power. Consequently, the employees and the teams who are on the frontline and in contact with customers can make their contribution for business innovation and for the efficiency of the operational phase. This model of widespread responsibility will also increase the loyalty attachment of the organizational base. In the same paper it is also underlined that in building a reactive response to the crisis a fundamental role is played by corporate partnerships.

Indeed, as crises, destructive events and shocks are becoming more and more numerous in this globalized world, it is impossible for the single company to predict and face any scenario. It would therefore seem that the adoption of more organic organizational forms is also linked to the concept of open innovation, thanks to which the firm can combine the individual contributions of the partners to build efficient models and processes in response to an unexpected shock.

Therefore, to become more resilient the organizational structure should be less linked to the "boxes and lines" of the classic models, building an agile company means partially abandoning the benefits of bureaucracy, consequently moving towars a more flat structure with fewer middle managers but at the same time with a higher number of performers and decision makers.

This greater agility, which should characterize resilient companies of the present and the future, is not just a theoretical concept. In fact, Accenture in its paper "COVID-19: Busting the myths of agile transformation" (2020) underlines that from their study it emerged that in the long term

the EBITDA of companies classified as agile is equal to 16%, while companies classified as non-agile stop at 6% per annum. Therefore, in this paragraph we have understood the importance of introducing procedures and organizational models defined as "agile" (and consequently "fast"), in order to allow the company to respond more effectively to unexpected events of any kind.

However, building a corporate organizational system defined as "agile" does not imply abandoning the models of the past. Rather, SMEs and entrepreneurs must try to reinvent the organizational structures that have been used up to now to better face the challenges of the present and then reshape them also according to the possibilities that technology offers to us. The next paragraph will therefore be dedicated to understanding how an organizational structure can make agility and stability coexist, also by exploiting the possibilities offered by teamwork and smartworking to maximize the internal capabilities, lightening the decision-making of the individual entrepreneur and guarantee the business operation even during social distancing.

3.4 Basic challenges of organizational design after Covid-19

3.4.1 Agility does not preclude stability

In this paragraph I will try to debunk a false trade-off, in fact when we talk about business organization terms like "agility" and "stability" these words are often interpreted as two incompatible opposites. This is a false myth, in fact from the organizational point of view it is possible to reconcile the speed with the stability of the classic models, thus making the organization more agile.

Often, when we think about business systems, we tend to think by compartments. In fact, in order to achieve high levels of efficiency, large companies have to sacrifice the speed of the decision-making process; instead the small businesses (which are very skilled in making quick decisions) when they reach larger dimensions they are forced to tend towards more mechanical processes. However, the paper "Agility: It rhymes with stability" written by Aghina W. et al. in 2015, highlights how companies that are defined as agile are able to combine both dynamic characteristics such as adaptability, and characteristics more related to the concept of stability such as efficiency.

This balance of factors can be achieved by building the business organization around stable elements and more adaptive elements. In fact, to manage career plans and distribute decision making, the company will necessarily have to rely on a stable and well-defined organizational chart. However, as a corollary to this stable bureaucratic structure it will be necessary to introduce adaptive elements to allow the company to fit well with the surrounding environment and better overcome the challenges of the market.

These arguments are not pure theoretical speculations, in fact a research conducted in 2015 by McKinsey has observed that companies that are able to combine agility and stability are 70% more likely to be placed in the strongest quartile of their sector from the financial point of view. A very quick and intuitive method to make entrepreneurs reflect on their level of business agility can be identified in "Figure 12". In fact, this worksheet developed by McKinsey allows the company to assign a score to each quadrant of the graph. The quadrants arise from two main axes that measure respectively the solidity of the organizational structure and the dynamic capabilities.

It is intuitive to understand that the optimal quadrant towards which to strive is that of agility, in fact in this quadrant the company can be considered as resilient from an organizational point of view because it is able to integrate the adaptive capabilities of an organic company with the

organizational stability of a more bureaucratic company. So the entrepreneur, to understand where his company is located, will have to tick in the worksheet all the characteristics that he considers present in his company, the quadrant that will obtain the highest score will be the one that best describes the company organizational structure.

Figure 12 - Agility worksheet

Source: Agility, it rhymes with stability, McKinsey (2015).

Once the bureaucratic structure has been defined it can remain unchanged for a medium-long period of time such as five or ten years, this in order to better assimilate the internal company processes. The company's ability therefore lies in modeling dynamic capabilities in the short term to better address the needs of the moment.

The paper "Balancing Search and Stability: Interdependencies Among Elements of Organizational Design" written by Rivkin J.W. and Siggelkow N. in 2003, starts from the assumption that vertical structures with a centralized system of power are the most common, and this is especially true for the Italian economy, made up mainly of small and medium-sized companies (defined as SMEs).

Thus, the challenge for this type of company should be to continue to stabilize the vertical flow of decision-making power (often centralized in the hands of a CEO representing corporate ownership). However, this classic decision-making process should be supported by greater employee capabilities development. In fact, as emerges from the papers on the SMEs resilience in chapter one, especially during times of crisis (the pandemic we are experiencing is an example of this) the figure of the entrepreneur is often overloaded with decision-making power. Therefore very often the entrepreneur by centralizing the decision-making power, finds himself managing the daily routine operations without dedicating sufficient time to the development of medium-long term strategic planning.

So, like McKinsey, also Rivkin J.W. and Siggelkow N. (2003) come to the conclusion that to make the company truly agile, Top Management must be supported by an organizational structures that permits to intermediate managers and employees to take on responsibilities in routine operational processes, with the ultimate goal of delegating to the CEO only the coordination of the information flow and the development of the main corporate decisions.

In the next paragraph we will therefore try to understand how a company can seek agility by choosing to maintain a "primary" bureaucratic structure around which to build not only the careers of the employees, but also to develop the strengths of the SMEs themselves, such as teamwork, coaching and collaboration. We will therefore see how a fundamental resource from this point of view is teamwork, this organizational tool is not only fundamental to cross and develop the capabilities of all employees to face moments of uncertainty, but it also allows to make the organizational structure more flexible. This is because teams can cross-cut the hierarchy at different levels and they can be both momentary or stable.

3.4.2 IT empowers teamwork and distributed leadership

Especially in a pandemic period like the one we are experiencing, companies have significantly increased the use of technology in their internal processes. In fact, during the lockdown phases a high percentage of workers increased the use of services related to IT (Information Technology). Communication platforms such as "Zoom" or "Microsoft Teams" have allowed effective communication even in a time of general crisis characterized by social distancing. Therefore, in the digital age the employee and the production site do not necessarily have to be present in the same space. In fact, the transmission of data in real time, as well as the machinery that instantly responds to inputs sent remotely, allow to break down space-time barriers.

More generally, as underlined in the book "Organizational Theory, Design, and Change" written by Gareth R. Jones in 2013, from the '90s onwards there has been an incremental trend in the use of technology in companies. This phenomenon has allowed management to develop cost-effective organizational structures capable of manage and control the information flow of the workforce.

To take full advantage of the opportunities offered by digital transformation, companies must ask themselves whether the internal organization and its employees are really ready to face this challenge. Companies that want to enter the digital age must rethink the way they carry out and organize their work. Technologies can improve the way in which workers coordinate with each other and collaborate. Among these innovations we can find for example social networking systems, file sharing and real-time videoconferencing.

Historically, the dominant practice in the company organization indicates a preference for a top-down approach, but in a symmetrically opposite way we find digital processes, which tend to involve the majority of the workers employed in the entire workflow. The intelligent use of digital technologies in fact makes it possible to share information with a wider audience of individuals who from mere executors become decision makers, and who are therefore empowered to make better and faster decisions. We are entering into a new paradigm of work. The flow of information becomes continuous and immediate, allowing to dramatically shorten the action time of the company.

Thanks to the use of the most modern technologies, which include company software platforms and the use of smart working, companies are able to coordinate and monitor the work not only at the level of individual company function, but also to evaluate information at a cross-functional level. Therefore, the implementation of these technologies allows to standardize and

codify company knowledge, making it accessible and understandable for all company functions, also, it allows to align all the workers towards common company objectives. This increase in opportunities offered by technology allows all roles along the corporate hierarchy to perform their jobs at their best, especially because it is possible for the individual employee to intercept the performance updates of all company divisions.

In this regard, it is possible to state that Information Technology is able to support the primary bureaucratic structure of the company, also developing what is called "Informal Organization". The company must therefore be able to manage both the formal organization chart (capable of allocating resources and personnel to specific objectives), and the set of informal relationships that arise naturally from social interaction. This balance aims to achieve different goals, the main organization chart serves to ensure a proper management of the careers and to formally recognize the chain of power; on the other hand, the management of informal relations serves to facilitate and make daily work more fluid, in fact, by means of greater collaboration and exchange of information between employees, company performance is strengthened.

Given these considerations, Gareth R. Jones (2013) states that the use of technology in business processes has favored a decentralization of power and a greater use of teamwork. Precisely with regard to the formation of teams, the article "Embracing Agile" published by Harvard Business Review (2016) underlines that in general an efficient team is made up of three to nine people, the majority of whom must work full time in the group. This size fits well with the staffing resources of SMEs.

An important factor is that the team must be characterized by the widest range of capabilities within it, which is why it is always important to emphasize that individual members must belong to heterogeneous business functions. Since the working group is responsible for the added value brought to end customers or to the company, it must be made responsible for its work, and for this reason it must enjoy high decision-making autonomy (that leads to an increase of the teams' motivation).

Within each team, the company must identify a leader capable of interacting with all the main internal and external stakeholders, he must therefore regularly update the function managers and top management on the progress of the current project. Precisely because decision-making autonomy is a fundamental factor, the main task of the team leader is not to give orders to the individual members of the group, but rather he must indicate the road map to follow with the relative deadlines. Therefore, it will be up to the individual team members to break down the macro objectives into small modules to be completed daily or weekly.

Decomposing team work into objectives that can be reached in the short term is a determining factor, this because the time that a team dedicates to a project can be divided into two variables: the time actually dedicated to the project and the waiting time for feedback from others business branches. The waiting time can be very high, in fact very often the team will necessarily have to wait for the conclusion of other operational processes developed outside the team or other factors that are difficult to predict in advance.

Indeed, a paper by Harvard Business Review (2020) estimated that business teams can lose up to 80% of their time in waiting for updates from other business functions, due to this factor the team risks to dedicate only the 20% of the available time to the advancement of the project. Therefore, to maximize teamwork the company should try to minimize waiting times, and this can be achieved by trying to introduce lean management into teams in order to break down long-term objectives into smaller batches characterized by rapid feedbacks.

For example, the flow efficiency of the single team can be obtained by breaking down annual goals into quarterly objectives. Finally, it is important to underline that this approach is highly scalable, this is because the company can also think of creating "teams of teams" that work on related projects. These notions are interesting especially for small and medium-sized businesses. In fact, especially in times of crisis, it is essential to lighten the pressure of the entrepreneur as regards the operation of daily work, to concentrate his intellectual effort on the medium-long term strategic management of the company.

Arrived at this point of reflection a question arises spontaneously, is it possible to implement teamwork in a pandemic period characterized by a possible lockdown? The answer is yes, and also in this case the solution comes from a technological and digital organizational support, namely smart working.

Agile work (or smart working) is a modality of execution of the subordinate employment relationship characterized by the absence of time or spatial constraints and also by an organization by phases or objectives, established by agreement between employee and employer. This modality helps the worker to reconcile the time of life with the working time and it favors the growth of his productivity (Italian Ministry of Labor and Social Policies, 2017).

On this issue, Accenture (2014) wanted to report the words spoken by Twitter CEO J. Dorsey, who in 2013 stated: "I don't have an office. I don't have a desk. I have my space in my head, I have my space in my house". This expression is the perfect synthesis of what smart working means, that is a set of unconventional and innovative organizational models. Models that are

enabled by digital technologies capable of guaranteeing greater flexibility and autonomy in the choice of spaces, working hours and technology, all tools that should be used in the face of a growing individual responsibility. Digital innovation is in fact affirming a new way of working. Most workers today do not work handling physical objects, instead they manage information that can be processed in any place and at undefined times. For this reason we are moving towards a culture of work that is increasingly oriented towards results and less towards physical presence.

Obviously, the use of highly digitized working procedures such as smart working is not practicable for all company functions. The paper "What's next for remote work: An analysis of 2,000 tasks, 800 jobs, and nine countries" written by McKinsey Global Institute in 2020 highlighted which work activities can be easily completed even remotely. "Figure 13" has been extrapolated from a survey of this paper and shows how the activities that can be easily carried out in smart working consist, for example, in the processing of corporate data and information, in activities related to creative thinking or in the phase of communication with colleagues or customers. As it is easy to understand, the activities that are very difficult to carry out remotely according to McKinsey are those related to the physical production of the products, the management of the warehouse or the maintenance of machinery.

Figure 13 - Easily to implement activities for smart working
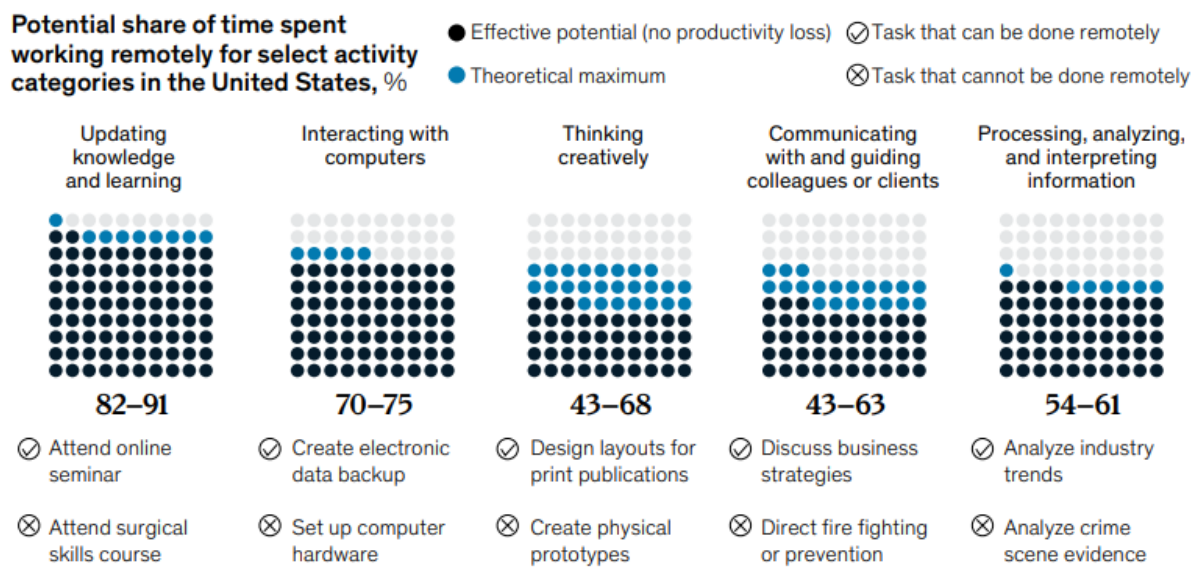
Source: What's next for remote work, McKinsey Global Institute (2020).

Certainly implementing smart working correctly as a technological support to the organizational structure does not consist only in choosing which types of work can be carried out from home and which not. As Alam M. (2020) states, management will have to pay close attention to defining very precisely the work activities carried out remotely, also developing adequate supervision systems.

In fact, social detachment (as in the case of a lock-down) could create confusion between both employees and managerial lines; therefore the company must establish clear rules on how individual activities are performed and how to balance the amount of work among employees who work remotely. All these possible shortcomings can be effectively overcome through preparation and training, in fact, as we have seen in chapter two of this thesis, preparation for any future shocks is the key that allows both management and employees to familiarize themselves with all the operational tools and technologies that they have at their disposal.

Given these premises, Foss N.J. (2020) in his paper "The Impact of the Covid-19 Pandemic on Firms' Organizational Designs" states that due to this pandemic the preferences of workers will change, and consequently the proportion between employees who work in the company and those who prefer to operate from home will not return to the prepandemic levels. This author also points out that smart working will not negatively affect teamwork, but will simply change its design, i.e. companies will have to decrease the number of people belonging to each operational team because coordinating large teams remotely could be difficult. It is also underlined that due to the greater delegation of power, the careers of individual workers will be more focused on the individual goals achieved and therefore on the performance of the worker; so management must reward the autonomy of the individual worker and his ability to create value for the company.

These consequences linked to the use of Information Technology will lead to more flat organizational structures, because the decentralization of authority involves a partial elimination of middle-managers, especially when the team becomes an independent entity capable of self-monitoring in order to minimize free-riding between the members of the group. This means that all employees in the hierarchical structure are empowered and therefore left free to make important decisions in their daily work, obviously in this way workers also become more responsible for their outcomes.

Furthermore, as we saw in chapter one of this master thesis, the resilience of SMEs is based to a large extent on the collaborative capacity of employees. From this point of view, it is essential that the internal capabilities of the company are constantly enriched by all company functions,

therefore the cross-functional teams become an essential formal structure of collaboration between employees who have different capabilities.

In conclusion, I believe that today those in the company who are responsible for organizational management must ask themselves some fundamental questions: will in the near future organizational design be able to perform in an optimal way without the application of the new technologies? Is this just an option or is it an inevitable direction? If, as I believe, the evolution towards more digitized corporate structures is an unstoppable process, then it becomes central for the success of companies (and for their survival) to have a clear strategy to accompany people and organizational structures in this challenge, anticipating as much as possible future needs in terms of skills, behaviors, technological tools and new leadership concepts.

After these reflections we have understood how to increase the organizational resilience of companies it is of vital importance to think of more agile models, that is, models capable of integrating a bureaucratic organizational design with informal structures (such as cross-functional teams) this to increase the level of company's distributed leadership. The entrepreneur must therefore try to balance the mechanical structure with the organic one. The mechanical part is used to formally define the roles of all the employees, while the organic characteristics are essential to allow the company to successfully deal with corporate contingencies.

CHAPTER 4: HIREF S.p.A. CASE STUDY

4.1 Introduction

In this concluding chapter I will present the analysis of a case study. Therefore, the initial part of this chapter will be dedicated to understanding why I have selected Hiref S.p.A. for my analysis. The reader will then be provided with a brief presentation of this company, to understand in which sector it operates and which its strengths are. Moving forward, I will explain the method I have used for the analysis of this case study, that is a semi-structured interview in order to guide the company's feedback towards the organizational consequences linked to the advent of the Covid-19 pandemic. The final part of the chapter will instead be dedicated to the evidence that emerged after the interview, my reflections will refer to the management of the pandemic crisis, to the processes of corporate digitalization, to the teamwork ability and finally to the pandemic consequences on the organizational design of Hiref S.p.A.

4.2 Company selection

I decided to include the analysis of a case study in this master's thesis because I consider it a fundamental tool to support the literature that I have mentioned in the course of this paper. Since the ultimate goal of this thesis is to investigate the organizational consequences related to the Covid-19 crisis, I decided to select and interview Hiref S.p.A. because I got in touch with this company during my master's studies.

In fact, during the "Organization development and behavior" course, a collaboration was activated between the students and the company, in a project related to the internalization process of the company in the Russian market.

Furthermore, Hiref S.p.A. operates in a highly technological market segment and therefore allows me to evaluate the corporate organizational consequences also with regard to the digitalization process. In the same way another determining factor in the choice of this company is its strong ability to collaborate with the stakeholders of its reference territory (such as the University of Padova), as we have seen in the second chapter this factor is of vital importance in the management of a crisis, and therefore in the increase of the corporate resilience capacity.

4.3 Hiref S.p.A. general information

Hiref S.p.A., a Galletti Group's company, was founded in 2001 and has its headquarter in Tribano (in the province of Padova, Italy). This company, led by the managing director Mauro Mantovan, is an international leader in the production of cooling system units for technological environments (such as Data Centers). It is a highly innovative brand characterized by a high customization of the products.

Therefore, the company's success is not only due to the mechanical design and production of the technological units, but it is also the direct consequence of a highly dynamic internal research and development center specialized in software development. In addition, the customized offer of products includes also assistance in the design and in the efficiency of industrial plants. Furthermore, the company's know-how not only aims at the production of technologically advanced goods, but also at reducing their environmental footprint.

Analyzing some financial parameters on the AIDA database, it emerges that Hiref S.p.A. is a very solid company. As regards the trend in revenues from sales, it should be noted that in the last decade the company has maintained a constant growth in revenues. Indeed, revenues went from 17.4 million euros (2010) to 34 million euros (2019). We can find the same growing trend in the EBITDA profitability indicator, which went from 1 million euros (2010) to 1.9 million euros (2019).

The consolidation of the business also resulted in an increase of the workforce, indeed from 2010 to 2019 the number of employees went from 95 to 160. In "Table 6" it is possible to observe some fundamental parameters (source: AIDA database) that emerge from the financial statements published by Hiref S.p.A. in the last five years (from 2015 to 2019).

Table 6 - Hiref S.p.A financial parameters.

	2019	**2018**	**2017**	**2016**	**2015**
Revenues (€)	34.022.297	34.160.865	31.433.101	28.995.286	27.803.201
EBITDA (€)	1.878.071	1.870.161	1.854.304	1.710.930	1.488.066
Net Income (€)	809.705	630.753	353.759	630.848	385.442
Net Assets (€)	3.977.194	3.317.490	2.686.735	2.818.302	2.187.453
ROI	9,21	8,93	8,60	11,56	8,50

Source: Author's elaboration.

4.4 Methodology: Semi-structured interview

To collect the necessary company information in order to understand the organizational consequences related to the Covid-19 pandemic crisis, we conducted a semi-structured interview with a manager of Hiref S.p.A.

The interview focused on four main issues: the crisis management linked to the Covid-19 pandemic, the process of digitalization and smart working, the ability to work in teams and finally the firm's organizational consequences related to the pandemic.

Below it is possible to find the specific questions that have been proposed during the interview:

a) *Crisis management:*
- During the pandemic, did the company have to suspend its operations due to the lock-down?
- Has the company developed emergency plans over time? If so, were these plans effective in tackling the pandemic?
- Over the years, has the company invested in employee training? If so, in which areas? Will this training investment be changed in the light of the Covid-19 pandemic?

b) *Digitalization and smart working:*
- During the pandemic, was the level of corporate digitalization adequate to face the crisis? (Consider: technological instrumentation, management systems, etc).
- Will the company increase its level of digitalization given the consequences of the pandemic?
- Have some company functions activated smart working during the Covid-19 crisis?
- Once the pandemic is over, will the company offer (or will continue to offer) the possibility of working from home?

c) *Teamwork:*

- Is teamwork an established business practice? If so, in which corporate functions is it more used?
- How are the teams composed? Employees that are included in a team can also belong to different company functions? Which are the teamwork prospects for the post-pandemic?

d) *Covid-19 organizational consequences:*

- How the current decision-making process is organized taking into account the company's organizational chart? Did the pandemic imply a change in the functioning of the corporate chain of command?
- In order to face the pandemic, did the Top Management speed up the decision-making process? If so, in which way?
- Are organizational agility and adaptability important qualities in dealing with the pandemic? If so, how have they been implemented from an operational point of view?
- During the pandemic, were employees empowered in daily routine procedures? If so, will this happen also at the end of the pandemic?
- Does the company plan to change its organizational structure in order to face the Covid-19 crisis?
- During the pandemic, has the company decreased (or it plans to decrease) the number of intermediate managers?

4.5 Results: Evidence from the interview

The interview with Alessandro Zerbetto, Marketing Manager of Hiref S.p.A., opened with some reflections on the crisis management related to the Covid-19 pandemic. Regarding the lock-down period in early 2020, it is important to underline that the company's ATECO code has been recognized by the Italian government as a strategic activity, which is why the business was only interrupted for a week. In fact, since Hiref S.p.A. deals with the conditioning of server rooms, it would have been impossible to suspend an activity like this which guarantees the functioning of national strategic activities such as smart working or distance learning. Thanks to this increase in demand for digital services, in 2020 the company's sales grew by about 22% with respect to 2019.

This means that Hiref S.p.A. was able to optimally recognize the opportunities of the market, however the interview shows that over time no business continuity plans have been developed by the management to face and plan any future crises. However, the manager interviewed justified the lack of business continuity plans by pointing out that Hiref S.p.A. in its particular production chain is very distant from the end user of digital services. So, in essence, the company has a lot of available time to reorganize itself when the needs of the end user change. Furthermore, it is important to underline that with regard to the crisis preparation phase, the company pays close attention to the current trends at a global level. The trend of environmental sustainability is one of these, and it is also emphasized in the quality of the goods produced by the company.

On the other hand, a tool that the company considers essential for managing crises is certainly a high investment in the training of its employees. In this context, the main objective of the firm is to increase professional skills and capabilities. Masters in business management and training courses in public speaking and team building were therefore offered both to the Top Management and to the employees, this in order to increase the level of transversal skills at individual or team level. Also, certifications and licenses are a widely used method to enrich skills at any hierarchical level.

As regards the level of digitalization to face the challenges of the pandemic, the company has shown itself ready, both from the point of view of technological instrumentation and management systems. Indeed the only initial problem during the lock-down phase consisted in the remote access of employees to company servers (which for security reasons were been programmed for an on-site use only).

However, this issue was quickly resolved by the company technicians and it is also for this reason that today the company is able to work efficiently even remotely. Even if the level of corporate digitalization is adequate for the moment, the company plans to invest in technological processes also in the future because it considers them a decisive strategic factor.

It is important to underline that the organizational structure of Hiref S.p.A. is not highly centralized (thanks to the high level of workers' independence) and its level of organizational bureaucracy defines it as an agile company. These organizational characteristics allowed the workers to focus more on the outputs and therefore on the added value of each individual company project. This organizational structure was decisive especially in the smart working phase because top management has dedicated less attention to the working hours of the employees (also because it was difficult to count) and this led to a greater emphasis on the quality of projects to be completed.

Therefore, the interview did not reveal a lack of efficiency with regard to working from home, however the lack of personal relationships between colleagues was highlighted, in fact it has been observed a limitation that affects informal interactions in work routines. With regard to this issue, the manager Alessandro Zerbetto stated:

> *"Working from home was not an inconvenience, however what is missing is the social and relational aspect between colleagues, this in order to exchange some business opinions in an informal way. Drinking a coffee together with colleagues can lead to a fruitful contamination of ideas".*

As for the possible use of smart working also in the future, the company at the moment seems reluctant to continue in this way, in fact the manager interviewed underlined that currently the firm would be more inclined to expand the facilities to ensure greater social distancing in offices. However in the future, to find a balance between on-site and remote work, the company is also considering to offer its employees 2 days of smart working per week.

Talking about teamwork, it is a very consolidated practice of the company and it is used within all company functions. Furthermore, the teams are very frequently composed of personnel from different functions, this to integrate as much as possible the capabilities that allow the team to complete the projects. This integration between employees is also related to the fact that customized projects are worth as much as 85% of all sales, and this evidence obviously requires constant collaboration between all company departments.

It is important to underline that also from the analysis of the reference literature it emerges that teamwork is an indispensable resource especially for small and medium-sized enterprises, because in this way the firm can enrich the exchange of capabilities between employees. As for the size, Hiref S.p.A. teams range from a minimum of 2 people to a maximum of about 15 people. Furthermore, talking about social distancing, in 2020 the company has divided the workers into two groups, team A and team B, who alternated each other between smart working and physical presence in the factory (without coming into contact to avoid any kind of contagion). Obviously this has led to a slowdown in the exchange of information and in the effectiveness of the informal organizational structure.

It is for this reason that the managing director Mauro Mantovan has decided to establish an integration mechanism (called by the company "stand-up meeting") which consists in bringing together the whole working group in the middle of the factory to encourage every proposals that can be made by the employees, this in order to facilitate the exchange of essential information. Other informal integration mechanisms to strengthen the spirit of collaboration and the sense of belonging to a group were: the creation of an "anonymous message box" (this in order to collect as much feedbacks as possible from the workers) or some recreational activities within teams (such as mountain hiking).

From an organizational point of view Hiref S.p.A. is characterized by a rather flat organizational chart, indeed there is only one hierarchical level under the CEO Mauro Mantovan. This level of the hierarchy is occupied by the Top Management, composed by the managers of the various company functions, who monitor the activities of the operational employees (divided between "clerks" and "production workers"). Only in some business areas, such as the production function, the company has multiple hierarchical levels. This feature is considered essential because it helps in speeding up decision-making processes and encourages the contamination of business ideas, this because all employees are able to communicate efficiently along the chain of command. Furthermore, this kind of organizational structure helps the company to quickly intercept the needs of the market, because a low corporate bureaucracy also involves lean and very frequent company reports. Therefore, Hiref S.p.A. can be considered an "agile" company, and this characteristic was recognized as fundamental by the interviewed manager.

Due to these organizational characteristics which guarantee a good balance between the bureaucracy and the corporate flexibility, Hiref S.p.A. does not currently consider it appropriate to reduce the number of intermediate managers. Employees have always been accustomed in

exchanging opinions and feedbacks on business processes, however the pandemic has considerably increased the degree of independence in daily decisions of both workers and top management precisely because the moments of contact and discussion have drastically decreased.

Historically, the company has given a lot of decision-making autonomy to all its employees also to bring out the added value that each person can give to the business project, so staff evaluation is based mainly on the quality of the output and not on the quantity of hours worked.

With regard to the ability of Hiref S.p.A. employees to make decisions autonomously, the manager Alessandro Zerbetto stated:

> *"The decision-making autonomy of individuals and the ability to interact with colleagues are two company prerogatives. This in order to obtain a high level of satisfaction both between employees and managers".*

The agility of the organizational structure is a very important quality for Hiref S.p.A., not only because it has allowed to face the crisis but also because it allows to highlight the process inefficiencies, and therefore the agility of the company offers the possibility of further organizational improvements. The analysis of this case study was very relevant because it allowed me to identify from a practical point of view many characteristics that make a business resilient. In fact, as regards the crisis preparation phase, Hiref S.p.A. has shown that it has heavily invested in employee training and capabilities, without forgetting the analysis of the major global trends underway; all these elements emerged in the reference literature of chapter two. Furthermore, from an organizational point of view Hiref S.p.A. has proven to be an "agile" company, capable of exploiting the benefits related to teamwork, distributed leadership and digitalization of operational processes.

To conclude, the pandemic crisis linked to Covid-19 did not involve a revolution in the organizational structure of Hiref S.p.A., but it has allowed the company to reflect more on issues that had been put aside before the pandemic. In this regard, the company has begun to develop new internationalization strategies or to review the firm's strategic objectives with the awareness that external shocks can change the concept of short, medium and long term; precisely because within a few months it is possible that an entire market could undergo major changes. For this reasons in 2021 the company will heavily invest in the implementation of a new managerial software and in the search for new professionals related to the development of digital strategies, this in order to achieve greater brand visibility worldwide.

CONCLUSIONS

The aim of this master's thesis was to investigate the importance of the business resilience concept, with a particular focus on its organizational consequences, a theme that has proven to be very relevant within the health and economic crisis linked to the global Covid-19 pandemic. For this reason I have dedicated chapter one of this paper not only to offer the reader a summary of the major publications on managerial resilience, but thanks to the use of the Web Of Science database I have traced the amount of papers worldwide from 2014 to 2020. This allowed me to update the results previously obtained by Linnenluecke M. (2017) and to observe an exponentially growing trend in the business resilience literary production since the late 1970s.

Moving forward, this thesis underlined the importance of crisis preparedness thanks to which it is possible to increase the level of corporate resilience. The firm preparation in front of the crisis must not just take into account the environment in which the company fits, but it has to develop also a leadership capable of managing external shocks. It is for this reason that managers should try to analyze periods of crisis as a process and not as a single event, this in order to recognize which were the shock's incubation events. Hence, as soon as the crisis process is understood, it is easier to move from a reactive to a proactive resilience approach. Managerial tools such as the Scenario-Based Training, the development of an effective crisis management and a fruitful collaboration with the company stakeholders become indispensable means to face economic shocks.

Obviously, the design of the company's organizational structure becomes the pivot around which to build resilience. It is for this reason that companies should oscillate between the bureaucracy of mechanical systems and the flexibility of organic systems in order to obtain an organizational structure defined as "agile". This greater agility can be declined through various organizational solutions. What emerges from the reference literature and from the analysis of the case study carried out on the company Hiref S.p.A. is that the indispensable organizational pillars which are required in an organization are: teamwork, delegation of power and finally digitalization.

In times of crisis, these organizational resources are essential especially in SMEs, which have a limited set of financial and human resources. Teamwork will help the company to cross the capabilities deriving from the various business functions, this in order to increase the quality of the final output. Instead, the delegation of power will increase the degree of employees'

empowerment in daily tasks, in order to concentrate the resources of the Top Management on medium and long-term strategic objectives.

The digitalization of processes has become an essential prerogative especially in a pandemic period like the one we are experiencing, it is for this reason that companies should invest heavily in Information Technology systems, not only to offer employees the opportunity to operate in smart working but also to ensure a constant flow of information during social distancing. Obviously, if employees are empowered and the team becomes an independent entity (capable of self-monitoring in order to minimize free-riding), this phenomenon should involve a partial elimination of intermediate managers with a consequent flattening of the organizational chart.

It is also important to underline the possible limitations of this thesis. Indeed, some research studies cited in this paper have been developed during the pandemic, so it would be very interesting to investigate these issues also in ordert to understand how the concept of organizational resilience can change once the pandemic crisis is over. Furthermore, what emerges from the case study carried out on the Hiref S.p.A. company cannot be generalized. This because every business and every economic sector has experienced the pandemic crisis in different ways. This difference between sectors can be determined not only by the reference market, but also whether they are strategic sectors or not (which affects the ability to operate during the lock-down phase). It is for this reason that future research could investigate for example the organizational management of a large number of companies all belonging to the same sector, this in order to develop a useful comparison.

Concluding, my final wish is that the readers of this thesis can extrapolate some useful reflections on the organizational design that will characterize this crisis period. I therefore hope to offer entrepreneurs and SMEs some useful tools to reorganize their internal structure with the aim of adequately addressing the dark period we are experiencing.

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